

Kyoto Implementation in Switzerland

Implementation of Reduction Commitments Under the Kyoto Protocol in Switzerland

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Summary: *Having ratified the Kyoto Protocol, Switzerland has taken on a commitment to reduce its greenhouse gas emissions by eight per cent on base year levels. This article provides a brief overview of the climate-related measures in individual policy areas. The authors then describe the content and effects of the Swiss CO₂ Law, as well as the introduction of a CO₂ tax and the 'Climate Cent'. They conclude with an overview of the highly complex economic and legal practical implementation of the reduction commitments of the Kyoto Protocol in Switzerland.*

I. Important Aspects in the Interests of Climate Protection

Overview of National Climate Policy

On 9 July 2003, Switzerland ratified the Kyoto Protocol. Under the Protocol, Switzerland took on a commitment to reduce its greenhouse gas emissions by eight per cent on base year levels. In Switzerland, the implementation of these reduction commitments shall be the responsibility of different policy areas. These will include environment, energy and transport policy, though the sectors of forestry management and agricultural policy will also have important contributions to make. The core of Swiss climate protection efforts is the CO₂ Law,¹ which under Article 2, Paragraph 1 of the CO₂ Law requires a 10% reduction in energy-related CO₂ emissions by the year 2010 compared to 1990 levels. The action programme *EnergieSchweiz* (SwissEnergy) provides the framework for the implementation of the Energy Law,² as well as for the voluntary measures stipulated in the CO₂ Law and the Energy Law.³

To enable it to achieve the emissions target set, Switzerland will be using a combination of instruments made up of self-regulating, police-enforced and market-based mechanisms.

A brief overview of the climate-related measures in the individual policy areas is given below; where the content and effects of the CO₂ Law, as well as the

introduction of a CO₂ tax and the 'Climate Cent' will be discussed.

The CO₂ Law

Introduction

The CO₂ Law sets out the national implementation of commitments assumed by Switzerland at international level. It is designed to reduce CO₂ emissions resulting from the use of fossil fuels for energy generation. In Switzerland, CO₂ emissions make up approximately 80% of all greenhouse gas emissions, accounting for 0.2% of CO₂ emissions worldwide.⁴

The CO₂ Law relies primarily on voluntary measures by industry and the private sector and serves as a testing ground for future environment policy. Its aim is to integrate economic and eco-political concerns. Consequently, the maxims of personal responsibility for those concerned, cooperation between authorities; and industry and financial incentives take precedence over bans and dictates.⁵

The Fundamental Objective of the CO₂ Law

Article 2 of the CO₂ Law stipulates the reduction target as the actual core area. According to this Law, CO₂ emissions resulting from the use of fossil fuels for energy generation are to be reduced by 10%⁶ overall by the year 2010 compared to the 1990 level. Compliance with this target will be determined by the average emissions from 2008 to 2012. Compliance with the reduction target will be determined by the quantity of fuels sold in Switzerland. However, under Article 2, Paragraph 7 of the CO₂ Law, the Federal Council may also take account of reductions in emissions achieved in other countries.

When calculating emissions for this purpose, aviation fuel for international flights shall not be taken into account, since this sector can be controlled only by means of a CO₂ tax through international agreements.

¹ Bundesgesetz vom 8. Oktober 1999 über die Reduktion der CO₂-Emissionen (CO₂-Gesetz) [Federal Law on the reduction of CO₂ emissions of 8 October 1999 (CO₂ Law)] (SR 641.71).

² Energiegesetz vom 26. Juni 1998 (EnG) [Energy Law of 26 June 1998 (Energy Law)] (SR 730.0).

³ Botschaft über das Protokoll von Kyoto zum Rahmenübereinkommen der Vereinten Nationen über Klimaänderungen [Communication on the Kyoto Protocol on the United Nations Framework Convention on Climate Change] (BBl 2002 6385), p. 6403 (quoted Communication on KP).

⁴ Jürg Bally, "Das CO₂-Gesetz: Instrument der Zusammenarbeit und Selbstregulierung" ["The CO₂ Law: Instrument of Cooperation and Selfregulation"], (2000) *Umwelt in der Praxis (URP)*, 501, p. 505, hereinafter Bally, "CO₂ Law".

⁵ Bally, "CO₂ Law", p. 503.

⁶ Or -15 per cent for combustible fuels and -8 per cent for motor fuels.

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As a rule, all measures are guided by the emissions reduction target of the CO₂ Law. Reduction targets should be achieved with a combination of different instruments, including climatic-impacting measures in other policy areas, such as the Swiss Heavy Vehicles Toll (LSVA), the Energy Law and the Swiss Energy action programme, for example. Other instruments for meeting the reduction target include voluntary measures for industry and the private sector, as well as the flexible mechanisms stipulated in the Kyoto Protocol.⁷ Should these measures prove over time to be insufficient to meet the reduction target, an incentive tax will have to be levied on fossil combustible and motor fuels in accordance with Article 3, Paragraph 2 of the CO₂ Law. In that respect, the Law comprises a two-phase model. An attempt should first be made to meet the specified reduction target through voluntary and other measures as per Article 3, Paragraph 1 of the CO₂ Law.⁸ Then, in a second phase, an incentive tax should be levied on CO₂ emissions. This step, however, should not be taken until it is clear that the measures introduced in the first phase are not having any or sufficient effect. Therefore, a possible CO₂ tax is only provided for in addition to voluntary and other measures.

In order to determine the necessity of introducing a CO₂ tax, the Federal Council shall regularly evaluate the effects of implemented and planned measures in accordance with Article 5 of the CO₂ Law. CO₂ statistics shall form the basis for this evaluation.

CO₂ Tax

The CO₂ tax is an incentive tax, and is regarded as one of the market-based instruments under environmental law. The tax is intended, through financial incentives, to encourage the liable parties to behave in a particular way. A decline in demand should be achieved as a result of a price increase, whether through more sparing consumption, changed investment activities, or by switching to an equivalent alternative product.⁹ The basic principles for a possible CO₂ tax have already been set out in Article 6 *et seq.* of the CO₂ Law. In accordance with Article 7, Paragraph 1 of the CO₂ Law; CO₂ emissions resulting from the use of fossil fuels for energy generation shall be subject to the tax. The exact tax rate shall be determined by whether or not the tax proves to have the desired effect as an incentive.

The Federal Council has laid down the rules for the implementation of the CO₂ tax in the ordinances on taking reductions in emissions achieved in other countries into account (the CO₂ Deduction Ordinance)¹⁰ and on the CO₂ tax (CO₂ Ordinance).¹¹ The CO₂ Ordinance lays down the object and rate of tax, and determines the levying, exemption and redistribution of tax. The CO₂ Deduction Ordinance specifies quality requirements and proof of measures in other countries, and the extent to which measures in other countries will be taken into account.¹²

The use of the tax revenue is stipulated in Article 10 of the CO₂ Law and Article 25 *et seq.* of the CO₂ Ordinance. These stipulate that the tax revenue should be divided between the general population and the business community in proportion to their original payments. Since CO₂ tax is not a conventional tax but an incentive tax, revenue shall be redistributed to the general population (per capita via the health insurance funds) and to employers (in proportions to old-age and survivors' insurance payments). In this way, individuals and companies that use fossil combustible fuels sparingly will be rewarded.

