

# CAN TECH SAVE THE WORLD?

Swiss solutions to protect  
the environment.



Swiss, Ambiente © EPFL, Provenance Switzerland





# Switzerland. Its Picture-Postcard Landscapes... and Cleantech



Switzerland is widely known for its picture-postcard scenery, shaped by mountains, clear lakes and rivers, cows and green meadows... Behind this idyllic backdrop lies a country wholly committed to cleantech – developing clean technologies to create a world that is more respectful of natural resources, to make the transition to renewable energies and to ensure greater biodiversity.

Join us on a journey through the most beautiful Swiss landscapes and discover some of the enterprising businesses finding innovative solutions to make our lives decidedly more sustainable.

Like all other countries, Switzerland is confronted with the challenges of global warming. In tackling the many questions associated with climate change at the national level, Swiss businesses and not-for-profit entities have come up with some interesting solutions, as illustrated in this exhibition.

Many complex challenges lie ahead of us all and Switzerland intends to do its bit by finding and sharing innovative solutions to build a more sustainable world.



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## Presented by



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We are using resources as if we had two planets, not one. There can be no plan B because there is no planet B.



Ban Ki-Moon  
8th Secretary General of the UN

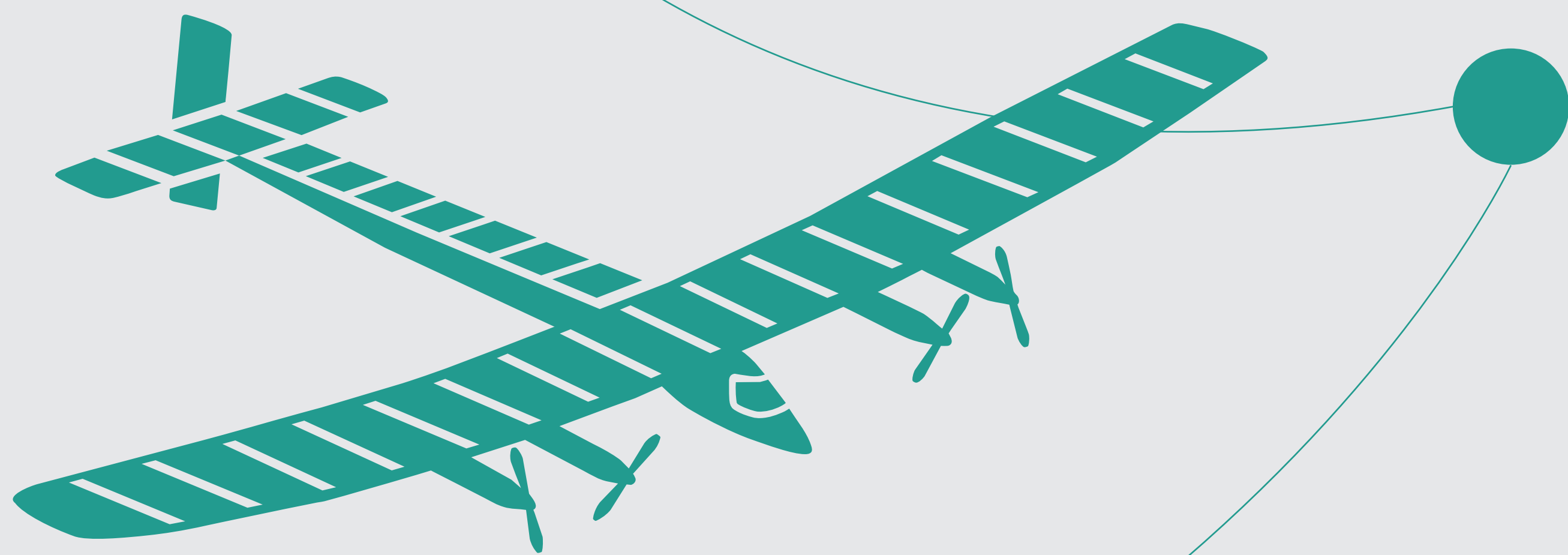




# Swiss Cleantech Pioneers

## RAPHAËL DOMJAN

Between 2010 and 2012, eco-explorer Raphaël Domjan sailed around the globe on PlanetSolar using only solar energy – the first time ever a journey of this kind was achieved by any means of transport. A keen advocate of experimental ecology, he has been working on the SolarStratos project since 2014, with the mission of reaching the stratosphere with a solar-powered aircraft and being able to witness the stars shining in broad daylight.



