The Confederation:
exemplary in energy

Annual report 2017

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of the Environment,
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Solar installation at Alpnach Air Base.

Together to our goal

The Federal Department of Defence, Civil Protection and Sport (DDPS) is committed to renewable energy and improving energy efficiency. Since 2004, it has been deploying its own energy concept, based on state-of-the-art and resource-efficient environmental and energy management. By taking measures in the areas of mobility and real estate as well as additional organisational measures, the DDPS has succeeded in reducing its absolute energy consumption by 16% since 2001. At the same time, it doubled the share of renewable heat production to 90 GWh and increased utilisation of its self-produced, renewable power to 100%. With the new action plan, the DDPS is committed to self-sufficient energy production. In principle, it would be possible for the DDPS to produce 134 GWh of electricity per year itself, but the financial resources to do so are lacking.

Since 2014, the Civil Federal Administration, the entire ETH Domain, the Swiss Federal Railways, Swiss Post, Skyguide, Swisscom and – since 2015 – Genève Aéroport, have been participating in the Confederation: exemplary in energy programme, in addition to the DDPS. The original aim of increasing energy efficiency in the Federal Administration and parastatal enterprises by 25% by 2020 compared to 2006 was already achieved at the end of 2015 and was exceeded in 2016. The challenge is to continue to improve and to implement the joint and actor-specific measures that have been defined. I would like to take this opportunity to thank you for your valuable commitment and our successful cooperation.

I would like to welcome Services Industriels de Genève (SIG) and Suva, which have recently joined the Confederation: exemplary in energy programme. I am pleased that further partners are supporting the federal government's programme. Only with joint efforts can the defined energy-policy objectives – and thus the Energy Strategy 2050 – be successfully implemented.

Nathalie Falcone
Secretary General

Federal Department of Defence,
Civil Protection and Sport DDPS

Giving a clear signal

The Federal Council intends to increase energy efficiency in the federal administration and parastatal enterprises by 25% between 2006 and 2020. The participating actors are planning and coordinating some of their measures within the framework of the Confederation: exemplary in energy initiative.

Ready for tomorrow's energy policy
With the first package of measures for the Energy Strategy 2050, five years ago the Federal Council committed the Federal Government to setting a good example in the energy sector and to optimising its energy consumption. The Confederation is responsible for 2% of Switzerland's total energy consumption.

As a result, the federal administration and parastatal enterprises joined forces in the Confederation: exemplary in energy initiative. A coordination group defines the binding action plan and steers the joint activities. Its office is managed by the Swiss Federal Office of Energy. Starting from the base year 2006, the actors aim to increase energy efficiency by 25% by 2020. Since 2016 the initiative has also been open to other public-sector enterprises.

Comprehensive measures
The action plan of the Confederation: exemplary in energy initiative comprises 39 joint measures in three action areas plus a series of specific measures determined by each actor individually.

Buildings and renewable energy
Measures for energy-efficient new and converted buildings, electric power and heat from renewable energy, green power and further measures.

Mobility
Measures to encourage use of public transport, promotion of mobile-flexible forms of work, charging stations for electric vehicles and further measures.

Data centres and green IT
Highly energy-efficient data centres, waste heat recovery, re-use of appliances and other measures.

Specific measures
Alternatively powered Postbuses, optimised railway point heating systems, continuous descent approach at Geneva Airport, fresh air cooling in telephone exchanges, low-rolling-resistance tyres, photovoltaic installations and further measures.

Major actors
Some very different public actors have committed to the Confederation: exemplary in energy initiative:

– The Confederation is represented by the Civil Federal Administration and the Federal Department of Defence, Civil Protection and Sport (DDPS).

– Of the parastatal enterprises, Swiss Post, the Swiss Federal Railways, Skyguide, Suva and Swisscom have signed up. The Confederation sets these organisations strategic objectives, which in some cases also concern energy targets or require at least a sustainable corporate strategy.

– The two Federal Institutes of Technology and four research institutes are grouped together in the ETH Domain. Their purpose is specified in the ETH Act and is translated into practice following the Federal Council's strategic objectives for the ETH Domain.

– With Genève Aéroport and the Services Industriels de Genève (SIG), two cantonal enterprises are now also participating in the initiative. Discussions are under way with further actors.

SWISS POST

ETH DOMAIN

GENÈVE AÉROPORT

SBB CFF FFS

SIG

skyguide

suva

swisscom

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Defence, Civil Protection and Sport DDPS

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Civil Federal Administration

Valérie Schelker, Head of Human Resources and a Member of the Executive Management

"Swiss Post promotes flexible forms of work and thus trust and mobility. This also supports our climate-protection and energy goals."

Swiss Post

As a mixed group, Swiss Post operates in the communications, logistics, financial services and passenger transport markets. Every year Swiss Post carries about 2 billion letters and some 129 million parcels. PostBus transports nearly 155 million passengers, while PostFinance has more than 4.8 million customer accounts. With nearly 52,000 employees in Switzerland (35,300 full-time jobs), 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 further increase energy efficiency, it is renewing its vehicle fleet and building stock, using more alternative drive systems and optimising delivery rounds.
It is also replacing fossil fuels with renewable energy sources.

www.post.ch

Etienne Marclay, Vice-president for Human Resources and Operations, EPFL

"Reducing the impact of commuter and business travel without detracting from the attractiveness or academic performance of EPFL is a real challenge posed by sustainable development."

ETH Domain

Academic achievement at the highest level: this is what the ETH Domain provides with over 14,400 staff members, more than 31,000 students and doctoral students and a faculty of about 850 people. The ETH Domain encompasses the Federal Institutes of Technology in Zurich (ETH Zurich) and Lausanne (EPFL), the research institutes Paul Scherrer Institute (PSI), the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), the 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 has been coordinated with the targets of the federal government's Energy Strategy 2050. The ETH Domain's institutions support the common objectives on their own responsibility and with their own envi-ronmental management systems.

www.ethdomain.ch

José Manuel Calvelo, Safety Engineer in charge of people and buildings – Operations management

"In 2017, occasional home working enabled nearly 600 journeys between work and home to be avoided."

Kathrin Amacker, Chief Communication Officer and member of the Group Management

"With mobile and flexible forms of work we utilise buildings and transport infrastructure more evenly in the course of the day and thus save valuable energy."

Genève Aéroport

In 2017, 17.4 million passengers used Geneva Airport. Specialising in point-to-point flights (the airport's function is to link Geneva to Europe's major cities), the airport nevertheless serves a few long-haul destinations.

Energy strategy implementation
In terms of energy strategy, the objectives set by the airport are based on cantonal and federal policies. They consist of three pillars: efficiently consuming and limiting the energy required for operations; producing and distributing energy in the most efficient possible way; giving priority to our supply of sustainable energy sources. New buildings are required by law to include one or more means of producing renewable energy.
In 2017, the cumulative savings amounted to nearly 12.1 GWh for the entire site, which is equivalent to the annual consumption of 5,150 Swiss households.

www.gva.ch

SBB

With about 33,000, employees, the Swiss Federal Railways move people and goods, connect centres and open up different parts of the country. As an efficient, forward-looking and sustainable mobility enterprise, SBB provides its customers with positive travel experiences and transports their goods reliably and resource-efficiently: a rail journey in Switzerland is about 4 times more energy-efficient and emits 20 times less CO_2 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 Federal Government's Energy Strategy 2050.

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

www.sbb.ch

Robert Monin, Director of Human Resources and Work Environment

"The EquiLibre project has involved a complete rethink of the way the work of 650 employees is organised, and has increased job satisfaction and productivity."

Services Industriels de Genève

A benchmark of the energy transition in Switzerland, SIG is a public company serving 470,000 inhabitants, companies and public entities in the canton of Geneva. SIG provides its customers with water, gas, electricity and thermal energy, treats wastewater, recycles waste and offers innovative services in the areas of fibre optics and energy services.

Energy strategy
As the industrial arm that implements the canton of Geneva's general energy concept, SIG leads, or participates in, the implementation of the Energy Strategy 2050. SIG is committed to optimising its internal energy consumption, offering its customers commercial solutions with high environmental added-value and actively participating in the energy transition towards a 2000-watt society.

www.sig-ge.ch

Thierry Brégou, Environmental Affairs

"Flexible working arrangements offer our people a stimulating working environment while reducing daily commutes and hence significantly improving Skyguide's energy efficiency."

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 for which it is responsible. With its 1,500 employees, Skyguide controls civil and military air traffic in collaboration with the Swiss Air Force and international industry associations.

Energy strategy implementation
Skyguide gives high priority to resource-efficient air traffic management. The company is committed to reducing emissions from air traffic and its own energy consumption through operational improvements. Skyguide invests in efficiency measures on the ground and in improved traffic management in the air while maintaining or even improving safety standards.

www.skyguide.ch

Wolfgang Pfund, Director of Human Resources and Logistics

"Suva is relying on new forms of work to shape an efficient and motivating working environment. This benefits not only employees, but the environment as well."

Suva

Suva is more than just insurance: it combines prevention, insurance and rehabilitation under one roof. Suva offers these services to insured companies and their employees on a holistic and integrated basis: from prevention of accidents and occupational diseases through occupational claims management to rehabilitation and reintegration. The company employs more than 4,000 people and operates 18 agencies in all parts of the country, as well as two rehabilitation clinics in Bellikon and Sion.

Energy strategy implementation
Suva intends to reduce greenhouse gas emissions as a contribution to Switzerland's climate targets. It has formulated a CO_2 reduction target. To this end, it has identified the largest sources of its greenhouse gas emissions and the potential for reducing them. Suva intends to reduce its operating CO_2 emissions by 30 % by 2025.

www.suva.ch

Hans C. Werner, Head of Group Human Resources

"By organising their work flexibly, our employees have more leeway and a better quality of life. Unnecessary travel times are reduced, productivity is increased and energy saved at the same time."

Swisscom

With 6.6 million mobile phone customers, 1.45 million television subscribers and 2.4 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, broadcasts radio signals, builds and operates data centres and operates in the banking, energy, entertainment, advertising and health sectors. In 2017, Swisscom generated sales of CHF 11.6 billion with 20,500 employees.

Energy strategy implementation
Swisscom is one of the most sustainable companies in Switzerland and meets 100 % of its electricity requirements from domestic renewable energy. Together with its customers, Swisscom intends to save twice as much CO_2 by 2020 as it generates in its operations and supply chain.

www.swisscom.ch

David Külling, Head, Nature and Monument Conservation Competence Centre, DDPS, armasuisse Immobilien

"Thanks to public transport and mobile communication, I can provide my customer advice on 200 army sites locally, ecologically and without wasting time."

Pius Breu, Head of the Personnel Policy Projects and Diversity division, Federal Office of Personnel FOPER

"Thanks to mobile forms of work, I can work more flexibly in terms of time and place – which I value highly."

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 2017, the DDPS had 11,488 full-time employees, while the Armed Forces performed 5,569,005 days of service.

Energy strategy implementation
The DDPS adopted an energy policy 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 DDPS's specific targets based on the SwissEnergy programme by 2020.

www.ddps.admin.ch

Civil Federal Administration

The Civil Federal Administration, with around 23,000 full-time employees, assists the Federal Council in its multifaceted and demanding tasks. It maintains relations between states, creates good general conditions for society and the economy, provides national infrastructure and ensures the security of the state and citizens. It supports parliament in its work and, as an independent judiciary, guarantees the enforcement and implementation of Swiss law.

Energy strategy implementation
The Federal Office for Buildings and Logistics FOBL obtains 100 % of the power it needs for the Civil Federal Administration's buildings from renewable sources. In converted buildings, energy efficiency is consistently improved and new buildings are constructed according to the Minergie-P-ECO standard. Work-related travel is reduced by promoting work-at-home and the modal split is improved by means of contributions to public transport season tickets. The efficiency of data centres and other large-scale consumers is continually being increased.

www.admin.ch

Your contribution to the Energy Strategy 2050

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 private companies and the public sector. That is why the Confederation: exemplary in energy initiative invites interested companies and organisations to further step up their commitment to energy efficiency and renewable energy. A working group is currently planning continuation of the initiative after 2020.

Become an actor in the Confederation: exemplary in energy or translate the initiative's measures individually into your own areas of activity.

For further information, please contact:

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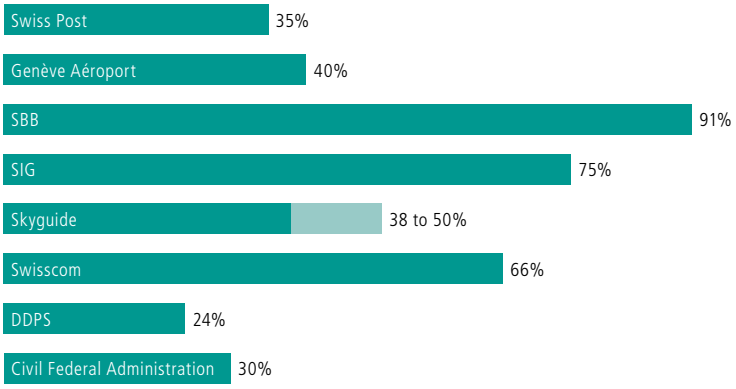
Saving resources with modern forms of work

By encouraging flexible and mobile working arrangements, the actors of the Confederation: exemplary in energy initiative are making an important contribution to easing daily traffic peaks, reducing commuter traffic in general and to optimised use of their own infrastructure.

How many employees with a suitable job profile use mobile and flexible working arrangements on a regular basis?

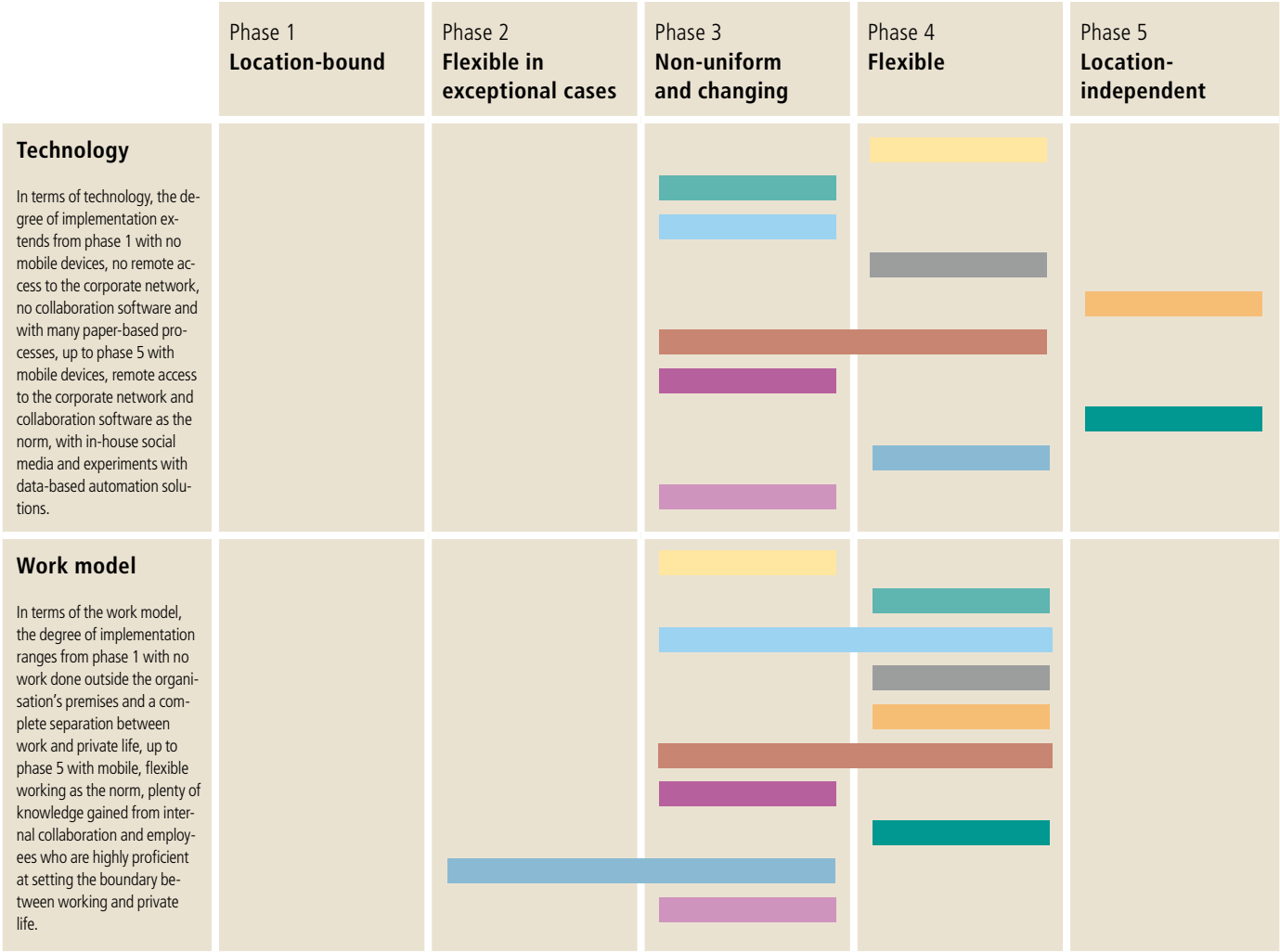


Note: the indicator used is the proportion of employees who regularly use mobile and flexible working arrangements, out of all employees with a suitable job profile. ETH Domain and Suva have not yet collected any figures on this.