As a rule, CO₂ tax has essentially two effects. On the one hand, it should have an effect on demand for motor and combustible fuels. On the other hand, a decline in tank tourism is to be expected.¹³ Both effects will influence sales in Switzerland which, according to the CO₂ Law, is the determining measure.¹⁴ The extent of the effect on sales will depend on how high the CO₂ tax is. When setting the tax, prices in the neighbouring countries should be taken into account, in accordance with Article 6, Paragraph 2, clause c of the CO₂ Law.

The CO₂ Law as an Instrument for Self-Regulation

In accordance with Article 3, Paragraph 1 of the CO₂ Law, the reduction targets are to be achieved in the first instance through policy on energy, transport, environmental and financial policies and measures, and well as by voluntary measures; such that the latter are of great importance for that purpose. The targets stipulated in the CO₂ Law are to be achieved by means of voluntary measures where possible. Great importance will be attached to the initiatives of the business community and private companies in this respect. Companies must be prepared to subject themselves to self-regulation, even at the risk that no tax is introduced, and competitors who take no measures will profit from this.

⁷ Cf., below.

⁸ Bally, "CO₂ Law", p. 506.

⁹ *Ibidem*, p. 505.

¹⁰ Verordnung vom 22. Juni 2005 über die Anrechnung der im Ausland erzielten Emissionsverminderungen (CO₂-Anrechnungsverordnung) [Ordinance of 22 June on taking reductions in emissions achieved in other countries into account (CO₂ Ordinance)] (SR 641.711.1).

¹¹ Verordnung vom 8. Juni 2007 über die CO₂-Abgabe [Ordinance of 8 June on CO₂ tax] (SR 641.712).

¹² See below.

¹³ For the influence of a CO₂ tax on tank tourism see: Mario Keller and René Zbinden for the BUWAL (Bundesamt für Umwelt, Wald und Landschaft), *CO₂-Abgabe | Klimarappen bei Treibstoffen, Schlussbericht* [SAEFL (Swiss Agency for the Environment, Forests and Landscape), *CO₂ Tax | Climate Cent on Motor Fuels, Final Report*] (Bern, INFRAS, 2003), p. 26, hereinafter SAEFL, *CO₂ Tax | Climate Cent.*

¹⁴ SAEFL, *CO₂ Tax | Climate Cent.*, p. 23.

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In the directive of 2 July 2007 on voluntary measures to reduce energy consumption and CO₂ emissions in the areas of trade, industry and services; the requirements for target agreements have been revised.¹⁵ In addition, the implementation directives of the Swiss Federal Office for the Environment (FOEN) and the Swiss Federal Office for Energy (SFOE) of 2 July 2007¹⁶ specify the requirements for voluntary target agreements, together with requirements for the proposal on limiting emissions with respect to tax exemption in accordance with the CO₂ Ordinance. It also governs the transfer of those target agreements recognized as commitments into decrees on tax exemption.

The opportunities for action arising from the target agreement and the commitment are made available to the companies. The target agreement is aimed at all who want to make a voluntary contribution to limiting energy consumption and CO₂ emissions, and therefore prevent the introduction of a CO₂ tax. The target agreement is a written declaration on the economical and efficient use of energy under Article 17, Paragraph 1, Points e and g of the Energy Law.¹⁷ It may comprise voluntary measures in accordance with Articles 3 and 4 of the CO₂ Law on limiting CO₂. The legal bases for the target agreement are to be found primarily in the Energy Law and in the Energy Ordinance (EnV).¹⁸

The commitment requirements are more stringent, since they are associated with an entitlement to exemption from the possible CO₂ tax. The business community and private companies must submit a formal declaration of commitment to the authorities for tax exemption (*cf.* Article 4 *et seq.* of the CO₂ Ordinance). In accordance with Article 9 of the CO₂ Law, large companies, groups of consumers and energy-intensive companies will be granted exemption from the CO₂ tax if they make a formal commitment to the Federal Government to limit their CO₂ emissions.

Energy consumption and CO₂ emissions are closely linked. It is for this reason that the voluntary stage is to be implemented in cooperation with the Federal Office for Energy under the umbrella of the SwissEnergy action programme launched on 30 January for the promotion of energy efficiency and renewable energy sources. At the forefront are voluntary measures in the areas of industry, construction and transport. It was for this purpose that on 2 July 2001 the Federal Government signed a service contract with the Energy Agency for the Economy (EAEC) and the Swiss Agency for Renewable Energies (AEE).¹⁹

Within the scope of its service contract with the SwissEnergy programme, the EAEC fulfils its mandate of promoting energy efficiency in industry; negotiating target agreements with companies, as well as ensuring the monitoring of energy consumption and CO₂ emissions.²⁰

CO₂ Tax – Stage of Implementation

CO₂ perspectives²¹ show that efforts made by the business community on a voluntary basis and further measures implemented are not sufficient to meet reduction targets. The Swiss Federal Office for the Environment (FOEN)²² calculates that, without further measures, it will be possible to achieve a reduction of only 3.2% in CO₂ emissions by 2010

¹⁵ BUWAL and BFE (Bundesamt für Energie), *Richtlinie über freiwillige Massnahmen zur Reduktion von Energieverbrauch und CO₂-Emissionen (Bereich Industrie, Gewerbe, Dienstleistungen)* [SAEFL and SFOE (Swiss Federal Office for Energy), *Directive Regarding Voluntary Measures to Reduce Energy Consumption and CO₂ Emissions (In the Areas of Trade, Industry and Services)*] (Bern, 2 July 2001 and updated 2 July 2007), hereinafter SAEFL/SFOE, *Directive*.

¹⁶ BAFU (Bundesamt für Umwelt) and BFE, *Vollzugsweisung: Verpflichtungen und Zielvereinbarungen. Weisung des BAFU und des BFE an die Energie-Agentur der Wirtschaft (EnAW) zu Handen der dort angeschlossenen Unternehmen über die Erarbeitung von Vorschlägen zur Emissionsbegrenzung und zur Reduktion des Energieverbrauchs* [FOEN (Swiss Federal Office for the Environment) and SFOE, *Implementation Directive: Commitments and Target Agreements. Directive of the FOEN and SFOE for the Energy Agency for the Economy (EAEC) for the Attention of Affiliated Companies Regarding the Drafting of Proposals on Limiting Emissions and Reducing Energy Consumption*] (Bern, 2 July 2007), hereinafter FOEN/SFOE, *Implementation Directive*.

¹⁷ SAEFL/SFOE, *Directive*, point 6.

¹⁸ Energieverordnung vom 7. Dezember 1998 [Energy Ordinance of 7 December 1998] (SR 730.01).

