



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of the Environment,
Transport, Energy and Communications DETEC

Swiss Federal Office of Energy SFOE

Office for the Exemplary Role of the Confederation in Energy ERCE

The Confederation: exemplary in energy

How the Confederation and parastate enterprises
perform their exemplary role in energy

The ETH Domain example



Annual report 2015

www.confederation-exemplary-in-energy.ch

Masthead

Publisher

Office for the Exemplary Role of the Confederation in Energy ERCE,
Swiss Federal Office of Energy SFOE, 3003 Bern, www.confederation-exemplary-in-energy.ch

Project management for this report

Olivier Meile, SFOE, Office for the Exemplary Role of the Confederation in Energy ERCE

Members of the Coordination Group for the Exemplary Role of the Confederation in Energy ERCE

Daniel Büchel, SFOE, chairperson of the Coordination Group ERCE, Deputy Director SFOE
Christoph Affentranger, ETH Board, Staff real estate unit
Didier Castella, Federal Department of Defence, Civil Protection and Sport DDPS,
Head of the Energy, Mobility, Water, Air and Radiation Protection NIR sectors
Paul Eggimann, Head of the RUMBA Section, Federal Office for Buildings and Logistics FBL
Christina Meier, Swiss Federal Railways SBB, Head of Sustainability
Stefan Meyer, Skyguide, Head of Corporate Real Estate Management & Infrastructure
Res Witschi, Swisscom, Head of Corporate Responsibility
Anne Wolf, Swiss Post, Head of Corporate Responsibility

Office for the Exemplary Role of the Confederation in Energy ERCE

Olivier Meile, SFOE

Technical consultants to the ERCE Office

Cornelia Brandes, Charlotte Spörndli, Brandes Energie AG, Zurich
Thomas Weisskopf, Stefanie Steiner, Weisskopf Partner GmbH, Zurich

Concept, design and texts

Weissgrund AG, Zurich

Translation

Adapta-traductions Sàrl, Geneva

Distribution

www.bundespublikationen.admin.ch
Article number 805.075.e

Copyright

Swiss Federal Office of Energy SFOE

Bern, June 2016

Table of contents

Editorial	4
Setting a good example	6
The Confederation intends to motivate	8
Externally and internally exemplary	8
Exemplary role models are also needed in Europe	9
Sectors start to take action	9
The Confederation: exemplary in energy – the actors	10
On the road to energy efficiency	15
Chart: Increase in the average efficiency of all actors	15
Chart: Consumption and increase in efficiency per actor	16
System limits	18
The Confederation: exemplary in energy action plan	19
Overview of the joint measures of all actors	20
The 39 joint measures of all actors in detail	22
The actors' specific action plans	27
Swiss Post	27
ETH Domain	31
Swiss Federal Railways SBB	35
Skyguide	39
Swisscom	43
Federal Department of Defence, Civil Protection and Sport (DDPS)	47
Civil Federal Administration – FBL/RUMBA programme	51
Glossary	55



We are showing the way to Switzerland's future in energy

"Few things are harder to put up with than the annoyance of a good example" is an opinion that was already voiced by the American writer Mark Twain. He was right. Let's be honest: It is annoying when someone sets an example that we ourselves dismiss as too demanding or even impossible. That is human nature. And that is precisely why we need role models to show us that something nevertheless works and is even worthwhile, despite all gloomy predictions.

The Federal Administration, the Federal Department of Defence, Civil Protection and Sport (DDPS), the entire ETH Domain and the parastate enterprises SBB, Swiss Post, Skyguide and Swisscom have been setting a good example in the energy sector since 2014. By signing a declaration of intent, they have resolved to improve their energy efficiency by 25% by the year 2020 compared with 2006. And they have defined a whole package of measures: 39 joint measures concern buildings, renewable energies, mobility, data centers and Green IT. In addition there are company-specific measures.

The Annual report 2015 shows that this figure of 25% has already been attained as a group. Implementing the joint and specific measures consistently continues to be a great challenge. Part of that challenge is to keep on increasing the shares of renewable energies.

I am very proud of the ambitious targets and the results that have been achieved. They show that the continuous transition in our energy supply and energy consumption – as planned in the Energy Strategy 2050 – is both possible and realistic. In view of the impressive results of "The Confederation: exemplary in energy", I am confident that this good example will not cause "annoyance" in many other enterprises and companies outside of the Federal Administration and parastate enterprises, but give them a strong motivation to participate. I wish them every success in their efforts.

Walter Steinmann

Director
Swiss Federal Office of Energy

Setting a good example

Energy efficiency in the Confederation and parastate enterprises should improve by 25% between 2006 and 2020. The Confederation wants to perform an exemplary role.

On September 4, 2013 the Federal Council adopted the message on the first package of measures of the Energy Strategy 2050 and forwarded it to Parliament. The Confederation's exemplary role in the energy sector is one of twelve explicitly stated measures in this first package. Its role is defined as follows in the Federal Council's message:

"In future, the Confederation – which is responsible for about 2% of Switzerland's total energy consumption – is to take appropriate measures to reduce and optimize energy consumption. In this way it is performing its exemplary role in the framework of the Energy Strategy 2050."

According to the message, the Confederation level comprises the federal administration, the Federal Department of Defence, Civil Protection and Sport (DDPS), the ETH Domain and the parastate enterprises that are strategically managed by the Federal Council (Swiss Post, Swiss Federal Railways, Skyguide and Swisscom – and others later on). Starting from the base year 2006, the objective is to increase energy efficiency by 25% by 2020. Efficiency is measured in relation to full-time equivalents (FTE), or a mix of different reference variables, depending on the actor; some actors have defined their own efficiency key figure, others rely on the methodology of the Energie-Agentur der Wirtschaft for the calculation.

The existing objectives and measures of the organizational units are to be aligned more closely with the objectives of the Energy Strategy 2050. In principle, it is necessary to include the administrative activities, the services and products as well as the employees' user behaviour.

A coordination group has been established for overall control and coordination of the Confederation's exemplary role in energy. It has adopted the name "The Confederation: exemplary in energy". The office of the coordination group CG-ERCE is run by the Swiss Federal Office of Energy. The Confederation: exemplary in energy works on a consensus basis. It defines the joint action plan for performing the Confederation's exemplary role in the Energy Strategy 2050 and coordinates communication of the results.

With NEST, Empa – which belongs to the ETH Domain – intends to speed up the innovation process in the buildings sector, in cooperation with Eawag. New technologies, materials and systems are tested, researched, further developed and validated under real conditions in the modular research and innovation building in Dübendorf, near Zurich, which is still under construction even after its inauguration in May 2016. Close cooperation with partners from research, business and the public sector helps to ensure that innovative construction and energy technologies come onto the market sooner.



The Confederation intends to motivate

The measures of The Confederation: exemplary in energy plan are based on existing structures (Resources and Environmental Management programme of the Federal Administration RUMBA and large consumers in the Confederation) as well as on the experience gained from already completed projects and programmes. One priority for the work is reporting; the aim is to publicize The Confederation: exemplary in energy plan and to motivate further enterprises and organizations to make contributions to the Confederation's Energy Strategy 2050.

The overriding aim of a 25% improvement in energy efficiency should be targeted both as a group and by each individual actor. It is, of course, particularly exemplary if the target is exceeded, which is the case for the first time as a group this year. In addition to 39 joint measures, company-specific measures are also being implemented, in which the respective actors make use of their own additional leeway for action.

In terms of content, The Confederation: exemplary in energy has defined the following areas of action for the 39 joint measures:

- buildings and renewable energy
- mobility
- data centers and Green IT

Cooperation within The Confederation: exemplary in energy is defined in a joint declaration of intent by all partners.

Externally and internally exemplary

With the newly developed tool box on the web site of The Confederation: exemplary in energy, consisting of Good Practice and tools, the actors show very practically where and how their actions are exemplary. The first information sheets published in 2015 present implementational activities from all three action areas: comprehensive building standards (the DGNB Gold Standard, as adapted to Switzerland), modern work models (Work Smart Initiative) or highly efficient data centers (free cooling for rooms with electronic equipment). At the same time the tool box also contains useful tools developed by third parties. The tool box is being constantly expanded. It is intended to motivate companies, organizations, cantons, cities and municipalities to imitate the activities and facilitate practical implementation.



Information sheets on Good Practice explain to interested parties how to implement measures.

Initial exchange-of-experience events were held in 2015 to promote discussion within The Confederation: exemplary in energy programme. They concerned technical details and applications, such as on the topic "LED today – current, technical solutions", the challenging implementation of modern workplace concepts, or the language and tone of awareness-raising actions in the area of energy and climate that are aimed at employees.

Exemplary role models are also needed in Europe

In October 2014 the European Union set itself new targets as a further development of the “20-20-20 objectives”. Greenhouse gas emissions are to be reduced by at least 40% by 2030 compared with 1990 and the proportion of renewable energies increased to at least 27% of final energy consumption. These targets are deemed binding EU-wide. Primary energy consumption is to be reduced by at least 27% by 2030, compared with a reference trend. This target is to be reviewed in 2020 and increased to 30% if necessary.

In addition, the Energy Efficiency Directive (EED) sets a minimum renovation rate of 3% per year for central governments’ buildings; the energy targets defined by each member state must be attained.

The Energy Performance of Buildings Directive (EPBD) lays down minimum energy performance requirements to be met by national authorities for all building renovations and requires that an energy performance certificate be issued. Specifically, new buildings owned and occupied by government authorities must meet the criterion of nearly zero-energy buildings by 31 December 2018, and other new buildings two years later.

Sectors start to take action

The International Union of Railways (UIC) presented its initiative for low-carbon rail transport at the UNO Climate Summit in New York in September 2014. Its aim is to attain a 50% reduction of specific final energy consumption by rail transport by 2030 and a 60% reduction by 2050, compared with 1990. In addition, average specific CO₂ emissions in rail transport are to be reduced by 50% before 2030 and by 75% before 2050, compared with 1990. This target is to be achieved through electrification, innovative technologies, more efficient trains, traffic and energy management systems and through more energy-saving train driving.

The International Post Corporation (IPC) has set itself the goal of reducing CO₂ emissions by 20% between 2013 and 2025.

ETNO, the European telecoms association, deals mainly with topics such as reducing energy consumption through more efficient networks and data centers and the use of Green IT.

Skyguide’s environmental targets are determined by the European Commission within the performance plan of the FABEC countries (Belgium, Germany, France, Luxembourg, Netherlands and Switzerland).

The Confederation: exemplary in energy – the actors

The members of The Confederation: exemplary in energy do not all have the same leeway for action. But they all contribute to the Federal government's Energy Strategy 2050 by improving their energy efficiency.

Some very different actors are engaged in The Confederation: exemplary in energy. They differ in respect of their task, organizational form, size and their relationship with the Confederation:

- The Confederation is represented by the Resources and Environmental Management programme of the Federal Administration RUMBA and the Federal Office for Buildings and Logistics (FBL), furthermore by the Federal Department of Defence, Civil Protection and Sport (DDPS).
- Of the parastate enterprises, Swiss Post, the Swiss Federal Railways, Skyguide and Swisscom have signed up. The Confederation sets these organizations strategic objectives, which in some cases also concern energy targets or at least require a sustainable corporate strategy.
- The Federal Institutes of Technology and four research institutes are grouped together in the ETH Domain. In the ETH law, the Confederation has determined the purpose of the two institutes of technology and four research institutes; a performance mandate from the Federal Council and Parliament translates the corresponding objectives into practice.

Implementation of the Energy Strategy 2050 requires a great effort from all actors in The Confederation: exemplary in energy plan. By using their individual leeway for action, they make an important contribution to the credibility of the Energy Strategy. In addition, they can position themselves as organizations that act sustainably and energy-efficiently vis-à-vis employees, customers, business partners, investors and lenders. And finally, energy efficiency also means cost effectiveness for one's own organization: anyone who saves energy also saves money.

On the next four pages you will find a brief portrait of all the actors involved in The Confederation: exemplary in energy plan, and a summary of their respective energy strategy.

Swiss Post

As a mixed group, Swiss Post is active in the communication, logistics, financial services and passenger transport markets. Every year Swiss Post carries about 2.2 billion letters and about 115 million parcels. PostAuto transports nearly 145 million passengers, while PostFinance has more than 4.8 million customer accounts. With nearly 55,400 employees in Switzerland (36,700 staff units), Swiss Post is one of the largest employers in the country.

Energy strategy implementation

As the largest logistics company in Switzerland, Swiss Post operates an energy-intensive business. In order to increase energy efficiency, it is renewing its vehicle fleet and building stock, using more alternative drive systems and optimizing delivery rounds. Furthermore it is replacing fossil fuels with renewable energies.

www.swisspost.ch



Susanne Ruoff, CEO

“Swiss Post combines the physical and digital worlds, relying on energy efficiency and renewable energy. By doing so, we make a valuable contribution to sustainability in Switzerland.”



ETH Domain

Academic achievements at the highest level: this is what the ETH Domain provides with 21,000 staff members, more than 29,000 students and doctoral students and a faculty of about 800 people. The ETH Domain encompasses the Federal Institutes of Technology in Zurich (ETH Zurich) and Lausanne (EPFL), the research institutes Paul Scherrer Institute (PSI), Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Swiss Federal Laboratories for Materials Science and Technology (Empa) and the Swiss Federal Institute of Aquatic Science and Technology (Eawag), along with the ETH Board as the strategic supervisory body.

Energy strategy implementation

The common environmental model of the ETH Domain was compared with the Confederation's Energy Strategy 2050. The ETH Domain's institutions support the common objectives under their own responsibility and with their own environmental management systems.

www.ethboard.ch



Fritz Schiesser, President of the ETH Board

“In the ETH Domain, we are using the unique opportunity to implement innovative ideas for energy-efficient technologies directly in construction projects and to subject them to a practical test in everyday use.”



Swiss Federal Railways SBB

With 33,000 employees, the Swiss Federal Railways move people and goods, open up and connect centers and different parts of the country at home and abroad. As an efficient, forward-looking and sustainable railway, SBB provides its customers with positive travel experiences and transports their goods reliably and resource efficiently. Because a rail journey in Switzerland is about 4 times more energy-efficient and emits twenty times less CO₂ than a journey by car over a comparable distance. With its sustainable and energy-efficient mobility offering, SBB thus contributes significantly to the implementation of the Confederation's Energy Strategy 2050.

Energy strategy implementation

From 2025 onwards, the SBB's trains are to run on power from 100% renewable energies. SBB is planning to save about 20% of the annual consumption forecast for 2025, or a total of 600 gigawatt-hours of energy per year, with an extensive package of measures.

www.sbb.ch



Andreas Meyer, CEO

"We are shaping the mobility of the future. Energy efficiency, including that attained by using new technologies, is an important key to this."



Skyguide

On behalf of the Federal government, the Swiss air navigation services provider Skyguide provides safe, efficient and economical management of air traffic in Swiss airspace and in delegated neighbouring areas. Its 1,500 employees work around the clock at 14 locations in Switzerland. Skyguide controls civil and military air traffic and cooperates closely with the Swiss Air Force and international industry associations.

Energy strategy implementation

Resource-efficient management of air traffic is an important aspect of Skyguide's mandate. Skyguide is committed to reducing air traffic emissions and its own energy consumption through operational improvements. To this end, Skyguide invests in efficiency measures on the ground and in improved traffic management in the air. And does so with consistently high and, where possible, enhanced safety standards.

www.skyguide.ch



Daniel Weder, CEO

"Thanks to innovation, international further development and passionate employees, we manage air traffic safely and efficiently and are continuously improving our ecological performance and that of our customers."



Swisscom

With 6.6 million mobile phone customers, 1.3 million television subscribers and 2.2 million broadband connections for private and business customers, Swisscom is the leading telecommunications company and one of the leading IT companies in Switzerland. In addition, Swisscom builds and maintains mobile phone and land-line infrastructure, emits radio signals, builds and operates data centers and is active in the banking, energy, entertainment, advertising and health sectors. In 2015, Swisscom earned a turnover of CHF 11.7 billion with 21,600 employees.

Energy strategy implementation

Swisscom is one of the most sustainable companies in Switzerland and meets 100% of its electricity requirement from domestic renewable energy. Together with its customers, Swisscom intends to save twice as much CO₂ by 2020 as it generates in its operations and supply chain.

www.swisscom.ch



Urs Schaeppi, CEO

"Sustainability is part of our DNA. Energy efficiency and CO₂ savings are a core concern for us – both in our networks and data centers and in the services we provide to our customers."



Federal Department of Defence, Civil Protection and Sport (DDPS)

The DDPS is divided into seven administrative units: Defence, General Secretariat, Civil Protection, Sport, armasuisse, the Federal Intelligence Service and swisstopo. The department's core activities are security and physical exercise: security, protection and assistance from the Armed Forces and Civil Protection, physical exercise and health through sport. In 2015, the DDPS had 11,690 full-time employees, while the Armed Forces performed 5,792,623 days of service.