Joint measure number 15 of the Confederation: exemplary in energy initiative provides for the actors to enable forms of work that allow employees with suitable job profiles to choose, as freely as possible, where and when they 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 fostering the requisite culture by addressing the topic in management and staff development.

Degree of implementation of mobile-flexible forms of work

Almost all actors are in phases 3 to 4, as is shown by the first survey of the degree of implementation of mobile-flexible forms of work with the two energy-relevant dimensions of technology and work model.



Legend

- Swiss Post
- ETH Domain
- Genève Aéroport
- SBB
- SIG
- Skyguide
- Suva
- Swisscom
- DDPS
- Civil Federal Administration

Note

The evaluation model is based largely on the FHNW's Flexwork Model 2.0 for Work Smart (www.work-smart-initiative.ch/phasenmodell). However, only those aspects are included that are actually covered by joint measure 15 of the Confederation: exemplary in energy initiative: technology and work model. The areas of infrastructure/architecture and organisational structure of the flexwork model are not taken into consideration. The numbers for the ETH Domain relate only to ETH Zurich.

Federal Administration employees come together in an internal meeting area. Mobile forms of work and flexible working time models make it possible to even out traffic peaks and reduce consumption of resources in office buildings.

In-house awareness-raising as a key issue

Pius Breu, Head of the Personnel Policy Projects and Diversity division at the Federal Office of Personnel FOPER, describes in an interview what the Federal Administration expects to achieve in terms of energy from mobile, flexible forms of work.

What does mobile work mean in the Federal Administration?
Today we are significantly more mobile than we were a few years ago. In the Federal Administration too, a growing proportion of employees perform their work either partially or entirely outside their own workplace – either on the move in their mobile office or from their office at home. We enter into an agreement with employees who work regularly from home. Modern modes of communication – such as shift in information and communication technology to Skype for Business in the past two years – have provided a big boost here. We have been a member of the Work Smart Initiative[1] since March 2017. It sent an important signal to our employees and the management: we use the potential of mobile working to organise our activities more efficiently, but also to save resources and remain an attractive employer. This trend continues to gather pace.

To what extent do you also expect energy-related benefits from mobile and flexible working?
With mobile forms of work and flexible working time models, the Federal Administration is making a contribution to evening out traffic peaks. Firm figures for this are not yet available, however. At the same time, the Federal Administration is promoting the use of public transport by providing SBB half-fare travelcards for all its employees. The increased use of flexible working arrangements has a positive impact on our consumption of resources.

Where do you see as-yet untapped potential for energy consumption?
According to the 2017 staff survey, more than half of our employees already go to work by public transport, on foot or by bicycle. So we've already achieved a lot in terms of commuter traffic. However, environmental aspects should increasingly play a role in future when choosing the means of transport for business travel. We encourage the use of telephone and video conferencing as alternatives to business travel with face-to-face meetings on site. The Federal Administration is now technically well-equipped for this at all its locations. However, it is and will continue to be a major task to raise employee awareness of energy consumption and to support them with appropriate information and tools.

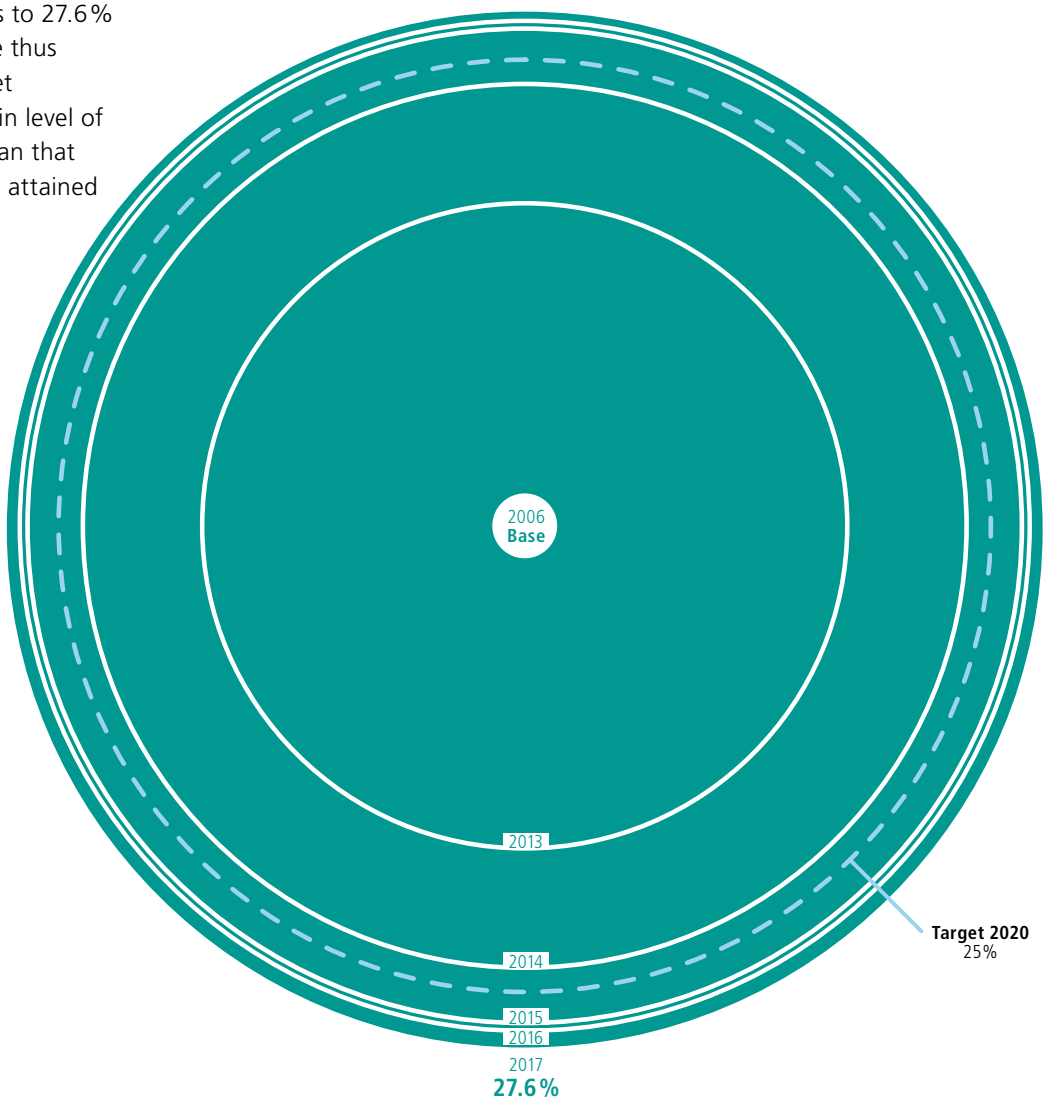
[1] The Work Smart Initiative supports organisations with the implementation of flexible working arrangements. The signatories of the Work Smart Charter undertake, for example, to use resources and infrastructure more efficiently.

Visible progress

In 2017, the ten actors increased their energy efficiency beyond the original target of an average of 25 %. It remains a challenging task to maintain and further improve this level in the coming years.

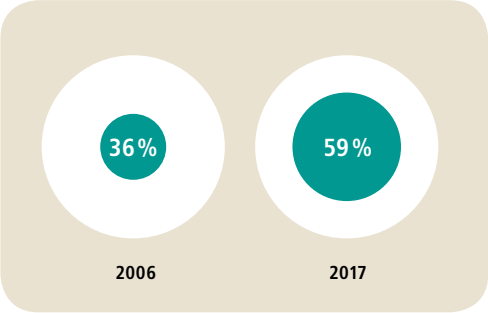
Energy efficiency

In 2017 the actors increased their energy efficiency by 0.6 percentage points to 27.6 % versus the previous year. They have thus already exceeded the original target of 25 % by 2020. 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.



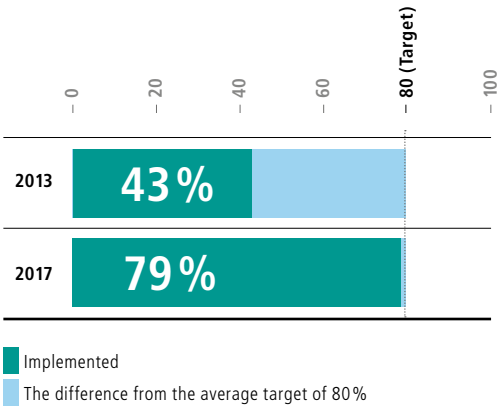
Renewable energy

In 2017, the average share of renewable energy out of total energy consumption increased two percentage points year on year to 59 %.



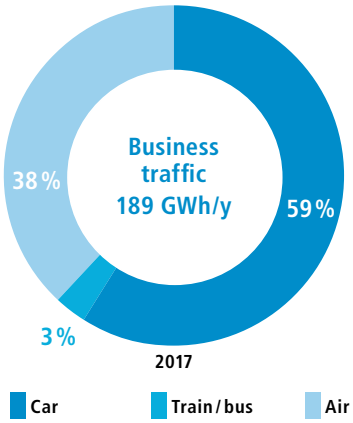
Joint measures

By the end of 2017, the actors had attained an average attainment rate of 79 % for the 39 joint measures. They are thus well on track to implementing 80 % of the measures by 2020.



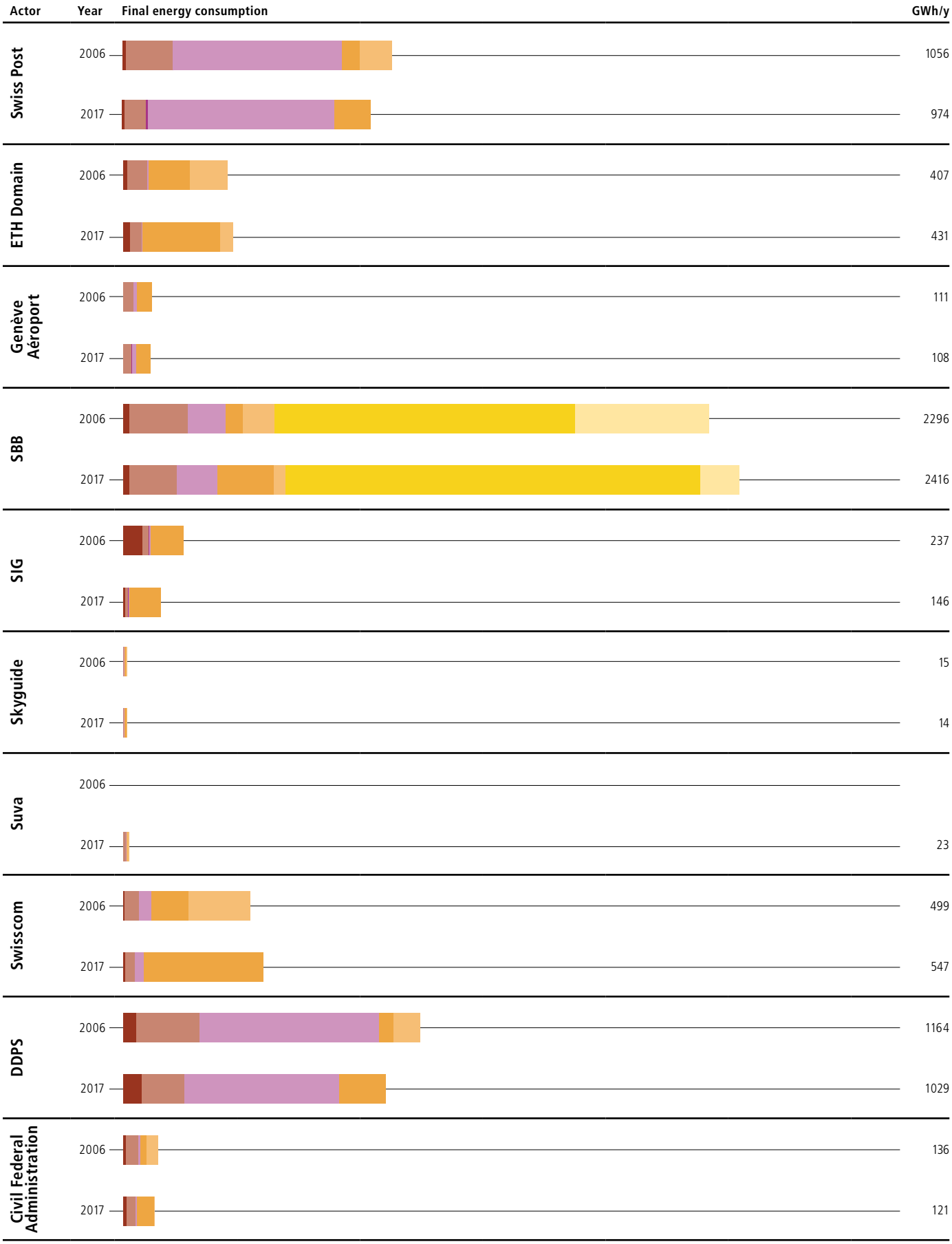
Mobility

For the second time, the annual report provides data on the actors' business and commuter traffic (cf. individual action plans starting on page 24). The average for all actors can only be calculated for business traffic. Uniform data are not yet available for commuter traffic.

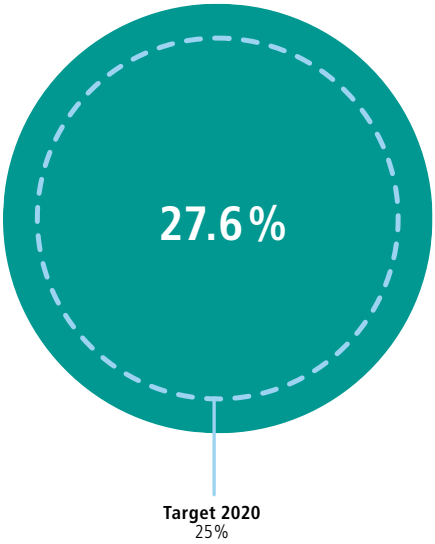


Note: The diagram shows the breakdown of business traffic by mode of transport, based on energy consumption. Passenger traffic is not counted as part of business traffic. The average does not include Genève Aéroport, the DDPS and the Civil Federal Administration.

Final energy consumption and energy efficiency



Increase in energy efficiency attained	Reference variable(s)
28.5 %	Depends on the corporate unit: number of consignments, customer business, passenger kilometres, transactions, total useful floor area, full-time equivalents (FTE)
34.8 %	Based on full-time equivalents (FTE), total useful floor area, days instruments deployed, patient treatments (PSI)
23.9 %	Depends on the number of user units (passengers and cargo), total useful floor area
17.1 %	Efficiency indicator 1: 17.1% based on operating output in passenger and net tonne kilometres and traction energy consumption (final energy) Efficiency indicator 2: 69.2 % calculation as for 1, but based on primary energy
13.4 %	Depends on the corporate unit: cubic metres of drinking water supplied, cubic metres of waste water treated, tons of waste processed, full-time equivalents (FTE)
34.2 %	Depends on the corporate unit: full-time equivalents (FTE), total useful floor area, number of flights
	As Suva joined the Confederation: exemplary in energy initiative as an actor at the beginning of 2018, the organisation has not yet defined any reference variables and therefore has not yet calculated its energy efficiency either.
43.3 %	Efficiency calculation based on energy efficiency measures implemented (Energy Agency of the Swiss Private Sector [EnAW] methodology)
0.6 %	Staff level in full-time equivalents (FTE); work days are converted into FTE
52.3 %	Full-time equivalents (FTE)



Efficiency target exceeded

With an average increase in energy efficiency of 27.6 %, the actors are already above the 25% they are targeting by 2020. Even if absolute energy consumption increases, an actor may have increased efficiency if its organisation is growing.

Calculation methodology

Energy consumption and energy efficiency are calculated by each actor for its own buildings, infrastructure and vehicles in Switzerland. But the precise system limits vary from actor to actor. The actors also define individually the calculation methods and reference variables so that they can base these on their existing environmental reporting. Further information is available at www.confederation-exemplary-in-energy.ch.