## BERTRAND PICCARD

A passionate aeronaut and aviator, Bertrand Piccard has taken up many a challenge that was thought impossible. For example, he completed the first non-stop round-the-world hot-air balloon flight and initiated the Solar Impulse solar aircraft project. Son of an oceanographer and grandson of an aeronautical physicist and aquanaut, Piccard circumnavigated the globe with André Borschberg aboard Solar Impulse in 17 stages, powered solely by solar energy. He now manages a foundation to support renewable energies and cleantech.

## JOSEF JENNI

Josef Jenni is unquestionably one of the pioneers of solar energy in Europe. He began marketing solar thermal systems as early as the mid-1970s. His achievements include the construction of the first completely solar-powered house in Europe, in Oberburg in the canton of Bern.



## MARKUS & DANIEL FREITAG

In 1993, the Freitag brothers retrieved an old tarpaulin from a lorry with the idea of turning it into a shoulder bag. Initially they hand-stitched the bags in their small apartment in Zurich, using old lorry tarpaulins, seat belts and the inner tubes of bicycle tires. Today, Freitag markets its bags all over the world. A prototype is even exhibited at the MoMa in New York. The Freitag brothers are now considered pioneers of the global circular economy.





# Swisstech: Innovation-Friendly Environment



CERN, Geneva © DPA, Reuters Contrasto

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Thanks to encouragement and support from the public authorities, Swiss innovation is especially strong in small and medium-sized enterprises (which represent 99% of the Swiss private sector) and start-ups, but also within research centres, which have developed around the federal institutes of technology in Zurich (ETH Zurich) and Lausanne (EPFL), and in most cantons, which have thematic research institutes and start-up incubators.

In addition, the Vocational Education and Training system, provides a combination of on-the-job training with classroom education in vocational schools. This is one of the main ingredients of an approach deeply rooted in the Swiss DNA: building bridges between sectors and the various levels of government.

The presence of international organisations in Geneva, such as the United Nations Office (UNOG), the World Trade Organization, the International Committee of the Red Cross and CERN, drives this capacity to innovate further in different and sometimes complementary fields. Most of these organisations, which are working on how to address environmental challenges and are concerned with cleantech, are working with Swiss research centres to find sustainable solutions.

In addition to this, Switzerland's political system is based on direct democracy, which means the electorate is regularly given the vote on various issues, among them energy and climate strategies. For decades, Switzerland has been actively committed to environmental protection, renewable energy production and, more recently, climate protection.

The political system and geographical proximity in Switzerland make it possible to have close cooperation between regional and federal political bodies, the private sector, civil society and the research community. Close dialogue between these different stakeholders makes for a favourable environment of ecosystems that foster Swiss innovation.



# A Concrete Contribution by Switzerland

The ever-growing challenges facing the world, including environmental protection, can only be overcome if the international community works together and coordinates its efforts.



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The UN member states adopted the 2030 Agenda and its 17 Sustainable Development Goals (SDGs) in September 2015, undertaking to implement them both nationally and internationally. Swiss diplomacy made a major contribution to the development and adoption of the 2030 Agenda.

The SDGs take into account the economic, social and environmental dimensions of sustainable development. Several of them are closely linked to the use of cleantech, and Swiss cleantech companies are therefore working on a daily basis to implement these ambitious goals.

In order to limit average global warming to less than 2 degrees Celsius compared to the pre-industrial period, Switzerland, which consumes a large amount of goods and services, is committed to establishing a framework that promotes sustainability across the country. By 2030, for example, Switzerland aims to reduce its greenhouse gas emissions to half of the 1990 level and to better control natural hazards. In addition to action taken on its own territory, Switzerland is also making a concrete contribution to the implementation of the 2030 Agenda in other countries.