Energy strategy implementation

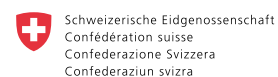
The DDPS adopted an energy concept for the department for the first time in 2004. It was renewed in 2013. The aim is to anchor modern and resource-efficient environmental and energy management in the DDPS and to achieve the targets based on the EnergieSchweiz programme by 2020.

www.vbs.admin.ch



Nathalie Falcone, DDPS General Secretary

"With its environmental management system and its energy programme, DDPS is constantly committed to improving its ecological performance."



Swiss Confederation

Federal Department of Defence,
Civil Protection and Sport DDPS

Civil Federal Administration FBL/RUMBA programme

Each year the Resources and Environmental Management programme of the Civil Federal Administration RUMBA determines the environmental impact caused by consumption of power, heat, water and paper as well as by waste and business travel. By 2014 the environmental impact per full-time position was reduced by 23% compared with 2006.

Energy strategy implementation

The Federal Office for Buildings and Logistics FBL consistently constructs its new buildings with the energy efficiency of Minergie-P® buildings. In all projects, renewable energy is reviewed to determine its feasibility and economic efficiency, and installed wherever possible. Thus FBL succeeded, for example, in reducing heat consumption per full-time position and per year from 4.5 kilowatt-hours (kWh) in 2006 to 3.0 kWh in 2014 (–34%). Consumption of fossil fuels fell over the same period from 3.4 kWh to 1.5 kWh (–55%).

www.rumba.admin.ch
www.bbl.admin.ch



**Martin Frösch, designated vice director Federal
Office for Buildings and Logistics FBL**

**“In the long term, energy efficiency is
profitable, even if energy prices are at
rock bottom.”**



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Finance FDF
Federal Office for Buildings and Logistics FBL

Your contribution to the Energy Strategy 2050

Do you also want to work towards the energy target 2020? Implementation of the Energy Strategy 2050 will only be successful if everybody contributes to it. This applies to private individuals just as much as it does to companies and the public sector. The Confederation: exemplary in energy invites interested companies, organizations, cantons, cities and municipalities to further step up their contributions to energy efficiency. To this end, those who are interested can transpose the measures of The Confederation: exemplary in energy plan to their own areas of activity.

The Office for the Exemplary Role of the Confederation in Energy will be pleased to provide you with further information, tel. 058 462 56 99.

All parastate enterprises can take part

The Confederation: exemplary in energy invites all actors in the parastate sector to become active and participate in the programme.

The Office for the Exemplary Role of the Confederation in Energy will be pleased to provide you with further information, tel. 058 462 56 99.

On the road to energy efficiency

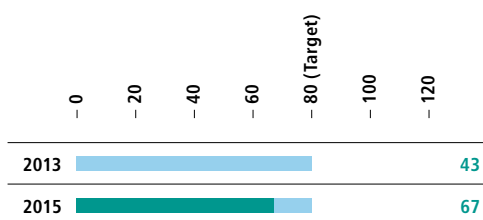
All actors of The Confederation: exemplary in energy are committed to pursuing ambitious goals, within the limits of their capabilities. Thus the targeted 25% increase in energy efficiency should be achieved not only on average, but by each actor individually. In addition, the 39 joint measures should be implemented to the tune of 80% on average by 2020.

The Federal Council has determined 2006 as the base year for calculating the increase in efficiency under The Confederation: exemplary in energy plan. Since the Federal Council adopted its message on the first package of measures for the Energy Strategy 2050 in September 2013, the status at the end of 2013 serves as a first comparative value.

By the end of 2015 the actors had increased their energy efficiency by an average of 26.7%. At first sight the target seems to be within reach. However, a certain level of efficiency in one year does not mean that this efficiency will automatically be attained in the following year as well.

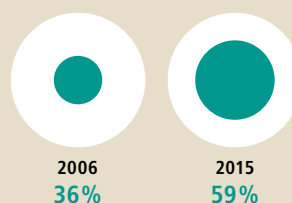
The 39 joint measures were implemented to the tune of 67% on average; 2013 is taken as the comparative year here because no values are available for 2006. The proportion of renewable energy out of total energy consumption was 59%.

Degree to which joint measures were implemented by all the actors, as a %

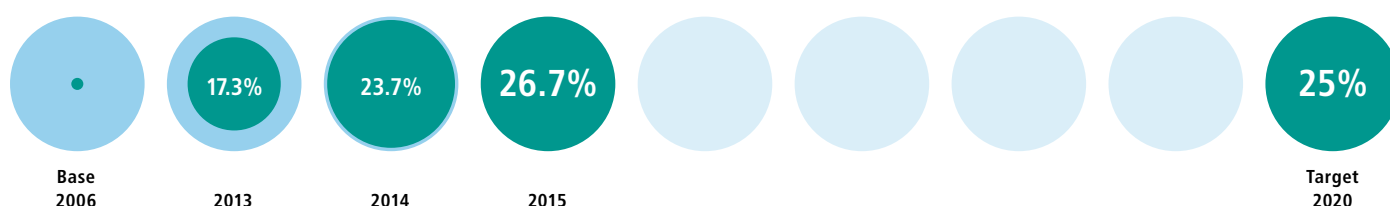


green = implemented
blue = the difference with the average target of 80%

Renewable energy as a proportion of total energy consumption, averaged over all actors.

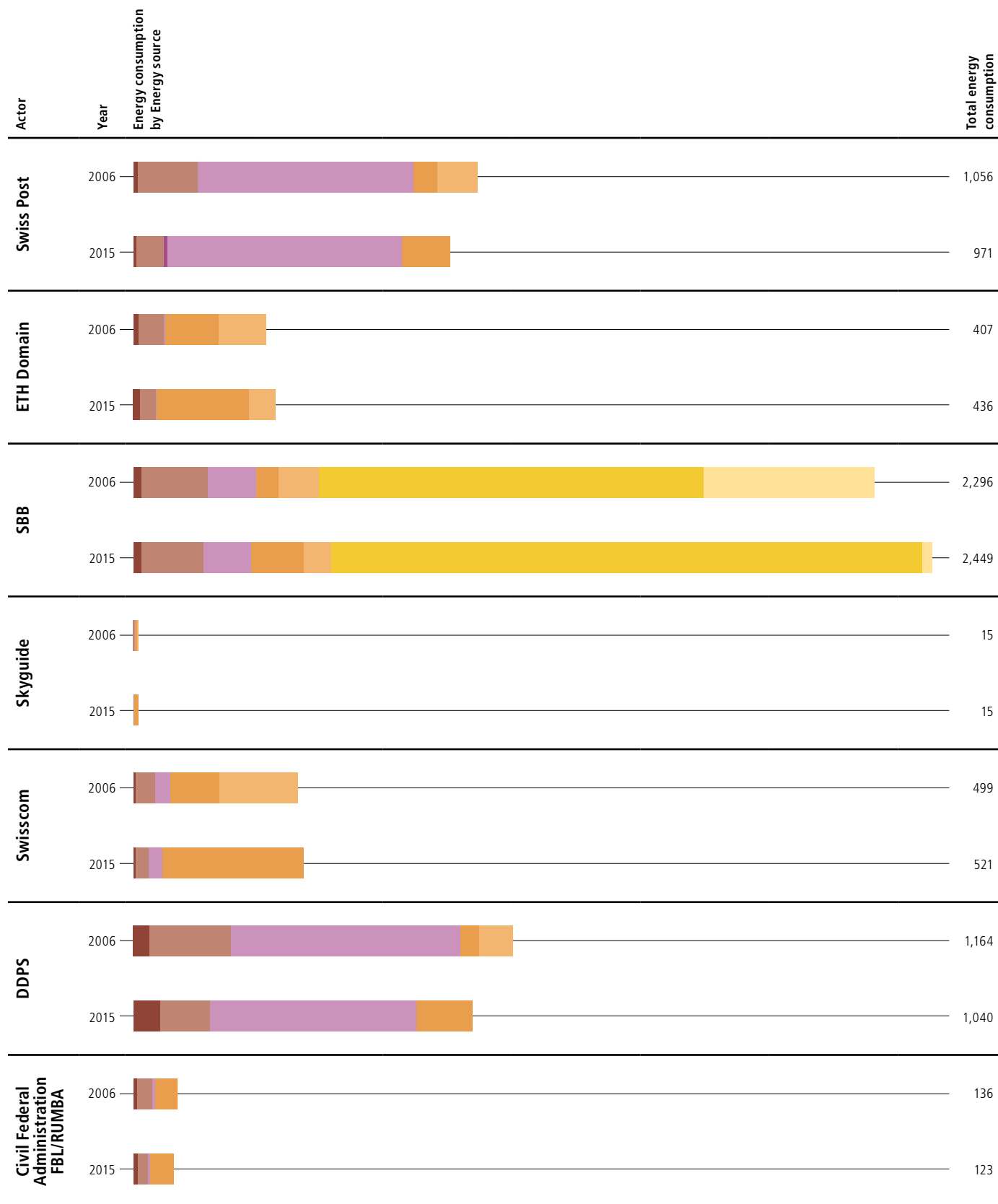


Increase in the average energy efficiency of all actors



Actors' final energy consumption to produce their output*

in GWh/y



Fuels (heat) Renewable and waste heat Conventional

Fuels Renewable Conventional

Power Renewable Conventional

Rail electric power Renewable Conventional

Reference variable(s) selected by the actor*	Increase in energy efficiency attained*		
	2006	2015	Target 2020
Depends on the corporate unit: Number of consignments, customer business, passenger kilometers, transactions, energy reference surface area, full-time equivalents (FTE)	Base	23.8%	25%
Efficiency key figure 1: based on full-time equivalents (FTE), energy reference surface area, no. of instrument days, patient treatments (PSI) Efficiency key figure 2: calculation as for 1, but including efficiency increase on mainframe computer	Base	27.4% Key figure 1 153.4% Key figure 2	25%
Efficiency key figure 1: based on operating output in passenger and net tonne kilometers and traction energy consumption (final energy) Efficiency key figure 2: calculation as for 1, but based on primary energy	Base	19% Key figure 1 103.7% Key figure 2	25%
Depends on the corporate unit: full-time equivalents (FTE), energy reference surface area, number of flights	Base	29.7%	25%
Efficiency calculation based on energy efficiency measures implemented (Energie-Agentur der Wirtschaft EnAW methodology)	Base	34.0%	25%
Staff level in full-time equivalents (FTE); work days are converted into FTE	Base	5.4%	25%
Full-time equivalents (FTE)	Base	47.5%	25%
Average of all actors**			
	Base	26.7%	25%

* You will find the detailed description (including the calculation methodology of the individual actors) at www.confederation-exemplary-in-energy.ch

** Key figure 1 is taken into account for the ETH Domain and SBB when calculating the average.

Consumption and increase in efficiency per actor

Even if absolute consumption increases, an actor may have increased efficiency if its organization is growing.

This is represented by individual reference variables. The calculation methodology for energy efficiency was left open for the actors, so that they can select it according to their existing environmental reports.

Final energy consumption and efficiency were calculated for the actors' own buildings, infrastructure and vehicles in Switzerland. But the precise system limits were defined differently for all actors (see p. 18).

System limits

The Confederation: exemplary in energy selected the scope for consumption data and the efficiency target as far as possible according to the existing system limits of the environmental reporting of the individual organizations.

With or without subsidiaries, with or without regional branches: the system limits vary greatly from one actor to another. Furthermore, in some cases the action plan's measures have an impact outside of these limits – on the employees' private energy consumption or on the consumption of the actors' customers.

Swiss Post

The data cover the Group, management and service units of Swiss Post and its fully-consolidated subsidiaries based in Switzerland. In addition, all the processes needed to provide Swiss Post's services were taken into account, in particular also those carried out by subcontractors.

ETH Domain

The data of the institutions in the ETH Domain include all the teaching and research activities and the entire infrastructure, including the particularly energy-intensive large-scale research facilities.

SBB

Energy consumption relates to the SBB group with its Passenger and Cargo, Real Estate and Infrastructure divisions. The key figure for energy efficiency also contains tractive energy (electric power and diesel) for SBB's passenger and cargo traffic in Switzerland.

Skyguide

The data comprise the air traffic control centers in Geneva and Wangen, the control towers in Geneva, Zurich and Bern and the radar stations on La Dôle and Lägern. Locations at regional airports are not covered as they account for only a small part of total consumption.

Swisscom

The system limits comprise Swisscom AG and all fully-consolidated subsidiaries in Switzerland. Concerning the networks, the consumptions of the basic network, the access network and the radio and TV network up to the house connection are included.

DDPS

The consumption data comprise the administration and troop service, but exclude foreign interventions. The data cover consumptions for both real estate and vehicles and aircraft. The energy consumption of aircraft is not included in the calculation of the key figure for energy efficiency.

Federal Administration

FBL / RUMBA programme

The energy data comprise the energy consumptions of the 54 organizational units of the Federal government that are part of the RUMBA programme. They do not include the foreign locations of the Federal Department of Foreign Affairs and the many small facilities of the Swiss Customs.

The Confederation: exemplary in energy

Action plan

The joint action plan of The Confederation: exemplary in energy can be shown in simplified terms by the following equation:
Joint measures plus Specific measures equals an Increase in energy efficiency. However, it conceals a multi-faceted and individually defined set of many measures.

Joint measures

plus

Specific measures

equals an

Increase in energy efficiency

The Confederation: exemplary in energy plan has defined 39 joint measures in three areas of action in which most actors have some leeway for action: Buildings and renewable energy, mobility, data centers and Green IT. Each actor has to attain a target achievement rate of 80% by 2020, averaged over all measures for which the actor concerned has some leeway for action. The 39 joint measures make possible synergies and the exchange of experience between actors.

The leeway for action of most actors is not yet covered by the joint measures. That is why each actor has, in addition, defined several specific measures which allow it to tap into its individual potential for increasing energy efficiency. In some cases it is not just a matter of increasing one's own efficiency but also of increasing the energy efficiency of customers and partners.

The action plans of the individual organizations and companies are the key instrument of the Confederation: exemplary in energy plan. Progressive implementation of joint and specific measures leads to an increase in energy efficiency. The objective is a 25% improvement by the end of 2020 – individually and as a group of organizations and companies. By implementing the measures beyond their system limits as well, the actors achieve a positive effect and energy efficiency improvements in third parties.

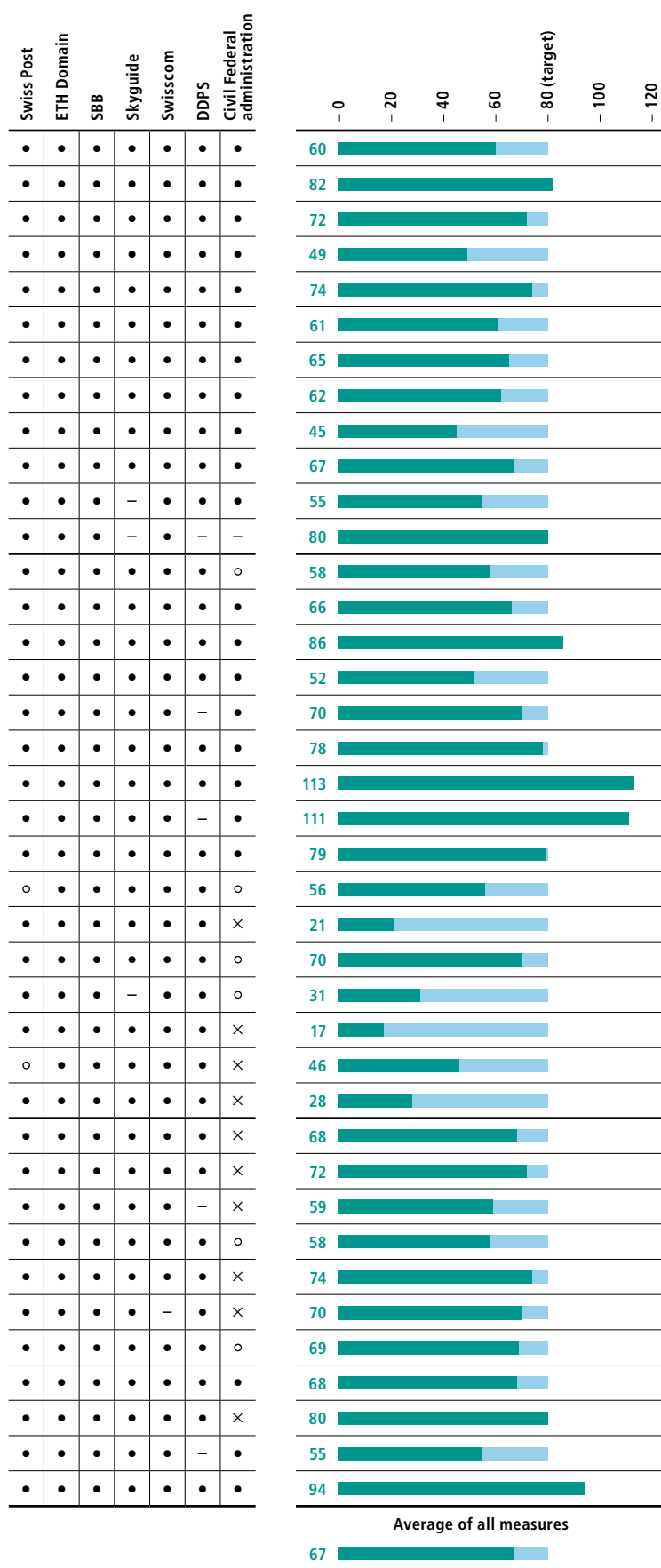
Joint measures of all actors
Detailed descriptions of the measures on pages 22 to 26