Fuels (heat)
- Renewable and waste heat
- Conventional

Fuels (transport)
- Renewable
- Conventional

Electricity
- Renewable
- Conventional

Electricity (railways)
- Renewable
- Conventional

Average degree to which joint measures have been implemented

Area of action	No.	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 energy	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 optimisation 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 employees
	15	Encouragement of mobile-flexible forms of work	30% of 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 employees
	18	Incentives for using public transport	See detailed description on page 64
	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 sites equipped to cope with demand
	23	Provision of bicycles and e-bikes	100% of sites with over 100 employees
	24	Criteria for procuring energy-efficient vehicles	100% of newly-procured cars by 2020
	25	Eco-driving 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 65
	28	Provision of charging stations for electric vehicles	100% of sites with over 500 employees
Data centres and green IT	29	Full cost accounting of energy efficiency in procurement	100% of appliances in new calls for tender
	30	Specifications for new servers and new data centre hardware	100% of new calls for tender
	31	Highly energy-efficient data centres	See detailed description on page 65
	32	Pushing passive cooling solutions in data centres	See detailed description on page 65
	33	Encouraging server virtualisation in data centres	Over 85% by 2020
	34	Bundling of data centres / 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 centres > 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 66
	39	Promoting re-use of appliances	100% by 2015

Swiss Post	ETH Domain	Genève Aéroport	SBB	SIG	Skyguide	Suva	Swisscom	DDPS	Civil Federal Administration	Target achievement rate
●	●	●	●	●	●	···	●	●	●	68
●	●	●	●	●	●	···	●	●	●	95
●	●	●	●	●	●	···	●	●	●	95
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●	●	●	●	●	●	···	●	●	●	90
●	●	●	●	●	●	···	●	●	●	76
●	●	●	●	●	●	···	●	●	●	73
●	●	●	●	●	●	···	●	●	●	73
●	●	●	●	●	●	···	●	●	●	70
●	●	●	●	●	●	···	●	●	●	73
●	●	●	●	–	–	···	●	●	●	71
●	●	●	●	●	–	···	●	–	–	84
●	●	●	●	●	●	···	●	●	○	81
●	●	●	●	●	●	···	●	●	●	100
●	●	●	●	●	●	···	●	●	●	108
●	●	–	●	●	●	···	●	●	●	69
●	●	●	●	●	●	···	●	–	●	70
●	●	●	●	●	●	···	●	●	●	75
●	●	●	●	●	●	···	●	●	●	115
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●	●	●	●	●	●	···	●	●	●	96
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●	●	●	●	●	●	···	●	●	○	47
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●	●	●	●	●	●	···	●	●	●	92
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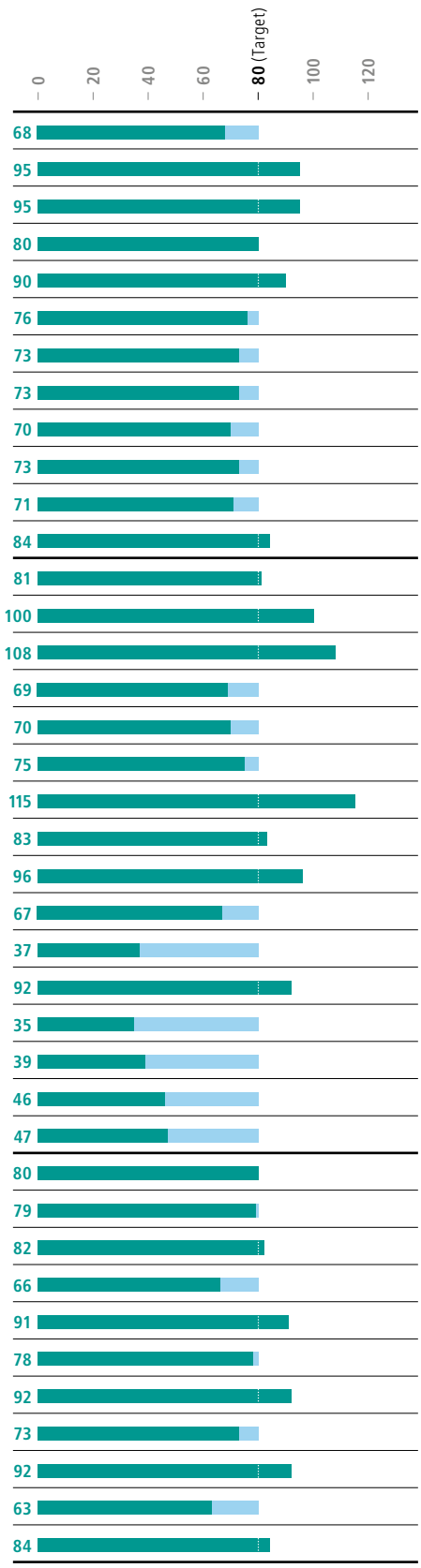
●	●	○	●	●	●	···	●	●	●	84



Average target achievement rate
for all joint measures

79 %

Great differences in the implementation of mobility measures

By the end of 2016, the actors involved in the Confederation: exemplary in energy initiative had attained an average attainment rate of 79% for all joint measures. In the action area mobility the emphasis has been placed up to now on a range of different forms of implementation. That is why attainment of the target varies most widely in this area.

● Selected measure
○ Selected, no data yet
··· In clarification
– No leeway for action
× Responsibility for implementation open

Implemented
The difference from the average target of 80 %

Swiss Post

Swiss Post's final energy consumption in 2017 was 974 GWh. It fell by 8 % compared with the base year 2006, despite strong business growth in the logistics and passenger transport markets. Swiss Post achieved this by increasing its energy efficiency by 28.5 %. Over the past year, the company launched a pilot test with eight electric delivery vans operating in parcel delivery, among other measures.

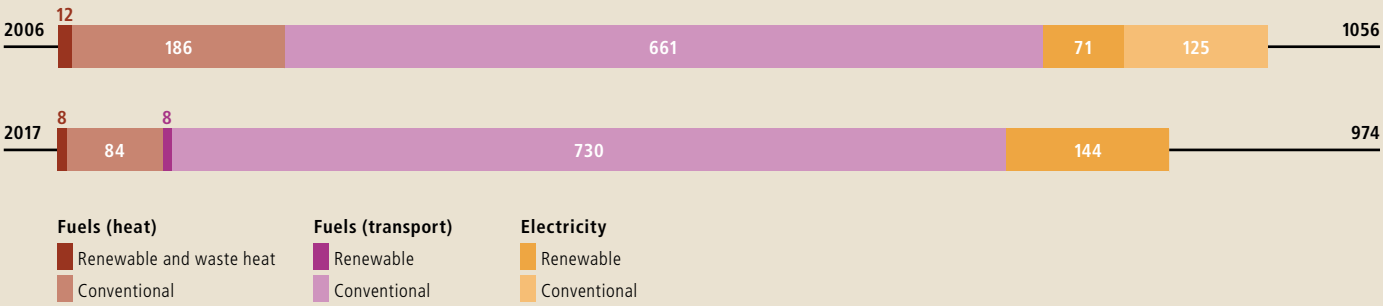
Success story

A second lease of life for postal scooter batteries

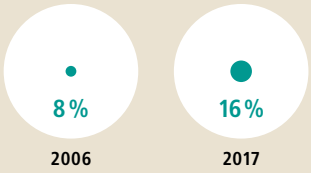
The scooter fleet in the Swiss Post delivery service consists exclusively of electrically-powered two- and three-wheeled vehicles. After having been in operation for about seven years, their batteries still have a storage capacity of just under 80 % – too little to continue to be used for letter delivery, but more than enough for use in a stationary power storage unit for solar power. A power storage unit was installed in the post office building next to Neuchâtel station in spring 2017. It consists of used batteries from postal scooters. The batteries, which are now employed for stationary use, store the electricity generated by a solar installation on the roof of the building, which has undergone total refurbishment to make it energy-efficient. The power is used for the branch office itself and also when recharging postal scooter batteries. The decommissioned postal scooter batteries thus benefit from a "second lease of life". A second power storage unit is installed in the Environment Arena Switzerland in Spreitenbach. An exhibition there shows the entire circuit from the postal scooter through the production of solar power to the power storage unit operating with used postal scooter batteries.

Final energy consumption by energy source

in GWh/y

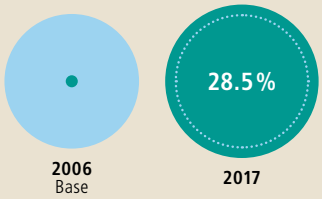


Renewable energy as a proportion of total consumption

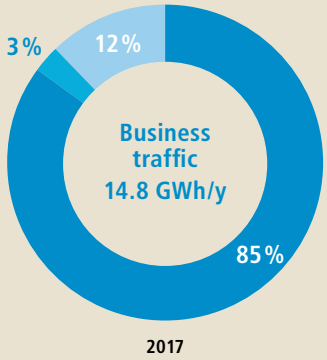


Increase in **energy efficiency**

Target 2020: 25%

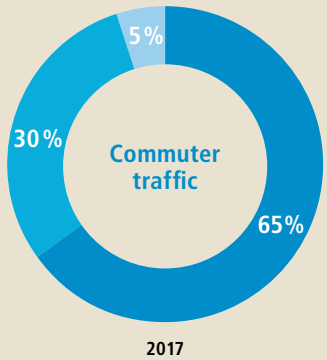


Energy consumption for **mobility**



Car | Train / bus | Air

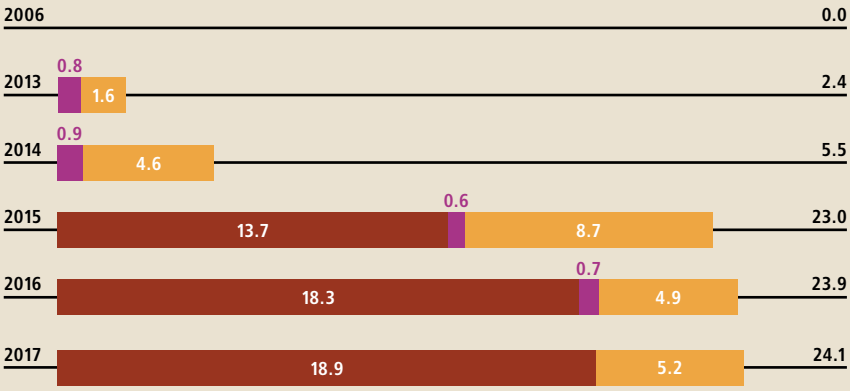
Note: Percentage shares based on energy consumption. Passenger traffic is not counted as business traffic.



Car | Train / bus | Pedestrian / bicycle

Production of renewable energy

in GWh/y



Heat / cold (from 2015 including environmental energy)
Fuels (transport)
Electricity

Swiss Post

Joint measures

No. Measure

Buildings and renewable energy

01 ● Energy-efficient new and converted buildings
02 ● Analyses of potential of waste heat and renewable energy
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 optimisation regime
10 ● Procurement of green power and hydroelectricity
11 ● Mobility concepts for buildings
12 ● Creation of ecofunds

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
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25 ● Eco-driving 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

Data centres and green IT

29 ● Full cost accounting of energy efficiency
30 ● Specifications for new servers and new data centre hardware
31 ● Highly energy-efficient data centres
32 ● Pushing passive cooling solutions in data centres
33 ● Encouraging server virtualisation in data centres
34 ● Bundling of data centres / 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

16

Promoting work hubs

It is becoming increasingly important for Swiss Post and its employees to be able to work independently of location and time, as this increases the company's innovativeness and agility by involving fewer or shorter journeys and lower energy requirements while generating higher productivity. As a co-signatory of the Work Smart Initiative, Swiss Post has been testing working at so-called third places in Olten, Aarau, Zurich, Chur, Lausanne, Lucerne, Solothurn, St. Gallen and Neuchâtel since 2016. The feedback so far has been mainly positive, with the conclusion: employees use these additional workplaces and would like to see more such locations. Swiss Post wants to accommodate these wishes. It benefits from the fact that it has office space throughout Switzerland that can be used without additional rental costs.

Swiss Post

Specific measures

No. Measure
Target (target year)

01 ● Replacement of all petrol-engined scooters used to deliver letters with electric scooters. The 6,300 vehicles are operated with entirely naturemade star certified power.
13.9 GWh/y (2016)

02 ● Energy-efficient logistics management at PostLogistics
2.1 GWh/y (2014)

03 ● Replacement of conventional Postbuses with fuel-cell and diesel-hybrid buses (saving per Postbus)
15.0 MWh/y (2020)

04 ● Use of modern EcoLife transmissions and updates of the transmission software in Postbuses
6.0 GWh/y (2014)

05 ● Targeted replacement of installations for ensuring an uninterrupted power supply (UPS) in the data centres of PostFinance Ltd with latest generation installations
1.0 GWh/y (2014)

06 ● Procurement of certified biogas
5.5 GWh/y (2020)

07 ● Management of subcontractors in logistics: monitoring of average fuel consumption with the 16 largest transport logistics partners.
1.1 GWh/y (2015)

08 ● Photovoltaic installations on post office buildings
5.0 GWh/y (2020)

09 ● Procurement of biodiesel
3.3 GWh/y (2017)

10 ● Optimisation of lifting beams in sorting centres
114.0 GWh/y (2015)

11 ● Smart metering in transporters
1.0 GWh/y (2020)

12 ● Smart temperature regulation in post office buildings
Pilot projects (2020)

13 ● Fast charging stations for electric cars at post office buildings
Pilot projects (2020)

14 ● Electric delivery vehicles in parcel delivery
110.0 MWh/a (2017)

15 ● Electric postbuses
120.0 MWh/a (2017)

● Reduction target attained
● Target

15

Electric Postbus

For the first time, PostBus is putting an entirely electric bus into operation in scheduled services. The electric Postbus – a 12-metre-long maxi bus manufactured by the Dutch company EBUSCO – is operating in the Interlaken region. PostBus intends to gather experience with the battery's range and its daily operation in order to determine whether electric buses are suitable for use in scheduled service on routes that vary topographically. Only renewable energy is used to charge the battery. Deployment is initially limited to three years.

08

5 GWh/y

Photovoltaic systems on Swiss Post buildings

Swiss Post is expanding its commitment to renewable forms of energy: in addition to the eleven photovoltaic systems already in place on its letter and parcel centres, it has been planning and installing nine more since 2017, the solar power from which will be used to cover the company's own requirements. The second wave of photovoltaic systems for internal use should be completed by 2020.

14

Electric delivery vans for parcel delivery

Since the end of last year, parcels have been delivered on a trial basis with eight energy-efficient electric delivery vans. Four vehicles are stationed in each of the Basel and Hinwil distribution bases and are 100% powered by green electricity. Electric vehicles of the Nissan e-NV200 type that have been specially converted to meet the needs of Swiss Post are used.

ETH Domain

Since 2006 the ETH Domain seen a very rapid expansion in teaching and research, fast-growing student and teacher numbers, and 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 the modernisation of building technology, increased recovery of waste heat and great endeavours to ensure that large-scale research facilities are as energy-efficient as possible, energy efficiency has been improved by 34.8 % since 2006, although total energy consumption has risen by 5.9 %.

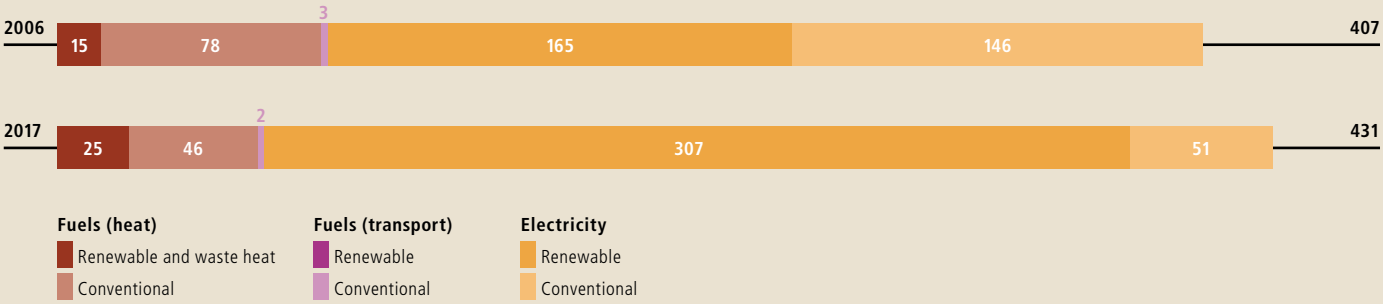
Success story

Reducing the impact of commuter and work-related mobility

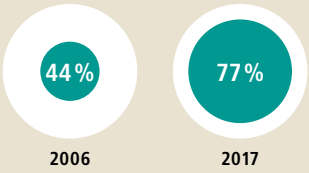
When 16,000 EPFL students and employees travel to the campus every morning and leave it in the evening, the burden on the grids and environment is high. When the scientists join their peers around the world, the carbon footprint deteriorates seriously. Regarding commuter mobility, the relevant mobility surveys conducted on the site over the past 15 years show that the measures to promote sustainable mobility have borne fruit. Non-motorised traffic and public transport have increased their shares by 9% and 5% respectively, while the share of motorised private transport has declined accordingly. The flagship measures taken include the construction of 1,500 student housing units in the vicinity, a 30 % increase in public transport services, granting subsidies for season tickets/travelcards, increasing the number of bicycle parking spots on campus (3,100 spaces) and running a workshop for minor repairs and selling 100 new and 600 second-hand bicycles. A rethink of work-related travel has started only recently, with a mobility plan being looked into which aims at reducing and offsetting the impact of travel, but without detracting from the institution's scientific performance.