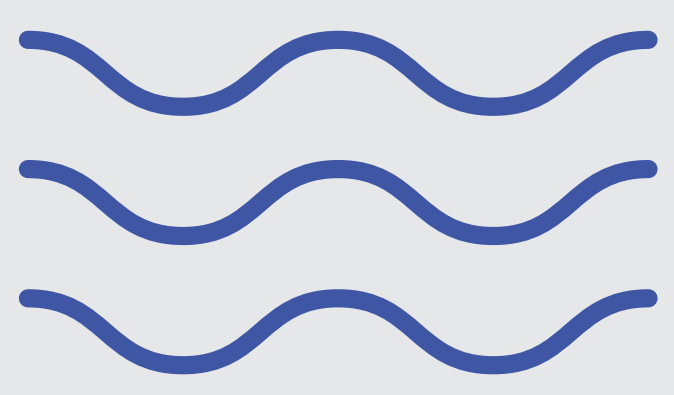
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## Sustainable Development Goals



The solutions presented in this exhibition showcase part of Switzerland's efforts to achieve a more environmentally friendly global development. Each of them refers to at least one of the SDGs.

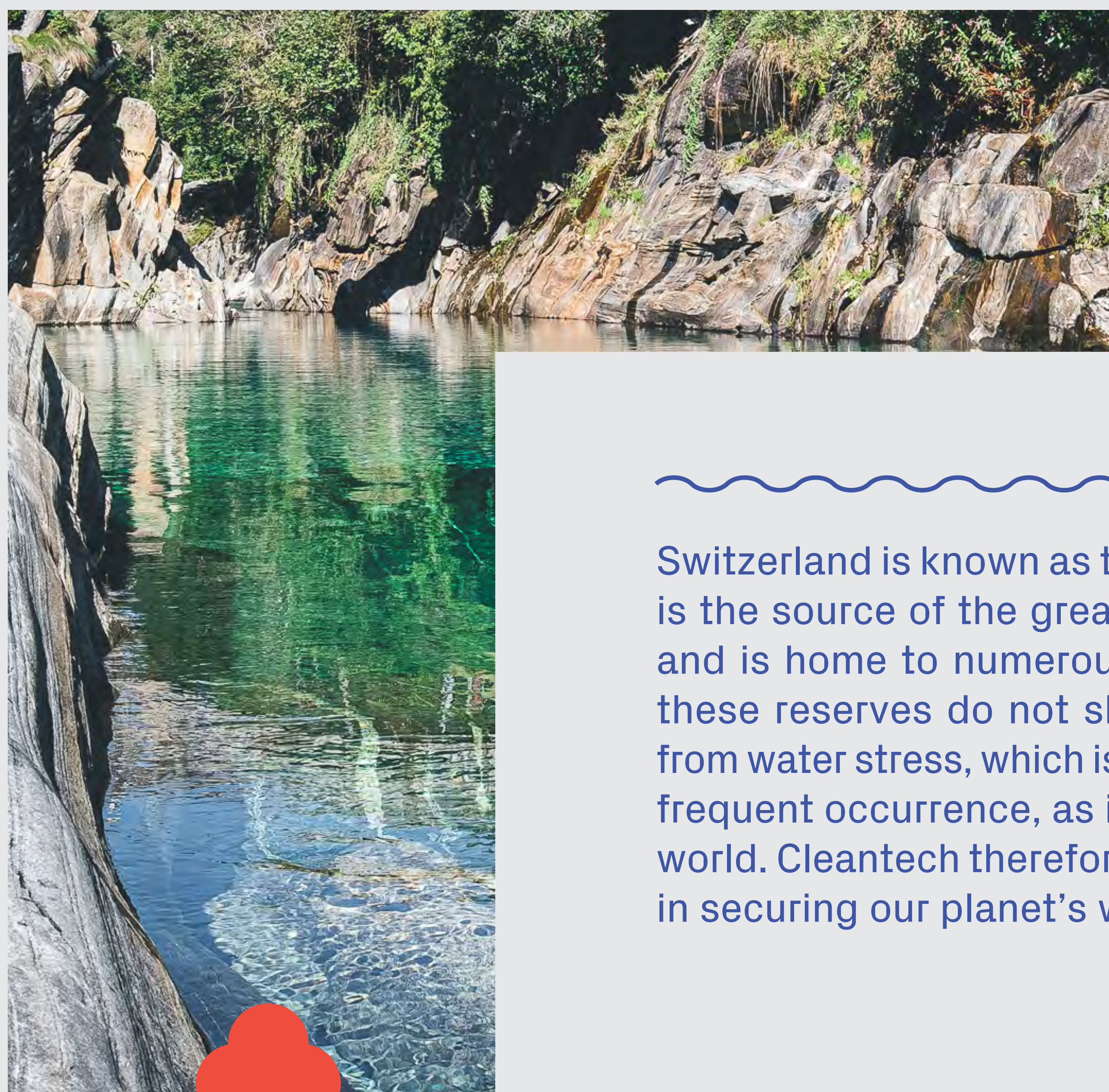




WATER

# Ensuring Access to Clean Drinking Water

Water is a vital resource and has become crucial not only for development and for combating poverty but also for peace and political stability. Water is a renewable resource, but a limited one, and is very unevenly distributed geographically. The United Nations estimates that more than 780 million people worldwide still face great difficulties in accessing clean drinking water.



Switzerland is known as the water tower of Europe, is the source of the great Rhone and Rhine rivers, and is home to numerous lakes and glaciers. But these reserves do not shield the country entirely from water stress, which is becoming an increasingly frequent occurrence, as in many other parts of the world. Cleantech therefore has a crucial role to play in securing our planet's water reserves.

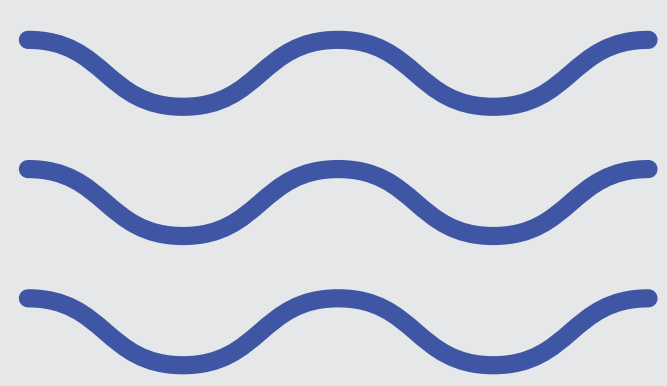
Swiss technology companies have been working for decades in conjunction with the authorities to ensure good water quality for the public, but also to protect this precious resource. This work has led to improvements in the treatment of wastewater and industrial waste. Although wastewater treatment is under control with almost all buildings connected to treatment plants, Switzerland is nevertheless confronted with the problem of micropollutants and agricultural treatment residue in the water table. These challenges have led to the development of solutions that often find their way into the export market, having first been tried and tested in Switzerland's cities and mountain regions. These technologies use a variety of sustainable systems to reduce or eliminate entirely any chemicals, the ultimate aim being to deliver clean water without polluting the environment.