¹⁹ Communication on the KP, p. 6404.

²⁰ BFE, *Medienmitteilung: Unterzeichnung der ersten CO₂-Zielvereinbarung mit der Energie-Agentur für Wirtschaft*, 23. April 2004 [SFOE, *Press Release: Signing of the First CO₂ Target Agreement with the Energy Agency for the Economy*], available at <http://www.bfe.admin.ch/energie/00588/00589/00644/index.html?lang=de&msg-id=7291> (last visited on 20 September 2007).

²¹ BUWAL, *Vierter Bericht der Schweiz zuhanden der UNO-Klimakonvention – Erster Bericht der Schweiz zuhanden des Protokolls von Kyoto – Kurzfassung* [SAEFL, *Switzerland's Fourth National Communication Under the UNFCCC – First National Communication Under the Kyoto Protocol to the UNFCCC – Summary*], available at http://www.bafu.admin.ch/publikationen/index.html?action=show_publ&lang=de&id_thema=16&series=DIV&nr_publ=5512 (last visited on 20 September 2007), hereinafter SAEFL, *Switzerland's Fourth National Communication*.

²² BUWAL/SAEFL was the Federal Government's specialist environmental protection body until the end of 2005. When BUWAL/SAEFL was merged with large parts of the BWG (Bundesamt für Wasser und Geologie)/FOWG (Federal Office for Water and Geology) on 1 January 2006, the BAFU/FOEN was formed. Today the Federal Government's specialist environmental protection body is the BAFU/FOEN.

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compared to 1990 levels.²³ The target shortfall remains particularly large in motor and combustible fuels. That is why, on 23 March 2005, the Federal Council decided to levy a CO₂ tax of 35 Swiss francs per tonne of CO₂ on combustible fuels (oil, gas, coal). Under Article 7, Paragraph 4 of the CO₂ Law, the rates of tax are subject to approval by the Federal Assembly. In the case of motor fuels, the private-sector Climate Cent will be given a chance until 2007.²⁴ Its effect during the target period 2008–2012 will be examined until then. Should it emerge that it cannot achieve the necessary effects, there are plans to introduce a CO₂ tax on motor fuels, too.

On 20 March 2007, the Federal Assembly agreed to introduce a CO₂ tax on combustible fuels. The proposal it has drafted envisages the three-stage introduction of a CO₂ tax on combustible fuels in the event that reduction targets set for CO₂ emissions are not met.²⁵ This parliamentary resolution constitutes an advance approval. The tax is approved provided the Federal Council introduces it in accordance with this mechanism. At its meeting of 8 June 2007, the Federal Council endorsed the decision of the Parliament. The associated CO₂ Ordinance came into force on 1 July 2007. It lays down the object and rate of tax, and determines the levying, exemption and redistribution of the tax.

Under Article 3, Paragraph 1, clauses a–c of the CO₂ Ordinance, the following rates of tax must be introduced: CHF 12 per tonne of CO₂ (three cents per litre of fuel oil) as of 2008 if emissions in 2006 have fallen by less than six per cent compared to 1990 levels; CHF 24 per tonne of CO₂ (six cents per litre of fuel oil) as of 2009 if emissions in 2007 have fallen by less than 10% compared to 1990 levels; CHF 35 per tonne of CO₂ (nine cents per litre of fuel oil) as of 2010 if emissions in 2008 have fallen by less than 13.5% compared to 1990 levels, or have fallen by less than 14.25% in any of the following years.

The CO₂ statistics published by the FOEN on 28 June 2007 show that in 2006, CO₂ emissions from combustible fuels fell by 4.6% compared to 1990 levels; therefore missing the target for reduction in emissions as per Article 3, Paragraph 1, Clause a by at least six per cent. As a result, as of January 2008, a CO₂ tax on fossil combustible fuels (fuel oil and gas) of CHF 12 per tonne of CO₂ emissions will be introduced.²⁶

With the introduction of the tax in 2008, revenues of approximately CHF 220 million are to be expected in the first year, and up to CHF 650 million by 2010.²⁷

Companies that have already signed target agreements will be exempted from the CO₂ tax provided they fulfil their obligations. All other companies must pay the tax. It has proved difficult to work out the effect of the tax on a medium-sized company because the situation varies a great deal according to the branch of industry and company.

With the redistribution of tax revenues, the CO₂ tax

on fossil combustible fuels – such as fuel oil or gas depending on the type of heating, quality of building insulation, number of people in the household and area to be heated – will either have a positive or negative impact on the budget of a household.

Climate Cent

In the autumn of 2002, the SwissOil association²⁸ proposed the introduction of a 'Climate Cent' instead of the overdue CO₂ tax. It should fill the predicted gap between the CO₂ reduction achieved through voluntary efforts, and the reduction target laid down in the CO₂ Law. A voluntary tax of 1.5 cents per litre will be levied on petrol and diesel oil. The voluntary aspect, though, applies to wholesale as a group and not to private entities that have no choice in the matter.²⁹ The tax revenue will go to a foundation charged with making up any remaining target shortfalls in the of motor fuel sector. The Climate Cent Foundation was founded as a voluntary measure by the business community for the purposes of the CO₂ Law, with the aim of avoiding the introduction of a CO₂ tax on motor fuels. The Foundation commenced operations on 1 October 2005. The Climate Cent Foundation invests in projects to reduce greenhouse gases in Switzerland and in other countries. Reductions in emissions are calculated in accordance with nationally and internationally recognized principles, and may be taken into account when calculating Switzerland's compliance with its reduction target.

The Foundation has committed itself to cutting 1 million tonnes' worth of CO₂ emissions in Switzerland

²³ BUWAL, *Treibhausgasemissionen nach Kyoto-Protokoll – Emissionsperspektiven 2010*, 26. Mai 2005, p. 2 [SAEFL, *Greenhouse Gas Emissions Under the Kyoto Protocol – Emissions Prospects 2010*], available at <http://www.news-service.admin.ch/NSBSubscriber/message/attachments/356.pdf> (last visited on 20 September 2007).

²⁴ See point 1.3 below.

²⁵ Bundesbeschluss über die Genehmigung des CO₂-Abgabebesatzes für Brennstoffe vom 20. März 2007 [Federal Resolution Regarding the Approval of CO₂ Tax Rate for Combustible Fuels of 20 March 2007] (BBl 2007 3377).

²⁶ FOEN, *Press Release: CO₂ Levy on Heating Fuels to be Introduced as of January 2008*, 28 June 2007, available at <http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=en&msg-id=13369> (last visited on 20 September 2007).

²⁷ BAFU, *Medienmitteilung: Die CO₂-Abgabe könnte bereits 2008 in Kraft treten*, 20. März 2007 [FOEN, *Press Release: The CO₂ Tax Could Come Into Force As Early As 2008*], available at <http://www.bafu.admin.ch/klima/03449/03771/index.html?lang=de> (last visited on 20 September 2007).

²⁸ The SwissOil association, as the association of the Swiss crude oil industry, supports the protection and promotion of its members' interests. The 29 members currently active carry out 95 per cent of Swiss imports of crude oil and mineral oil products.