Area of action	Number	Measure	Performance target
Buildings and renewable energy	01	Energy-efficient new and converted buildings	100 % from 01.01.2016
	02	Analyses of potential of waste heat and renewable energies	Analyses of potential available
	03	No new fossil-fuel powered heating systems	100 % from 2016
	04	Full cost accounting of energy efficiency	1–2 case studies available from 01.01.2017
	05	Energy-efficient lighting	100 % from 01.01.2016
	06	Energy-efficient cooling machines	100 % from 01.01.2016
	07	Energy-efficient sanitation facilities	100 % from 01.01.2016
	08	Energy-efficient electromotors	100 % from 01.01.2016
	09	Building technology with operating optimization regime	60 % by 2020
	10	Procurement of green power and hydroelectricity	20 % and 80 % respectively by 2020
	11	Mobility concepts for buildings	100 % from 01.01.2016
	12	Creation of ecofunds	100 % by 2020
Mobility	13	Integration of mobility management	100 % by 2020
	14	Central information and booking platform	80 % of the employees
	15	Encouragement of mobile-flexible forms of work	30 % of the employees with an appropriate job profile
	16	Promoting work hubs	100 % of sites by 2020
	17	Promotion of video and web conferencing	30 % / 70 % of the employees
	18	Incentives for using public transport	see detailed description on page 24
	19	Providing or co-financing PT season tickets	half-fare card or contribution to PT season ticket
	20	Criteria for choosing mode of transport	Air travel less than 20 % for short distances by 2020
	21	Active parking space management	100 % of parking spaces
	22	Provision of bicycle parking spaces	100 % of the sites equipped to cope with demand
	23	Provision of bicycles and e-bikes	100 % of the sites with over 100 employees
	24	Criteria for procuring energy-efficient vehicles	100 % of newly-procured cars by 2020
	25	Eco-Drive training courses for frequent car users	100 % of employees
	26	Promoting the use of car sharing agencies	80 % of employees
	27	Joint use of a company carpool	see detailed description on page 25
	28	Provision of charging stations for electric vehicles	100 % of sites with over 500 employees
Data centers and Green IT	29	Full cost accounting of energy efficiency in procurement	100 % of the appliances in new calls for tender
	30	Specifications for new servers and new data center hardware	100 % of new calls for tender
	31	Highly energy-efficient data centers	see detailed description on page 25
	32	Pushing passive cooling solutions in data centers	see detailed description on page 25
	33	Encouraging server virtualization in data centers	over 85 % by 2020
	34	Bundling of data centers / Outsourcing of IT services	100 % checked by end of 2015
	35	Monitoring and evaluation of new technologies	at least one evaluation per year
	36	Promotion of waste heat recovery	50 % by 2030 (data centers > 250 sq. m.)
	37	Promotion of economy mode at computer workstations	over 90 % by 2015
	38	Promotion of energy-efficient printing solutions	see detailed description on page 26
	39	Promoting re-use of appliances	100 % by 2015

Actor

Achievement of target in 2015

Degree to which selected measure
was implemented by the actors, as a %



Joint measures of all actors

The Confederation: exemplary in energy plan has defined 39 joint measures to increase energy efficiency in the three action areas buildings and renewable energy, mobility and data centers and Green IT. From this catalogue, each actor has selected those measures in which it sees leeway for action.

Each actor seeks to attain a target achievement rate of 80 % on average by 2020 for its selected measures. The green bar indicates the extent to which all actors together have implemented a measure on average. Blue is the difference with the average target value of 80 %. Over-achievement of individual measures is possible up to the value of 125 %.

On average, The Confederation: exemplary in energy has implemented the joint measures to the tune of 67 %.

- selected measure
- selected, no data yet
- no leeway for action
- × responsibility for implementation open

green = implemented
blue = difference with the average target rate of 80 %

The 39 joint measures of all actors in detail

The Confederation: exemplary in energy plan has defined 39 joint measures in the three action areas buildings and renewable energy, mobility, and data centers and Green IT. You can read [here](#) the detailed descriptions with indicator and target.

Action area buildings and renewable energy

Indicator: newly-installed heating systems operated without fossil fuels.

Target: 100% from January 1, 2016.

01 Energy-efficient new and converted buildings

The actors' strategies for buildings and sites are guided by "best practice". For specific building standards they are based as much as possible on existing labels, such as MINERGIE-P-ECO®. For sites, strategies with an aggregate energy review are appropriate.

Indicator: standards existing, published and complied with.

Target: 100% compliance with the standards from January 1, 2016.

04 Full cost accounting of energy efficiency

In order to evaluate energy efficiency measures, the actors use "life cycle costs" (LCC) or "Total Cost of Ownership" (TCO) approaches. Investments in energy efficiency measures that pay for themselves over the life cycle of a measure are implemented. The application of the methodology is made public in a strategy paper.

Indicator: 1–2 case studies available.

Target: available from January 1, 2017.

02 Analyses of potential of waste heat and renewable energies

The actors each draw up an analysis of potential. It is intended to show the extent to which waste heat could be utilized and renewable energy produced on their sites and in their buildings and what this would cost. The FOE is consolidating these analyses and drawing up a master plan "New renewable energies in the federal government and parastate enterprises".

Indicator: analysis of potential available.

Target: Analyses of potential available.

05 Energy-efficient lighting

The actors now only procure lighting that is guided by the best practice principle, i.e. which is based on the latest and most energy-efficient technology. In the case of outdoor lighting, special attention is paid to nature-related issues, especially light pollution.

Indicator: Internal standards available and complied with.

Target: 100% from January 1, 2016.

03 No new fossil-fuel powered heating systems

The actors no longer build any fossil-fuel operated heating systems in their buildings. This also applies explicitly when replacing existing systems. Justifiable exceptions are possible, for example for special sites or functions. In such cases renewable substitute energies such as biogas should be used or, as the second priority, emissions should be offset by CO₂ reduction measures.

06 Energy-efficient cooling machines

The actors plan, procure and operate cooling machines to best practice standards: first of all, generation of heat/cold has to be designed integrally and, if possible, without a cooling machine (taking account of the annual heat/cold curve, use of waste heat, free cooling). If a cooling machine is nevertheless required, it has to be implemented according to the latest SIA standard; in addition, a greenhouse gas effect evaluation should be carried out.

Indicator: proportion of cooling machines procured in compliance with the requirements.

Target: 100% from January 1, 2016.

07 Energy-efficient sanitation facilities

Cold water alone is the standard for hand-washing and similar activities in toilet blocks and comparable facilities in new and renovated buildings. In addition, the actors now only procure sanitary ware in energy class A, except for showers (energy class B).

Indicator: Internal standards available and complied with.

Target: 100% from January 1, 2016.

08 Energy-efficient electromotors

When installing (in new and replacement buildings) new electrical building apparatus (ventilation, air-conditioning, cooling, sanitary), electromotors and other electrical apparatus (e.g. lifts, conveying equipment, compressors), the actors use the most efficient electromotors in each case (best practice strategy).

Indicator: Internal standards available and complied with.

Target: 100% from January 1, 2016.

09 Building technology with operating optimization regime

The actors subject their building apparatus to continuous operating optimization (OO). Recognized measures for increasing energy efficiency are being implemented constantly. In addition, whenever a new apparatus is commissioned in a building, an acceptance procedure is consistently carried out; any defects are rectified.

Indicator: % of consumption of apparatus with a continuous OO regime out of total annual energy consumption.

Target: 60% (by 2020).

10 Procurement of green power and power from renewable energies

The actors will gradually increase their proportion of green power ("naturemade star" or equivalent) to 20% by 2020. The remaining power requirement should be met by no later than January 1, 2020 exclusively with power from renewable energy sources.

Indicator: 1. % of green power out of total consumption, 2. % of power obtained from renewable energies out of total consumption.

Target (not including rail tractive power): 1. 20% (by 2020), 2. 80% (by 2020).

11 Mobility concepts for buildings

From now on, the players only construct new buildings with more than 50 permanent jobs when there is an overriding mobility concept and take the traffic volume into consideration already when choosing the location. The concept comprises minimum requirements for opening up areas with public transport (PT) and non-motorized traffic, as well as measures to reduce induced traffic and promote energy-efficient mobility.

Indicator: % of new buildings (> 50 permanent jobs) out of all new buildings (> 50 permanent jobs) with a mobility concept.

Target: 100% from January 1, 2016.

12 Creation of ecofunds

The actors each create an ecofund of their own.

These ecofunds are financed out of the reimbursement of the CO₂ and VOC levies and out of further reimbursements of monies in connection with environmental incentive levies, provided that these are not to be used by law or under a performance agreement for other purposes, or from other financing sources. The ecofunds finance measures in the energy or environmental sector.

Indicator: % of reimbursed environmental incentive levies that flow into the ecofund

Target: 100% (by 2020).

Action area mobility

13 Integration of mobility management

The actors implement structures and processes for regular assessment and effective management of employee mobility in terms of their environmental impact.

Indicator: % of employees for whose business divisions a mobility management system has been implemented.

Target: 100% (by 2020).

14 Central information and booking platform

The actors provide a central, web-based information and booking platform that allows easy access to planning and decision-making tools, guidelines and other information on service offers from the mobility sector.

Indicator: % of employees having access at their workplace to a mobility information platform.

Target: 80% (by 2020).

15 Encouragement of mobile-flexible forms of work

The actors enable forms of work that allow employees with suitable job profiles to choose, as freely as possible, their time and place of work (e.g. at home, when travelling, at other company sites).

This includes equipping them with the necessary devices (e.g. mobile devices with remote access to the corporate network) and creating the cultural preconditions by picking a central theme in management and staff development.

Indicator: % of employees who regularly use mobile-flexible work forms, out of all workers with a suitable job profile.

Target: 30% (by 2020).

16 Promoting work hubs

The actors provide work hubs at which employees from other sites or other companies and organizations can work temporarily. In addition, they create the cultural preconditions for working at work hubs. Indicator: % of suitable office locations with workstations to which in-house or outside employees from other sites have access.

Target: 100% (by 2020). In addition, reviews are conducted of the extent to which premises can be opened reciprocally within the Confederation: exemplary in energy plan.

17 Promotion of video and web conferencing

The actors' employees have access to video and web conferencing or, as applicable, corporate collaboration solutions, which make personal exchanges possible over great distances.

Indicator: % of employees who regularly use video/web conferencing, out of all employees with a suitable job profile.

Target: 30% of the workforce, 70% of the employees making several international business trips per year (by 2020).

18 Incentives for using public transport (PT)

The actors ensure that employees can be reimbursed through expenses for business travel with PT even if they use season tickets they have paid for themselves, and that the expense regulations do not give them any incentive to use their own car. The use of private cars requires approval from one's superior in keeping with clearly-defined criteria, and is only reimbursed with a cost-covering per-kilometer rate. Indicator: Expenses reimbursement for using PT, rules for use of private cars, kilometer rate.

Target: Expenses reimbursement of the PT ticket price based on the half-fare railcard, even if self-paid PT season tickets are used, clearly-defined criteria for using private vehicles, km rate for private cars, max. CHF 0.64 per km.

19 Providing or co-financing PT season tickets

The actors encourage the use of PT for business and commuter journeys by providing a half-fare railcard and/or by making a financial contribution to other PT season tickets (zone, point-to-point or network-wide season tickets).

Indicator: minimum contribution to PT season tickets for employees.

Target: all employees are entitled to a half-fare railcard or a corresponding company contribution to a PT season ticket.

20 Criteria for choosing mode of transport

The actors introduce a guideline with clearly-defined travel distances for rail or air travel as well as criteria for using video and web conferencing and corporate

collaboration solutions. They provide a simple decision-making tool and cover all international business travel reimbursed via the expense accounts or the travel agency.

Indicator: proportion of air travel to destinations that can be reached by train from Basel, Zurich or Geneva in a maximum of five hours.

Target: less than 20% (by 2020).

21 Active parking space management

The actors charge for employee parking spaces at usual market rates and allocate them using clear criteria such as level of service by PT at place of domicile, time difference between using a private car and PT to travel to work, working hours, participation in car sharing agencies and/or energy efficiency of the vehicle. New sites are planned with a minimum number of parking spaces.

Indicator: proportion of parking spaces with clear allocation criteria and usual market rates.

Target: 100% (by 2020).

22 Provision of bicycle parking spaces

The actors provide covered and secure parking spaces for two-wheelers and the associated infrastructure (changing rooms with showers). Minimum requirements are, for example, that the spaces should be covered, be near the entrance or have structures to which the bike frame can be padlocked.

Indicator: % of sites (> 100 employees) with a number of bike parking spaces to match demand, as per minimum requirements.

Target: 100% (by 2020).

23 Provision of bicycles and e-bikes

At larger sites, the actors provide self-rental bikes and e-bikes for mobility between nearby sites (e.g. PubliBike stations, company bicycles).

Indicator: % sites (> 100 employees needing this service) with access to self-rental bikes.

Target: 100% (by 2020).

24 Criteria for procuring energy-efficient vehicles

The actors apply clear energy-efficiency criteria such as the energy label when procuring vehicles. For all new vehicles (incl. delivery vans), the fuel consumption/CO₂ value is weighted as an evaluation criterion with at least 15% in the benefit analysis.

Indicator: % of newly-procured cars with up to a max. of 5 seats in energy efficiency class A, not counting all-wheel-drive vehicles, intervention vehicles such as ambulances and goods transport vehicles.

Target: 100% (by 2020).

25 Eco-Drive training courses for frequent car users

Employees who drive more than 20,000 kilometers a year on business are trained every three years

on an Eco-Drive course. In the case of employees who use the company fleet, the employer supports privately-attended Eco-Drive courses with a 30% contribution to costs.

Indicator: % of employees driving more than 20,000 kilometers a year who have attended an Eco-Drive course in the last three years.

Target: 100% (by 2020).

26 Promoting the use of car sharing agencies

The actors provide information on and access to their own or an outside car sharing agency for arranging lifts and to carpools in commuter and business traffic.

Indicator: % of employees who depend on the car to travel to work and who have access at their workplace to a car sharing agency (prerequisite: a sufficiently large number of employees).

Target: 80% (by 2020).

27 Joint use of a company carpool

The number of business vehicles is reduced by inter-departmental use of carpool vehicles. A vehicle management tool is introduced and used regionally. Indicator: average length of time for which company vehicles are used (not counting intervention vehicles such as ambulances).

Target: Vehicles used for < 2 hrs. per day are incorporated into the vehicle pool.

28 Provision of charging stations for electric vehicles

Parking spaces at larger sites are equipped with charging facilities for ordinary electric vehicles, for example electric cars, electric scooters and e-bikes. In new buildings, plans must ensure the subsequent installation of charging stations for electric vehicles. Indicator: % of sites (> 500 employees) with charging facilities for electric vehicles.

Target: 100% (by 2020).

Action area data centers and Green IT

29 Full cost accounting of energy efficiency in procurement

The actors assess and select for a predetermined specification their IT infrastructure according to the Total Cost of Ownership (TCO) approach, including energy consumption. Energy consumption must be disproportionately overweighted here, unlike with the purely TCO approach.

Indicator: % of the IT appliances evaluated according to the description of measures in new calls for tender.

Target: 100% from January 1, 2015.

30 Specifications for new servers and new data center hardware

The actors systematically call for joint state-of-the-art specifications when procuring new servers and further data center hardware. The state-of-the-art specifications are based on existing labels (for example, 80 PLUS® Gold-Label or ENERGY STAR® Programme Requirements for Computer Servers) or standards.

Indicator: % of compliant servers and further hardware in the data center in new calls for tender.

Target: 100% from January 1, 2015.

31 Highly energy-efficient data centers

The actors implement the most energy-efficient concepts and technologies in the data centers' infrastructure systems (ventilation, cooling, uninterrupted power supply, lighting).

Indicator: average PUE value (Power Usage Effectiveness) over all of the data centers. The PUE value is defined as the ratio of the total electrical energy consumption of the data center to the energy consumption of the IT equipment.

Target: < 1.3 by 2030. (In new and larger data centers, smaller PUE values are expected, while best efforts are expected in smaller data centers).

32 Pushing passive cooling solutions in data centers

The actors push the use of energy-efficient passive cooling solutions without cooling machines by using the air conditioning range permissible for servers as per current standards. As first measure, in existing data centers with conventional cooling, the cold operating temperature is raised to at least 26 °C. Indicator: 1st part: existing data center surface area with temperature > 26 °C; 2nd part: data center surface area with extended temperature range or with passive cooling.

Target: 1st part: 100% from 2015; 2nd part: 33% by 2025, 66% by 2035.

