

PART III. NATIONAL REPORTING GUIDELINES FOR CSD-14/15 THEMATIC AREAS

B. ENERGY

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SWITZERLAND REPORT FOR CSD-14/15– ENERGY

General Energy Policy

1. Switzerland's energy policy is guided by Article 89 of the Federal Constitution, which calls for sufficient, reliable, diversified, cost-effective and environmentally sound energy supply, and emphasises the importance of energy efficiency. As a landlocked country with no domestic energy resources except hydropower (which accounts for some 14% of TPES and some 60% of electricity production), securing energy supplies through diverse trade relations and fuel diversification is important.
2. The main current energy policy challenges are as follows:
 - Reform of grid-bound energy sectors (mainly electricity; natural gas is not a priority issue).
 - Reaching the national targets under the Kyoto Protocol, the CO2 Law and the "SwissEnergy" programme, using an array of demand-side and renewables policies and measures.
 - Filling the electricity supply gap as from 2020 when the first nuclear plants will reach the end of their operational lifetime.
 - Resolution of nuclear waste disposal.

"SwissEnergy" Programme

3. The ten-year "SwissEnergy" Programme was launched in 2001 as a successor to the "Energy2000" Programme of the 1990s. "SwissEnergy" has four main areas of activity: three focus on end-use efficiency: 1) public sector and buildings, 2) industry and services, including appliances, 3) transport; the fourth focus is on renewables (see separate chapters below). The programme sets several targets for 2010 (vs 2000): a 10% reduction in fossil fuel consumption; capping electricity demand growth at 5% over the decade; stabilising hydropower generation; targets for electricity and heat production from non-hydro renewables.
4. As part of a general austerity programme, "SwissEnergy"'s *regular* annual budget is being curtailed from CHF 55 million in 2003 to CHF 50 million in 2004 and CHF 45 million as of 2005. In 2003, the phase-out of a special CHF 45 million biomass promotion programme, which was launched in 2000 after the "Lothar" storm, compounded the cutbacks. Linear cuts were slightly buffered by Parliament granting ad-hoc monies and sustained cantonal funding. In sum, overall federal spending dwindled from CHF 74.5 million in 2001 to CHF 63.3 million in 2003 (not including CHF 26 million of cantonal funding and CHF 48 million by private partners). Federal spending was expected at CHF 49.3 million in 2004, and in the range of 43.5 million in 2005.

5. Pilot and demonstration projects carry the brunt of the cuts, from previously CHF 15 million to CHF 6 million in 2005. Financing of countrywide energy efficiency and awareness-raising programmes (e.g. private sector voluntary agreements, building codes, standards and labels, network for sustainable energy policy at municipal level) remained unscathed at CHF 20 million. So has federal co-funding of cantonal energy programmes (CHF 15 million leveraging CHF 26 million of cantonal funding in 2003). But as from 2004, federal allocation became contingent on the size and efficiency of the cantonal programmes. This entailed a shift toward more efficient programmes (in terms of saved or renewable-produced energy per CHF), such as buildings, at the expense of less efficient programmes such as photovoltaics. Thus, federal spending on energy efficiency programmes remained almost stable (from CHF 24 million in 2003 to CHF 22 million in 2005), whereas renewables programmes (incl. pilot and demonstration projects) were slashed from CHF 25.3 million in 2003 to CHF 9 million in 2005.

Energy and Environment (see also Swiss report on Climate Change above)

6. In July 2003 Switzerland ratified the Kyoto Protocol, by which it committed itself to reduce its GHG emissions to -8% below 1990 level. Already in 2000, Switzerland adopted a CO₂ Law in order to reach its Kyoto target. The law sets a minus-10% target for CO₂ emissions. It mandates a CO₂ tax to be introduced at the earliest in 2004 should voluntary measures prove insufficient. Energy-related CO₂ emissions have remained roughly stable since 1990. In March 2004, BaU projections showed that the Kyoto/CO₂-Law target would be missed: total CO₂ emissions would be only -3.9% below 1990 level, with heating and process fuel emissions at -11.4% (vs targeted -15%) and transport fuel emissions at +8.5% (vs targeted -8%).
7. The foreseeable failure to meet the Kyoto target prompted the Federal Council (government) to take action. Four options were proposed for public consultation, taking into account the requirements of the CO₂ Law (maximum tax rate CHF 210/tCO₂), economic considerations (the looming CO₂ tax is the key driver for voluntary agreements with industry), and political sensitivities. The most stringent option was to levy a CO₂ tax on heating fuels (CHF 35/tCO₂ or CHF 0.09/liter) and transport fuels (CHF 64/tCO₂ or CHF 0.15/liter as from 2006, rising to CHF 128/tCO₂ or CHF 0.30/liter as from 2008). This tax was expected to reduce oil demand sufficiently to meet the Kyoto target, albeit some 60% of the demand cuts were to be mere displacement of “tank tourism” (foreign drivers filling up their cars with cheaper Swiss gasoline). The laxest option was a proposal by the Swiss oil industry association with support from mounting opposition against the tax: i.e. to levy a so-called “climate cent” (CHF 0.016/liter) on transport fuels only. The expected CHF 70-115 million revenues would be earmarked for domestic and foreign emissions-mitigating projects and purchases of international CO₂ certificates.
8. On 23 March 2005 the Federal Council took a compromise decision based on the results of the public consultation: a CHF 35/tCO₂ tax on heating fuels will be introduced as from 2006. As concerns transport fuels, the “climate cent” will be granted a grace period until the end of 2007 to demonstrate its effectiveness. Failing that, a CO₂ tax will be introduced on gasoline, while diesel (which is already heavily taxed by European standards) may be exempted. By virtue of the CO₂ Law, the tax must be fiscally neutral, i.e. revenues will be recycled to the population and the economy through health insurance and employers’ pension cost refunds. Enterprises can be exempted by entering voluntary agreements to reduce their emissions. Modalities of the tax are to be elaborated by early summer 2005 before being submitted to Parliament, which must approve the tax rate.