²⁹ SAEFL, *CO₂ Tax / Climate Cent*, p. 5.

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by supporting appropriate projects and measures. It provides CHF 480 million for this purpose; which corresponds to around two thirds of its total revenue. The Foundation expects by these means to be able to bring about reductions in CO₂ emissions of 3.7 million tonnes in total between 2008 and 2012. By as early as 1 December 2006, the Foundation was able to contractually ensure reductions in CO₂ emissions amounting to 0.34 million tonnes of CO₂ by implementing the various investment schemes designed by it.³⁰

In 2006, the Foundation launched a whole host of projects designed to reduce CO₂ emissions in Switzerland, including in particular:³¹ a building scheme which promotes insulation of façades, roofs, walls and cement floors, as well as the replacing of windows; project financing schemes (auction scheme, intermediary scheme, programme for large-scale projects); projects in the areas of motor fuels, the use of renewable energy sources, improvements in efficiency, as well as waste heat utilization.

Furthermore, the Foundation sells reductions in CO₂ emissions from companies in the area of motor fuels and combustible fuels through voluntary target agreements concluded with the Federal Government under the direction of the EAEC; mostly with a view to later exemption from the CO₂ tax. It is likely that the cement industry – which has its own target agreement with the Federal Government (independent of the EAEC) – will also sell reductions in CO₂ emissions to the Foundation that are surplus to the requirements of the target agreement. Under the target agreements scheme, the Foundation provides funds in the region of CHF 117 million for the purchase of reductions in CO₂ emissions. In all likelihood, these funds will be able to compensate for reductions in CO₂ emissions in the region of a good 1.3 million tonnes.

The main objective of the Foundation's activities in other countries is to purchase 10 million tonnes of Kyoto certificates from Clean Development Mechanism (CDM) and Joint Implementation (JI) projects, for which the Foundation provides some CHF 209 million – a sum which corresponds to 29 per cent of its total revenue.³²

Since all certificates come from climate protection projects which are implemented in accordance with the provisions of the Kyoto Protocol of the UN Climate Convention (UNFCCC), credit for them is secured by the Federal Government. The Foundation focuses on projects for the use of renewable energy sources, to cut methane gas, and on small projects of high-quality.

By means of public invitation to tender, the Foundation invited tenders from various certificate suppliers on the international market; and signed contracts with the Asia Pacific Carbon Fund (APCF), the brokers CO₂e and South Pole/Climate Focus, the trader Ecoscurities, as well as directly with a number of project owners.

In some cases, owners of projects have approached the Foundation directly to offer it certificates for sale.

By 1 December 2006, the Foundation was able to sign contracts for four projects, which are expected to achieve a total reduction of 0.9 million tonnes of CO₂.³³

Energy Policy

The Energy Law is based heavily on voluntary measures by industry. On 17 January 2001, the Federal Council passed the strategy paper 'SwissEnergy' which contains an outline of the starting position, targets and focus measures of Swiss energy policy for the next decade.³⁴ The aim of the SwissEnergy scheme is to reduce the use of fossil fuels for energy generation by 10 per cent between 2000 and 2010, while not allowing electricity consumption in this period to increase by more than five per cent. Furthermore, there should be no drop in hydroelectric power generation; and the proportion of other renewable energy sources should continue to rise – to be precise by one percentage point for electricity generation and three percentage points for heat generation.³⁵ These targets are to be met primarily through voluntary measures.³⁶

Transport Policy

Overview

Although, compared with the rest of the world, rail plays an important role in the transport of both passengers and goods across the Alps; the proportion of road traffic continues to rise compared with rail transport of passengers and goods.³⁷

Through its energy consumption, Switzerland pollutes the atmosphere with approximately 52 million tonnes of CO₂ equivalents every year. Transport is the main contributor to the greenhouse effect in Switzerland, and is responsible for around 30% of total

³⁰ Stiftung Klimarappen, *Definitiver Businessplan (Entwurf)*, 11 January 2007, p. 1 [Climate Cent Foundation, *Definitive Business Plan (Draft)*], available at <http://www.klimarappen.ch> (last visited on 20 September 2007), hereinafter Climate Cent Foundation, *Definitive Business Plan*.

³¹ Climate Cent Foundation, *Definitive Business Plan*, p. 2.

³² *Ibidem*, p. 3.

³³ *Ibidem*, p. 3.

³⁴ SAEFL/SFOE, *Directive*, point 2.

³⁵ EnAW, *Energiopolitik in der Schweiz* [EAEC, *Energy Policy in Switzerland*], available at <http://www.enaw.ch/webexplorer.cfm?id=55&tlid=1> (last visited on 20 September 2007).

³⁶ See above.

³⁷ Bundesamt für Statistik, *Das Panorama zu "Verkehr"*, Februar 2007, p. 2 [Swiss Federal Statistical Office, *The Panorama on "Transport"*], available at <http://www.bfs.admin.ch/bfs/portal/de/index/themen/11/01/pan.Content-Par.0002.DownloadFile.tmp/Panorama%2011.pdf> (last visited on 20 September 2007).

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emissions.³⁸ Despite improvements to transport efficiency through technical development, the constantly growing volume of traffic is leading to an increase in the CO₂ output. Swiss transport policy is based on the principle of sustainability. That means that the transport infrastructure is to be set up in such a way that necessary mobility can be handled by economically sustainable and efficient means, aiming for the best possible economic viability. To this end, based on cost transparency and the application of the principle that the polluter pays; individual transport operators must bear both their operational costs and the external costs which they themselves generate in the form of damage to health and the environment in the long term.³⁹

Transport policy makes a significant contribution to the reduction of CO₂ emissions. Noteworthy aspects include the performance-related Heavy Vehicle Fee (HVF), the Article on the Protection of the Swiss Alps (BV), the shift of freight traffic from road to rail, the new rail link through the Alps (NRLA), Swiss Rail 2000, the incentive tax on petrol containing sulphur and diesel oil levied on import, as well as the promotion of walking and cycling.⁴⁰

The Distance-Related Heavy Vehicle Fee

The HVF is a causal tax intended as an incentive. Its aim, among other things, is to reduce deadheading of vehicles, as well as to promote the shift of freight from road to rail. The aim of the Federal Heavy Vehicle Fee Law⁴¹ (HVFL) is twofold. On the one hand, it aims to cover costs, while on the other hand to offer an incentive. Under Article 1, Paragraph 1 of the HVFL, heavy vehicles should cover the transport costs and costs to the public attributable to them in the long term by means of the heavy vehicles fee; where they are not already paying for the same in the form of other services or taxes. This Law stipulates that not only road costs but – in accordance with the constitutional duty – the external costs should also be charged.⁴² The external costs of heavy vehicles include in particular the costs of accidents costs, as well as costs to health and the environment; notably the costs arising from air and noise pollution.⁴³ The aim of the HVFL is therefore to charge for the cost to the environment in terms of the ecological tax reform. A financial incentive system for sustainable conduct is to be created through the market economy.