33 Encouraging server virtualization in data centers

The actors aim for a high server capacity utilization. To this end, increasing reliance is placed on server virtualization and on memory technology (SAN) in the storage area.

Indicator: % proportion of virtual servers: number of virtual servers / (number of virtual + physical servers).

Target: > 85% (by 2020).

34 Bundling of data centers / Outsourcing of IT services

The actors check potential for increasing energy efficiency as part of data center consolidations.

Indicator: Checked potential.

Target: 100% by the end of 2015.

35 Monitoring and evaluation of new technologies

The actors monitor or evaluate new technologies with energy-efficiency potential and operate a Technology Board within The Confederation: exemplary in energy plan.

Indicator: number of technologies evaluated.

Target: at least 1 per year.

36 Promotion of waste heat recovery

The actors promote the feeding of their surplus heat from civil IT production into district heating grids, provided that suitable heat customers exist and a contractor is prepared to take on the project in full. Financing, planning, construction and operation from the heat production site are a matter for the contractor.

Indicator: % use of surplus waste heat.

Target: 50% by 2030 (data centers of > 250 sq. m.).

37 Promotion of economy mode at computer workstations

The actors ensure that, when not in use, computer workstations switch to the idle state after a predetermined time.

Indicator: % of workstations with active power management.

Target: 90% by 2015.

38 Promotion of energy-efficient printing solutions

The actors optimize the number of printers per employee and implement modern printing solutions in the office area, such as the Follow-me-printing function. As a result, printer operation is optimized and paper and power can be saved.

Indicator: no. of employees per printer; kg of paper per employee.

Target: 100 employees per printer or at smaller sites a maximum of 1 printer by 2020; 5 kg of paper per employee per year (= approx. 1,000 A4 sheets) by 2020.

39 Promoting re-use of appliances

The actors promote re-use of old, but still-serviceable, equipment by passing on old PCs to specialized companies, aid agencies or by giving them to employees. Equipment that has to be disposed of is processed only by certified recycling companies.

(In order to ensure energy efficiency, the actors can define additional criteria, such as for example, that only equipment less than 8 years old should continue to be used.)

Indicator: guidelines for recycling no-longer-used equipment are available.

Target: 100% by 2015.

You will find the detailed description of the measures at www.confederation-exemplary-in-energy.ch.

Swiss Post

Action plan

Swiss Post's energy requirement in 2015 was 971 gigawatt-hours. The requirement has fallen by 8% compared with the base year 2006, despite strong growth of business in some areas. Swiss Post increased its energy efficiency by 23.8% over this period. Among the measures that contributed to this success were increased use of alternative-drive vehicles, optimization of delivery rounds and installation of heat pumps in service buildings.



A technology project manager charging the electric delivery van.

Success story

Successful test of electric delivery vehicles

Electric drive has now reached series production status for four-wheel-drive vehicles as well. Before Swiss Post deploys new drive technologies on a broad basis, it tests them thoroughly to determine their operational viability. Twelve electrically-powered delivery vans were tested in use for about two years. The tests were conducted by Mobility Solutions Ltd; the Swiss Post subsidiary is the largest manufacturer-independent full-service fleet manager in Switzerland.

The results are promising. For example, the cost comparison shows that today an electric delivery van is no more expensive to operate over its entire service life than an equivalent petrol-engine vehicle. But electric delivery vans are over four times as energy efficient and save up to 100 kilowatt-hours (kWh) per 100 kilometers. A user survey conducted in parallel among the deliverers participating in the test found that the use of electric delivery vans at Swiss Post is perceived positively.

Swiss Post

Selection from the joint measures of all actors

The Confederation: exemplary in energy plan has defined 39 joint measures to increase energy efficiency in the three action areas. Swiss Post intends to implement all these measures. As long as a measure is in the implementation phase, it is marked with a blue dot. Once it has been implemented, the dot changes to green.

No. Measure

03

Action area Buildings and renewable energy

- 01 ● Energy-efficient new and converted buildings
- 02 ● Analyses of potential of waste heat and renewable energies
- 03 ● No new fossil-fuel powered heating systems
- 04 ● Full cost accounting of energy efficiency
- 05 ● Energy-efficient lighting
- 06 ● Energy-efficient cooling machines
- 07 ● Energy-efficient sanitation facilities
- 08 ● Energy-efficient electromotors
- 09 ● Building technology with operating optimization regime
- 10 ● Procurement of green power and hydroelectricity
- 11 ● Mobility concepts for buildings
- 12 ● Creation of ecofunds

Action area Mobility

- 13 ● Integration of mobility management
- 14 ● Central information and booking platform
- 15 ● Encouragement of mobile-flexible forms of work
- 16 ● Promoting work hubs
- 17 ● Promotion of video and web conferencing
- 18 ● Incentives for using public transport
- 19 ● Providing or co-financing PT season tickets
- 20 ● Criteria for choosing mode of transport
- 21 ● Active parking space management
- 22 ○ Provision of bicycle parking spaces
- 23 ● Provision of bicycles and e-bikes
- 24 ● Criteria for procuring energy-efficient vehicles
- 25 ● Eco-Drive training courses for frequent car users
- 26 ● Promoting the use of car sharing agencies
- 27 ○ Joint use of a company carpool
- 28 ● Provision of charging stations for electric vehicles

Action area Data centers and Green IT

- 29 ● Full cost accounting of energy efficiency
- 30 ● Specifications for new servers and new data center hardware
- 31 ● Highly energy-efficient data centers
- 32 ● Pushing passive cooling solutions in data centers
- 33 ● Encouraging server virtualization in data centers
- 34 ● Bundling of data centers / Outsourcing of IT services
- 35 ● Monitoring and evaluation of new technologies
- 36 ● Promotion of waste heat recovery
- 37 ● Promotion of economy mode at computer workstations
- 38 ● Promotion of energy-efficient printing solutions
- 39 ● Promoting re-use of appliances

- adopted and at least 80% achieved
- adopted and in implementation phase
- adopted, no data yet
- no leeway for action



No new fossil-fuel powered heating systems

The newly built PostParc near Bern Central Station is heated only with waste heat. Instead of heating, a large refrigerating machine was installed on the basement levels. It produces cold water and feeds it into the Bern station cooling network. The cold is required on the station site all-year round, for example for data centers, to refrigerate polar ice samples used by the University of Bern, but also for air-conditioning in shop premises. The entire PostParc is supplied with heat and hot water from the waste heat obtained from the new installation. The new solution affords advantages for all members of the cooling network: the users benefit from favourable terms, while the PostParc can be heated at a comparatively low cost. The power for the refrigerating machine is sourced 100% from renewable energies in Switzerland and is certified "naturemade basic".

Picture: PostParc near Bern Central Station

A detailed description of the measures can be found on pages 22 to 26.

Selection from the actor's specific measures

Swiss Post is undertaking diverse efforts to increase its energy efficiency. In addition to the 39 joint measures for all actors, Swiss Post has selected **11 specific measures**. Swiss Post has defined a reduction target and a target date for each of these measures. When a measure has been implemented, the depiction of the target changes from blue to green.

No. Measure
(target — target year — status)

- 01 Replacement of all petrol-engine scooters used to deliver letters with electric scooters. The approx. 7,000 vehicles are operated with entirely "naturemade star"-certified power.
13.0 GWh/y — 2016 — in implementation phase
- 02 Energy-efficient logistics management at PostLogistics
2.1 GWh/y — 2014 — implemented.
- 03 Replacement of conventional Postbuses with fuel-cell and diesel-hybrid buses (saving per Postbus; status March 2016: 31 diesel-hybrid buses, 5 fuel-cell buses; fleet is constantly being expanded)
15.0 MWh/y — 2020 — in implementation phase
- 04 Use of modern EcoLife transmissions and updates of the transmission software in Postbuses
6.0 GWh/y — 2014 — implemented
- 05 Targeted replacement of installations for ensuring an uninterrupted power supply (UPS) in the data centers of PostFinance Ltd with latest generation installations
1.0 GWh/y — 2014 — implemented
- 06 Procurement of certified biogas
5.5 GWh/y — 2020 — in implementation phase
- 07 Management of subcontractors in logistics: Monitoring of average fuel consumption with the 16 largest transport logistics partners.
1.1 GWh/y — 2015 — implemented
- 08 Photovoltaic installations on post office buildings
5.0 GWh/y — 2020 — in implementation phase
- 09 Procurement of biodiesel
3.3 GWh/y — 2017 — in implementation phase
- 10 Optimization of lifting beams in sorting centers
114.0 MWh/y — 2015 — implemented
- 11 Smart metering in transporters
1.0 GWh/y — 2020 — in implementation phase

09



3.3 GWh/y
Procurement of biodiesel

Diesel with a 7% biodiesel content – that is, B7-Diesel – was available in 2015 at 26 Swiss Post service stations. Biodiesel is produced using waste from cooking oil production and therefore does not deprive agriculture of valuable arable land. All current diesel engines can be operated with B7 diesel. In 2015, more than 330,000 litres of conventional diesel – or 3.3 GWh – could be saved by using environmentally compatible biodiesel.

10



114.0 MWh/y
Optimization of lifting beams
in sorting centers

Swiss Post has renewed the lifting beams in the Eclépens, Härkingen and Zurich-Mülligen sorting offices. These devices move the letter containers in high-rack warehouses. The braking energy generated here is fed back into the grid as electric power. By doing so about 114 MWh of energy are saved per year.

11



1.0 GWh/y
Smart metering in transporters

The approx. 1,600 transporters operated by Swiss Post transmit over 4 million items of data per day on their rounds – ranging from locational data through the number of kilometers driven to fuel consumption. Evaluation of the journeys provides insights into the way the drivers drive and, together with EcoDrive training courses, helps to save up to 5% of fuel or 1.0 GWh of energy.

green = reduction target attained
blue = target

Energy target 2020

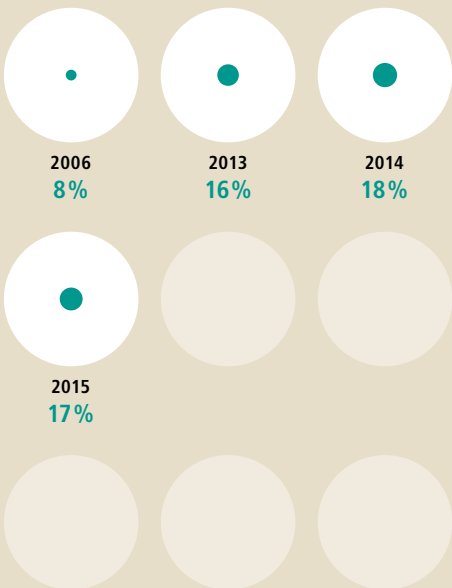
The energy efficiency of Swiss Post was 23.8% higher in the year under review than in the base year 2006.

Increase in energy efficiency



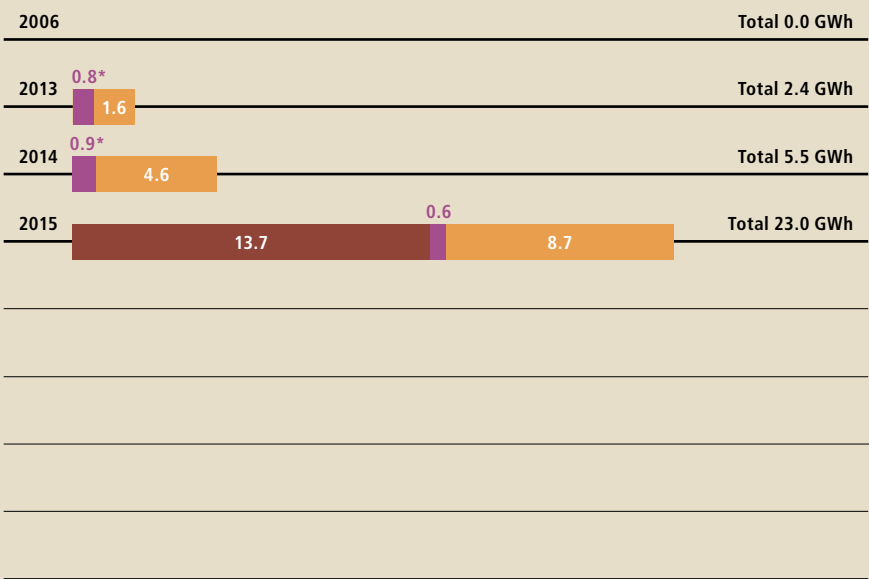
Renewable energy as a proportion of total consumption

Swiss Post increased renewable energy (heat, fuels and power) as a proportion of total energy consumption from 8% in the base year 2006 to 17% in the year under review.



Production of energy from renewable sources

Swiss Post increased its production of renewable fuels and power from 0 GWh in the base year 2006 to 9.3 GWh in the year under review. Furthermore, 13.7 GWh of heat were produced from renewable sources. For the first time, in the year under review heat from environmental energy was also considered.



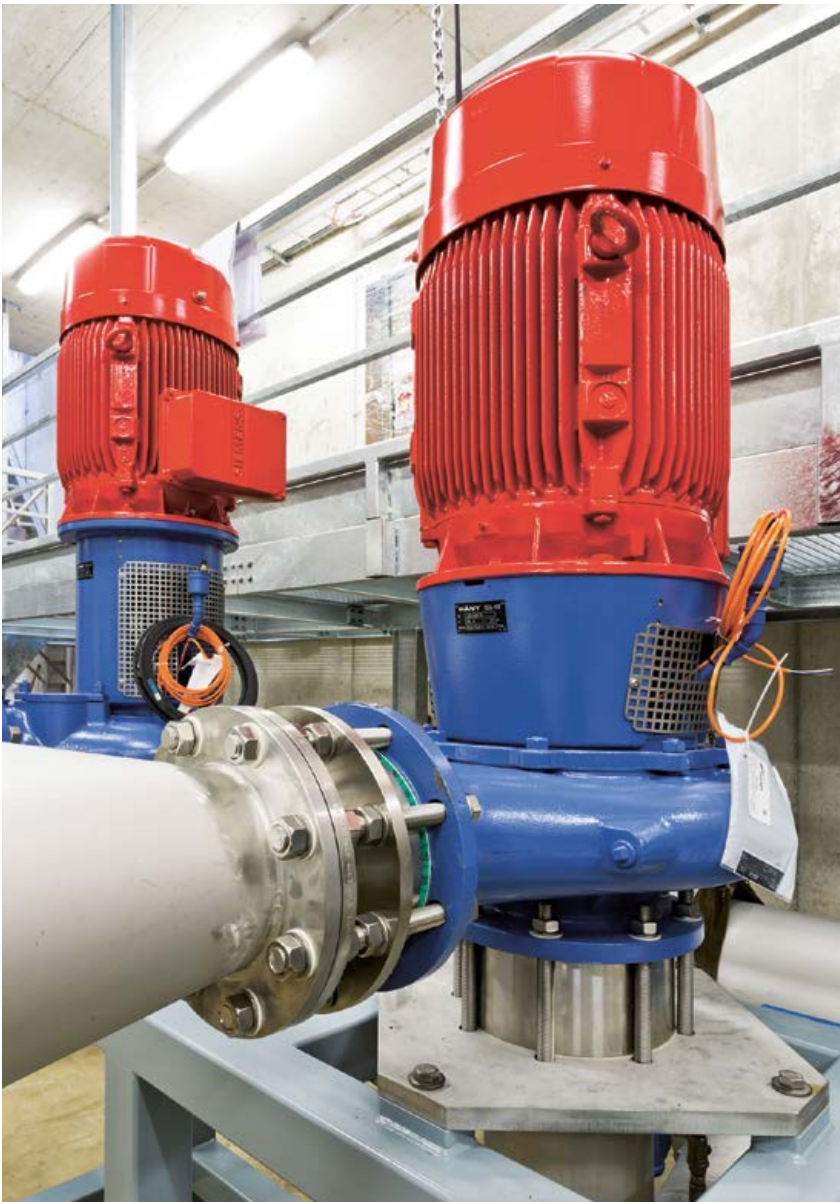
Fuels (heating) ■ Renewable and waste heat (from 2015 including heat and cold from environmental energy)
Fuels (transport) ■ Renewable
Power ■ Renewable

* The figure for the production of renewable fuel had to be corrected retrospectively.

ETH Domain

Action plan

The ETH Domain has been characterized since 2006 by a very rapid expansion of teaching and research, fast-growing student and teacher numbers and by novel large-scale research facilities. The extent to which technology is used in the buildings is constantly increasing as a result of the latest laboratory technology and other innovations. Thanks to modernization of building technology, increased recovery of waste heat and great efforts to ensure that large-scale research facilities are as energy-efficient as possible, energy efficiency has been improved by 27.4% since 2006, although total energy consumption has risen by 7.1%.



Innovative cooling system of the CSCS data center in Lugano.

Success story

Microturbine produces power from cooling water

The CSCS data center is cooled by means of lake water. This is pumped up from Lake Lugano respectively from the subterranean pumping station in the Parco Ciani through a three-kilometer-long pipeline to the CSCS. After the cooling process, the water flows into a catchment basin. From there, it flows back through the same pipeline to the lake, the level of which is about 30 metres lower.