Energy Tax Reform

9. Apart from the CO₂-tax, a fuel tax reform for transport fuels is being debated and scheduled to take effect in 2007. The aim is to keep fuel tax revenues constant by offsetting a tax reduction on natural gas and an exemption of biofuels (mostly bioethanol) against higher taxation of gasoline.
10. Another fiscal proposition currently being debated is to differentiate import duties on vehicles, with 2008 as a target date. Import duties on vehicles with A- and B-labels (with compulsory particulates filters for diesel) would be reduced by up to CHF 5000. Revenue shortfalls would be compensated by increasing duties on gasoline guzzlers from 2-4% to up to 6-8%. This measure would reinforce many cantonal incentive schemes on car registration fees.

End-Use Efficiency

11. Most end-use efficiency measures are encapsulated in the “SwissEnergy” Programme, with three focuses:

Buildings and Public Sector

12. According to the Constitution, building codes are explicitly a cantonal remit. Therefore, “SwissEnergy” has devoted much effort to harmonising cantonal regulations. By 2003, 20 cantons (home to 80% of the population) had introduced harmonised model building codes. “SwissEnergy” also promotes the high-efficiency “Minergie” standards. Earlier goals to promote individualised heat and hot water metering in existing buildings (in addition to new buildings, for which individualised metering is obligatory by law) were abandoned in the face of widespread opposition, including in those 8 cantons (33% of the population) which already require it. Instead, energy policy aims at tightening those norms with higher political acceptability, such as a new obligation that no more than 80% of heating and hot water demand in new buildings be generated from non-renewable sources. Eleven cantons with 63% of the population have already introduced this norm.
13. Another important programme is the promotion of sustainable energy policy at municipal level by means of the “EnergyCity” (*Energiestadt, Cité de l’Energie*) label, which has been awarded to 119 cities in Switzerland, where some 37% of the population live. “EnergyCity” is internationally known as the European Energy Award. It requires cities to adopt at least 50% (for the silver award), respectively 75% (for the gold award) of 80 measures and is subject to re-evaluation at four-year intervals.

Industry and Appliances

14. Voluntary agreements with industry and service companies (or groups of companies) are coordinated by the private sector’s energy agency (EnAW). Companies expect to be exempted from the impending CO₂ tax if they sufficiently curb their energy consumption and CO₂ emissions. In April 2004, EnAW, on behalf of 45 VAs grouping some 600 enterprises and covering some 2.57 MtCO₂ (25% of total industry CO₂ emissions), signed a covenant with the Department (Ministry) of Environment, Transport, Energy and Communications (DETEC) to increase energy efficiency by 8.8% and to cut emissions by 345 ktCO₂ by 2010 (-12.6% vs 1990, -6.9% vs 2000). More VAs are being finalised so as to ultimately cover 40% of industry emissions.
15. In a separate agreement in February 2003, the Swiss cement industry committed to reducing their fuel-induced emissions by 44.2% (575 ktCO₂, not including geogenic emissions) by 2010 (vs 1990 levels).

16. In the appliance sector, major efforts have been directed at enforcing labelling of home appliances, which was introduced in 2002. EU and Swiss practices were realigned with the introduction of A+ and A++ labels for refrigerators and freezers as from the beginning of 2005. Steps are currently underway to join the EnergyStar programme for office equipment and consumer electronics. A voluntary labelling scheme for coffee machines is being pondered.

Transport

17. In February 2002 an agreement was reached with the Swiss automobile import association to improve the average fuel efficiency of new vehicles from 8.40 liters/100 km in 2000 to 6.40 liters/100 km in 2008. By 2003, the average fuel efficiency was 7.99 liters/100 km, i.e. behind schedule. Car labelling in line with EU regulation started in 2003.
18. Several “SwissEnergy” programmes aim at changing mobility patterns and driving behaviours. The most successful have been efficient driving courses, which are now compulsory for acquiring a driver’s licence.
19. Very important, although not part of “SwissEnergy”, is the heavy-duty vehicle tax (see also Point 6 of Swiss report on Climate Change), which was introduced in 2001 and hiked up at the beginning of 2005. The tax is calculated on distance and load. Two-thirds of annual revenues, which now total some CHF 1.1 billion, are allocated to construction of rail infrastructure to achieve a modal shift. The effects of the tax (as well as raised truck load limitations) are compelling: road freight transport decreased 9% in 2001-03 after decade-long uninterrupted growth; transit through the Alps decreased 8%.
20. Planned reforms on transport fuel taxation and vehicle import duties reform (see chapter on energy taxes).