swisstech.







WATER

## KLS Filter

## Smixin



### Up to 30,000 Litres of Drinking Water per Day – with no Electricity or Chemicals

### Hand-Washing Reinvented

The KLS filter makes water treatment possible in areas that are not connected to a drinking water supply. The device is based on slow sand and gravel filtration technologies and uses bauxite to remove all undissolved particles, including bacteria and suspended solids. The KLS filtration system is simple to maintain and particularly suitable for high altitude huts, chalets or isolated farms. Depending on the model used, it can treat from 500 to 30,000 litres of water per day. Having been tried and tested in the heart of the Swiss Alps, it can be adapted perfectly to any other part of the world, and can even provide entire villages with clean drinking water. The KLS filter was developed by RWB Group and is manufactured in partnership with Etertub.

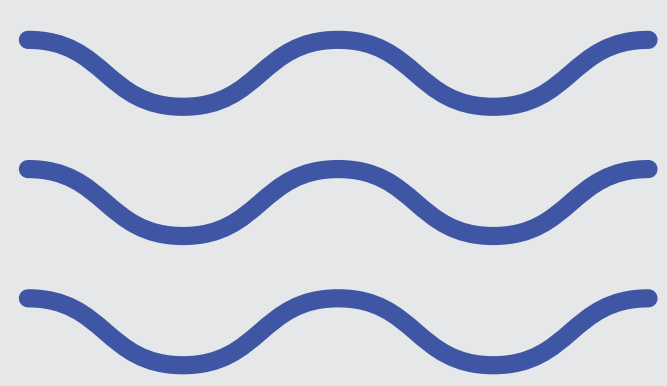
Washing your hands is a simple gesture – one which we repeat several times a day. On a global scale, the water-saving potential associated with it is enormous. The hand-washing system developed by Smixin reduces water consumption by 90% and soap and paper consumption by 60%, all while guaranteeing a high level of hygiene. Thanks to its simple solution of mixing the soap directly into the water, the Smixin device gets your hands spotless in just 12 seconds. The devices can be used in public toilets or outdoors, and are intended specifically for use in public spaces with a large number of people passing through, such as on public transport, and in canteens, schools and restaurants.