The HVFL was introduced on 1 January 2001 at a tax rate of 1.68 cents per tonne-kilometre on average. At the same time, the flat-rate HGV charge was abolished, and the weight limit for HGVs was raised from 28 tonnes to 34 tonnes. On 1 January 2005, the fee was increased to 2.44 cents per tonne-kilometre.

The HVFL applies to HGVs weighing over 3.5 tonnes in total. The tax is levied per kilometre travelled in Switzerland, regardless of whether a commercial vehicle is fully or partly loaded or totally empty.

One third of the proceeds of the tax will go to the cantons, and two thirds will go to the Federal Government. The cantons will use their share to compensate for the uncovered costs of road traffic borne by them. The Federal Government's portion will be used primarily to finance the Swiss Rail 2000 project, the new rail link through the Alps (NRLA), connection to the high-speed European network, as well as noise reduction measures on the railways.

The most major outcome after the first five years is a clear break in the trend towards increasing mileages in road freight. Following continuous growth prior to the introduction of the tax, this road freight reduced significantly in the first two years after its enforcement. At the end of 2005, mileage was still 6.5% lower than in the year 2000. Other important effects were a noticeable move to replace vehicle fleets, and a definite concentration of road freight business.⁴⁴

Agriculture

Agriculture is responsible for around 12% of greenhouse gas emissions in Switzerland. The main sources are livestock farming (CH₄) and the use of fertilizers (N₂O).⁴⁵

The implementation of the Swiss 'Agricultural Policy 2002' is of central importance. This leads to greener production practices and contributes to a fall in emissions from agriculture. Policies include, in particular, integrated production and the promotion of organic farming. Within the framework of agricultural policy, the government's aim is for a competitive agricultural industry. Consequently, the purchase

³⁸ SAEFL, *Switzerland's Fourth National Communication*, p. 7.

³⁹ UVEK (Department für Umwelt, Verkehr, Energie und Kommunikation), *Die Mobilität nachhaltig gestalten und sinnvoll koordinieren* [DETEC (Department of the Environment, Transport, Energy and Communications), *Organize Mobility Sustainably and Coordinate it Sensibly*], available at <http://www.uvek.admin.ch/themen/verkehr/01229/01232/index.html?lang=de> (last visited on 20 September 2007).

⁴⁰ Communication on KP, p. 6404.

⁴¹ Bundesgesetz vom 19. Dezember 1997 über eine leistungsabhängige Schwerverkehrsabgabe [Federal Law of 19 December 1997 Regarding a Distance-Related Heavy Vehicle Fee] (SR 641.81).

⁴² Heinz Keller, Felix Richner, Conrad Stockar and Klaus Vallender (eds), *Sweizerisches Steuer-Lexicon, Band 2: Bundessteuern* [Swiss Tax Lexicon, Volume 2: Federal Taxes] (Zürich 1999), p. 324.

⁴³ Botschaft und Gesetzesentwurf vom 11. September 1996 zu einem Bundesgesetz über die leistungsabhängige Schwerverkehrsabgabe [Communication and Draft Law of 11 September 1996 on a Federal Law Regarding a Distance-Related Heavy Vehicle Fee] (BBI 1996 V 521).

⁴⁴ Federal Office for Spatial Development, *Heavy Vehicle Fee (HVF)*, available at <http://www.are.admin.ch/themen/verkehr/00250/00461/index.html?lang=en> (last visited on 20 September 2007).

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guarantees in place up to that point will be eliminated; which will tend to lead to a reduction in the cattle population and therefore to lower methane emissions.⁴⁶

Forestry

Overview

The Swiss National Forestry Programme is a political action plan for the Federal Government. Its aim is to devise and coordinate government action in the area of forestry by the year 2015.⁴⁷ The National Forestry Programme has analysed current and future problems and has come up with 12 targets as a result. Due to the principle of subsidiarity and the scarcity of funds, the Federal Government is concentrating on five priority targets.⁴⁸ The increase in demand for timber and timber products are the main points to be mentioned at this juncture, as far as the subject of meeting the reduction targets of the Kyoto Protocol is concerned. In fact, one of the five priority targets consists of reinforcing the timber value chain. The aim is to increase the demand for timber and timber products by means of financial incentives, and thus achieve a better CO₂ balance. The use of the renewable resource timber improves Switzerland's CO₂ balance because it means that carbon is stored in wood harvested for construction; and provides a substitute for fossil fuels and non-renewable materials. In the context of the partial review of the Forestry Law, there are plans for new timber promotion programmes, incentives for self-help (boosting of self-help funds) and the expansion of forest investment loans to include log processing equipment.

Compared to other European countries, Switzerland has one of the largest timber stocks, because for decades less timber has been used than has grown.⁴⁹ The main reasons which can be put forward for this are the relatively low competitiveness of forestry and the timber industry, together with insufficient demand – particularly for Swiss timber.⁵⁰ The Federal Government is now obliged to create more favourable conditions for economic activities, to and support the modernization of the industry by means of appropriate limited incentives.⁵¹

The Offsetting of CO₂ Reductions in Switzerland

Should Switzerland wish to offset carbon sinks⁵² against its reduction commitments under the Kyoto Protocol, it will have to decide before 2008 how it wants to do so. In accordance with the decision of the climate conference of July 2001 in Bonn, Switzerland may offset a maximum of 1.83 million tonnes of CO₂ from forest management.⁵³ This corresponds to around 3 per cent of emissions in 1990.

The Federal Council wants to keep carbon sinks as a reserve in case of an unfavourable development in emissions. Swiss forestry policy is not directly geared to the promotion of sink forests. It is designed rather

to promote environmentally-friendly energy sources and timber as a building material. Sink forests are therefore to be considered only as a supplement, perhaps in the event of unprofitable use. Timber replaces fossil fuels as a source of energy; as an alternative building material, timber reduces CO₂ emissions which would otherwise result from the manufacture of products from metal or concrete for instance. Using one cubic metre of timber for energy generation avoids the emission of 0.6 tonnes of CO₂ from fossil fuels. As a building material, the same quantity of timber has the potential to avoid one tonne of CO₂.⁵⁴

Conclusions

Not only environmental policy, energy policy and transport policy; but also the areas of forestry and agricultural policy have important contributions to make in achieving the reduction target. This also includes, in particular, voluntary measures as per the CO₂ Law.

Overall, though, it is fair to conclude that the requirements of the CO₂ Law cannot be met by these measures alone. Compared to 1990 levels, emissions from combustible fuels were down 4.6% in 2006, but emissions from motor fuels were up 9.1%.⁵⁵ At that level, emissions from motor fuels are nowhere near

⁴⁵ SAEFL, *Switzerland's Fourth National Communication*, p. 7.

⁴⁶ Hans Burger, "Agrarpolitik 2002" ["Agricultural Policy 2002"], (2000) *Die Volkswirtschaft-Magazin für Wirtschaftspolitik* 1, 9–13, p. 9–10.