Final energy consumption by energy source

in GWh/y

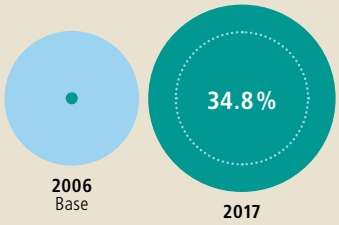


Renewable energy as a proportion of total consumption

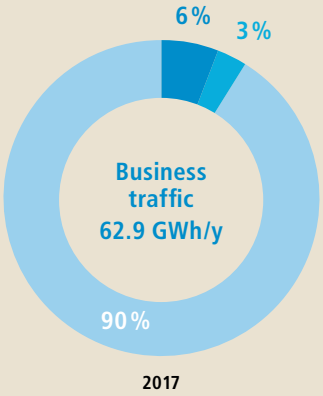


Increase in **energy efficiency**

Target 2020: 25%



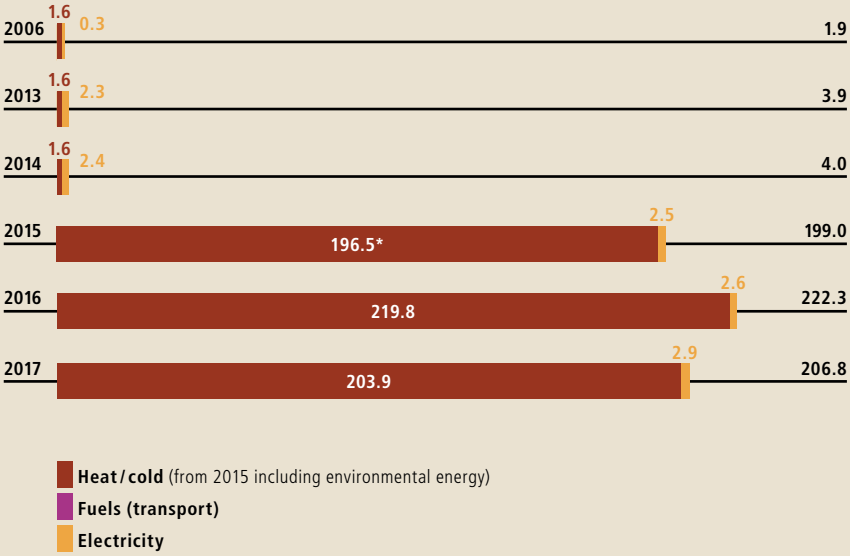
Energy consumption for **mobility**



Note: Percentage shares based on energy consumption. Commuter traffic has not yet been measured.

Production of renewable energy

in GWh/y



*This figure had to be corrected retrospectively.

Joint measures

No. Measure

Buildings and renewable energy

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Data centres and green IT

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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

01

Energy-efficient new and converted buildings

The HIF/HIL building complex on the ETH Hönggerberg campus came into operation in the mid-1970s and is now in need of a first, extensive refurbishment. In addition to the overall renovation, a new laboratory wing will extend the complex. The strict planning requirements in the different dimensions of sustainability and their consistent implementation in the project are ensured and assessed by the SGNI certification system as the process moves forward. For the HIF refurbishment and extension, ETH Zurich was now able for the first time in Switzerland to be awarded an SGNI pre-certificate of the highest grade (platinum) for a refurbishment project in a laboratory building. This underscores the consistent attitude of ETH Zurich to sustainable construction.

ETH Domain

Specific measures

No. Measure
Target (target year)

01 ● Research in the field of exemplary energy 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 energy in buildings.

New research projects (2020)

02 ● Teaching in the field of energy
Exemplary offerings from the new study and continuing education programmes

- Introduction of a master's course in Energy Science and Technology at ETH Zurich.
- Master's course in energy management and sustainability at EPFL

New study courses (2020)

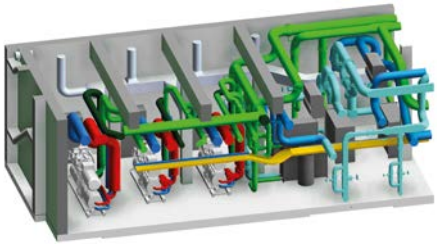
03 ● ETH Zurich: Construction of the Anergy Grid on the Hönggerberg campus
14.0 GWh/y of heat (2020)

04 ● PSI: Improved waste heat recovery on the research site
75% waste heat (2018)

05 ● EPFL: EPFL's autonomous heat supply. Target: heating without fossil fuels by 2019, maximisation of the use of renewable energy for heating and cooling (100% heat pump with lake water) by 2019; minimisation of CO_2 emissions, use of potential synergies with other projects on the campus.
100% renewables (2019)

06 ● WSL: Conversion of all WSL's own sites to CO_2-neutral heating. Target: reduction of CO_2 emissions by 97% from 2006 to 2020, reduction of the heat requirement by 25% by 2018.
CO_2 reduction (2020)

● Reduction target attained
● Target



01

Research in the field of energy

A new centre for transporting heat at a low temperature level (Anergy grid) is being built at ETH Zurich Hönggerberg. The project is being implemented as an open BIM project, using the latest digital planning methods. The utilisation aims were developed in joint workshops between the building owner and the planning team and recorded in a project development plan. The entire planning team works together "live" in a cloud-based collaboration space. In this way planning solutions can be developed directly on the digital model. Any repercussions on the work of other people involved in the construction, for example cabling conflicts, can be identified and the relevant tasks assigned to the person responsible.

01

Smart Living Lab

After its victory in the International Solar Decathlon competition 2017 in Denver (USA), the NeighborHub in the Freibourg Smart Living Lab is coming to life again. The Swiss Solar House presents residents of a neighbourhood with a host of alternatives for sustainable development: renewable energy, mobility, water and waste management, food, biodiversity and advanced materials.

05

Reconversion of hydrogen

In 2017, the fuel cell system was put into operation on the Energy Systems Integration Platform at the Paul Scherrer Institute. This enables the hydrogen that is obtained from the power-to-gas process for storage to be fed back into the grid with an efficiency of over 60%. When operating at full capacity, an output of up to 200 kW is attained.

Genève Aéroport

Genève Aéroport joined the Federal government's programme one year ago and is continuing to progress. Several development and construction works have been carried out, such as changing the doors of the Grand Hangar, thus ensuring better heat insulation of the building, and construction of the VIP pavilion equipped with solar panels and geothermal probes. Energy efficiency increased by 23.9 % between 2006 and 2017.

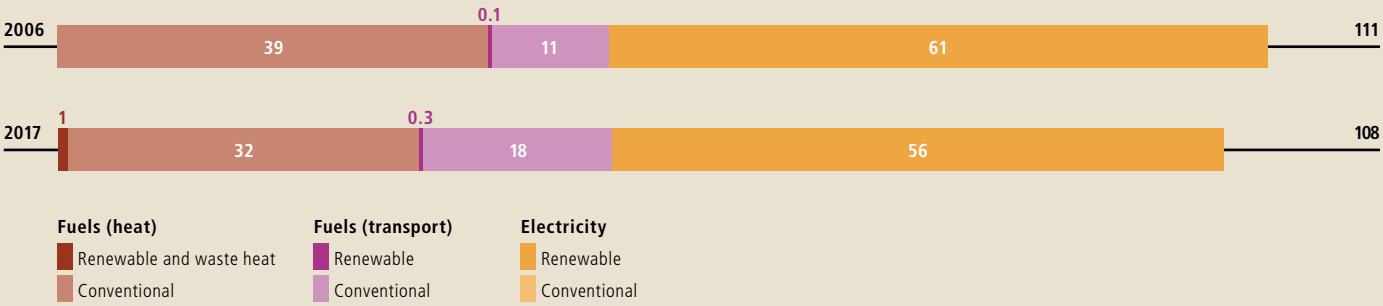
Success story

Changing the doors of the Grand-Hangar

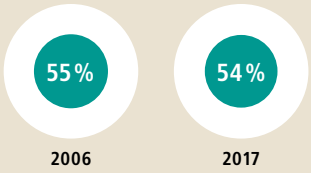
Genève Aéroport entered a phase of expansion and modernisation as early as 1941. The Grand Hangar, work on which began in 1947, was at the time the largest in Europe, measuring 170 metres long and 62 metres wide. With the adjacent assembly hall measuring 80 metres by 42 metres, as soon as it was commissioned in 1948 it replaced three obsolete hangars built in 1920. The door motor system and its power supply have been regularly improved over the years. The aim of changing the Grand Hangar's twelve 15-metre-high doors is to generate thermal energy gains from lower energy consumption of the radiating ceilings, as well as greatly-improved ease of use by employing modern technologies and materials. These doors are fitted with 4-metre high glazing that allows for direct visibility to the tarmac. Thus the savings made from natural lighting are significant. Two small, automatic, fast-opening doors have been built into the large doors so as to limit systematic opening of the main door and to allow small vehicles to pass, thus reducing energy loss from the building.

Final energy consumption by energy source

in GWh/y

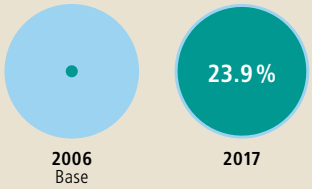


Renewable energy as a proportion of total consumption

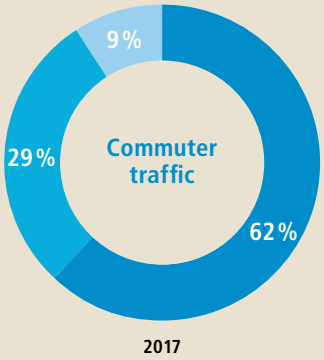


Increase in **energy efficiency**

Target 2020: 25%



Energy consumption for **mobility**

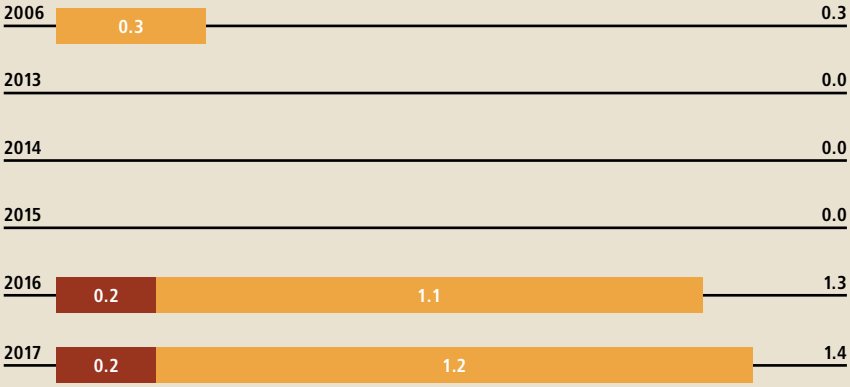


Car **Train / bus** **Pedestrian / bicycle**

Note: Business traffic has not yet been measured.

Production of renewable energy

in GWh/y



Heat / cold (from 2015 including environmental energy)
Fuels (transport)
Electricity

Genève Aéroport

Joint measures

No. Measure

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28 ● Provision of charging stations for electric vehicles

Data centres and green IT

29 ● Full cost accounting of energy efficiency
30 ● Specifications for new servers and new data centre hardware
31 ● Highly energy-efficient data centres
32 ● Pushing passive cooling solutions in data centres
33 ● Encouraging server virtualisation in data centres
34 ● Bundling of data centres / 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

28

Charging station for electric vehicles

The installation of charging terminals for electric vehicles is an integral part of the airport's environmental policy. On the tarmac side, the lack of a charging system was an obstacle to the acquisition of electric vehicles and machines. It was therefore necessary to develop the installation of power sockets and recharging terminals at the relevant locations. That is why Genève Aéroport is continuing to install charging stations for both its own vehicles and those of the partners operating on the site. Since 2015, 153 charging points have thus been installed. About 40 additional power sockets and terminals are planned by the end of 2018. Electric power is being provided to customers free of charge for the first few years. A study will determine which type of terminal and invoicing method will eventually be deployed.

Genève Aéroport

Specific measures

No. Measure
Target (target year)

- **01** ● Supplying own energy with photovoltaic installations
  3% (2020)
- **02** ● Producing renewable heat on the airport site
  100% (2025)
- **03** ● ISO 50001
  Certification (2017)
- **04** ● Shuttle service for staff outside public transport hours of operation
  Existing network (2016)
- **05** ● Electric vehicles and machines on the taxiway
  40% environmentally friendly vehicles, all companies (2020)
- **06** ● Electricity for aircraft (auxiliary power units turned off)
  120 GWh/y (2020)
- **07** ● Smart metering of energy flows
  80% (2020)
- **08** ● E-invoicing
  80% (2020)
- **09** ● Airport Carbon Accreditation (ACA), Level 3+ (neutrality)
  Certification (2017)
- **10** ● Energy savings in line with IPMVP protocol / Energy Efficiency Directive (EED)
  100% (2015)

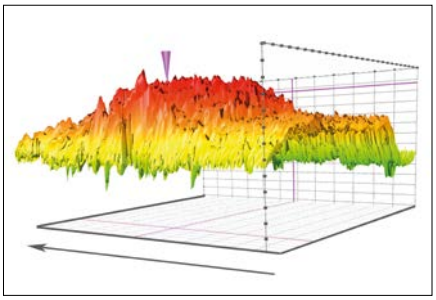
● Reduction target attained
● Target

01

10 MWh/y

Photovoltaic self-sufficiency

The original pavilion, which had become very old and was located in the extension to the thermal power plant, had to be dismantled in 2016 to make way for a brand-new pavilion. For the Protocol Service, which handles about 4,200 diplomatic operations each year, it had become essential for the airport to be equipped with a place that measures up to the international reputation of Geneva. The constraint on this new building was that it should be easy to alter and, if necessary, to dismantle. The structure chosen was thus a prefabricated building with a wooden framework covered with aluminium panels. The installation of 39 photovoltaic modules will produce approximately 10 MWh/y, which is equivalent to the consumption of nearly 4 households. The heat is produced by means of a heat pump with two geothermal boreholes at a depth of 150 metres each.



07

Smart metering of energy flows

After having installed and/or changed more than a thousand electricity meters on the site since 2015, Genève Aéroport maintained its momentum by installing nearly 70 further meters measuring various energy carriers during 2017. These meters are read remotely and can thus be monitored in real time, so as to have all the energy consumption data of the airport site in a centralised database.

09

Airport Carbon Accreditation

At the end of 2017, Genève Aéroport gained the Airport Carbon Certification level 3+, thanks to measures put in place to limit greenhouse gas (GHG) emissions. The airport, which has been certified to level 3 since 2011, marked a milestone by becoming carbon neutral. In summary, residual GHG emissions are offset by purchasing an equivalent number of carbon certificates, allowing projects in Kenya and western China that are Gold Standard certified to be financed.

Swiss Federal Railways

SBB intends to save 20 % of the annual consumption projected for 2025, or a total of 600 gigawatt hours of energy, with an extensive package of measures. In 2017, the company refined the Adaptive Control System (ACS), further reduced losses in the rail power supply, invested in energy-efficient buildings and implemented technical optimisations in the rolling stock, among other measures. Despite a strong increase in passenger traffic performance, SBB has increased its energy efficiency by 17.1 % to date compared to the base year of 2006.

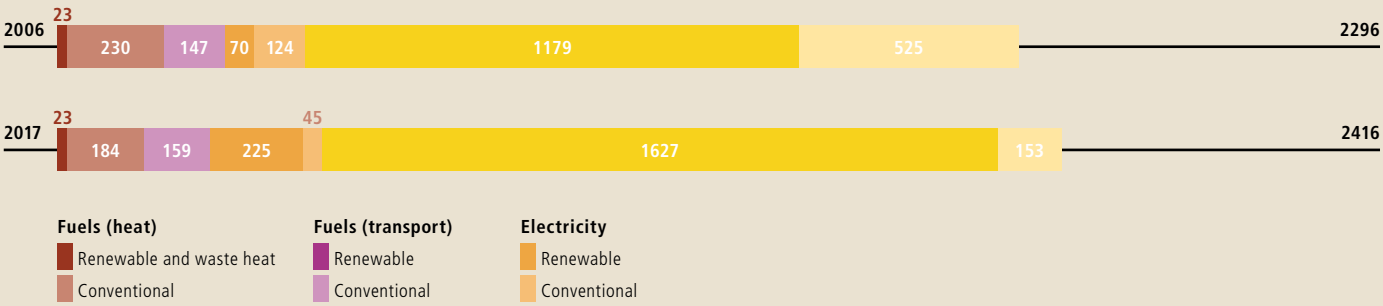
Success story

Geothermal heat for points heaters

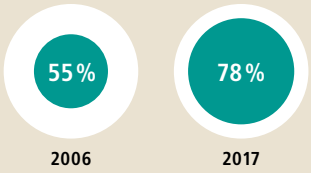
In winter, 7,400 points heaters ensure that the points do not freeze despite snow and cold. The energy consumption of the point heaters is between 60 and 70 GWh in a climatically-average winter. The energy costs of all SBB's heated points amount to around CHF 3 million. The weather sensors of the point heaters react to temperature and humidity and automatically switch on and off accordingly. SBB is constantly modernising the point heaters and optimising them in terms of energy efficiency. Furthermore, in future they may be powered by geothermal energy. SBB commissioned a demonstration plant of this type in Eschenbach in September 2017. The heating works using a geothermal probe and a heat pump, as in a single-family house. A novel feature of the system is that heat is conveyed through water pipes running along the rails. Energy savings of up to 30 % are expected.