Renewables

21. The “SwissEnergy” Programme sets the following targets for 2010 (vs 2000): the share of electricity generation from non-hydro renewables is to increase from 1.3% to 2.3% (i.e. 500 GWh) and in heat generation by 3 percentage points (i.e. 3000 GWh).
22. By the end of the third year of the programme (2003), electricity generation from new renewables amounted to 954 GWh (1.46% of total generation). This represents an increase of 106 GWh over three years, i.e. only 21.1% of the full ten-year target. By far the largest source was CRW (83% of new renewables), followed by biomass (15%). Windpower production is slated to almost double to 10 GWh with the expansion of the country’s largest wind farm in autumn 2004. A wind master plan was released in 2004, identifying 28 sites with the aim to produce up to 50 GWh by 2010.
23. In the heat sector, however, developments were on track to meet the 2010 target, with 8162 GWh produced from new renewables (+886 GWh vs 2000), with biomass providing the lion’s share (49%), followed by CRW (27%) and ambient heat/heat pumps (18%).
24. Additional policy measures were adopted to promote renewables: in November 2004, the Energy Ordinance was amended so that electricity bills will need to detail the origin and source of electricity as from the beginning of 2006. This should facilitate consumer choices at times when ever more utilities offer various electricity mixes. Another amendment to the Energy Ordinance adjusts allocation of the minimal CHF 0.15/kWh feed-in tariff, which cantons must implement, to the high-voltage grid, instead of hitherto to the medium-voltage grid, so as to spread extra costs to all

consumers. This will help certain cantons, where electricity tariffs have been disproportionately inflated by a large concentration of small hydro.

25. The planned tax reform for transport fuels (see chapter on energy taxes) should contribute to bioethanol reaching a market share of transport fuels of 5.75% by 2020. Market penetration of biogas will be buoyed by admixing up to 10% of biogas to CNG (see chapter on gas).
26. Furthermore, as part of the proposed electricity market liberalisation package, Art. 7 of the Energy Law is to be amended so as to include renewable electricity targets for 2030. The share of renewables (including hydro) in net electricity consumption (generation divided by consumption net of losses and exports) is to rise from 67% to 77% by 2030. Five years after enactment of the law, the Federal Council may adopt prescriptive measures such as higher feed-in tariffs, quota or tendering, if voluntary industry action fails to deliver results.
27. Sales of green electricity soared 13-fold in 2003 to 2.5 TWh (4.6% of consumption), mainly because of the Geneva utility entering the market. Over 98% of green electricity sales are hydropower. Roughly half of Switzerland's 900 utilities offer green power. Some 340,000 consumers cover part of their demand with green power. Sales of green power under the environmentally more stringent "naturemade star" label are increasing too, reaching 0.3 TWh (0.54% of consumption) by late 2004.
28. Heat pump sales boomed to record highs in 2003 and 2004 with growth rates of 15-20%, partly because of high oil prices. In 2004, heat pumps reached a 23% market share of all heating installations.
29. CHF 40 million of financing (mainly by the Basle authorities) has been secured for the next phase of a geothermal deep-heat-mining project. Two or three exploratory wells are to be drilled to some 5000 meters by 2007 to appraise the geothermal potential of a site near Basle. If successful, a CHP plant with a capacity of 3 MWe and 20 MWth will be built at an additional cost of CHF 40 million.
30. The REPIC (Renewable Energy Promotion in International Cooperation) interdepartmental platform was established in 2004 to promote renewable energy projects as part of Swiss development and cooperation work. REPIC is a market oriented service centre. It strengthens and coordinates the Swiss federal activities for the promotion of renewable energy in international cooperation. It further creates new strategic partnerships with private enterprises and the Swiss civil society in order to contribute to the deployment of renewable energy systems in developing and transition countries. Since its inception, REPIC has made funds available for a solar PV project in Malaysia and wind energy projects in Madagascar, Nicaragua and Romania.

Research and Technology

31. In 2003 public funding for energy RD&D amounted to CHF 183 million, which represents a 9.6% increase since 2000. Further slight increases are budgeted for 2004 and 2005. The target of the Master Plan is to reach CHF 213 million by 2007. The breakdown by areas was: 32.2% for rational use of energy, 29.5% for renewables, 28.8% for nuclear energy and 9.5% for energy policies and economics. Nearly 41% of funding was directly linked with international projects, mainly within the IEA Implementing Agreements and within the EU Framework Programmes. A bilateral treaty with the EU has enabled Swiss researchers to seek financing directly from the EU since 2004.