⁴⁷ BUWAL, "Waldprogramm Schweiz – Handlungsprogramm 2004–2015 (WAP-CH)" [SAEFL, "Swiss National Forestry Programme – Action Plan 2004–2015 (WAP-CH)"] (2004) *Schriftenreihe Umwelt* 363, p. 9, hereinafter SAEFL, *WAP-CH*.

⁴⁸ SAEFL, *WAP-CH*, p. 9.

⁴⁹ *Ibidem*, p. 34.

⁵⁰ *Ibidem*, p. 34.

⁵¹ *Ibidem*, p. 34, on the specific measures taken by the Federal Government to promote demand, see *ibidem*, p. 46 *et seq.*

⁵² Carbon sinks is understood to mean the trapping of CO₂ as carbon in the planet's biomass by plant growth. This can lead to a reduction of the concentration of CO₂ in the atmosphere. Forests, agricultural land and oceans in particular have this type of absorption effect on CO₂.

⁵³ Communication on KP, p. 6409.

⁵⁴ Andreas Fischlin, Bernard Buchter, Luzi Matile, Peter Hofer, Ruedi Taverna for the BAFU, "CO₂-Senken und -Quellen in der Waldwirtschaft – Anrechnung im Rahmen des Kyoto-Protokolls" [FOEN, "Sinks and Sources of CO₂ in Forestry – Offsetting Under the Kyoto Protocol"], (2006) *Umwelt-Wissen* 0602.

⁵⁵ BAFU, *CO₂-Statistik vom 21. Juni 2007* [FOEN, *CO₂ Statistics of 21 June 2007*], available at <http://www.news-service.admin.ch/NSBSubscriber/message/attachments/8937.pdf> (last visited on 20 September 2007).

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their target value; and must be reduced by eight per cent. An increase in private transport is the main cause for this increase in consumption of motor fuels.

There is no doubt that huge efforts are being made on a voluntary basis in order to achieve a reduction of CO₂ emissions in Switzerland. By the end of 2006, 80 groups of companies with over 1000 sites had been audited, or were in the process of an audit. Together with Cemsuisse, these create around 3.8 million tonnes of CO₂ – or just under 40% of all CO₂ emissions attributable to the business community.⁵⁶ Corporate self-regulation, however, requires that parts of the company be organized around meeting the target on climate protection. This concept of self-regulation is particularly unworkable in the area of mobility, because the appeal is being made to the population as a whole. In that area, on the one hand, the necessary organization is lacking and, on the other hand, it is not in the personal interests of the individual to reduce emissions, because in this area an individual's actions will not bring him any advantages over the individual who does nothing.⁵⁷

In order to achieve the reduction target as per the CO₂ Law and therefore – by extension – the target of the Kyoto Protocol, additional measures are needed. If the wish is not only to make up the target shortfall but also promote climate protection in the long term, the highest possible CO₂ tax must be introduced. Since the external costs will be internalized at least in part by a CO₂ tax, the promotion and encouragement of energy and resource efficiency is to be expected. Such incentive taxes are more efficient than promotional measures with no financial incentives. Emissions will be reduced in the area of technical possibilities where it can be done most cost-effectively. Polluters will receive long-term incentives to improve and replace conventional technologies. In addition, under the Kyoto Protocol, further reduction commitments are to be expected. A CO₂ tax is also useful for this purpose.

Unlike the CO₂ tax, the Climate Cent avoids the internalization of external costs. The concept of the Climate Cent is heavily geared towards cost-efficiency. It is therefore to be assumed that the Climate Cent will cost the national economy considerably less than a CO₂ tax.⁵⁸ The aim of the concept is not to provide industry with an incentive for environmentally sustainable conduct, but merely to reduce the target shortfall. A further disadvantage of the Climate Cent is to be found in the fact that without the CO₂ tax, the brakes will be applied to voluntary measures. Action was after all taken 'on a voluntary basis' in order to secure exemption from the CO₂ tax at a later date.

III. Use of the Kyoto Mechanisms in Switzerland

Overview of the Implementation of Flexible Mechanisms in Switzerland

The so-called flexible mechanisms of the Kyoto Protocol⁵⁹ offer the opportunity to have reductions achieved in projects abroad and credits from the international emissions trading scheme credited. These therefore offer Switzerland the opportunity, in addition to measures to reduce CO₂ emissions domestically, also to meet its reduction commitments under the Kyoto Protocol through measures abroad, and through international emissions trading.

The legal basis for the application of flexible mechanisms in Switzerland is stipulated in Article 2, Paragraph 7 of the CO₂ Law. As a rule, all reductions in emissions abroad which have been financed by natural or legal persons domiciled in Switzerland; or purchased through the emissions trading scheme may be taken into account. Article 2, Paragraph 7 of the CO₂ Law gives the Federal Council full authority over the form of the flexible mechanisms. The Federal Council has laid down the framework conditions for the offsetting of reduction measures abroad in the CO₂ Deduction Ordinance. The CO₂ Deduction Ordinance governs the use of flexible mechanisms in Switzerland. It specifies quality requirements and proof of measures in other countries; and the extent to which measures in other countries will be taken into account (supplementarity principle). Under Article 5 of the CO₂ Deduction Ordinance, companies that have made a commitment to the Federal Government to limit emissions under Article 9 of the CO₂ Law can meet a maximum of eight per cent of their reduction target (CO₂ freight target) using reductions in emissions achieved abroad.⁶⁰

According to the communication on the Kyoto Protocol, flexible mechanisms should be used mainly by private participants in Switzerland.⁶¹ In principle,

⁵⁶ SFOE, *CO₂ Target Agreements*, available at <http://www.bfe.admin.ch/energie/00572/00573/index.html?lang=en> (last visited on 20 September 2007).

⁵⁷ Ursula Brunner, "Regulierung, Deregulierung und Selbstregulierung im Umweltrecht" ["Regulation, Deregulation and Selfregulation"], (2004) *Zeitschrift für Schweizerisches Recht (ZSR)* 3, p. 363.

⁵⁸ The high costs of the CO₂ tax are due primarily to loss of revenue from tank tourism. See SAEFL, *CO₂ Tax / Climate Cent*, p. 49 for more.

⁵⁹ Clean Development Mechanism (CDM), Joint Implementation (JI) and emissions trading.

⁶⁰ This quota may be increased to 30 per cent if a reduction in CO₂ is not technically or financially feasible within the company itself. For example, this may apply to new companies entering the market which already have to be equipped state-of-the-art technology.

⁶¹ Communication on KP, p. 6408.

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all natural and legal persons should be able to carry out climate protection projects; as well as being able to generate, buy and sell credits.

In order for Switzerland to be allowed to use the flexible mechanisms in any shape or form, it must fulfil the international conditions for participation. These include the establishment of a national emissions account (greenhouse gas inventory), a national registry and a directory of JI and CDM projects. Furthermore, a national board of control must be designated, and must report regularly to the climate convention control body.