Final energy consumption by energy source

in GWh/y

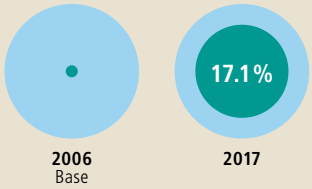


Renewable energy as a proportion of total consumption

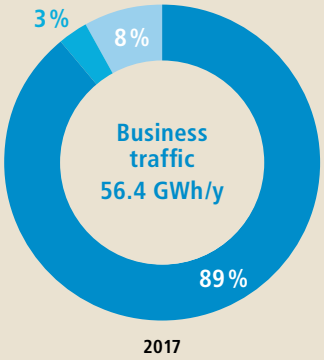


Increase in **energy efficiency**

Target 2020: 25%

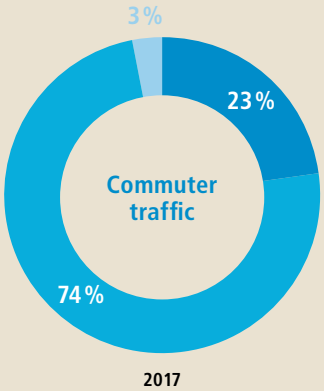


Energy consumption for **mobility**



Car | Train / bus | Air

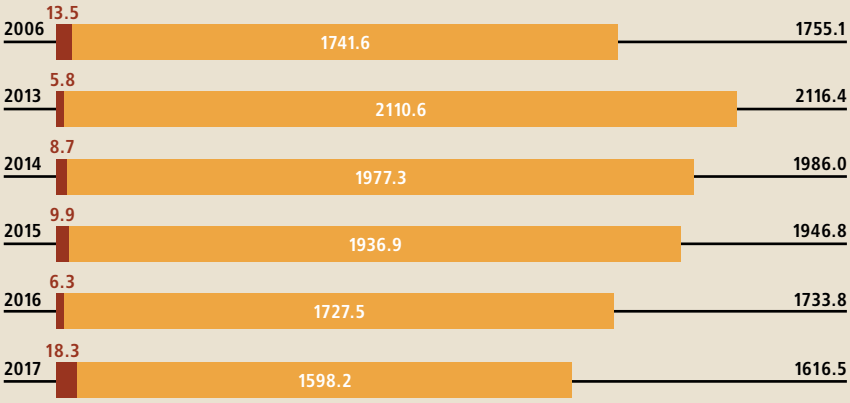
Note: Percentage shares based on energy consumption. Passenger traffic is not counted as business traffic.



Car | Train / bus | Pedestrian / bicycle

Production of renewable energy

in GWh/y



Heat / cold (from 2015 including environmental energy)
Fuels (transport)
Electricity

Swiss Federal Railways

Joint measures

No. Measure

Buildings and renewable energy

01 ● Energy-efficient new and converted buildings
02 ● Analyses of potential of waste heat and renewable energy
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 optimisation regime
10 ● Procurement of green power and hydroelectricity
11 ● Mobility concepts for buildings
12 ● Creation of ecofunds

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
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● Adopted and at least 80% achieved
● Adopted and in implementation phase
○ Adopted, no data yet
– No leeway for action
× Responsibility for implementation open

10

Procurement of green power

The forecourt of the SBB Cargo service building in Muttenz has been completed with a roof and a facade made of customised and optimally-integrated photovoltaic modules. The translucent modules allow daylight to penetrate. This means that no artificial lighting is required in the hall or the office premises during the day. The 76-kilowatt solar installation generates around 86,900 kilowatt hours of electricity annually. 100% of the output is used for in-house consumption, covering 17% of the building's total energy requirement. The jury of the Swiss Solar Prize judged the SBB Cargo site to be a groundbreaking example of the diverse possible applications of building-integrated solar installations in the interests of exemplary solar architecture, and awarded it the 2017 Solar Prize.

Swiss Federal Railways

Specific measures

No. Measure
Target (target year)

01 ● Adaptive control (ADL): a green wave for rail traffic
72.0 GWh/y (2017)

02 ● Energy modernisation of the Re460 locomotive, including replacement of the power converters
27 GWh/y (2022)

03 ● Energy-optimised shutdown of passenger trains (intelligent hibernation mode)
34.0 GWh/y (2017)

04 ● Refit of double-deck push-pull train: optimisation of heating, ventilation, air-conditioning
13.3 GWh/y (2017)

05 ● Double-deck multiple-unit train: optimisation of drive software and control, heating, ventilation, air-conditioning
13.0 GWh/y (2015)

06 ● InterCity tilting train (ICN): demand-driven outside air control
2.6 GWh/y (2021)

07 ● Timetable-based train preparation time (HVZ-D, IC 2000, double-deck multiple-unit train, new trains)
9.5 GWh/y (2023)

08 ● FLIRT Regi0lten dry-type transformers
0.6 GWh/y (2018)

09 ● Optimisation of load distribution and nozzle control for Pelton turbines in the Amsteg hydroelectric power station
2.6 GWh/y (2015)

10 ● Load flow optimisation through energy management and traction power control system EMS / FSL
10.0 GWh/y (2017)

11 ● Increasing the efficiency of the Göschenen hydroelectric power station with new impellers and transformers
5.0 GWh/y (2020)

12 ● Optimisation of lifts / elevators and escalators
2.7 GWh/y (2025)

13 ● Migration of old telephone equipment to VoIP technology
2.0 GWh/y (2016)

14 ● Optimisation of rail points heaters by renewing them and optimising operation
12.4 GWh/y (2025)

15 ● LED lights in and around the station; platform and track area lighting
5.5 GWh/y (2025)

16 ● Optimisation of passenger guidance and information systems (signage) in station access areas
1.1 GWh/y (2025)

17 ● Energy-optimised temperature in regional transport areas
3.7 GWh/y (2023)

● Reduction target attained
● Target

06

2.6 GWh/y

Demand-driven outside air control

Until now, the ventilation valves in the ICN trains were always completely open, although this is only necessary in peak periods when the trains are fully occupied. SBB is therefore now equipping its trains with smart climate control: air quality is continuously monitored by means of CO_2 sensors and the outside air valves are controlled accordingly. In this way maximum passenger comfort is achieved with minimum energy consumption. 16 vehicles have already been converted to date, with each train saving every year the power requirement of the equivalent of 15 households as a result of the change. Once the measure has been completed, all 44 trains together will save 2.6 GWh of power a year.

02

27 GWh/y

Energy modernisation of locomotives

The Re 460 red locomotives have reached the half-way point in their service life and are being extensively modernised. The focus is on energy efficiency, reliability and availability. The entire fleet makes an energy-saving contribution of approx. 27 GWh per year thanks to technical optimisations, such as a new power converter.

17

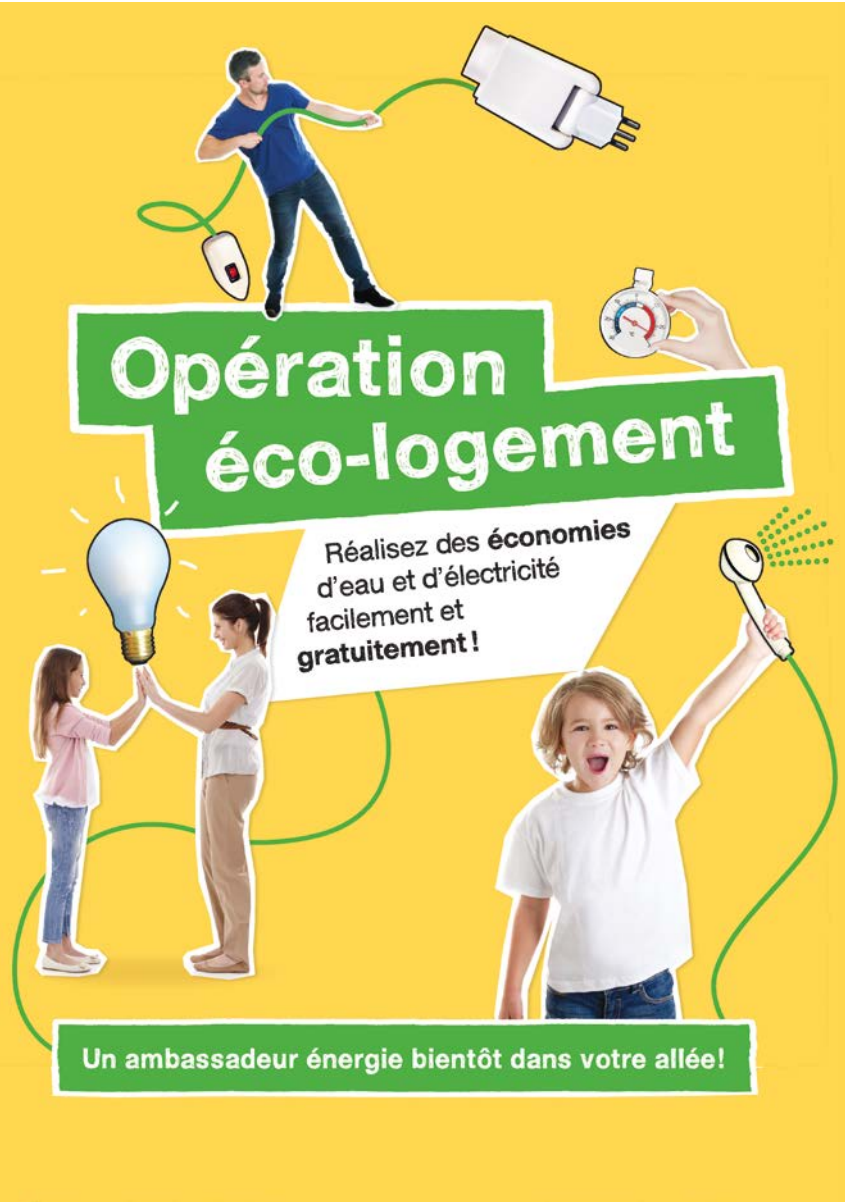
3.7 GWh/y

Energy-optimised temperature

In a test project, in January 2018 SBB lowered the ambient temperature in Zurich S-Bahn trains from 22° to 20° C. The experiment was monitored scientifically by the Lucerne University of Applied Sciences and evaluated in terms of customer acceptance. Thanks to the new temperature level, the over one hundred vehicles of the DPZ+ type save 1.6 GWh of energy per year. The total potential savings across all fleets is 3.7 GWh/y.

Services Industriels de Genève

As SIG has not utilised nuclear power since 1986, 100% of the power supplied by the utility is now of renewable origin. Launched for customers in 2008, the eco21 programme enabled them to reduce their power consumption by 155 GWh in 2017. Within SIG, power consumption has decreased by 12.5% (15 GWh/y) since 2014. The development of new renewable energies is continuing, particularly in the areas of solar energy, thermal solutions and geothermal energy.



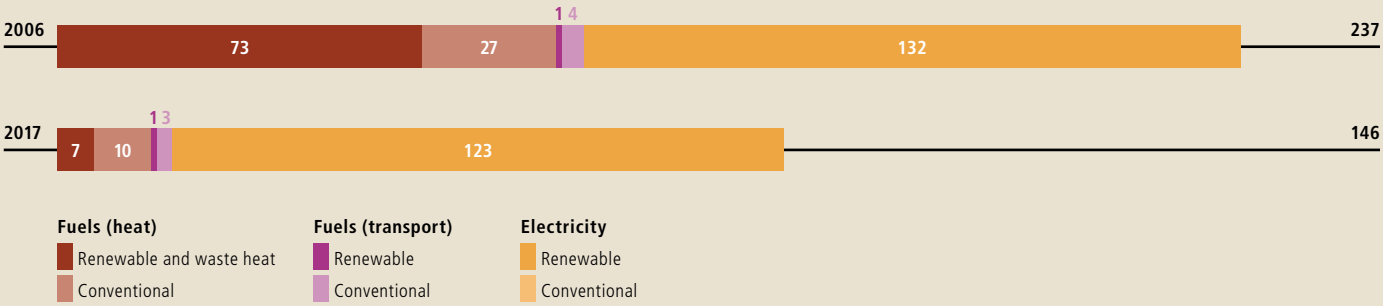
Success story

Launch of the eco-housing operation

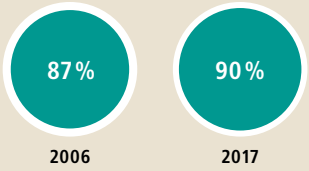
Since 2010, SIG has been paying visits to the least well-off households in order to assist them during the energy transition. By installing efficient equipment, having discussions on the topic of energy and getting advice on environmentally friendly behaviour the households visited gain a better understanding of the impact of their energy consumption and the leverage they have to reduce it. This visit affords them an opportunity to save on their energy bills, as well as to get to know the efficient products available on the market and the behaviour that needs to be adopted to reduce their energy consumption and CO_2 emissions. More than 15,000 households have benefited from the scheme. Since 2017, the eco-housing programme has been launched to offer these visits to all Geneva residents, without any income restrictions. More than 3,000 households have been visited since then as part of this new action plan, which is continuing in 2018.

Final energy consumption by energy source

in GWh/y

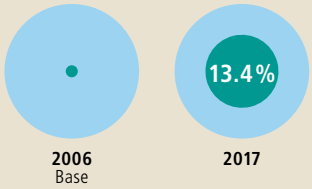


Renewable energy as a proportion of total consumption

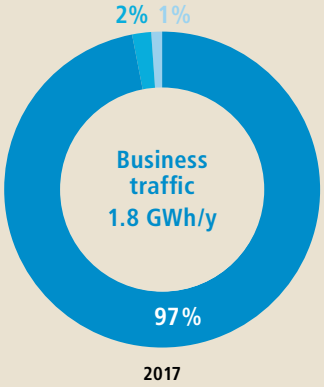


Increase in **energy efficiency**

Target 2020: 25%

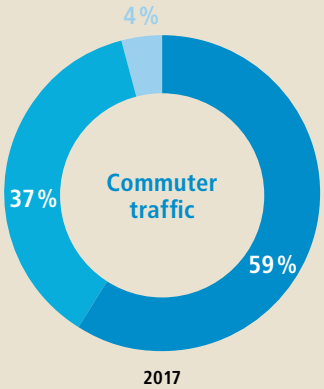


Energy consumption for **mobility**



Car | Train / bus | Air

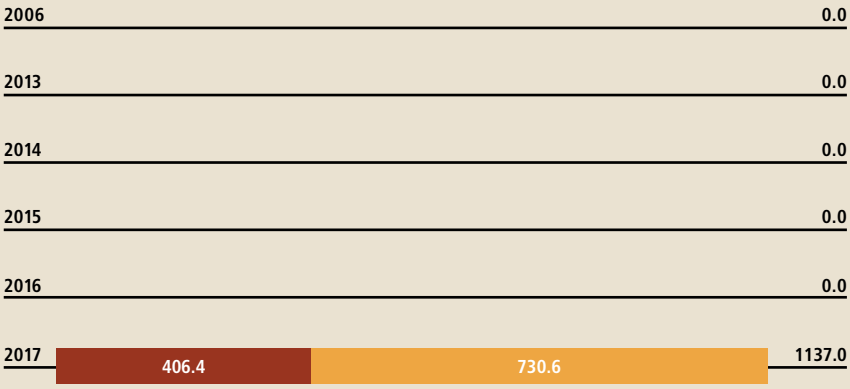
Note: Percentage shares based on energy consumption.



Car | Train / bus | Pedestrian / bicycle

Production of renewable energy

in GWh/y



Heat / cold (from 2015 including environmental energy)
Fuels (transport)
Electricity

Services Industriels de Genève

Joint measures

No. Measure

Buildings and renewable energy

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02 ● Analyses of potential of waste heat and renewable energy
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11 – Mobility concepts for buildings
12 ● Creation of ecofunds

Mobility

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● Adopted and at least 80% achieved
● Adopted and in implementation phase
○ Adopted, no data yet
– No leeway for action
× Responsibility for implementation open

16

Flexible working arrangements

In 2013, SIG launched EquiLibre, which promotes a new form of work organisation based on trust, independence, accountability and collaboration. Dynamic workspaces and teleworking replace traditional offices. Employees benefit from a trust-based timetable so as to enjoy a better balance between their working and private lives and reduce their commute. The digital environment has adapted to employees' mobile forms of work with mobile IT equipment, telecommuting via a secure portal, collaborative applications and the progressive dematerialisation of documents. As of 2018, 650 employees are working under EquiLibre in 8,000 square metres of adapted office space. SIG received the public Excellence Award in 2015 for this innovative form of work organisation.

Services Industriels de Genève

Specific measures

No. Measure
Target (target year)

01 ● Development of geothermal energy
Pilot project (2017)

02 ● Electric mobility
46 t CO_2 (2018)

03 ● The Vergers eco-district
600 t CO_2 (2018)

01

Development of geothermal energy

The development of geothermal energy is a priority of the energy policy of SIG and the canton of Geneva. The geological conditions of the Geneva basin do indeed have some very promising potential. In order to tap into this tremendous resource, it is essential to gain a better knowledge of the canton's subsoil. These are the main challenges of the Geothermie 2020 programme run by SIG and the canton of Geneva. It is thought that a considerable proportion of the canton's heat requirements could eventually be met by this technology. The first exploratory boreholes were drilled at low and medium depths in 2017, including a 650-metre borehole at Satigny.

02

46 t CO_2
Electric mobility

SIG encourages the development of electric transportation both for its internal usage – its fleet now comprises 32 electric vehicles – and in the region by partnering with the extension of the MOVE network, which provides 6 terminals and will be supplemented in 2018 by about twenty in the canton of Geneva.