[www.rwbgruppe.ch](http://www.rwbgruppe.ch)

[www.smixin.com](http://www.smixin.com)







WATER

## Swiss NeWater



### On-the-spot production of ecological and effective disinfectants / cleaning solutions

How to combine SDG 3 (public health) and 6 (protection of the environment)? How to produce effective hygiene products, able to avoid the spread of infectious diseases, without throwing away tons of toxic residues? Swiss NeWater has a solution for it. Not bigger than a fridge, the HydroCleaner machine can produce on-the-spot up to 18 disinfecting & cleaning formulas. They can be used for washing & sanitizing hands; disinfecting hospitals; cleaning floors, toilets or glasses in hotels, kitchen, malls, public transport, factories, offices, army barracks, etc. Through an electrolysis process, it can be achieved with just water, salt and electricity. Swiss NeWater is also developing in Uzbekistan, with the InnoTechnoPark, new applications for food safety, agriculture and water treatment. Those products are all halal and alcohol free. They are as effective as their traditional chemical competitors and they are not expensive. But they are much more sustainable and eco-friendly: all elements are biodegradable, with a lower carbon footprint, less plastic bottles. All machines are IOT.

[www.swiss-newater.com](http://www.swiss-newater.com)



## Sedo Engineering



### Green Jeans are Finally Here!

Every year, more than 15 billion metres of denim fabric are produced worldwide. This requires tens of thousands of tonnes of indigo powder to dye the fabric blue. Sedo Engineering has developed a complex facility that can dye 25,000 pairs of jeans per day. Called Smart Indigo, it uses integrated electrolysis to produce the famous indigo blue without the use of chemicals, and therefore without contaminating the water ejected from the textile factories after dyeing. The system uses only indigo pigment, electricity, caustic soda and water. Several machines are already in operation, for example in China and Pakistan. Switzerland is thus paving the way for a more environmentally friendly textile industry.

[www.smartindigo.com](http://www.smartindigo.com)







# Maintaining Biodiversity and Developing Sustainable Agriculture



Graphic: F. Krieger © DFGA, Pro Natura Switzerland

Biodiversity is the natural living heritage of our planet. It is essential to the development of ecosystems and the biosphere, and it helps to mitigate the effects of climate change. At the same time, as the global population continues to rise unabated, humankind must have access to sufficient food. This is where innovation has a crucial role to play: to reconcile the need for sufficiently intensive farming to guarantee food security throughout the world, with maintaining biodiversity and protecting the environment.

Despite Switzerland's pioneering environmental protection laws, biodiversity throughout the country is in an unsatisfactory state. Half of natural habitats and a third of all species are under threat. Over and above effective framework conditions, Swiss companies are developing solutions, tools, products and services that support a societal evolution towards greater sustainability and resilience. Crucially, we must harness the full potential for improvements in agriculture in order to conserve our environmental heritage and, at the same time, ensure food security and the economic viability of family-run farms. All areas of farming are affected by new technologies: soil and crop management, protection for plants and water sources, livestock management, mechanisation and irrigation.

Precision agriculture, which aims to use the right treatment product as sustainably as possible, at the right time and in the right place, is the current trend. Drones, mapping, robots and data management tools based on artificial intelligence (AI) are all being used to help farmers as well. These localised treatments pose fewer problems for cultivated land and enable farmers to constantly scale down their use of chemicals. This drastically reduces the environmental impact and benefits biodiversity. The Swiss Future Farm in Tänikon, a project which is coordinated by Agroscope (Switzerland's centre of excellence for agricultural research), provides a one-of-a-kind platform in Europe for experimentation in digitalisation in agriculture.