Since 2015, the water power generated in this way has been used to produce power by means of a Francis turbine. The power produced is used directly on site to operate the lake water pumps. At the current flow rate, about 217 megawatt-hours (MWh) are produced in this way per year; this reduces the pumping station's power costs by about one third. The microturbines are designed so that they can produce even more power, if in future there should be more cooling water in the return flow. The potential for energy recovery is correspondingly greater. This measure additionally increases the energy efficiency of the CSCS.

ETH Domain

Selection from the joint measures of all actors

The Confederation: exemplary in energy plan has defined 39 joint measures to increase energy efficiency in the three action areas. The ETH Domain intends to implement all the measures. As long as a measure is in the implementation phase, it is marked with a blue dot. Once it has been implemented, the dot changes to green.

No. Measure

10

Action area Buildings and renewable energy

- 01 ● Energy-efficient new and converted buildings
- 02 ● Analyses of potential of waste heat and renewable energies
- 03 ● No new fossil-fuel powered heating systems
- 04 ● Full cost accounting of energy efficiency
- 05 ● Energy-efficient lighting
- 06 ● Energy-efficient cooling machines
- 07 ● Energy-efficient sanitation facilities
- 08 ● Energy-efficient electromotors
- 09 ● Building technology with operating optimization regime
- 10 ● Procurement of green power and hydroelectricity
- 11 ● Mobility concepts for buildings
- 12 ● Creation of ecofunds

Action area Mobility

- 13 ● Integration of mobility management
- 14 ● Central information and booking platform
- 15 ● Encouragement of mobile-flexible forms of work
- 16 ● Promoting work hubs
- 17 ● Promotion of video and web conferencing
- 18 ● Incentives for using public transport
- 19 ● Providing or co-financing PT season tickets
- 20 ● Criteria for choosing mode of transport
- 21 ● Active parking space management
- 22 ● Provision of bicycle parking spaces
- 23 ● Provision of bicycles and e-bikes
- 24 ● Criteria for procuring energy-efficient vehicles
- 25 ● Eco-Drive training courses for frequent car users
- 26 ● Promoting the use of car sharing agencies
- 27 ● Joint use of a company carpool
- 28 ● Provision of charging stations for electric vehicles

Action area Data centers and Green IT

- 29 ● Full cost accounting of energy efficiency
 - 30 ● Specifications for new servers and new data center hardware
 - 31 ● Highly energy-efficient data centers
 - 32 ● Pushing passive cooling solutions in data centers
 - 33 ● Encouraging server virtualization in data centers
 - 34 ● Bundling of data centers / Outsourcing of IT services
 - 35 ● Monitoring and evaluation of new technologies
 - 36 ● Promotion of waste heat recovery
 - 37 ● Promotion of economy mode at computer workstations
 - 38 ● Promotion of energy-efficient printing solutions
 - 39 ● Promoting re-use of appliances
-
- adopted and at least 80% achieved
 - adopted and in implementation phase
 - adopted, no data yet
 - no leeway for action



Procurement of green power and hydroelectricity

On its Dübendorf site, at the end of 2015 Eawag increased its own photovoltaic production on the roof of the Chriesbach Forum from 70 to about 100 MWh a year. The additional panels are placed on a novel substructure. This improves the conditions for the green roof situated below, so that light and air can penetrate more easily. Thus a green roof and solar cells are not mutually exclusive. The concrete stones of the substructure are laid directly on the substrate. 619 square metres of the roof – instead of 459 square metres previously – are now covered with photovoltaic panels. Vacuum tube collectors for producing hot water have been placed on 50 square meters of the roof surface. This ensures that the roof surface of the Chriesbach Forum is optimally utilized to produce energy.

Picture: Extended photovoltaic installation at Eawag on the green roof of the Chriesbach Forum

A detailed description of the measures can be found on pages 22 to 26.

Selection from the actor's specific measures

The ETH Domain is undertaking diverse efforts to increase its energy efficiency. In addition to the 39 joint measures for all actors, the ETH Domain has selected 6 specific measures. The ETH Domain has defined a target and a target date for each of these measures. When a measure has been implemented, the depiction of the target changes from blue to green.

No. Measure
(target — target year — status)

01

New Research projects

- 01 Research in the field of Energy
New Research projects — 2020 — in implementation phase

Exemplary measures

- Implementation of the Swiss Competence Centers for Energy Research (SCCER): research on energy topics such as "Power supply", "Storage", "Grids and their components, energy systems", "Efficient concepts, processes and components in mobility" and "Biomass".
- NEST, a practical laboratory for intelligence in the building
- Smart Living Lab, a research and practical laboratory for integrating systems to generate energy from renewable energies in buildings.

- 02 Teaching in the field of energy
New study courses — 2020 — implemented

Exemplary offers from the new study courses and further training courses

- Implementation of a master course in "Energy Science and Technology" at ETH Zurich.
- Master course in energy management and sustainability at EPFL

- 03 ETH Zurich: Construction of the Anergy grid on the Hönggerberg campus
14.0 GWh/y of geothermal heat — 2020 — in implementation phase

- 04 PSI: Improved waste heat recovery on the research site
75% waste heat — 2018 — in implementation phase

- 05 EPFL: EPFL's autonomous heat supply. Target: heating without fossil fuels by 2019, maximization of the use of renewable energy for heating and cooling (100% heat pump with lake water) by 2019; minimization of CO₂ emissions, use of potential synergies with other projects on the campus.
100% Renewables — 2019 — in implementation phase

- 06 WSL: Conversion of all WSL's own sites to CO₂-neutral heating. Target: reduction of CO₂ emissions by 97% from 2006 to 2020, reduction of the heat requirement by 25% by 2018.
CO₂ reduction — 2020 — in implementation phase



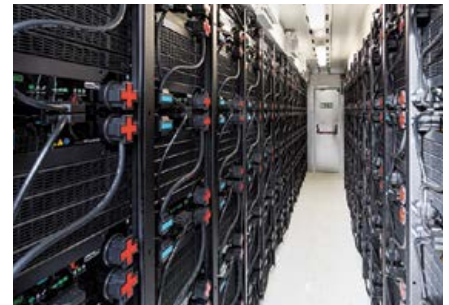
PSI: Energy System Integration Platform (ESI)

The Energy Strategy 2050 provides for a substantial expansion of solar and wind energy. Storage and flexibilization options are necessary to enable this energy — which is produced at irregular times — to be integrated into the energy system and be made available for efficient end use. With this objective, the ESI platform has been gradually put into operation since autumn 2015. It demonstrates the interconnection between electricity and gas supply grids by converting temporary electricity surpluses into storable chemical energy carriers (hydrogen, methane). The power-to-gas concept is linked to the recovery of methane from biomass in order to be able to react flexibly to energy supply and demand.



Empa: Technology transfer platform "move"

Sustainable mobility means massively reducing consumption of fossil fuels and also CO₂ emissions. In the "move" — the Future Mobility Demonstrator — Empa shows, in cooperation with partners from research, business and the public sector, how the mobility of the future could work without fossil energy.



EPFL: 500-kWh battery storage

As a test environment for his energy research, Professor Mario Paolone, working with the company Leclanché AG, has constructed a large-scale battery to store power from the photovoltaic installation, which is connected to the Solar Park Romande Energie — EPFL. The battery can store up to 500 kWh, which corresponds to the consumption of 50 Swiss households. It allows the fluctuations of solar energy to be cancelled out. The research project was supported by the canton of Vaud as part of the "100 million for renewable energies and energy efficiency" initiative.

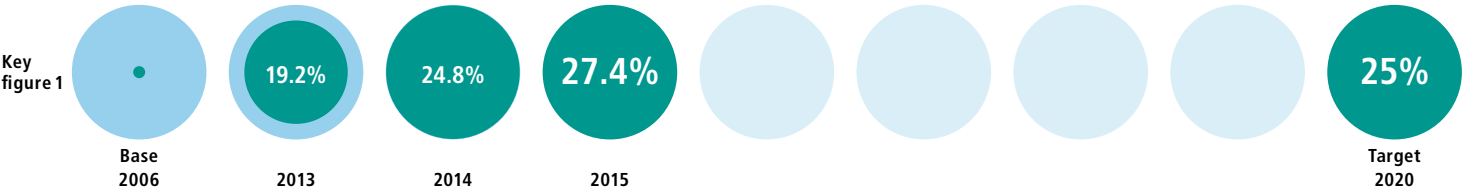
green = reduction target attained
blue = target

ETH Domain

Energy target 2020

The ETH Domain distinguishes between two kinds of energy efficiency:
key figure 1 is based on full-time equivalents (FTE), the energy reference surface area, the number of instrument days and the patient treatments at the PSI.
Key figure 2 is calculated as for key figure 1, but in addition takes into account the increase in efficiency on the mainframe computer.

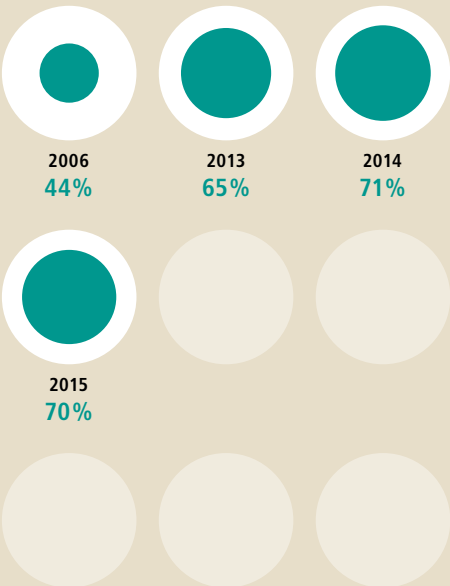
Increase in energy efficiency



Key figure 2 As stated above, the ETH Domain indicates a second key figure, which takes into account the mainframe computer. This efficiency was **153.4%** higher than in the base year 2006.

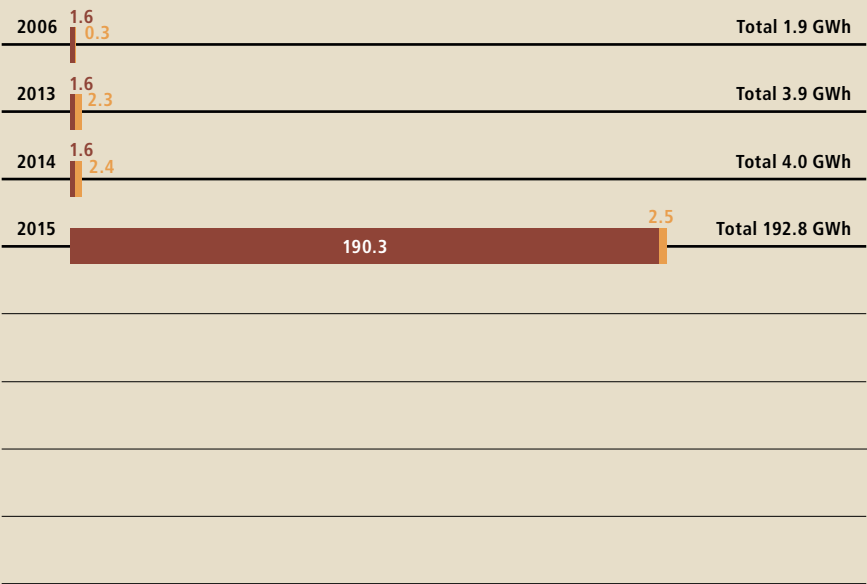
Renewable energy as a proportion of total consumption

The ETH Domain increased renewable energy (heat, fuels and power) as a proportion of total energy consumption from 44% in the base year 2006 to 70% in the year under review.



Production of energy from renewable sources

In the year under review, the ETH Domain produced 192.8 GWh of heat and power from renewable sources. For the first time, heat from environmental energy was also considered.



Fuels (heating) ■ Renewable and waste heat (from 2015 including heat and cold from environmental energy)
Fuels (transport) ■ Renewable
Power ■ Renewable (including third-party photovoltaic installations on own roof surfaces)

Swiss Federal Railways (SBB)

Action plan

SBB is planning to save 20% of the annual consumption forecast for 2025, or a total of 600 gigawatt-hours per year, with an extensive package of measures. Moreover, from 2025 onwards, the SBB's trains are to run on power from 100% renewable energies. While efficiency increased by 19% from 2006 to 2015, tractive power consumption rose by 8.2%, due to a strong increase in passenger traffic output of about 36.6%, among other reasons.



Previous model of a track construction vehicle in use

Success story

Sustainable procurement reduces diesel consumption and CO₂ emissions

SBB Infrastructure has ordered 47 shunting and main-line locomotives as well as 35 track construction vehicles. For the first time, energy efficiency criteria played a significant role in the procurement decision: The suppliers were required, inter alia, to submit documents on energy consumption simulations for various applications. The results of these calculations were incorporated into the life cycle costs. As a result, the vehicle manufacturers had an incentive to develop energy-efficient solutions. The shunting and main-line locomotives ordered on the basis of the new evaluation criteria are energy-efficient, dual-powered vehicles. In addition to diesel engines, they are also equipped with an efficient electric drive system. This means that the high degree of electrification of the SBB's network can be exploited. Diesel consumption and CO₂ emissions are reduced by 75% compared with a conventional diesel locomotive.

Sustainable procurement is important, as energy optimizations can only be implemented with difficulty on existing vehicles, for financial, technical and operational reasons.

Swiss Federal Railways (SBB)

Selection from the joint measures of all actors

The Confederation: exemplary in energy plan has defined 39 joint measures to increase energy efficiency in the three action areas. SBB intends to implement all these measures. As long as a measure is in the implementation phase, it is marked with a blue dot. Once it has been implemented, the dot changes to green.

No. Measure

03

Action area Buildings and renewable energy

- 01 ● Energy-efficient new and converted buildings
- 02 ● Analyses of potential of waste heat and renewable energies
- 03 ● No new fossil-fuel powered heating systems
- 04 ● Full cost accounting of energy efficiency
- 05 ● Energy-efficient lighting
- 06 ● Energy-efficient cooling machines
- 07 ● Energy-efficient sanitation facilities
- 08 ● Energy-efficient electromotors
- 09 ● Building technology with operating optimization regime
- 10 ● Procurement of green power and hydroelectricity
- 11 ● Mobility concepts for buildings
- 12 ● Creation of ecofunds

Action area Mobility

- 13 ● Integration of mobility management
- 14 ● Central information and booking platform
- 15 ● Encouragement of mobile-flexible forms of work
- 16 ● Promoting work hubs
- 17 ● Promotion of video and web conferencing
- 18 ● Incentives for using public transport
- 19 ● Providing or co-financing PT season tickets
- 20 ● Criteria for choosing mode of transport
- 21 ● Active parking space management
- 22 ● Provision of bicycle parking spaces
- 23 ● Provision of bicycles and e-bikes
- 24 ● Criteria for procuring energy-efficient vehicles
- 25 ● Eco-Drive training courses for frequent car users
- 26 ● Promoting the use of car sharing agencies
- 27 ● Joint use of a company carpool
- 28 ● Provision of charging stations for electric vehicles

Action area Data centers and Green IT

- 29 ● Full cost accounting of energy efficiency
- 30 ● Specifications for new servers and new data center hardware
- 31 ● Highly energy-efficient data centers
- 32 ● Pushing passive cooling solutions in data centers
- 33 ● Encouraging server virtualization in data centers
- 34 ● Bundling of data centers / Outsourcing of IT services
- 35 ● Monitoring and evaluation of new technologies
- 36 ● Promotion of waste heat recovery
- 37 ● Promotion of economy mode at computer workstations
- 38 ● Promotion of energy-efficient printing solutions
- 39 ● Promoting re-use of appliances

- adopted and at least 80% achieved
- adopted and in implementation phase
- adopted, no data yet
- no leeway for action



No new fossil-fuel powered heating systems

Many SBB buildings are listed as historic monuments. It is therefore often not possible to renovate the shell of a building and thus to reduce energy consumption. One alternative is to heat these buildings in a manner that is as CO₂-neutral as possible. SBB intends to achieve this by not installing any new, or renovating any existing, oil- or gas-fired heating systems in future. SBB has installed the first pellet heating system in the historic locomotive depot in Delémont. The pellets are produced from waste wood sourced from Swiss sawmills. SBB is using a domestic fuel instead of buying in energy from abroad. Moreover, wood is CO₂-neutral and is one of the renewable energy sources. In addition to the pilot plant, SBB has in the meantime installed three further pellet heating plants in western Switzerland. As a result, it is saving about 70,000 litres of heating oil per year.

Picture: Historic locomotive depot Rotonde in Delémont

A detailed description of the measures can be found on pages 22 to 26.

Selection from the actor's specific measures

SBB is undertaking diverse efforts to increase its energy efficiency. In addition to the 39 joint measures for all actors, SBB has selected 15 specific measures. SBB has defined a reduction target and a target date for each of these measures. When a measure has been implemented, the depiction of the target changes from blue to green.