The conditions for participation in the use of the flexible mechanisms are briefly explained below. More details are then given on trading in emissions allowances, looking particularly at how the Swiss emissions trading scheme currently under construction will work.

General Conditions for the Use of Flexible Mechanisms

Greenhouse Gas Inventory

The greenhouse gas inventory forms the basis for evaluating whether the targets stipulated in the Climate Convention and the Kyoto Protocol have been met. It is prepared in compliance with the guidelines of the Climate Convention for industrialized countries and the technical handbooks of the IPCC. Since 2004, Switzerland has been preparing documentation for the Climate Convention.⁶² This so-called 'National Inventory Report'⁶³ contains a detailed description of the bases used for the inventory.

National Secretariat

In order to use the flexible mechanisms, signatory states of the Kyoto Protocol are required to appoint a body responsible for the implementation and monitoring of the mechanisms. At international level, this institution is often called the 'Designated National Authority' (DNA).⁶⁴

The national secretariat responsible for the implementation and monitoring of the flexible mechanisms of the Kyoto Protocol in Switzerland is called SwissFlex. It is located in the FOEN, in the Climate Division. The inter-departmental working group (IDA), SwissFlex, is responsible for all coordinating activities related to the implementation of flexible mechanisms, as well as for the examination and approval of project proposals.⁶⁵

SwissFlex has various responsibilities. First of all, it is the national point of contact for information on flexible mechanisms, and receives CDM and JI project submissions. In addition, the secretariat checks the project proposals and submits them to the IDA SwissFlex. Projects approved by the IDA are registered by SwissFlex, whereupon it issues the project operator with written confirmation of Switzerland's voluntary participation in the CDM. Finally, Swiss-

Flex is responsible for organizing and monitoring the national registry.⁶⁶

National Registry

The setting up of the national registry is a precondition for Switzerland's participation in the flexible mechanisms. The most important functions of the national registry consist of issuing and allocating emissions credits to the inventory accounts of registry participants, and to record national and international credit transfers. Together with the national greenhouse gas inventory, this should serve to prove the fulfilment of the commitment assumed by Switzerland under the Kyoto Protocol.⁶⁷ As a system which records emissions allowances of various types and all transactions, the registry is indispensable to the greenhouse gas inventory.

Work is in progress to set up the national registry in Switzerland. It should be in operation from November 2007.⁶⁸

Clean Development Mechanism and Joint Implementation

The CDM allows Switzerland to invest in emissions reduction projects in developing countries, in order to earn emissions reduction credits. Such projects are designed to involve developing countries in international efforts on climate protection, and to contribute to sustainable development in the host countries. In order to ensure ecological integrity, CDM projects must follow a set process with stringent criteria and control procedures.

In addition to the CDM, industrialized countries can also implement climate protection projects together. This is called Joint Implementation. Unlike the CDM, for Joint Implementation projects, both the

⁶² Cf. <http://www.climatereporting.ch> (last visited on 20 September 2007).

⁶³ Related to the most recent report cf. SAEFL, *Switzerland's Fourth National Communication*.

⁶⁴ For the DNA of individual signatory states see <http://cdm.unfccc.int/DNA> (last visited on 20 September 2007).

⁶⁵ The IDA SwissFlex is made up of members of the Swiss Federal Office of Energy (SFOE), the Swiss State Secretariat for Economic Affairs (SECO) and the Swiss Agency for Development and Cooperation (SDC) as well as from the Swiss Federal Office for the Environment (FOEN).

⁶⁶ FOEN, *SwissFlex – The National Secretariat*, available at <http://www.bafu.admin.ch/swissflex/00561/index.html?lang=en> (last visited on 20 September 2007).

⁶⁷ BUWAL, *Nationales Register für Emissionsgutschriften und Transaktionen – Anforderungen und Gestaltungsmöglichkeiten, Bericht vom 13. Mai 2003* [SAEFL, *National Registry for Emissions Credits and Transactions – Requirements and Possible Structure, Message of 13 May 2003*], p. I, hereinafter SAEFL, *National Registry*.

⁶⁸ FOEN, *SwissFlex: Swiss Registry*, available at <http://www.bafu.admin.ch/swissflex/00572/index.html?lang=en> (last visited on 20 September 2007).

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investor and the host are committed to reducing emissions under the Kyoto Protocol. Switzerland can participate in JI projects either as a host or investor, and can share emissions credits from the joint project with another industrialized country.

International Emissions Trading

Under the Kyoto Protocol, industrialized countries are required to comply with their quantified reduction commitments, on average, from 2008 to 2012. Over this period, Switzerland has taken on a commitment to reduce its greenhouse gas emissions by 8 per cent, compared to 1990 levels. This commitment means that Switzerland must reduce its emissions by around 4 million tonnes of CO₂ equivalents per year⁶⁹ compared to 1990 levels.

Switzerland is then granted emissions allowances in proportion to its reduction commitment, like other industrialized countries. One emissions allowance entitles the bearer to emit one tonne of CO₂. These allowances may be allocated to companies with reduction commitments within the framework of a national or international emissions trading scheme. Surplus emissions allowances may either be sold on to other companies or carried over as credit to the next commitment period post-2012. Companies whose emissions are greater than their available allowances, however, must buy the necessary emissions credits.

Switzerland, or third parties authorized by that country, may trade emissions allowance certificates in order to honour their international commitments to limit their greenhouse gas emissions.

Swiss CO₂ Emissions Trading

General Conditions

Switzerland may introduce domestic emissions trading at any time, and regardless of the state of international negotiations. To date, there is no market for emissions allowances in Switzerland. Until now, Switzerland has relied primarily on bans, dictates, efficiency standards and voluntary commitments by companies as a set of instruments for the reduction of emissions. Up to the respective regulatory maximum, there was no tax on environmental products, there was no tax on environmental products. Unlike traditional environmental legislation, the mechanism for trading in emissions allowances has adopted the market-based approach.

The Swiss emissions trading scheme primarily concerns companies that assume a legally binding commitment to reduce their energy-related CO₂ emissions; and thus accept an emissions target for 2008–2012. As with cross-national emissions trading under the Kyoto Protocol, by the same principle, emissions allowances can also be allocated to individual companies with reduction commitments. The precondition for this type of trading scheme is the introduction of a CO₂ tax.

The CO₂ Law, the Ordinance on the CO₂ tax, the

CO₂ Deduction Ordinance and the ordinance on voluntary measures for the reduction of energy consumption and CO₂ emissions form the legal framework for domestic emissions trading of this type. In addition, the implementation directive of the FOEN and SFOE must be observed.⁷⁰

In addition, as well as a further emissions trading scheme primarily concerning companies assuming a legally binding commitment to reduce CO₂ emissions; a voluntary emissions trading scheme – for example on the model of the Chicago Climate Exchange (CCX) – might also be conceivable in Switzerland.