## Aero41



### Less CO<sub>2</sub> and more Precise Treatments

Treating vineyards and crops extensively with large quantities of pesticides will soon be a thing of the past. Aero41, a pioneering European company, has developed spraying drones which can treat even the most difficult to reach vineyards and crops efficiently and in an environmentally friendly manner. Spraying drones with a built-in tank for plant protection products make it possible to optimise pesticide management and analysis of meteorological factors, while at the same time reducing CO<sub>2</sub> emissions in the agricultural and wine-growing sectors. Since the summer of 2019, the devices have also been certified in Austria and talks are currently under way with other European countries.

[www.aero41.ch](http://www.aero41.ch)

## Aqua4D



### Clean Irrigation Water Treated with Electromagnetic Waves

Aqua4D has developed a water treatment technology without chemicals, using electromagnetic waves to rearrange the structure of the water molecules, thereby reducing the surface tension and boosting penetration into the soil. It all revolves around the cylinders, where the water enters and is exposed to electromagnetic waves, before coming out transformed, ready to irrigate the fields efficiently. Aqua4D is already being used successfully in more than 45 countries – including Brazil, Chile, Costa Rica, Spain and Tunisia – where it is used on farms for crop irrigation and as drinking water for livestock, as well as in residential buildings (sustainable protection of the water distribution network). Farmers using Aqua4D technology can save up to 30% of water. Not only that, they have access to water of a superior quality, which has a positive impact on their production.

[www.aqua4d.com](http://www.aqua4d.com)







## Wingtra



### A High-Tech Drone to Better Understand Crop Health

The vertical take-off and landing drone made by Wingtra provides a number of benefits. Among other things, it enables you to monitor crops quickly and efficiently, identify water stress in certain plants, create treatment plans and monitor the growth of plantations. The drone is equipped with a high-resolution camera (up to 42MP) and multispectral sensors, which together provide aerial readings of unparalleled image quality and precision. The device can thus identify problems on crops to an accuracy of up to one centimetre, enabling producers to better target plant protection treatments, in some cases salvage harvests and reduce crop monitoring costs.

[www.wingtra.com](http://www.wingtra.com)

## Vatorex



### Protecting and Sustaining Bee Colonies

Vatorex has developed an alternative to chemicals to combat varroa mites, the main parasite responsible for the loss of many bee colonies. The system is a simple one based on the principle of heat treatment (hyperthermia), using a heating wire inserted into the wax foundations. The bees can withstand higher temperatures than the mites, which die at 39 to 42°C. Beekeepers, whether amateur or professional, can thus dispense with acid or miticide treatments and thereby protect biodiversity. Vatorex's pragmatic solution is already being used in about ten European countries, most widely in Austria, France, Germany and Serbia.

[www.vatorex.ch](http://www.vatorex.ch)

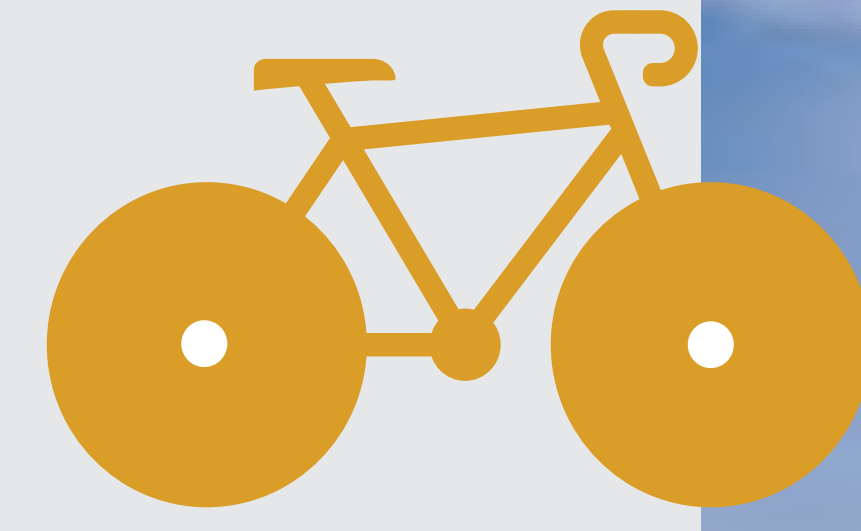






# Emission-free Mobility

Transport is the single biggest source of CO<sub>2</sub> emissions at global level. This is also true in Switzerland, where transport accounts for more than a third of total carbon emissions, ahead of industry and private households (each representing around 20%). To reduce the impact on the environment, Switzerland and other countries need to switch to zero carbon transport. Electric or hydrogen vehicles are particularly well-suited to this purpose, provided that the power is generated from renewable energy sources. Swiss companies, in particular, are finding solutions to these considerable challenges.