No. Measure
(target — target year — status)

Optimization of rolling stock and driving behaviour

- 01 Adaptive control (ADL): a green wave for rail traffic
72.0 GWh/y — 2016 — in implementation phase
- 02 Energy modernization of the Re460 locomotive, including replacement of the power converters
28.7 GWh/y — 2022 — in implementation phase
- 03 Energy-optimized shutdown of passenger trains (intelligent hibernation mode)
34.0 GWh/y — 2017 — in implementation phase
- 04 Refit of double-deck push-pull train: optimization of heating, ventilation, air-conditioning
13.3 GWh/y — 2017 — in implementation phase
- 05 Double-deck multiple-unit train: optimization of drive software and control, heating, ventilation, air-conditioning
13.0 GWh/y — 2015 — implemented
- 06 Demand-dependent outside air control with air pressure or CO₂ sensors (IC 2000, ICN)
11.4 GWh/y — 2022 — in implementation phase
- 07 Timetable-based train preparation time (HVZ-D, IC 2000, double-deck multiple-unit train, new trains)
9.5 GWh/y — 2018 — in implementation phase

Optimizations of rail power supply

- 08 Optimization of load distribution and nozzle control for Pelton turbines in the Amsteg hydroelectric power station
3.5 GWh/y — 2015 — implemented
- 09 Load flow optimization through energy management and traction power control system EMS/FSL
10.0 GWh/y — 2017 — in implementation phase
- 10 Increasing the efficiency of the Göschenen hydroelectric power station with new impellers and transformers
5.0 GWh/y — 2020 — in implementation phase

Optimizations of infrastructure and buildings

- 11 Optimization of lifts/elevators and escalators
2.7 GWh/y — 2025 — in implementation phase
- 12 Migration of old telephone equipment to VoIP technology
2.0 GWh/y — 2016 — in implementation phase
- 13 Optimization of rail points heaters by renewing them and optimizing operation
12.4 GWh/y — 2025 — in implementation phase
- 14 LED lights in and around the station; platform and track area lighting
5.5 GWh/y — 2025 — in implementation phase
- 15 Optimization of passenger guidance and information systems (signage) in station access areas
1.1 GWh/y — 2025 — in implementation phase



13.3 GWh/y

Refit of double-deck push-pull train: optimization of heating, ventilation, air-conditioning

SBB is modernizing the oldest coaches of the Zurich S-Bahn. The double-deck push-pull trains are being refitted with demand-controlled ventilation, a hibernation mode and an air-conditioning system. The latter has a double function: it cools the trains in summer and serves as a heat pump in winter. The energy requirement of the heat pump is about half that of the previous heating.

green = reduction target attained
blue = target



9.5 GWh/y

Timetable-based train preparation time

The HVZ-D fleet of the Zurich S-Bahn is only in operation for a few hours per day, viz. when the largest number of travellers in the Zurich area are on the move. Thanks to additional programming in the control centre and on the vehicle, the heating systems are now coupled to the daily timetable. As a result, the train knows when it will be used next and the heating is switched on independently at the desired time. This enables SBB to save 5 GWh a year, without its passengers noticing any change. The new function is now being extended to other vehicle fleets (IC 2000, double-decker railcars, new trains) and installed on them with minor adjustments. The result will be an additional potential saving of 4.5 GWh per year in future.



2.7 GWh/y

Optimization of lifts/elevators and escalators

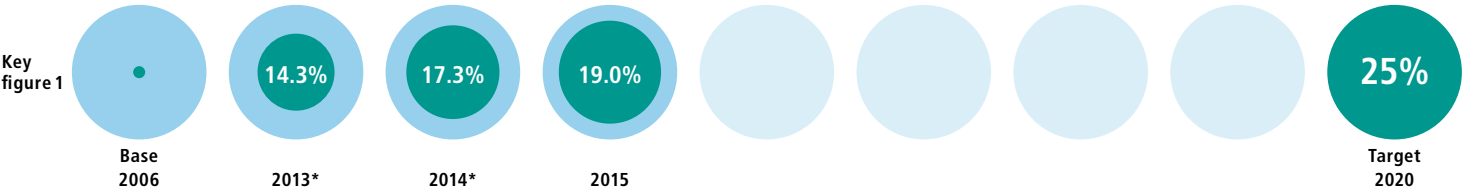
Optimized control, energy-efficient motors and improvements to the step band heating – SBB is constantly retrofitting its lifts and escalators. It has identified further potential in escalators that use the force exerted by the weight of the persons travelling downwards to generate energy. A pilot installation is currently in use in Geneva.

Swiss Federal Railways (SBB)

Energy target 2020

SBB distinguishes between two kinds of energy efficiency. Key figure 1 is based on operating output in passenger and net metric ton kilometers and on final energy consumption (electricity and diesel) for traction. Key figure 2 is based on consumption of primary energy, since SBB controls the whole production chain of traction power and intends to operate entirely with renewable power by 2025.

Increase in energy efficiency

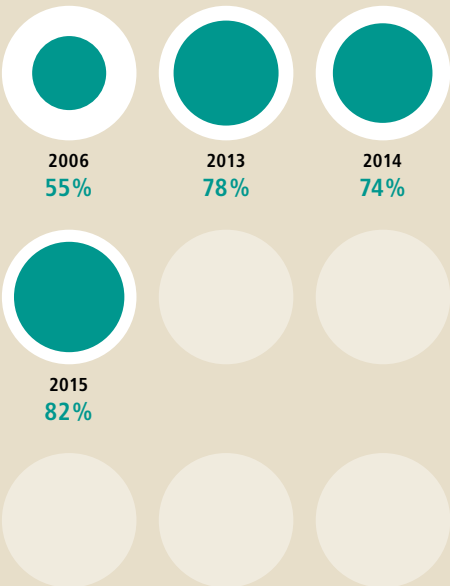


Key figure 2 As stated above, SBB has a second key figure, which is based on primary energy consumption. This efficiency was **103.7%** higher in the year under review than in the base year 2006.

* The key figure had to be corrected subsequently in order to represent slight changes in the system limits.

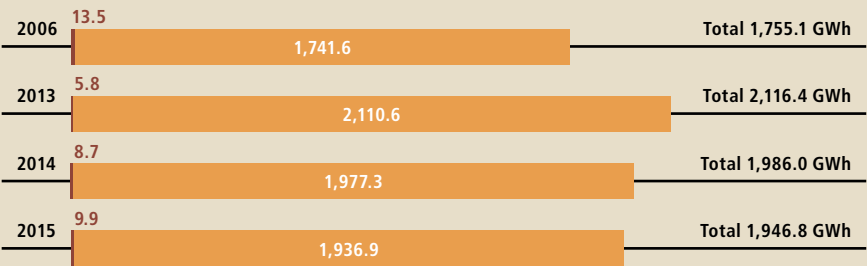
Renewable energy as a proportion of total consumption

SBB increased renewable energy (heat, fuels and power) as a proportion of total energy consumption from 55% in the base year 2006 to 82% in the year under review.



Production of energy from renewable sources

SBB increased its production of renewable energy from 1,755.1 GWh in the base year 2006 to 1,946.8 GWh in the year under review. Power and heat were produced from renewable sources.



Fuels (heating) Renewable and waste heat
Fuels (transport) Renewable
Power Renewable

Skyguide

Action plan

Sustainability is enshrined in the air navigation services' basic mandate. In order to ensure efficient air traffic management, Skyguide is committed to guiding aircraft to their destination as directly as its capacities allow, so as to reduce kerosene consumption and greenhouse gas emissions. Skyguide also strives to attain maximum efficiency in the energy consumption of its own infrastructure. It would like to continually improve its environmental management and has increased its energy efficiency by 29.7 % from 2006 to 2015, while keeping total consumption virtually constant.



A technician taking measurements with a drone

Success story

Drones reduce CO₂ emissions

In poor visibility conditions, pilots navigate on instruments solely by means of the information they receive from the aircraft and air traffic control. Air traffic safety during the approach to the destination airport therefore depends on faultless operation of the automatic instrument landing systems at the airport. Regular calibration flights ensure the consistent quality and accuracy of the signals. To do so, approaches are carried out with twin-engined aircraft from various altitudes and at different angles. This specific and costly maintenance, which is carried out at off-peak times, generates greenhouse gas emissions and a large amount of noise pollution.

Skyguide is breaking new ground in the maintenance of its instrument-landing systems: by using a drone equipped with measuring instruments, the number of calibration flights is to be reduced by one third by 2020 and by 60% as from 2023. CO₂ emissions are to be reduced by 94 and 169 tons a year respectively and energy consumption by 361,000 and 649,000 kilowatt-hours (kWh) a year respectively. Noise pollution will also be significantly cut.

Selection from the joint measures of all actors

The Confederation: exemplary in energy plan has defined 39 joint measures to increase energy efficiency in the three action areas. From this catalogue, Skyguide has selected 36 measures that the organization wants to implement. As long as a measure is in the implementation phase, it is marked with a blue dot. Once it has been implemented, the dot changes to green.

No. Measure

28

Action area Buildings and renewable energy

- 01 ● Energy-efficient new and converted buildings
- 02 ● Analyses of potential of waste heat and renewable energies
- 03 ● No new fossil-fuel powered heating systems
- 04 ● Full cost accounting of energy efficiency
- 05 ● Energy-efficient lighting
- 06 ● Energy-efficient cooling machines
- 07 ● Energy-efficient sanitation facilities
- 08 ● Energy-efficient electromotors
- 09 ● Building technology with operating optimization regime
- 10 ● Procurement of green power and hydroelectricity
- 11 – Mobility concepts for buildings
- 12 – Creation of ecofunds

Action area Mobility

- 13 ● Integration of mobility management
- 14 ● Central information and booking platform
- 15 ● Encouragement of mobile-flexible forms of work
- 16 ● Promoting work hubs
- 17 ● Promotion of video and web conferencing
- 18 ● Incentives for using public transport
- 19 ● Providing or co-financing PT season tickets
- 20 ● Criteria for choosing mode of transport
- 21 ● Active parking space management
- 22 ● Provision of bicycle parking spaces
- 23 ● Provision of bicycles and e-bikes
- 24 ● Criteria for procuring energy-efficient vehicles
- 25 – Eco-Drive training courses for frequent car users
- 26 ● Promoting the use of car sharing agencies
- 27 ● Joint use of a company carpool
- 28 ● Provision of charging stations for electric vehicles

Action area Data centers and Green IT

- 29 ● Full cost accounting of energy efficiency
- 30 ● Specifications for new servers and new data center hardware
- 31 ● Highly energy-efficient data centers
- 32 ● Pushing passive cooling solutions in data centers
- 33 ● Encouraging server virtualization in data centers
- 34 ● Bundling of data centers / Outsourcing of IT services
- 35 ● Monitoring and evaluation of new technologies
- 36 ● Promotion of waste heat recovery
- 37 ● Promotion of economy mode at computer workstations
- 38 ● Promotion of energy-efficient printing solutions
- 39 ● Promoting re-use of appliances

- adopted and at least 80% achieved
- adopted and in implementation phase
- adopted, no data yet
- no leeway for action



Provision of charging stations for electric vehicles

In 2012, Skyguide carried out various building works at its Dübendorf site to protect it against flood damage. On that occasion, charging stations were also set up for electric cars so as to encourage CO₂-reduced mobility. Skyguide installed six charging stations for electric cars in cooperation with the electricity utility of the canton of Zurich (EKZ). Four of them are located on Skyguide's premises. Two fast-charging stations are located off the premises and are accessible to the public. Thanks to this measure, CO₂ emissions can be reduced by about 95% for each journey compared to a combustion-engine vehicle. EKZ supplies Skyguide with power from 100% hydroelectricity; 20% of it is green power certified with the "nature-made star" quality label.

Picture: Charging station for electric vehicles in Dübendorf

A detailed description of the measures can be found on pages 22 to 26.

Selection from the actor's specific measures

Skyguide is undertaking diverse efforts to increase its energy efficiency. In addition to the 39 joint measures for all actors, Skyguide has selected 7 specific measures and defined a reduction target and a target date for each of these measures. When a measure has been implemented, the depiction of the target changes from blue to green.

No. Measure
(target — target year — status)

En-route air traffic control services

- 01 Introduction of expanded approach management for the Zurich region (XMAN)
37.0 GWh/y — 2023 — in implementation phase
- 02 Implementation of direct routes (FRA 1818/2021)
43.0 GWh/y — 2021 — in implementation phase

Approach and take-off navigation service

- 03 Green Wave for morning approaches of long-haul aircraft of the airline Swiss at Zurich Airport
7.0 GWh/y — 2012 — implemented
- 04 Continuous descent approach for the airports of Geneva and Zurich
133.0 GWh/y — 2014 — implemented
- 05 Shorter taxiing times when departing from Geneva (A-CDM)
9.0 GWh/y — 2014 — implemented

Optimizations of Technical Infrastructure and Buildings

- 06 Optimizations of heating, ventilation and air-conditioning systems and replacement of cooling machines in the Geneva control tower
1.7 GWh/y — 2023 — in implementation phase
- 07 Optimizations of heating, ventilation and air-conditioning systems and change of lighting to LED in the Dübendorf air navigation services centre
0.5 GWh/y — 2023 — in implementation phase

01



37.0 GWh/y
Introduction of expanded approach management for the Zurich region (XMAN)

An optimal approach sequence makes air traffic more fluid prior to the landing phase. In this way bottlenecks and thus holding patterns – which give rise to additional fuel consumption – are avoided. Thanks to the introduction of expanded approach management in a radius of over 350 km around Zurich airport, approach flows can be considerably optimized and CO₂ emissions reduced.

02



43.0 GWh/y
Implementation of direct routes (FRA 1818/2021)

Air traffic controllers more and more often propose direct routes to pilots when they are in radio contact with them. An initial network of direct routes was published in 2015. Further routes will follow between 2018 and 2021. This should make it possible to plan better flights passing over Switzerland. The measure leads, first, to shorter flight routings and, second, it reduces aircraft takeoff weight, because they have to carry less fuel on board. The bottom-line result is a considerable saving on kerosene consumption.

05



9.0 GWh/y
Shorter taxiing times when departing from Geneva (A-CDM)

Airport Collaborative Decision Making is a decision-making process into which all actors at Geneva airport are integrated. It increases efficiency when sequencing departures and shortens the time that an aircraft spends on the taxiway and at the runway access points.

green = reduction target attained
blue = target

Skyguide

Energy target 2020

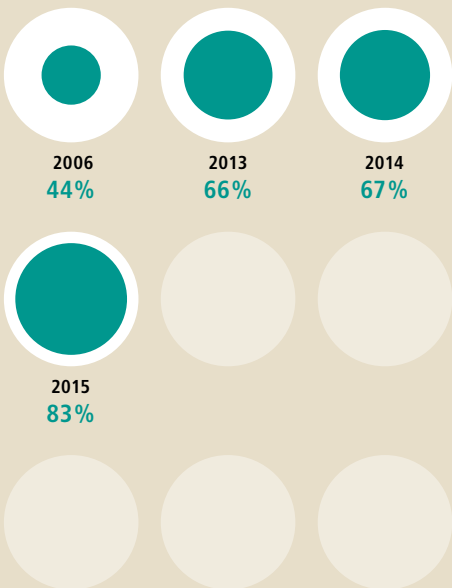
Skyguide's energy efficiency was 29.7% higher in the year under review than in the base year 2006.

Increase in energy efficiency



Renewable energy as a proportion of total consumption

Skyguide increased renewable energy (heat, fuels and power) as a proportion of total energy consumption from 44% in the base year 2006 to 83% in the year under review.



Production of energy from renewable sources

Skyguide produces no energy from renewable sources.

2006	Total 0 GWh
2013	Total 0 GWh
2014	Total 0 GWh
2015	Total 0 GWh

Fuels (heating) Renewable and waste heat
Fuels (transport) Renewable
Power Renewable

Swisscom

Action plan

Swisscom's energy management focuses on increasing energy efficiency in operations and on using energies that have little impact on the climate. Thanks to an extensive package of measures, energy efficiency rose by 34.0% from 2006 to 2015. Total energy consumption in 2015 was 521 gigawatt-hours (GWh), while power consumption was 434 GWh. Both values increased slightly compared with the previous year owing to growth in the core business.



Mobile phone antenna on Flumserberg

Success story

Energy efficiency in the mobile phone network

The mobile phone boom is placing a burden on infrastructure – which consists of, inter alia, the many antennae that form the mobile phone network. The quantity of data transmitted over the network doubles about every year. That is why Swisscom has to further develop and expand the mobile phone network. The resultant increase in power consumption is being proactively limited by taking energy-saving measures. The modernization of the entire network in 2013/2014 has already led to savings of 15 gigawatt-hours (GWh) per year. Last year saw the successful implementation of a saving functionality in the GSM networks. Swisscom activated a new function on GSM mobile network installations that reduces the transmission power – and thus power consumption – when there is little mobile phone traffic. As a result, power consumption in the GSM network has been reduced by 2.4% on average, which corresponds to approx. 1 GWh.