03

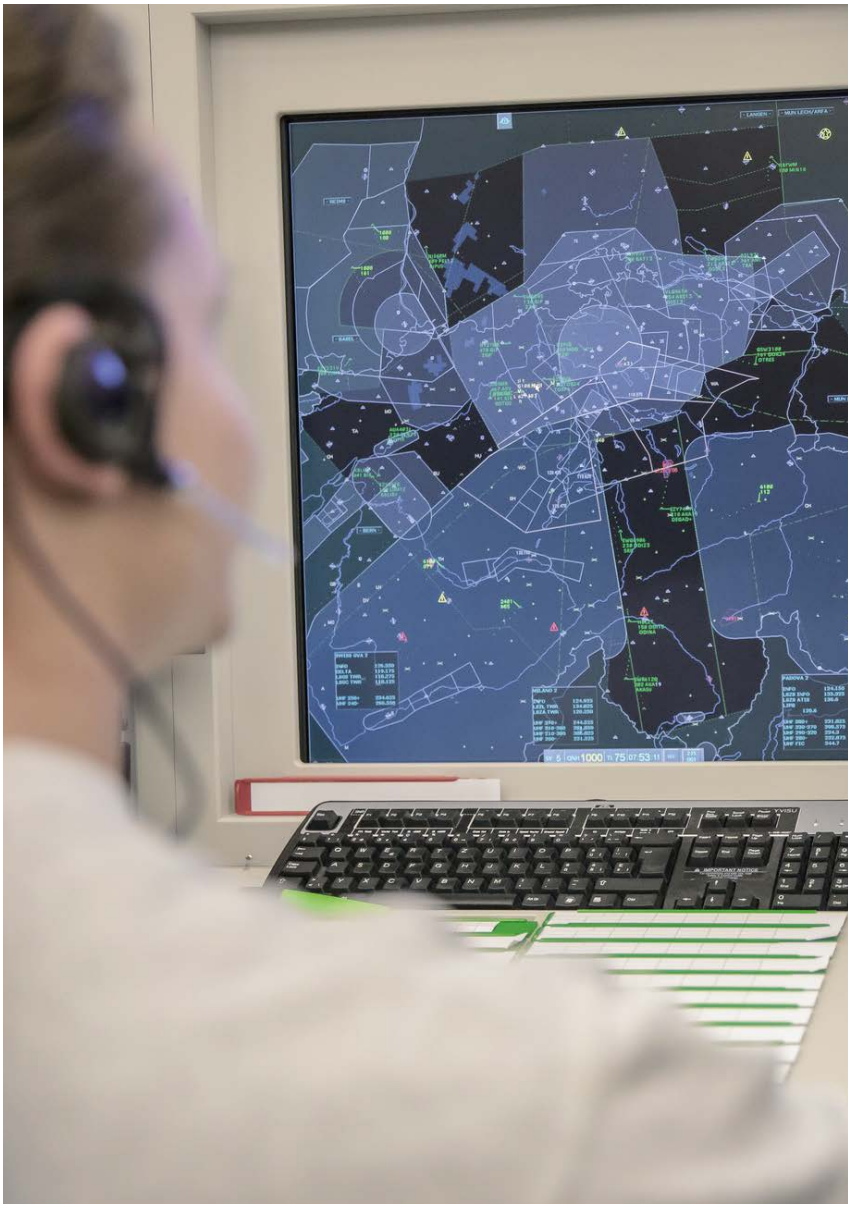
600 t CO_2
The Vergers eco-district

Since 2017, the Vergers eco-district (32 buildings) has been the first residential district in Switzerland to be fully labelled Minergie A. The SIG supply the 3,000 residents with heating and hot water through a 5-MW heat pump that uses water from the Rhone. The power consumption of the heat pump is met by photovoltaic systems.

● Reduction target attained
● Target

Skyguide

In order to reduce kerosene consumption and greenhouse gases emitted by air traffic, Skyguide is committed to guiding aircraft to their destination as directly as possible. It has therefore developed a network of direct routes over Switzerland, reduced aircraft waiting times before takeoff and landing and improved a number of technical systems. The company also aims to maximise the energy efficiency of its own infrastructures. Skyguide increased its energy efficiency by 34.2 % from 2006 to 2017, while reducing its total consumption by 260 KWh.



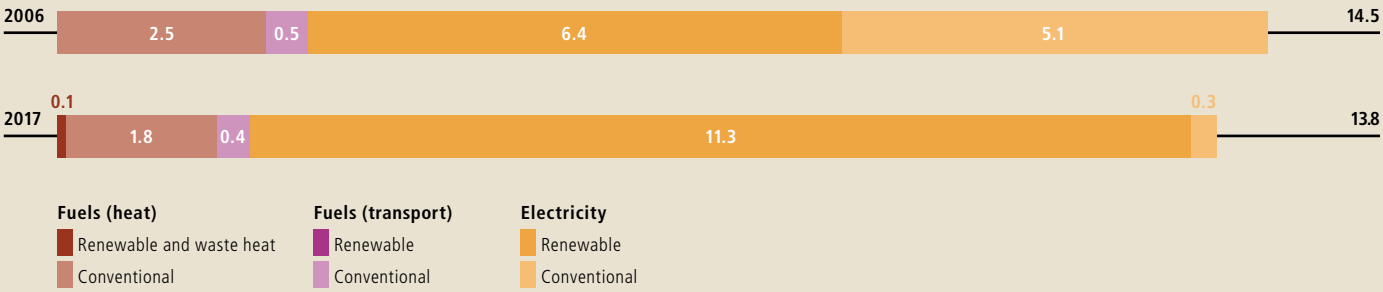
Success story

Additional direct routes available in Swiss airspace

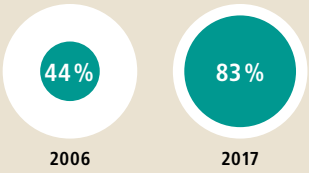
The Swiss airspace, despite its small size, is one of the densest and most complex in Europe. With this in mind, Skyguide takes actions to optimise air traffic flows, such as offering airspace users shorter routes through Swiss airspace. Shorter and more direct routes provide a threefold benefit, as they increase flight efficiency, reduce airspace congestion and have a positive impact on the environment. In 2017, the company made 63 additional direct routes available for airlines, thus helping them save fuel and reduce flight time as well as CO_2 emissions. The implementation of a direct route between the areas of Pontarlier (Jura mountains) and Chambéry (Savoie) through the Geneva region, for instance, shortened the distance flown from 184 to 177 kilometres, leading to an average annual fuel saving of 527 tonnes and a reduction in CO_2 emissions of 1700 tonnes. The goal is to develop in several steps a Free Route Airspace (FRA) in Switzerland, using the direct routes as a basis, which will allow airlines to fly even shorter routes through Swiss airspace.

Final energy consumption by energy source

in GWh/y

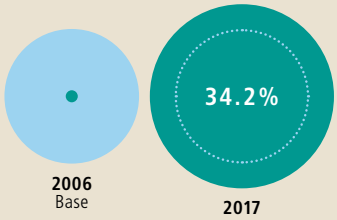


Renewable energy as a proportion of total consumption

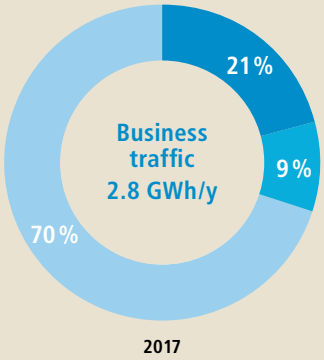


Increase in **energy efficiency**

Target 2020: 25%

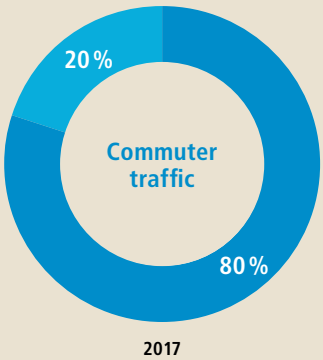


Energy consumption for **mobility**



Car **Train / bus** **Air**

Note: Percentage shares based on energy consumption.

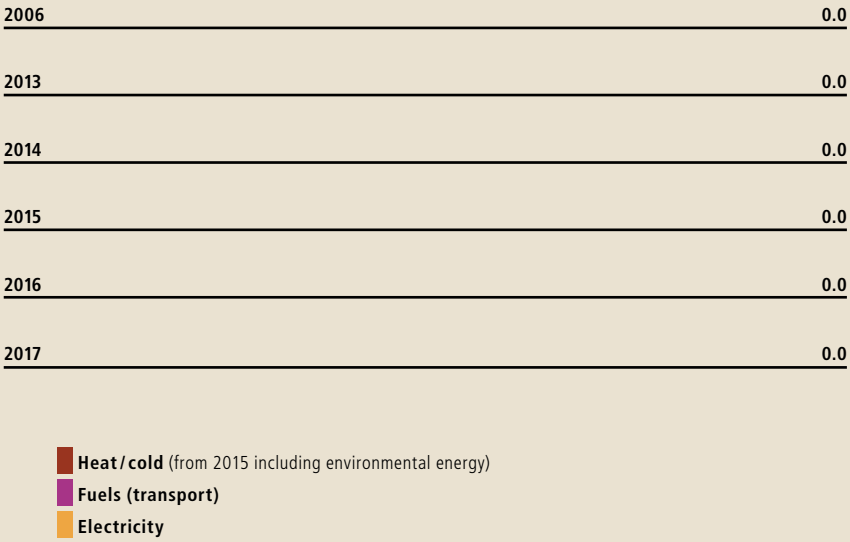


Car **Train / bus**

Note: The proportion of pedestrian / bicycle traffic was not recorded.

Production of renewable energy

in GWh/y



Joint measures

No. Measure

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12 – Creation of ecofunds

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
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24 ● Criteria for procuring energy-efficient vehicles
25 – Eco-driving 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

Data centres and green IT

29 ● Full cost accounting of energy efficiency
30 ● Specifications for new servers and new data centre hardware
31 ● Highly energy-efficient data centres
32 ● Pushing passive cooling solutions in data centres
33 ● Encouraging server virtualisation in data centres
34 ● Bundling of data centres / 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

38

Digitisation of Aeronautical Information Publication

The AIP manual is an official aeronautical publication that contains all necessary information for safe flight operations under Instrument Flight Rules (IFR). It includes not only indications about airways, airspace and IFR aerodromes, but also regulations, navigation aids as well as arrival and departure procedures. For its part, the VFR Manual contains information for flight operations under Visual Flight Rules (VFR) such as the corresponding regulations, the list of VFR aerodromes, visual approach charts for each aerodrome and area charts. The Swiss AIP is extensively used by some 600 aviation stakeholders worldwide and regularly updated. These publications are issued in large quantities. Available in paper and CD-ROM formats until April 2017, it is now digital and can be downloaded on skybriefing, Skyguide's briefing platform. This measure has helped Skyguide to reduce its paper consumption by more than 50%.

Specific measures

No. Measure
Target (target year)

- **01** ● Introduction of expanded approach management for the Zurich region (XMAN)
  127.0 GWh/y (2023)
- **02** ● Implementation of direct routes (FRA 2018 / 2021)
  43.0 GWh/y (2021)
- **03** ● Improvement of vertical flight profiles
  7.8 GWh/y (2014)
- **04** ● Green Wave for morning approaches of long-haul aircraft of the airline Swiss at Zurich Airport
  7.0 GWh/y (2012)
- **05** ● Continuous descent approach for the airports of Geneva and Zurich
  133.0 GWh/y (2014)
- **06** ● Shorter taxiing times when departing from Geneva (A-CDM)
  9.0 GWh/y (2014)
- **07** ● Optimisations of heating, ventilation and air-conditioning systems and replacement of cooling machines in the Geneva control centre
  1.7 GWh/y (2023)
- **08** ● Optimisations 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)
- **09** ● Optimised arrivals in Zurich (iStream)
  8.0 GWh/y (2016)

● Reduction target attained
● Target

03

7.8 GWh/y

Improvement of vertical flight profiles

The seasonality of air traffic flows and the cruising altitude both have an impact on the energy efficiency of aircraft. Indeed, the longer an aircraft flies at its optimum altitude, the less fuel it will consume and the fewer CO_2 emissions it will produce. Nonetheless, for primary safety reasons, international letters of agreement (LoA), which govern the handover of responsibilities between controllers of different centres, impose cruising altitude constraints. Therefore, the introduction of seasonal LoA made it possible to adjust flight profiles or – in other words – cruising altitudes of aircraft using Swiss airspace according to the differences between low- and high-traffic periods, thus reducing their carbon footprint.

01

127 GWh/y

Expanded approach management for the Zurich region

An optimal approach sequence makes air traffic more fluid prior to the landing phase and helps to avoid bottlenecks and holding patterns. Thanks to the introduction of expanded approach management in a radius of over 350 km around Zurich airport, aircraft adapt their cruising speed while still in the adjacent airspace, thus considerably optimising approach flows and reducing fuel consumption and CO_2 emissions.

09

8.0 GWh/y

Optimised arrivals in Zurich

The former ATC concept of first come, first served had the drawback of queuing aircraft at the arrival route entries just before the end of the night flying restrictions at Zurich airport. The iStream project aims at assigning a precise arrival slot to each aircraft to avoid queuing before the end of the curfew, thus reducing noise, fuel consumption and CO_2 emissions.

Suva

Suva joined the Confederation: exemplary in energy initiative at the beginning of 2018. For this reason its reporting for last year is limited to final energy consumption (23 GWh), the share of renewable energy (34 %) and energy consumption for mobility. There will be a comprehensive account, including joint and specific actions, in the 2018 annual report.

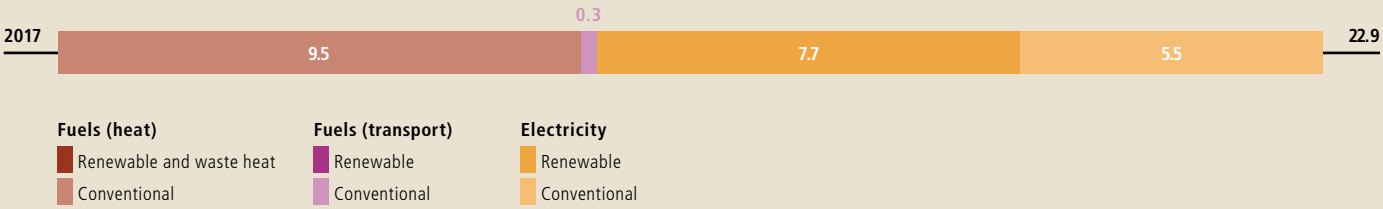
Success story

Energy-efficient housing estate in Bulle

Suva created a small neighbourhood with 166 rental apartments meeting the Minergie standard in the La Tour-de-Trême district of Bulle from 2012 to 2017, in cooperation with Projeco SA. The development fulfils various aspects of sustainability in an exemplary manner and at the same time provides, as an investment, a long-term, strategy-compliant return. The heat energy for heating and hot water is supplied by the Bulle district heating network from its wood-fired plant. In addition, the household appliances selected are those in the highest efficiency category. Moreover, a social mix is also promoted with the different-sized apartments, which have from 1 to 4½ rooms. Special attention was paid to the design of the surroundings by creating various areas where people can meet, such as a barbecue area, playground, pergola, etc., and an attractive footpath network. The district is very well connected to public transport by being located right next to La-Tour-de-Trême railway station.

Final energy consumption by energy source

in GWh/y



Note: Base year data have not yet been prepared in accordance with the Confederation: exemplary in energy initiative's calculation methods. They will be published for the first time in the 2018 annual report.

Renewable energy as a proportion of total consumption

2017

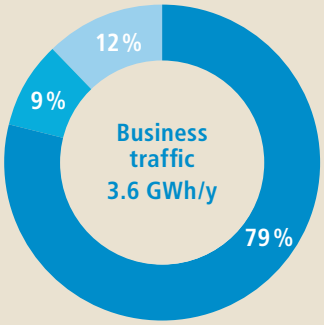
Increase in **energy efficiency**

Target 2020: 25%

2017

Note: These data have not yet been prepared in accordance with the Confederation: exemplary in energy initiative's calculation methods. They will be published for the first time in the 2018 annual report.

Energy consumption for **mobility**



2017

Car **Train / bus** **Air**

Note: Percentage shares based on energy consumption. Commuter traffic has not yet been measured.

Production of renewable energy

in GWh/y

Heat / cold (from 2015 including environmental energy)
Fuels (transport)
Electricity

Note: These data have not yet been prepared in accordance with the Confederation: exemplary in energy initiative›s calculation methods. They will be published for the first time in the 2018 annual report.

Swisscom

Swisscom's sustainability management focuses on increasing energy efficiency and using electrical energy that has little impact on the climate. Last year, for example, the company further expanded its resource-saving server virtualisation, completed the change of technology to the more energy-efficient generation of TV set-top boxes and further increased the efficiency of its data centres. Between 2006 and 2017 Swisscom boosted energy efficiency by 43.3%.