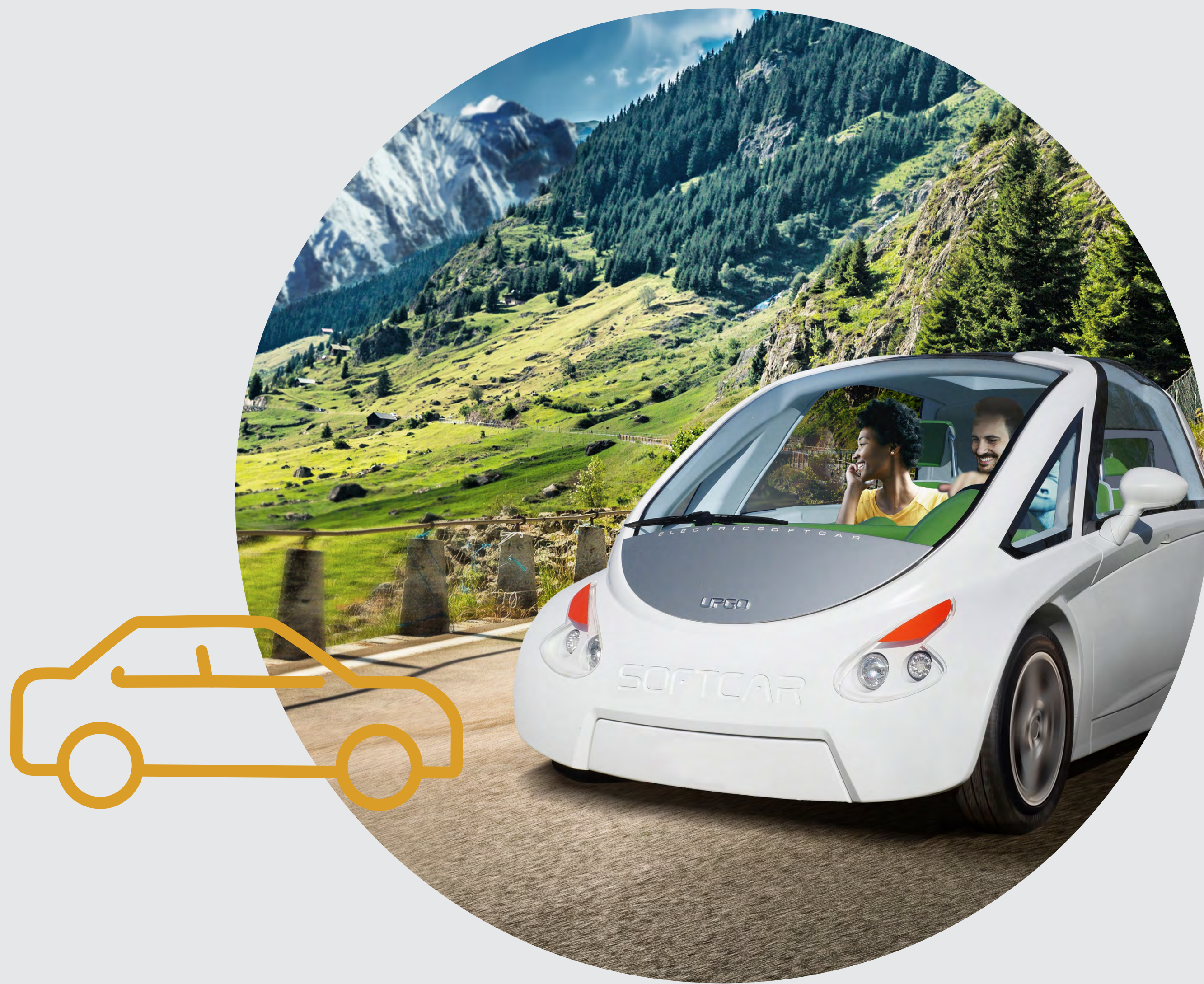
Switzerland is keenly aware of the problems caused by pollution and has outlined an electric mobility roadmap for achieving an increase in new electric car registrations. These have increased considerably since 2018, reaching approximately 11% in 2019. Although Switzerland is not a major car manufacturing country, it produces innovative designs for small modular vehicles that are particularly suited to city driving. It is also actively involved in developing hydrogen powered transport, with some innovative solutions already in the pipeline, such as Stadler Rail's FLIRT H2 train.