Selection from the joint measures of all actors

The Confederation: exemplary in energy plan has defined 39 joint measures to increase energy efficiency in the three action areas. Swisscom intends to implement all the measures, with one exception over which the company has no leeway for action. As long as a measure is in the implementation phase, it is marked with a blue dot. Once it has been implemented, the dot changes to green.

No. Measure

36

Action area Buildings and renewable energy

- 01 ● Energy-efficient new and converted buildings
- 02 ● Analyses of potential of waste heat and renewable energies
- 03 ● No new fossil-fuel powered heating systems
- 04 ● Full cost accounting of energy efficiency
- 05 ● Energy-efficient lighting
- 06 ● Energy-efficient cooling machines
- 07 ● Energy-efficient sanitation facilities
- 08 ● Energy-efficient electromotors
- 09 ● Building technology with operating optimization regime
- 10 ● Procurement of green power and hydroelectricity
- 11 ● Mobility concepts for buildings
- 12 ● Creation of ecofunds

Action area Mobility

- 13 ● Integration of mobility management
- 14 ● Central information and booking platform
- 15 ● Encouragement of mobile-flexible forms of work
- 16 ● Promoting work hubs
- 17 ● Promotion of video and web conferencing
- 18 ● Incentives for using public transport
- 19 ● Providing or co-financing PT season tickets
- 20 ● Criteria for choosing mode of transport
- 21 ● Active parking space management
- 22 ● Provision of bicycle parking spaces
- 23 ● Provision of bicycles and e-bikes
- 24 ● Criteria for procuring energy-efficient vehicles
- 25 ● Eco-Drive training courses for frequent car users
- 26 ● Promoting the use of car sharing agencies
- 27 ● Joint use of a company carpool
- 28 ● Provision of charging stations for electric vehicles

Action area Data centers and Green IT

- 29 ● Full cost accounting of energy efficiency
- 30 ● Specifications for new servers and new data center hardware
- 31 ● Highly energy-efficient data centers
- 32 ● Pushing passive cooling solutions in data centers
- 33 ● Encouraging server virtualization in data centers
- 34 — Bundling of data centers / Outsourcing of IT services
- 35 ● Monitoring and evaluation of new technologies
- 36 ● Promotion of waste heat recovery
- 37 ● Promotion of economy mode at computer workstations
- 38 ● Promotion of energy-efficient printing solutions
- 39 ● Promoting re-use of appliances

- adopted and at least 80% achieved
- adopted and in implementation phase
- adopted, no data yet
- no leeway for action



Promotion of waste heat recovery

Thousands of servers are in use at the Swisscom data center in Zurich Herdern, controlling services such as Swisscom TV and storing business customers' data. Since 2015, the building has been heated solely with waste heat from the operating premises, by using a novel heat pump. A heat transfer medium with a very low greenhouse gas potential was utilized in the heat pump for the first time in Switzerland. The surplus waste heat is fed into the public heat network. The new heat pump saves 900 tons of CO₂ and 4.5 million kWh of fossil energy per year. This corresponds to 8% of Swisscom's total CO₂ emissions in the heat sector. Together with its customers, Swisscom intends to save twice as much CO₂ by 2020 as it generates in all its operations and in the supply chain.

Picture: Herdern data center in Zurich

A detailed description of the measures can be found on pages 22 to 26.

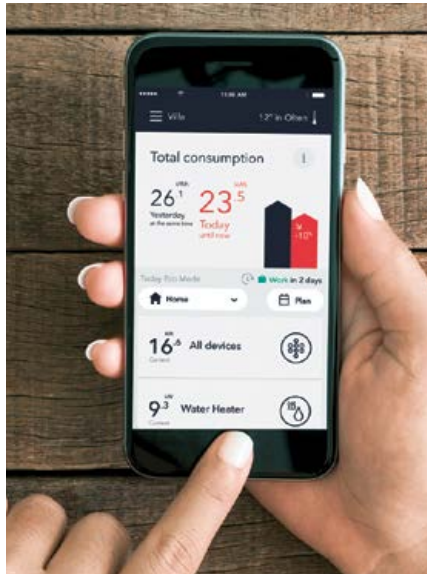
Selection from the actor's specific measures

Swisscom is undertaking diverse efforts to increase its energy efficiency. In addition to the 39 joint measures for all actors, Swisscom has selected 9 specific measures. Swisscom has defined a reduction target and a target date for each of these measures. When a measure has been implemented, the depiction of the target changes from blue to green.

No. Measure
(target — target year — status)

- 01 Fresh air cooling in telephone exchanges
45.0 GWh/y — 2016 — implemented
- 02 Green IT offers for customers
57.0 GWh/y — 2014 — implemented
- 03 Dynamic consumption control in Switzerland
70,000 households — 2018 — in implementation phase
- 04 Energy-efficient terminal devices for private customers
25.0 GWh/y — 2019 — in implementation phase
- 05 Dematerialization thanks to online invoicing
2.1 GWh/y — 2015 — in implementation phase
- 06 Intelligent Parking with CorpPark
20% better capacity utilization — 2016 — in implementation phase
- 07 Energy efficiency in the mobile phone network
16.0 GWh — 2015 — implemented
- 08 Recycling of mobile phones
12% — annual — in implementation phase
- 09 Promoting mobile-flexible forms of work on customers' premises
1 million — 2020 — in implementation phase

03



70,000
households

Dynamic consumption control in Switzerland

Swisscom Energy Solutions AG has launched the Tiko service. Tiko enables private customers to remotely control their heat pumps, electric heating systems and boilers, and emits an early warning alarm in the event of malfunctions. By getting as many heating systems as possible to form a pool, significantly more renewable wind and solar energy can be integrated into the power supply.

08



12%

Recycling of mobile phones

Mobiles contain many natural resources and valuable materials. Therefore even old and defective devices are valuable. At Swisscom Mobile Aid, customers donate their used mobiles. Phones that still work are resold, while defective ones are recycled in Switzerland. The proceeds benefit the social organization Réalise and the aid agency SOS Children's Villages Switzerland. In 2015 Swisscom took back about 84,300 mobiles; the return rate was 7.1% (previous year 6.2%). With Swisscom Mobile Bonus customers receive a financial voucher for mobiles that still work.

09



1 million

Promoting mobile-flexible forms of work on customers' premises

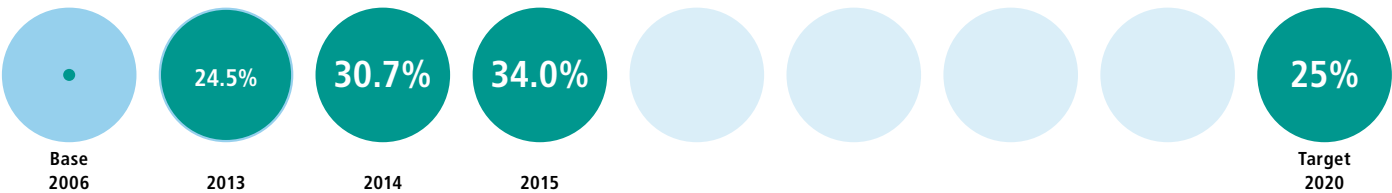
Swisscom services such as Home Office make it possible for 1 million customers to work flexibly from wherever they may be, e.g. in public transport; this makes a contribution to climate protection. In 2015 Swisscom customers saved about 113,000 tons of CO₂ equivalents with Home Office alone.

green = reduction target attained
blue = target

Energy target 2020

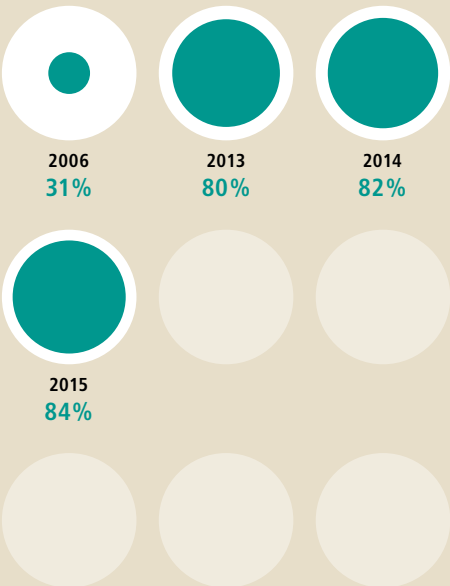
Swisscom's energy efficiency was 34.0 % higher in the year under review than in the base year 2006.

Increase in energy efficiency



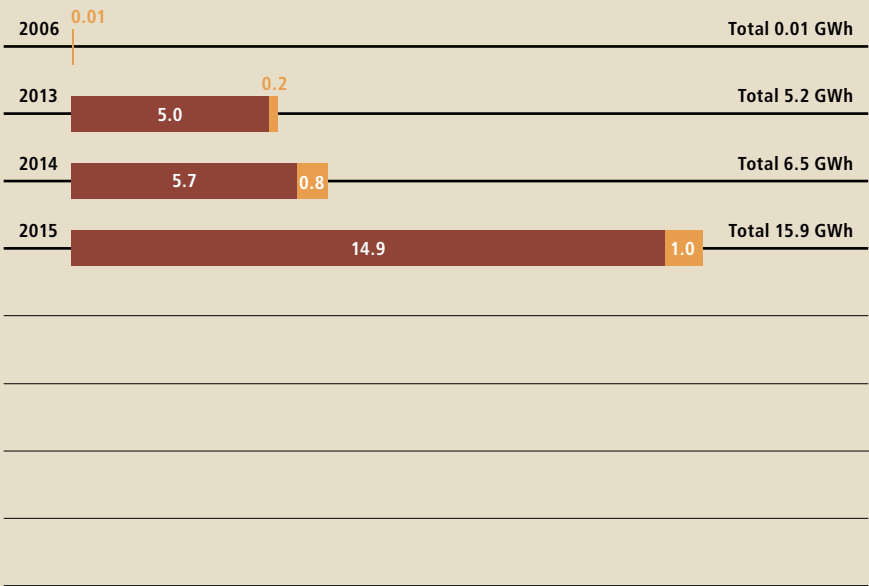
Renewable energy as a proportion of total consumption

Swisscom increased renewable energy (heat, fuels and power) as a proportion of total energy consumption from 31 % in the base year 2006 to 84 % in the year under review.



Production of energy from renewable sources

In the year under review, Swisscom produced 15.9 GWh of heat and power from renewable sources. For the first time, heat from environmental energy was also considered.



Fuels (heating) ■ Renewable and waste heat (from 2015 including heat and cold from environmental energy)
Fuels (transport) ■ Renewable
Power ■ Renewable

DDPS

Action plan

Owing to its special and diverse challenges and structures, DDPS is implementing its own energy concept, based on the EnergieSchweiz programme.

The primary goals are a 20% reduction of CO₂, a 50% increase in the use of renewable energies and a limitation of conventional electricity consumption at the 2001 level. Total energy consumption was reduced by 124 gigawatt-hours (GWh) or 10.7% compared with 2006. Energy efficiency was improved by 5.4%.



Energy-efficient, renovated multi-purpose hall in Emmen

Success story

Sport in a hall with an exemplary energy performance

The 40-year-old multi-purpose Emmen hall has attained the Minergie® standard after a total renovation and improvement of its energy-related characteristics. Members of the Swiss Army can now perform their sports training in a sustainable energy environment. The insulation perimeter comprises the entire sport hall and all rooms are heated. The floor of the sport hall has also been heat-insulated with the re-laying of its covering. The facade has been completely insulated on the inside and statically reinforced. All outside doors and windows have been replaced, the roof insulated on the inside and recovered. A photovoltaic installation using thin-film technology has been put in place on the roof surface. Its surface area is 1,113 square metres and it attains a power of 174 kilowatts peak (kWp). The generated power of 143,000 kilowatt-hours (kWh) per year primarily meets the hall's own requirements. The waste heat from the inverters is used to re-heat or regenerate the geothermal probes that serve as an energy source for the heat pump. The ventilation of the changing rooms and wet rooms is controlled via the humidity meters and motion detectors.

Selection from the joint measures of all actors

The Confederation: exemplary in energy plan has defined 39 joint measures to increase energy efficiency in the three action areas. DDPS intends to implement 34 of them. The Department sees no leeway for action in respect of 5 measures. As long as a measure is in the implementation phase, it is marked with a blue dot. Once it has been implemented, the dot changes to green.

No. Measure

05

Action area Buildings and renewable energy

- 01 ● Energy-efficient new and converted buildings
- 02 ● Analyses of potential of waste heat and renewable energies
- 03 ● No new fossil-fuel powered heating systems
- 04 ● Full cost accounting of energy efficiency
- 05 ● Energy-efficient lighting
- 06 ● Energy-efficient cooling machines
- 07 ● Energy-efficient sanitation facilities
- 08 ● Energy-efficient electromotors
- 09 ● Building technology with operating optimization regime
- 10 ● Procurement of green power and hydroelectricity
- 11 ● Mobility concepts for buildings
- 12 – Creation of ecofunds

Action area Mobility

- 13 ● Integration of mobility management
- 14 ● Central information and booking platform
- 15 ● Encouragement of mobile-flexible forms of work
- 16 ● Promoting work hubs
- 17 – Promotion of video and web conferencing
- 18 ● Incentives for using public transport
- 19 ● Providing or co-financing PT season tickets
- 20 – Criteria for choosing mode of transport
- 21 ● Active parking space management
- 22 ● Provision of bicycle parking spaces
- 23 ● Provision of bicycles and e-bikes
- 24 ● Criteria for procuring energy-efficient vehicles
- 25 ● Eco-Drive training courses for frequent car users
- 26 ● Promoting the use of car sharing agencies
- 27 ● Joint use of a company carpool
- 28 ● Provision of charging stations for electric vehicles

Action area Data centers and Green IT

- 29 ● Full cost accounting of energy efficiency
- 30 ● Specifications for new servers and new data center hardware
- 31 – Highly energy-efficient data centers
- 32 ● Pushing passive cooling solutions in data centers
- 33 ● Encouraging server virtualization in data centers
- 34 ● Bundling of data centers / Outsourcing of IT services
- 35 ● Monitoring and evaluation of new technologies
- 36 ● Promotion of waste heat recovery
- 37 ● Promotion of economy mode at computer workstations
- 38 – Promotion of energy-efficient printing solutions
- 39 ● Promoting re-use of appliances

- adopted and at least 80% achieved
- adopted and in implementation phase
- adopted, no data yet
- no leeway for action



Energy-efficient lighting

The ageing outdoor lighting units on the DDPS sites are gradually being upgraded to state-of-the-art technology. The existing mercury vapour lamps are being replaced by highly efficient LED lights. The greatest advantages are a 50% reduction in energy consumption and a light service life that is many times longer. Illumination of streets and public spaces to match needs is ensured by modern light control, which leads to a further increase in energy efficiency and convenience. The relatively high investment costs can readily be amortized and justified by the striking reduction in the energy required and the significantly longer service life.

Picture: LED site lighting at the Moudon barracks

A detailed description of the measures can be found on pages 22 to 26.

Selection from the actor's specific measures

DDPS is undertaking diverse efforts to increase its energy efficiency. In addition to the 39 joint measures for all actors, DDPS has selected 7 specific measures. A target and a target date have been defined for each of these measures. When a measure has been implemented, the depiction of the target changes from blue to green.

No. Measure
(target — target year — status)

- 01** Introduction of a DDPS building energy certificate in buildings and on sites (GEAVBS)
60% GEAVBS — 2020 — in implementation phase
- 02** Own production of renewable energy
4.0 GWh/y — 2020 — in implementation phase
- 03** Systematic introduction of central transport agencies in all military formations
100% structures — 2020 — in implementation phase
- 04** Use of low-viscosity engine oils where operationally and technically possible
100% use — 2020 — in implementation phase
- 05** Low-rolling-resistance tyres, where operationally and technically possible
5.6 GWh/y — 2020 — in implementation phase
- 06** Optimization of the Air Force's equipment in terms of fulfilment of its constitutional mandate and energy consumption. The indicator is the average ratio of actual to target flying hours (minimum)
Indicator < 1.1 — 2020 — in implementation phase
- 07** Training and information. Indicator: All relevant corps have a trained environment representative at their disposal
100% — 2020 — in implementation phase

02



4.0 GWh/y

Own production of renewable energy

A large number of roofs on DDPS buildings are potentially highly suitable surface areas for photovoltaic installations. What is optimal is that the locally-produced energy can be used in full on the site. The nationwide retrofitting programme was launched in 2015; a first batch of eight installations is being installed in 2016, with a forecast annual production of 2 million kWh.

07



100%

Training and information

Two measures have been implemented to reduce fuel consumption even more in the Swiss Federal Office for Civil Protection (FOCP). First, old service vehicles have been replaced by new, more efficient vehicles. Second, a selection procedure identified the FOCP staff members whose jobs require them to make more frequent use of service cars. These people attended an Eco-Drive training session, which was combined with driving safety training. All participants were delighted, and the success could be seen in reduced fuel consumption.

06



Indicator < 1.1

Optimization of the Air Force's equipment

This measure consists of transparently showing the energy consumption related to flight operations. Particular account has to be taken here of the specific consumptions of the different types of equipment and the ratio of actual to target flying hours. Initial data were already reported in 2014 by way of fulfilment of the measure. Since 2015 standardized data on simulator use have also been available.