Allocation of Emissions Credits

In Switzerland, as in most Organization for Economic Co-operation and Development (OECD) countries which have already introduced a national trading scheme, primary allocation will be done by 'grandfathering' (allocation according to historic emissions). In accordance with this principle, emissions allowances will be allocated free of charge according to emissions targets negotiated for 2008–2012.⁷¹ For practical reasons, the free allocation takes place following a procedure comprising several stages. A distinction can therefore be made between the top-down and bottom-up approach. The absolute reduction targets are inferred by means of a bottom-up approach.⁷² In other words, there is an installation-specific allocation of emissions allowances. The technical and economic potential of the company is determined on the basis of production and emissions prognoses, for which CO₂ impacting measures already undertaken are taken into account.⁷³ For small and medium-sized enterprises (SMEs) a simplified top-down model is used.⁷⁴

In accordance with Article 12 of the CO₂ Ordinance, allocation is based on companies' individual CO₂ target limits for the years during which they are exempted from the tax. Emissions allowances in the form of tonnes of CO₂ serve to cover the actual emissions of the enterprise. Should a company achieve reductions above and beyond the fixed CO₂ target, it may sell the surplus emissions allowances. If its

⁶⁹ In order to be able to express Global Warming Potential (GWP) as a single figure, the Global Warming Potential of various greenhouse gases is compared with that of CO₂ (GWP of CO₂ = 1) and designated as a "CO₂ equivalent".

⁷⁰ FOEN/SFOE, *Implementation Directive*.

⁷¹ FOEN, *International Emissions Trading: Implementation in Switzerland*, available at <http://www.bafu.admin.ch/swissflex/00570/00571/index.html?lang=en> (last visited on 20 September 2007), hereinafter FOEN, *International Emissions Trading*.

⁷² FOEN, *International Emissions Trading*.

⁷³ *Ibidem*.

⁷⁴ For the top-down approach, the quantity of emissions which installations falling under a specific category are allowed to emit in total is specified.

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emissions are greater than their available allowances, it must buy the necessary emissions credits.⁷⁵

From 2008, emissions allowances equivalent to the amount of CO₂ emitted have to be invalidated each year. In accordance with Article 12 of the CO₂ Ordinance, emissions allowances will be invalidated on the 1 June of the year following the initial exemption from the tax, and then annually until 1 June 2013 according to the emissions reported. Credits which have not been used may be sold. In the event of excess emissions, credits will have to be purchased on the national or international market. Additional emissions credits may also be generated through specific CDM/JI projects abroad.

Sanction System to Check Compliance

An effective sanction system is required, in order to ensure that participants in the emissions trading scheme comply with the emissions stipulated in the certificates. As a rule, a distinction can be made between two types of breaches of the specified rules. On the one hand, obligations, such as for example reporting requirements, may be breached; on the other hand, scheme participants may fail to meet their emissions reduction targets. The Kyoto Protocol provides only one regulation on non-compliance with emissions targets to cover both eventualities. Switzerland provides a strict sanction system. The sanction for non-compliance is such that the offending party is obliged to pay CO₂ tax retroactively for each tonne of CO₂ emitted since exemption was granted.⁷⁶ Since retroactive payment of CO₂ tax will cost companies dear, they will take care to meet their reduction targets. Within the Swiss emissions trading scheme, CO₂ tax thus has a dual function: firstly, it represents a sanction for non-compliance and, secondly, it makes companies' CO₂ targets legally binding.

Switzerland and the Emissions Trading Scheme of the European Union

An emissions trading scheme which only involves Switzerland can only function efficiently to a limited extent. Firstly, the risk of liquidity in a national market will probably be so high that no company will take account of the possibility of purchasing and selling emissions allowances in relevant decisions. Secondly, the cost benefits of emissions trading only come to bear when it is possible to use cost-efficient emissions reduction potential in other industrialized and developing countries. For these reasons, the integration of the Swiss scheme into the EU emissions trading scheme would be desirable.

The EU directive on emissions trading stipulates that an agreement on mutual recognition of emissions allowances may be reached with third-party countries which have ratified the Kyoto Protocol.⁷⁷ In order for Switzerland to be able to join the EU-wide emissions trading scheme, however; it must first lay the

foundations for a functioning CO₂ market. On the basis of the existing legal framework, these foundations are laid only by the introduction of a sufficiently high CO₂ tax.

III. Final Observations

The practical implementation of the reduction commitments of the Kyoto Protocol in Switzerland is highly complex both from an economic and legal point of view.

The CO₂ Law forms the central component for meeting the commitment assumed by Switzerland in Kyoto. It lays the foundations for sustainable energy and climate policy. The concept of the CO₂ Law with its combination of voluntary measures and incentive tax by way of sanction for insufficient measures is satisfactory in at least some respects. It works where companies can be organized around the legal target, and where voluntary measures lead to reductions in emissions. In the area of motor fuel, in particular, this is not possible.

Today it is clear that the targets of the CO₂ Law and, by extension, the requirements of the Kyoto Protocol cannot be achieved through voluntary measures alone. Failure to meet Kyoto commitments would certainly damage Switzerland's reputation, and may necessitate more drastic and costly measures for the reduction of emissions at a later date.

The introduction of the CO₂ tax on fossil combustible fuels from January 2008 represents an important step in reducing the default on commitments under the Kyoto Protocol. A failure to go ahead with the CO₂ tax would have jeopardized its pre-emptive effects, that is, in particular, target agreements by companies and incentives for renewable energy sources. Without the CO₂ tax, there would be no leverage to persuade companies to honour their emissions reduction commitments; since companies made those commitments precisely with a view to a future exemption from the CO₂ tax.

In addition, the introduction of the CO₂ tax allows the establishment of a national emissions trading scheme. Such a scheme will allow companies to reduce CO₂ wherever this can be done most cost-effectively. This means that ecologically effective action will be implemented economically.

Conversely, the introduction of the Climate Cent has in fact no doubt led to the application of the Kyoto mechanisms in the short term; since a proportion of the proceeds is used for the purchase of certificates. However, the introduction of the Climate

⁷⁵ FOEN, *International Emissions Trading*.

⁷⁶ *Ibidem*.

⁷⁷ Art. 25 of Directive 2003/87/EG.

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Cent has up to now stood in the way of the establishment of a national emissions trading scheme; as companies would hardly have been interested in using flexible mechanisms without the CO₂ tax.

According to the communication on the Kyoto Protocol, the commitments under the Protocol are to be met primarily through measures for the reduction of domestic emissions. For a credible and sustainable climate policy, Switzerland must first of all make substantial contributions domestically. For the time being, there is considerable economically-worthwhile reduction potential in Switzerland. For example, in the

area of motor fuel in particular, the reduction potential remains very high. Such potential should be exploited, if only for the sake of a better environment in Switzerland. This position is in keeping with the CO₂ Law. In order to achieve this, a sufficiently high CO₂ tax, both on combustible fuels and on motor fuels, must be introduced.

How high the rate of tax on combustible and motor fuels must be in order for the tax to have the desired effect as an incentive – and for the requirements of the CO₂ Law and the Kyoto Protocol to be met – remains to be seen.