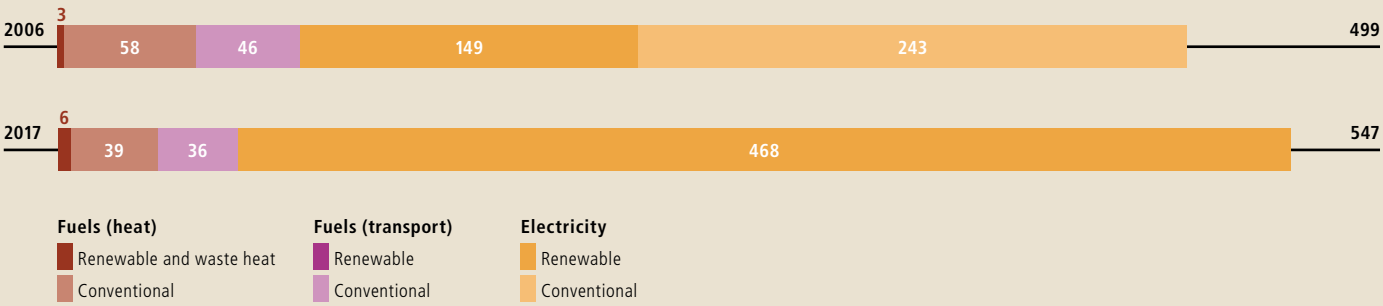
Success story

Less power consumption despite a doubling in TV customers

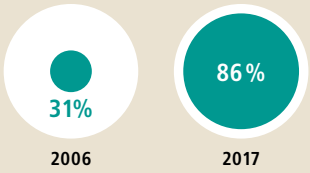
Swisscom TV 2.0 no longer saves recordings on the set-top box but in the cloud. Therefore the box can function without a hard drive and consumes only about 36 kWh of power a year. In addition, Swisscom has informed its TV 2.0 customers in detail about how to configure the set-top box so that it is energy-optimised for everyday use and the holiday season. Last year the company continued to replace the old TV boxes with new, energy-efficient models in its customers' homes. By the end of 2017, Swisscom had acquired over 1.467 million customers for its television offering. Thanks to the completed migration to the cloud-based solution, it has been possible to cut per-customer power consumption to such an extent that in the last five years the total power consumed by all Swisscom TV customers has fallen by 13 GWh, despite a 50% increase in the number of TV customers.

Final energy consumption by energy source

in GWh/y

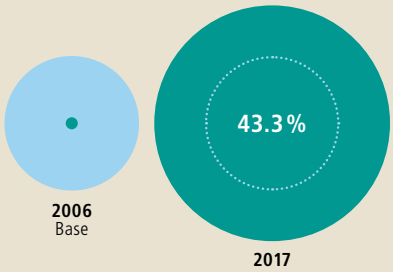


Renewable energy as a proportion of total consumption

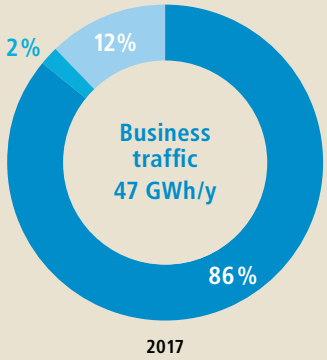


Increase in **energy efficiency**

Target 2020: 25%

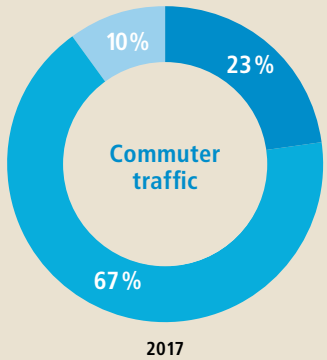


Energy consumption for **mobility**



Car | Train / bus | Air

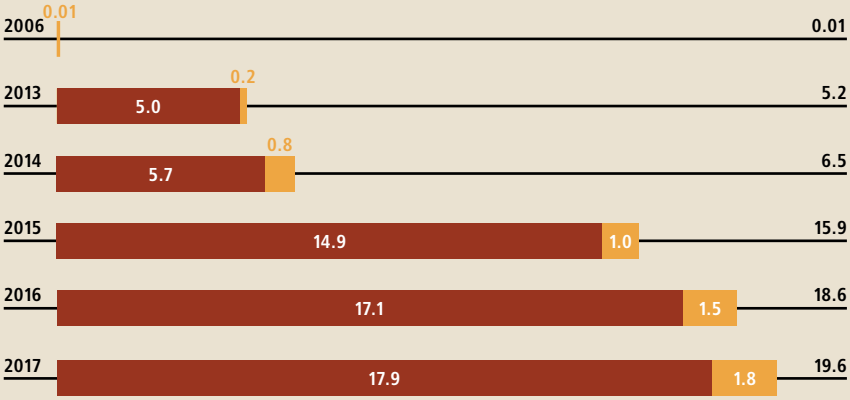
Note: Percentage shares based on energy consumption.



Car | Train / bus | Pedestrian / bicycle

Production of renewable energy

in GWh/y



Heat / cold (from 2015 including environmental energy)
Fuels (transport)
Electricity

Swisscom

Joint measures

No. Measure

Buildings and renewable energy

01 ● Energy-efficient new and converted buildings
02 ● Analyses of potential of waste heat and renewable energy
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 optimisation regime
10 ● Procurement of green power and hydroelectricity
11 ● Mobility concepts for buildings
12 ● Creation of ecofunds

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● Adopted and at least 80% achieved
● Adopted and in implementation phase
○ Adopted, no data yet
– No leeway for action
× Responsibility for implementation open

12

Creation of an eco-fund

Swisscom has launched an eco-fund. It promotes measures to increase energy efficiency and reduce the impact on the climate. The Swisscom eco-fund is funded by the reimbursement of the federal government's CO_2 levy. This incentive tax has been levied on fossil fuels such as heating oil or natural gas since 2008 and is redistributed irrespective of consumption. The eco-fund uses 100% of the reimbursed funds specifically for the aims of Swisscom's sustainability strategy, and in particular for in-house production of solar power and to increase its own energy efficiency as well as that of customers when using Swisscom products.

Swisscom

Specific measures

No. Measure
Target (target year)

- **01** ● Fresh air cooling in telephone exchanges
  45.0 GWh/y (2016)
- **02** ● Green IT offerings for customers
  57.0 GWh/y (2014)
- **03** ● Energy-efficient terminal devices for private customers
  25.0 GWh/y (2019)
- **04** ● Dematerialisation thanks to online invoicing
  2.1 GWh/y (2015)
- **05** ● Energy efficiency in the mobile phone network
  16.0 GWh/y (2015)
- **06** ● Recycling of mobile phones
  12% (annual)
- **07** ● Promoting mobile-flexible forms of work on customers' premises
  1 million (2020)

● Reduction target attained
● Target

06

8 %

Recycling of mobile phones

In 2017, Swisscom took back about 72,000 used mobile phones. The return rate rose to 8.0%. Swisscom sold many of these devices via a third-party company to countries where there is a great need for cheap second-hand phones. The defective phones are disposed of in an environmentally-compatible manner in Switzerland. Mobile phones in working order are used for longer by being sold as second-hand devices. The longer service life improves the life cycle assessment of a device and thus makes a contribution to environmental protection. Swisscom donates the proceeds from the sale and recycling of the devices to children in need.

04

2.5 GWh/y

Dematerialisation thanks to online invoicing

Online invoicing is an attractive, environmentally-compatible alternative to paper-based invoicing. The proportion of customers who have opted for online invoicing rose from 32% in 2016 to 36.6% by the end of 2017. This corresponds to an annual saving of over 2.5 GWh. Swisscom intends to further increase the proportion of online invoices. In its communications with its customers, the company points out that online invoicing is not only beneficial for the environment but also saves time and money.

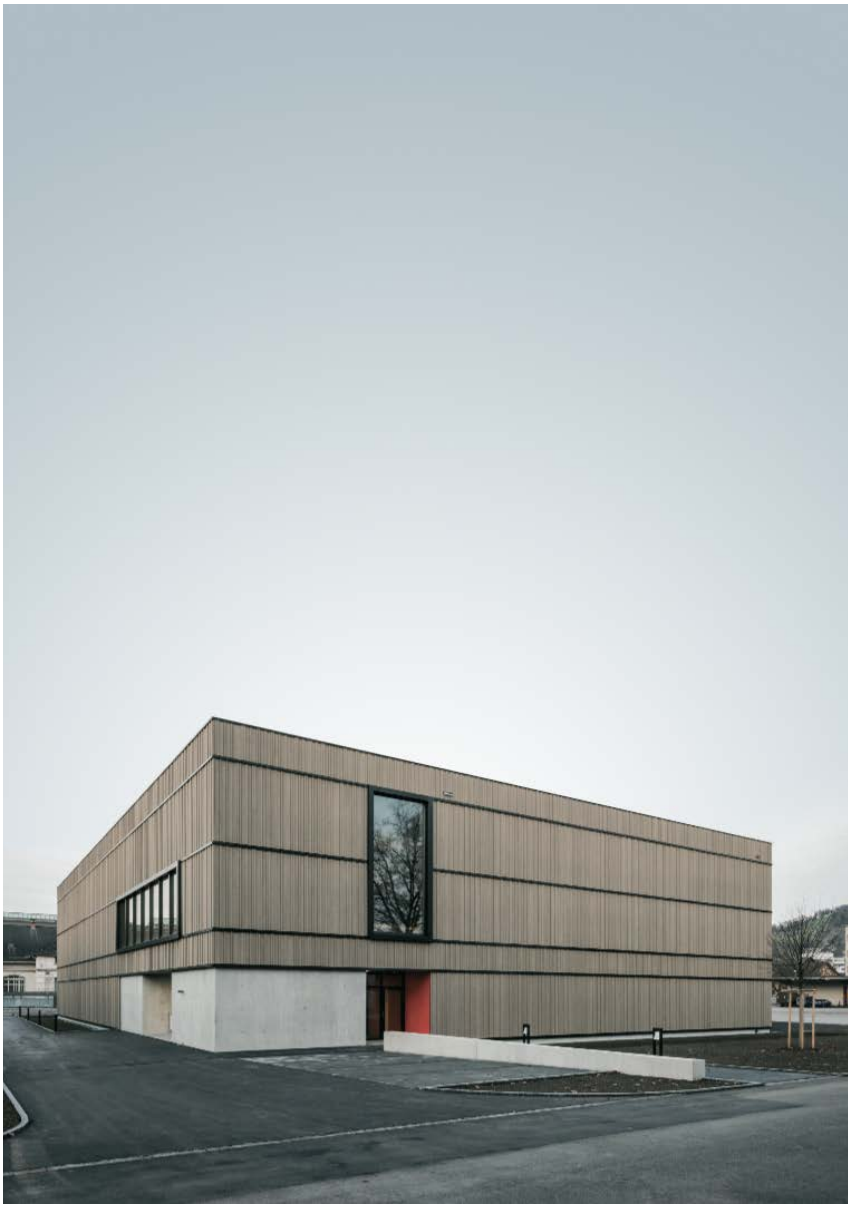
07

Mobile-flexible forms of work for customers

Swisscom wants to offer one million customers the opportunity to use mobile working arrangements by 2020. To this end, the company offers services for Work Smart and encourages a mobile working style through its involvement in the Work Smart Initiative. Of all Swiss employees who worked on the move in 2017, about 52% used Swisscom's broadband connections. That's 989,000 people.

DDPS

Last year, the DDPS reduced its total energy consumption by 12 % to 1,029 GWh compared with 2006. The successful measures included, for example, the first Swiss sports hall with Minergie-A-Eco, the promotion of waste heat usage, the production of renewable energy and the use of low rolling-resistance tyres.



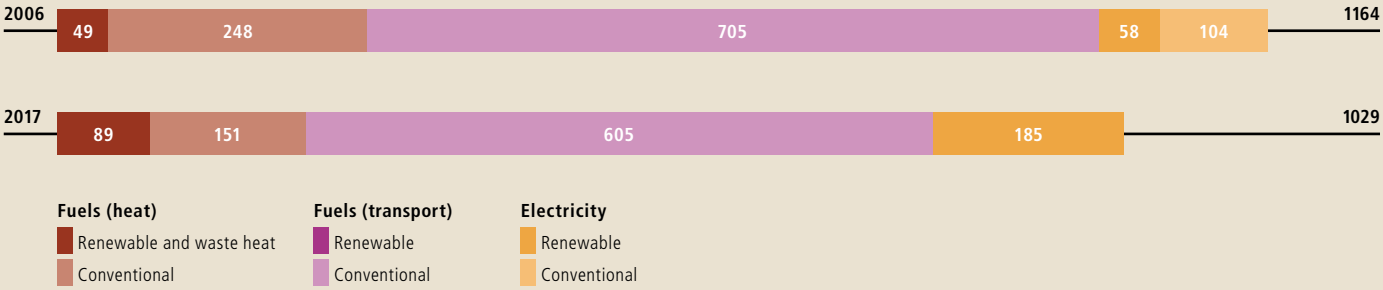
Success story

First Swiss sports hall with Minergie-A-ECO

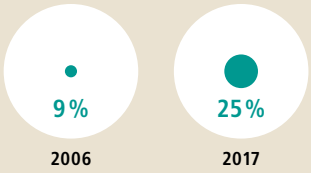
The two multi-purpose halls, which are over 50 years old, have been replaced with a new building that meets today's requirements. The timber-framed double hall will be made available to the army for sports lessons and on free evenings and at weekends to local sports clubs. During construction, care was taken to ensure that not only reasonably-priced but also proven, durable, low-maintenance, easy-to-clean and environmentally friendly building materials were employed for the intended use. The building was planned and built to meet the latest energy and environmental requirements and was the first sports hall in Switzerland to be awarded the Plus Energy Standard Minergie-A-ECO. The hall will fulfil the stringent economic, ecological and social requirements throughout its entire life cycle. A comparison of the building costs with those of similar new buildings underscore the economical construction of the double sports hall. The new sports hall on Thun's Waffenplatz shows that good architecture does not have to be expensive.

Final energy consumption by energy source

in GWh/y

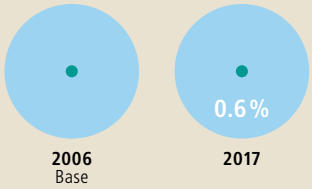


Renewable energy as a proportion of total consumption



Increase in **energy efficiency**

Target 2020: 25%

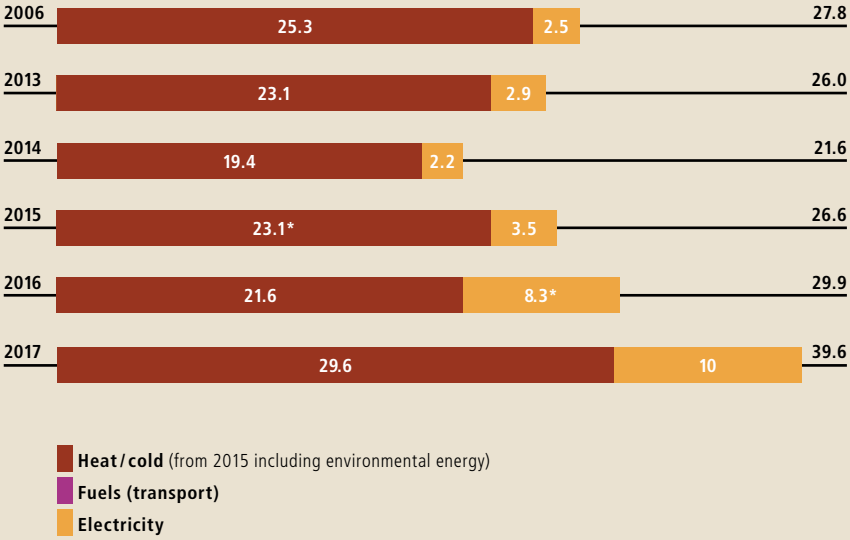


Energy consumption for **mobility**

Note: Commuter and business traffic have not yet been measured.

Production of renewable energy

in GWh/y



*This figure was corrected retroactively.

Joint measures

No. Measure

Buildings and renewable energy

01 ● Energy-efficient new and converted buildings
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● Adopted and in implementation phase
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– No leeway for action
× Responsibility for implementation open

36

Promotion of waste heat recovery

A new federal government data centre will be available to the DDPS and the Federal Office of Information Technology, Systems and Telecommunication BIT and the IT Service Centre ISC-FDJP from 2020 onwards. Already when the location was being chosen, the possibilities of using the waste heat were examined and taken into account as a decision-making criterion. The nearby barracks in Frauenfeld are heated entirely with this thermal energy. Similarly, it is planned to feed heat into the public district heating network, which is currently under construction.