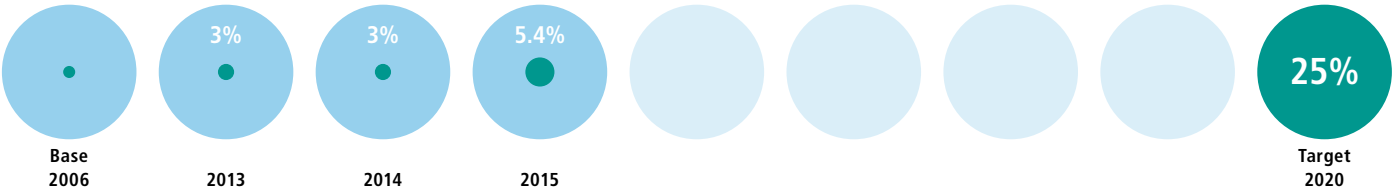
green = reduction target attained
blue = target

DDPS

Energy target 2020

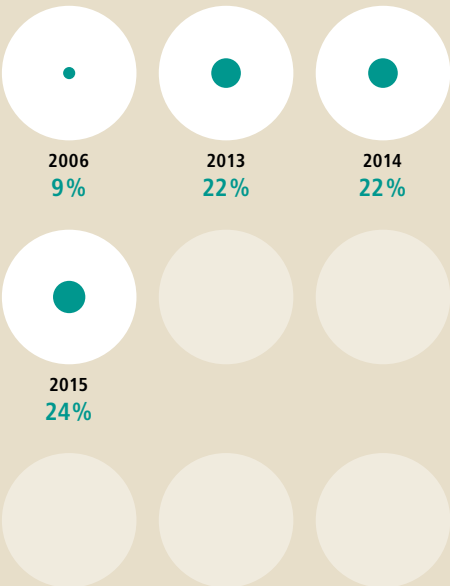
DDPS's energy efficiency was 5.4% higher in the year under review than in the base year 2006.

Increase in energy efficiency



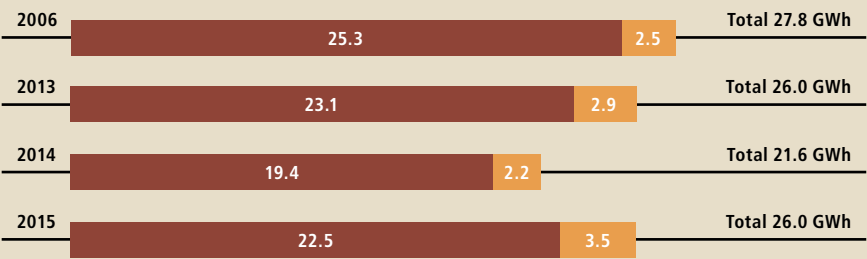
Renewable energy as a proportion of total consumption

DDPS increased renewable energy (heat, fuels and power) as a proportion of total energy consumption from 9% in the base year 2006 to 24% in the year under review.



Production of energy from renewable sources

DDPS lowered its production of renewable energy from 27.8 GWh in the base year 2006 to 26.0 GWh in the year under review. Power and heat were produced from renewable sources.



Fuels (heating) ■ Renewable and waste heat
Fuels (transport) ■ Renewable
Power ■ Renewable

Civil Federal Administration FBL/RUMBA programme

Action plan

In the Civil Federal Administration, the Federal Office for Buildings and Logistics (FBL) is responsible for the energy consumption of buildings.

The key figures are recorded in the RUMBA programme (Resources and Environmental Management programme of the Federal Administration).

Energy efficiency was increased by 47.5%. RUMBA's new objective is to reduce the environmental impact caused by heating, power, business travel, water consumption, garbage and paper use by 30% by 2019 compared with 2006.



Administrative centre of the Federal Office of Public Health in Bern-Liebefeld

Success story

A healthy Office in a healthy building

The new administrative centre of the Federal Office of Public Health (FOPH) has been located on the Liebefeld site in Köniz since August 2015. It provides about 840 ultra-modern workplaces and meets the Minergie-P-ECO® requirements. The energy concept designed to meet the heating and cooling requirements is based on ground water as an energy source with heat pumps and direct cooling. Energy is distributed mainly through ceiling elements. A photovoltaic installation meets part of the power requirement. Waste heat is recovered to heat rooms and to pre-heat the hot water. The jewel of the building is a garden level that connects the existing buildings with the new building, thus bringing together the Federal Administration's employees, be it over a meal in the cafeteria or during a walk through a labyrinth of green paths and squares. Indigenous plants, bushes and shrubs as well as an oak tree park ensure great ecological diversity and a blaze of colour. A campus for health, people and nature has thus been created on the Liebefeld site.

Civil Federal Administration

Selection from the joint measures of all actors

The Confederation: exemplary in energy plan has defined 39 joint measures to increase energy efficiency in the three action areas. Of this catalogue, at this time 28 measures are within the FBL's or RUMBA's area of responsibility. As long as a measure is in the implementation phase, it is marked with a blue dot. Once it has been implemented, the dot changes to green.

No. Measure

09

Action area Buildings and renewable energy

- 01 ● Energy-efficient new and converted buildings
- 02 ● Analyses of potential of waste heat and renewable energies
- 03 ● No new fossil-fuel powered heating systems
- 04 ● Full cost accounting of energy efficiency
- 05 ● Energy-efficient lighting
- 06 ● Energy-efficient cooling machines
- 07 ● Energy-efficient sanitation facilities
- 08 ● Energy-efficient electromotors
- 09 ● Building technology with operating optimization regime
- 10 ● Procurement of green power and hydroelectricity
- 11 ● Mobility concepts for buildings
- 12 – Creation of ecofunds

Action area Mobility

- 13 ○ Integration of mobility management
- 14 ● Central information and booking platform
- 15 ● Encouragement of mobile-flexible forms of work
- 16 ● Promoting work hubs
- 17 ● Promotion of video and web conferencing
- 18 ● Incentives for using public transport
- 19 ● Providing or co-financing PT season tickets
- 20 ● Criteria for choosing mode of transport
- 21 ● Active parking space management
- 22 ○ Provision of bicycle parking spaces
- 23 × Provision of bicycles and e-bikes
- 24 ○ Criteria for procuring energy-efficient vehicles
- 25 ○ Eco-Drive training courses for frequent car users
- 26 × Promoting the use of car sharing agencies
- 27 × Joint use of a company carpool
- 28 × Provision of charging stations for electric vehicles

Action area Data centers and Green IT

- 29 × Full cost accounting of energy efficiency
 - 30 × Specifications for new servers and new data center hardware
 - 31 × Highly energy-efficient data centers
 - 32 ○ Pushing passive cooling solutions in data centers
 - 33 × Encouraging server virtualization in data centers
 - 34 × Bundling of data centers / Outsourcing of IT services
 - 35 ○ Monitoring and evaluation of new technologies
 - 36 ● Promotion of waste heat recovery
 - 37 × Promotion of economy mode at computer workstations
 - 38 ● Promotion of energy-efficient printing solutions
 - 39 ● Promoting re-use of appliances
-
- adopted and at least 80% achieved
 - adopted and in implementation phase
 - adopted, no data yet
 - no leeway for action
 - × responsibility for implementation open



Building technology with operating optimization regime

The FBL's Building Management department is responsible for managing the Confederation's civil buildings. Its responsibilities include value preservation, maintenance, repair, operation and operating optimization. Over the last three years, in-depth operating optimizations have been carried out in about 60 buildings. This was done in cooperation with outside partners and comprised matching of use and demand, fine tuning of technical installations, switching off unnecessary equipment, etc. This is always done with the involvement of the building users. Energy consumption is constantly reviewed. In the event of deviations, any corrective measures are taken. Furthermore the FBL examines the constructional condition of the buildings every four years. Useful potential for energy-efficient renovations is identified and recommended for implementation in cooperation with the FBL's property management.

A detailed description of the measures can be found on pages 22 to 26.

Picture: Building equipment facility of the Federal Office for Buildings and Logistics in Bern

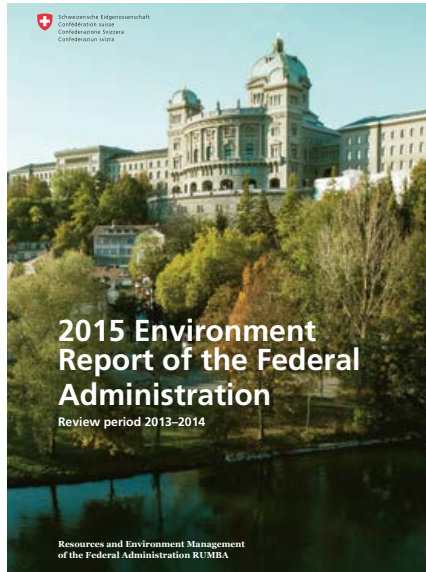
Selection from the actor's specific measures

The Civil Federal Administration is undertaking diverse efforts to increase its energy efficiency. In addition to the 39 joint measures for all actors, the Federal Administration has selected 8 specific measures. A target and a target date have been defined for each of these measures. When a measure has been implemented, the depiction of the target changes from blue to green.

No. Measure
(target — target year — status)

- 01 Resources and Environmental Management programme of the Federal Administration RUMBA (incl. business travel)
2.3 GWh/y — 2020 — in implementation phase
- 02 Reduction of energy consumption from business travel
0.5 GWh/y — 2020 — in implementation phase
- 03 Energy-efficient enveloping system
75% saving — 2013 — implemented
- 04 Construction of new photovoltaic installations; replacement of fossil energy with renewable energy
0.6 GWh/y — 2020 — in implementation phase
- 05 Application of Swiss Standard for Sustainable Construction to CH buildings abroad
introduction — 2018 — planned
- 06 Update of "Ecological assessment data for the construction sector" to promote energy-efficient construction (KBOB)
every 2 years — 2020 — in implementation phase
- 07 Sensitizing employees to energy-efficient and environmentally compatible behaviour at the workplace
2 measures per year — 2020 — in implementation phase
- 08 Voluntary target agreement with the Energieagentur der Wirtschaft (EnAW)
2200 t CO₂/y — 2022 — in implementation phase

01



2.3 GWh/y

Resources and Environmental Management programme of the Federal Administration RUMBA

RUMBA measures reduced the environmental impact per full-time position by 23.1% between 2006 and 2014 in the Federal Administration. The target set for 2016 of a reduction of 10% has therefore already clearly been exceeded. The upshot of this satisfactory result is that the Federal Council has decided to raise the target for 2019 to 30%. RUMBA is focusing on the buildings sector, power consumption, business travel and paper consumption.

02



0.5 GWh/y

Reduction of energy consumption from business travel

Business travel accounts for about one quarter of the entire environmental impact of the Civil Federal Administration. Total energy consumption fell from 52.7 to 49.9 gigawatt-hours per year (GWh/y) from 2006 to 2014. This corresponds to a reduction of nearly 0.4 GWh/y. The pilot "Decision-making aid for choosing your mode of transport" sensitizes the Confederation's employees.

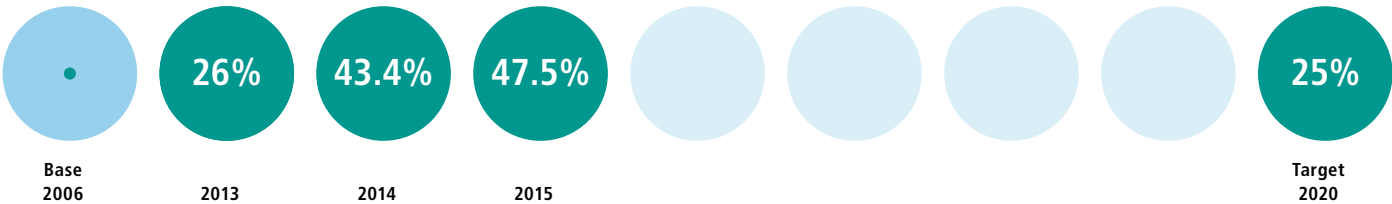
green = reduction target attained
blue = target

Civil Federal Administration

Energy target 2020

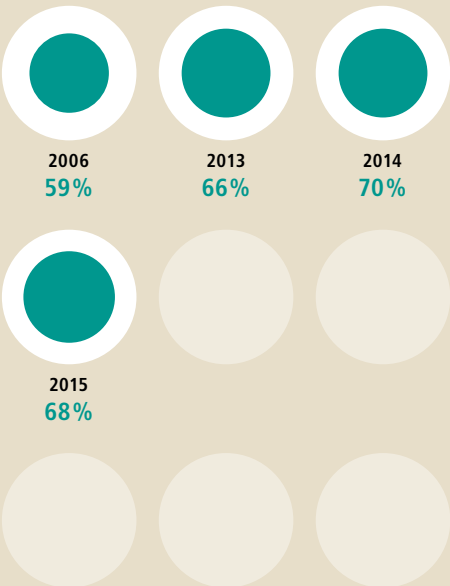
The Civil Federal Administration's energy efficiency was 47.5% higher in the year under review than in the base year 2006.

Increase in energy efficiency



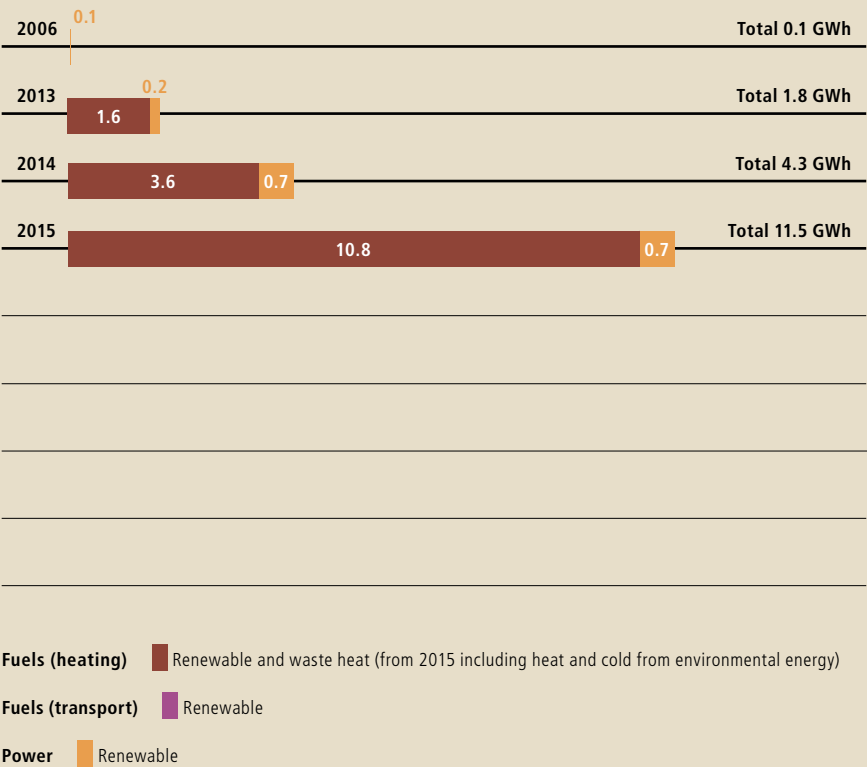
Renewable energy as a proportion of total consumption

The Federal Administration increased renewable energy (heat, fuels and power) as a proportion of total energy consumption from 59% in the base year 2006 to 68% in the year under review.



Production of energy from renewable sources

In the year under review, the Federal Administration produced 11.5 GWh of heat and power from renewable sources. For the first time, heat from environmental energy was also considered.



Glossary

DDPS	Federal Department of Defence, Civil Protection and Sport
Eawag	Swiss Federal Institute of Aquatic Science and Technology
Empa	Swiss Federal Laboratories for Materials Science and Technology
EPFL	Swiss Federal Institute of Technology, Lausanne
ETH	Swiss Federal Institute of Technology, Zurich
FBL	Federal Office for Buildings and Logistics
FOE	Federal Office of Energy
KBOB	Coordination Conference of Building and Real Estate services of public building owners
PSI	Paul Scherrer Institute
PT	Public Transport
RUMBA	Resources and Environmental Management programme of the Federal Administration
SBB	Swiss Federal Railways
WSL	Swiss Federal Institute for Forest, Snow and Landscape Research

Image credits

Cover page, NEST platform: Empa/3D3W
 page 4, Portrait of Walter Steinmann: Thomas Hodel
 page 7, NEST platform: Empa/3D3W
 page 12, Portrait of Daniel Weder: Marco Sieber
 page 31, CSCS cooling system: Matteo Arnoldi
 page 32, Solar panels on a green roof: Eawag
 page 33, ESI platform: PSI
 page 33, EPFL battery: Alessandro Della Bella
 page 36, Delémont rotunda: Pelerin, CC BY-SA 3.0 Wikipedia
 page 41, Genève Aéroport
 page 49, Eco-Drive training: Volvo Trucks (Switzerland) AG
 page 53, Business traveller: SBB