Specific measures

No. Measure
Target (target year)

01 ● Introduction of a DDPS building energy certificate in buildings and on sites (GEAVBS)
60% GEAVBS (2020)

02 ● Own production of renewable energy
4.0 GWh/y (2020)

03 ● Systematic introduction of central transport agencies in all military formations
100% structures (2020)

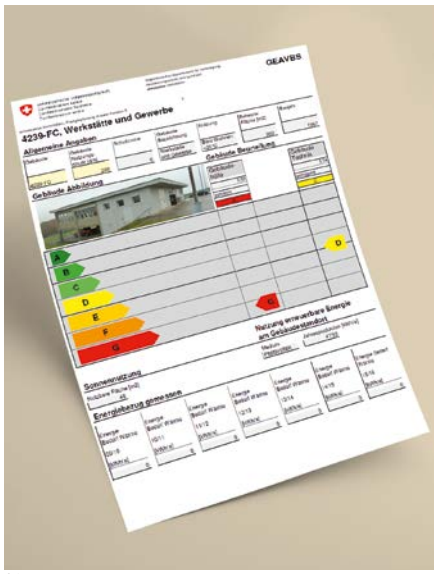
04 ● Use of low-viscosity engine oils where operationally and technically possible
100% use (2020)

05 ● Low-rolling-resistance tyres, where operationally and technically possible
5.6 GWh/y (2020)

06 ● Optimisation 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)

07 ● Training and information. Indicator: all relevant corps have a trained environment representative at their disposal
100% (2020)

● Reduction target attained
● Target



01

Building energy certificate

The DDPS's 50 largest sites consume more than 50% of the real estate portfolio's total energy. These locations are undergoing systematic operational optimisation as part of the Site Energy Plan programme. The DDPS building energy certificate is issued on the basis of technical data from the buildings and facility management systems. With this data, it is possible to make statements about the energy status of the buildings and to determine whether renovation work needs to be undertaken. At the DDPS, new buildings to provide accommodation and office space are consistently built to the Minergie-P-ECO standard.

02

4 GWh/y

Own production of renewable energy

A large number of DDPS buildings have suitable roof areas with great potential for installing photovoltaic systems. It is optimal if the solar energy produced on-site can be utilised in full on the site. The nationwide retrofit programme was launched in 2015. More than 6 million kWh were produced in 2017. This corresponds to a share of 3.6% of total electricity consumption.

05

5.6 GWh/y

Low rolling-resistance tyres

Rolling resistance is responsible for 20% to 30% of vehicle fuel consumption. A reduction in the rolling resistance of tyres thus contributes significantly to increasing energy efficiency and reducing CO_2 emissions. The DDPS therefore uses tyres with high fuel efficiency.

Civil Federal Administration

The Civil Federal Administration continued to implement the Sustainable Development strategy last year. Energy efficiency was further increased and now stands at 52.3 % compared with the base year 2006. Total energy consumption has been reduced by 11 % over the past eleven years to 121 GWh. Different measures have been responsible for the reduction in energy consumption. For example the Civil Federal Administration is implementing flexible work models and coordinating its efficiency increases and resource savings through the Resources and Environmental Management programme of the Federal Administration (RUMBA).

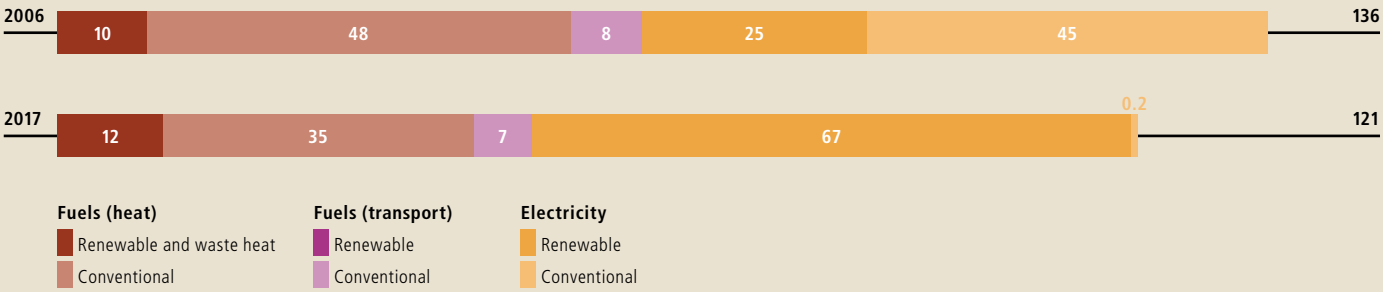
Success story

Environmentally-friendlier printers

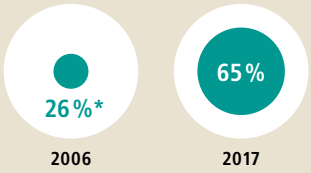
When procuring replacements for printing solutions, the Federal Office for Buildings and Logistics FBL attaches great importance to the environmental impact when evaluating its inventory of machines, in addition to the technical and economic aspects. The aim is to further reduce power consumption as well as ozone and particulate-matter emissions. The new roll printing systems in the FBL are a good example of this. They are used for processing and printing official federal data (in particular sensitive and confidential data). The two new inkjet printer systems require less than half as much energy compared to the existing three old laser printer systems, for the same print output, produced at the same time. A direct comparison of the two technologies found that power consumption was previously 41.6 kWh per hour, whereas only 15.7 kWh are necessary with the new solution. Pressure is also eased on the cooling system as waste heat is significantly reduced as well.

Final energy consumption by energy source

in GWh/y



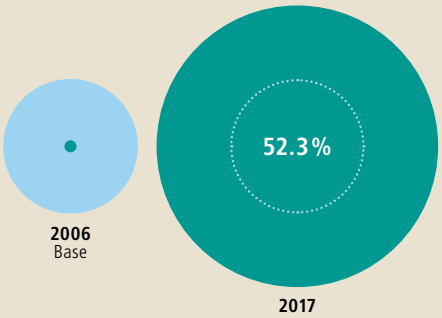
Renewable energy as a proportion of total consumption



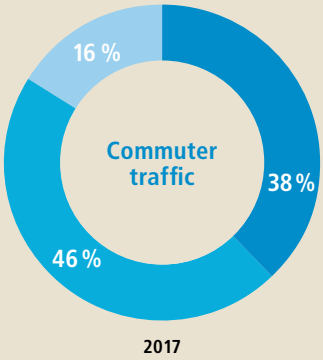
*The figure was corrected retroactively.

Increase in **energy efficiency**

Target 2020: 25%

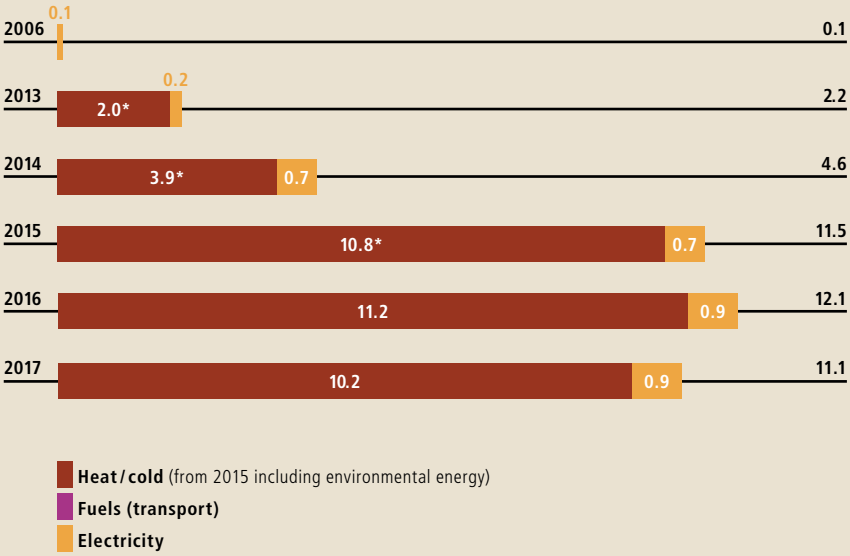


Energy consumption for **mobility**



Production of renewable energy

in GWh/y



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Joint measures

No. Measure

Buildings and renewable energy

01 ● Energy-efficient new and converted buildings
02 ● Analyses of potential of waste heat and renewable energy
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 optimisation regime
10 ● Procurement of green power and hydroelectricity
11 ● Mobility concepts for buildings
12 – Creation of ecofunds

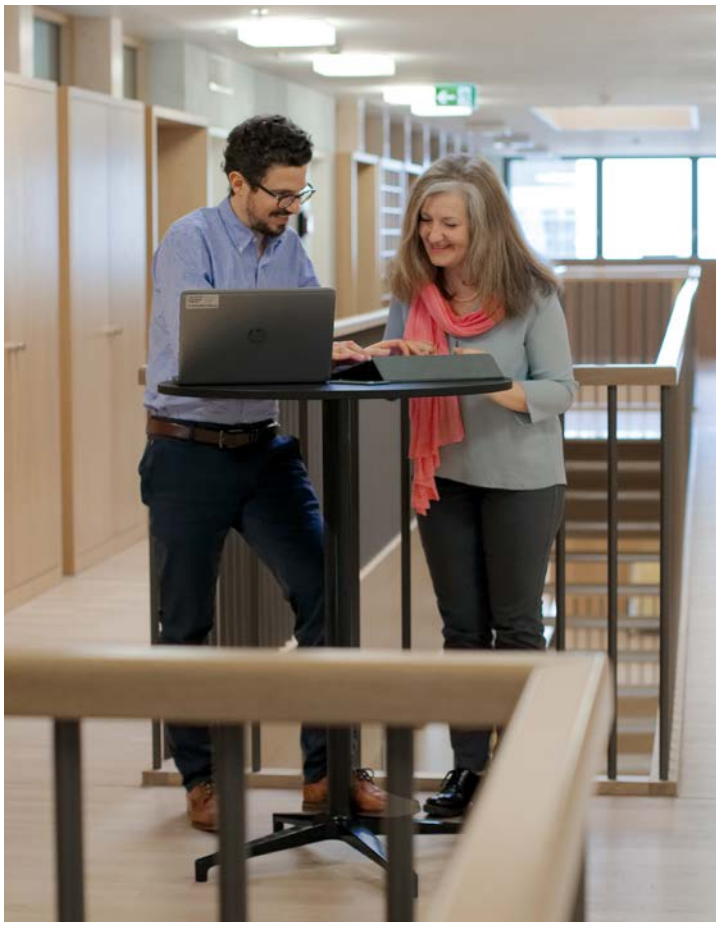
Mobility

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-driving 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

Data centres and green IT

29 ○ Full cost accounting of energy efficiency
30 ○ Specifications for new servers and new data centre hardware
31 ● Highly energy-efficient data centres
32 ○ Pushing passive cooling solutions in data centres
33 ● Encouraging server virtualisation in data centres
34 ○ Bundling of data centres / 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



15

Encouragement of mobile-flexible forms of work

Since mid-2016, the Federal Office for Spatial Development FOSD has consistently encouraged mobile and flexible forms of work. Mobile, location-independent working is considered equivalent to working in the office and a part of contemporary work, management and organisational culture. Various measures are being developed jointly in small steps and implemented quickly. A recent employee survey shows a high level of acceptance and increasing popularity of Work Smart. The effects are significant: traffic peaks and work-related and commuter journeys are reduced. The quality of work and job satisfaction are enhanced at the same time. This makes the FOSD's activities a role model for other federal agencies.

Specific measures

No. Measure
Target (target year)

- **01** ● Resources and Environmental Management programme of the Federal Administration RUMBA (including business travel)
  2.3 GWh/y (2020)
- **02** ● Reduction of energy consumption from business travel
  0.5 GWh/y (2020)
- **03** ● Energy-efficient enveloping system
  75% saving (2013)
- **04** ● Construction of new photovoltaic installations; replacement of fossil energy with renewable energy
  0.6 GWh/y (2020)
- **06** ● Update of "Ecological assessment data for the construction sector" to promote energy-efficient construction (KBOB)
  Every 2 years (2020)
- **07** ● Making employees aware of energy-efficient and environmentally compatible behaviour at the workplace
  2 measures per year (2020)
- **08** ● Voluntary target agreement with the Energy Agency of the Swiss Private Sector (EnAW)
  2200 t CO_2/y (2022)
- **09** ● New tunnels fitted, and existing tunnels refitted, with LED lighting.
  Ongoing

01 and 02

3.14 GWh/y

Resources and environmental management

The Resources and Environmental Management programme of the Federal Administration (RUMBA) coordinates the environmental activities of the Civil Federal Administration, raises employee awareness and achieves increases in efficiency and reductions in energy consumption, environmental pollution and greenhouse gas emissions. Since 2017, the newly-established specialised office RUMBA has been responsible for this. Energy consumption has been reduced by an average of 3.14 GWh per year over the past ten years thanks to the RUMBA measures taken in the areas of power, heat and business travel. In 2016, for example, 753 video conferences lasting a total of 317 hours were held at the Federal Office of Police fedpol. The reduction in energy consumption of 2.3 GWh/y targeted for 2020 has already been significantly exceeded.

04

0.6 GWh/y

Construction of new photovoltaic systems

Since 1 August 2017, almost 700 square metres of solar cells have ensured that the Swiss Embassy in Brasilia can meet its entire energy consumption itself. It is the largest facility of its kind in the Brazilian capital and the first embassy in the country to be fully supplied with renewable energy. The system, which has a service life of around 30 years, will be amortised after only 10 years. Power production in a full year, at 145,000 kWh, corresponds to the consumption of 32 Swiss households or a saving of 29 tonnes of CO_2.

● Reduction target attained
● Target

The 39 joint measures taken by all actors in detail

The Confederation: exemplary in energy initiative plan has defined 39 joint measures in the three action areas buildings and renewable energy, mobility, and data centres and green IT. Here you can read the detailed descriptions, including the relevant indicators and targets.

Action area buildings and renewable energy

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 1 January 2016.

02 Analyses of potential of waste heat and renewable energy
The actors each draw up an analysis of potential. It is intended to show the extent to which waste heat could be utilised 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 called "New renewable energy in the federal government and parastatal enterprises".
Indicator: analysis of potential available.
Target: analyses of potential available.

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 CO_2 reduction measures.
Indicator: newly-installed heating systems operated without fossil fuels.
Target: 100 % from 1 January 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 1 January 2017.

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 1 January 2016.

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 1 January 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 1 January 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 1 January 2016.

09 Building technology with operating optimisation regime
The actors subject their building apparatus to continuous operating optimisation (OO). Recognised 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: consumption of apparatus with a continuous OO regime as a percentage of total annual energy consumption.
Target: 60% (by 2020).

10 Procurement of green power and power from renewable energy
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 1 January 2020 exclusively with power from renewable energy sources.
Indicator: 1. green power as a percentage of total consumption, 2. power obtained from renewable energy as a percentage of total consumption.
Target (not including rail traction 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 employees 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-motorised traffic, as well as measures to reduce induced traffic and promote energy-efficient mobility.
Indicator: new buildings (> 50 permanent jobs) as a percentage of all new buildings (> 50 permanent jobs) with a mobility concept.
Target: 100% from 1 January 2016.

12 Creation of ecofunds
The actors each create an ecofund of their own. These ecofunds are financed out of the reimbursement of the CO_2 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: employees who regularly use mobile-flexible work forms as a percentage 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 organisations 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: employees who regularly use video / web conferencing as a percentage 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-kilometre rate.
Indicator: expenses reimbursement for using PT, rules for use of private cars, kilometre rate.
Target: expenses reimbursement of the PT ticket price based on the half-fare travelcard, 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 travelcard 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: % of 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 / CO_2 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-driving training courses for frequent car users
Employees who drive more than 20,000 kilometres a year on business are trained every three years on an eco-driving course. In the case of employees who use the company fleet, the employer supports privately-attended eco-driving courses with a 30% contribution to costs.
Indicator: % of employees driving more than 20,000 kilometres a year who have attended an eco-driving 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 hours 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 centres 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 disproportionally 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 1 January 2015.

30 Specifications for new servers and new data centre hardware
The actors systematically call for joint state-of-the-art specifications when procuring new servers and further data centre 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 centre in new calls for tender.
Target: 100% from 1 January 2015.

31 Highly energy-efficient data centres
The actors implement the most energy-efficient concepts and technologies in the data centres' infrastructure systems (ventilation, cooling, uninterrupted power supply, lighting).
Indicator: average PUE value (power usage effectiveness) over all of the data centres. The PUE value is defined as the ratio of the total electrical energy consumption of the data centre to the energy consumption of the IT equipment.
Target: < 1.3 by 2030. (In new and larger data centres, smaller PUE values are expected, while best efforts are expected in smaller data centres).

32 Pushing passive cooling solutions in data centres
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 a first measure, in existing data centres with conventional cooling, the cold operating temperature is raised to at least 26 °C.
Indicator: 1st part: existing data centre surface area with temperature > 26 °C; 2nd part: data centre 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 virtualisation in data centres

The actors aim for a high server capacity utilisation. To this end, increasing reliance is placed on server virtualisation and on memory technology (SAN) in the storage area.
Indicator: percentage share of virtual servers: number of virtual servers / (number of virtual + physical servers).
Target: > 85% (by 2020).

34 Bundling of data centres / outsourcing of IT services

The actors check potential for increasing energy efficiency as part of data centre 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 initiative.
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 centres 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 optimise 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 optimised 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 specialised 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, 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 a detailed description of the measures at www.confederation-exemplary-in-energy.ch.

The 10 actors

SWISS POST

skyguide

ETH DOMAIN

suva

GENÈVE AÉROPORT

swisscom

SBB CFF FFS

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Defence, Civil Protection and Sport DDPS

SIG

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Civil Federal Administration

Pioneers in energy efficiency and renewable energy

The actors participating in The Confederation: exemplary in energy initiative have adopted ambitious goals for implementing the Energy Strategy 2050. By encouraging flexible working arrangements, for example, the Civil Federal Administration is reducing peak traffic, work-related travel and commuting (see interview on page 17 and further information on page 58).