In the public transport sector, Switzerland has one of the highest rates of train use in the world. It also has first-class infrastructure and one of the world's highest density rail networks, which is largely powered by renewable energy from hydroelectric plants. Switzerland has also been responsible for some important innovations in urban public transport, such as ABB and TOSA buses, which allows fast contactless charging at bus stops, and the e-buses produced by HESS.





## Softcar



### The First 100% Environmentally-Friendly Car

Built from biopolymer materials and advanced composites and therefore completely recyclable, Softcar is set to be the world's first 100% environmentally-friendly car. This 100% electric city car, designed in Switzerland, can be mass produced at unprecedented low weight, low cost and low capital investment at assembly plants near major cities, without compromising safety or driving performance. This innovative vehicle has fewer than 2,000 parts, compared to over 40,000 for conventional cars, which makes recycling easier and helps to preserve natural resources.

[www.softcar.ch](http://www.softcar.ch)

## Futuricum



### World record holder for the longest distance covered by an electric truck

Designwerk has developed electric propulsion systems for trucks and commercial vehicles weighing up to 40 tonnes under the brand name Futuricum. The company's 100% electric drive systems with integrated batteries can be used for many different purposes: waste collection, distribution, and agricultural and construction logistics. Electric heavy goods vehicles (HGVs) are particularly suited to stop-and-go operations where materials need to be loaded and unloaded. Several Swiss cities have already purchased these non-CO<sup>2</sup> emitting electric trucks which are also cheaper to maintain. The Netherlands and Germany are pilot-testing the vehicles as well.

[www.futuricum.com](http://www.futuricum.com)







## Leclanché



### A New Era in the Marine Sector

Swiss company Leclanché, a leading provider of energy storage solutions, designs and manufactures battery systems for a wide range of infrastructure and vehicles around the world. These include 'Ellen', the world's largest all-electric ferry, which has been shuttling between the Danish ports of Søby and Fynshav since 2019. The ferry is powered by Leclanché's battery system, which provides zero carbon transportation with no fuel or exhaust smells on board. The battery system enables the ferry to travel 41 kilometres: seven times longer than any other e-ferry route. The Ellen can carry up to 200 people and around 40 vehicles. The e-ferry and its highly innovative battery system, which were partly developed in Switzerland, are helping to reduce the volume of diesel used on ferry routes.

[www.leclanche.ch](http://www.leclanche.ch)

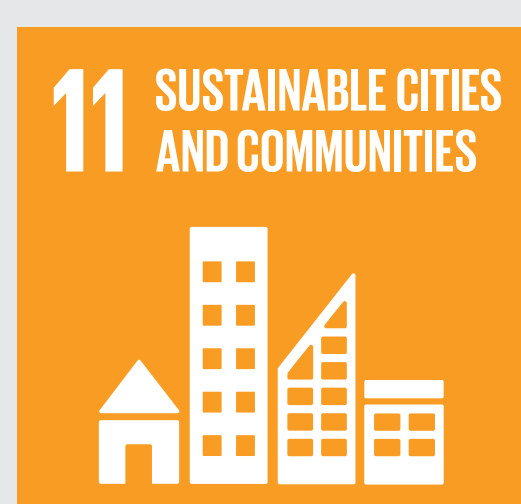
## Green Motion



### Stations that make Electric Mobility more Accessible

Swiss company Green Motion, which became part of the Eaton Group in 2021, designs and manufactures turnkey charging stations for e-vehicles that can be used at home or installed at public service stations. It also provides a software platform for managing charging station networks, including the billing aspects. The charging and IT services are complementary, but can also be provided on a stand-alone basis, providing Green Motion with two gateways to the market. The charging stations, which are compatible with almost all electric vehicle socket types, have already been installed in various countries, including India, China, the US and Israel. Green Motion is also currently designing a solution for electric aircraft, which are gradually becoming more widely available, and onboard chargers for the automotive industry.

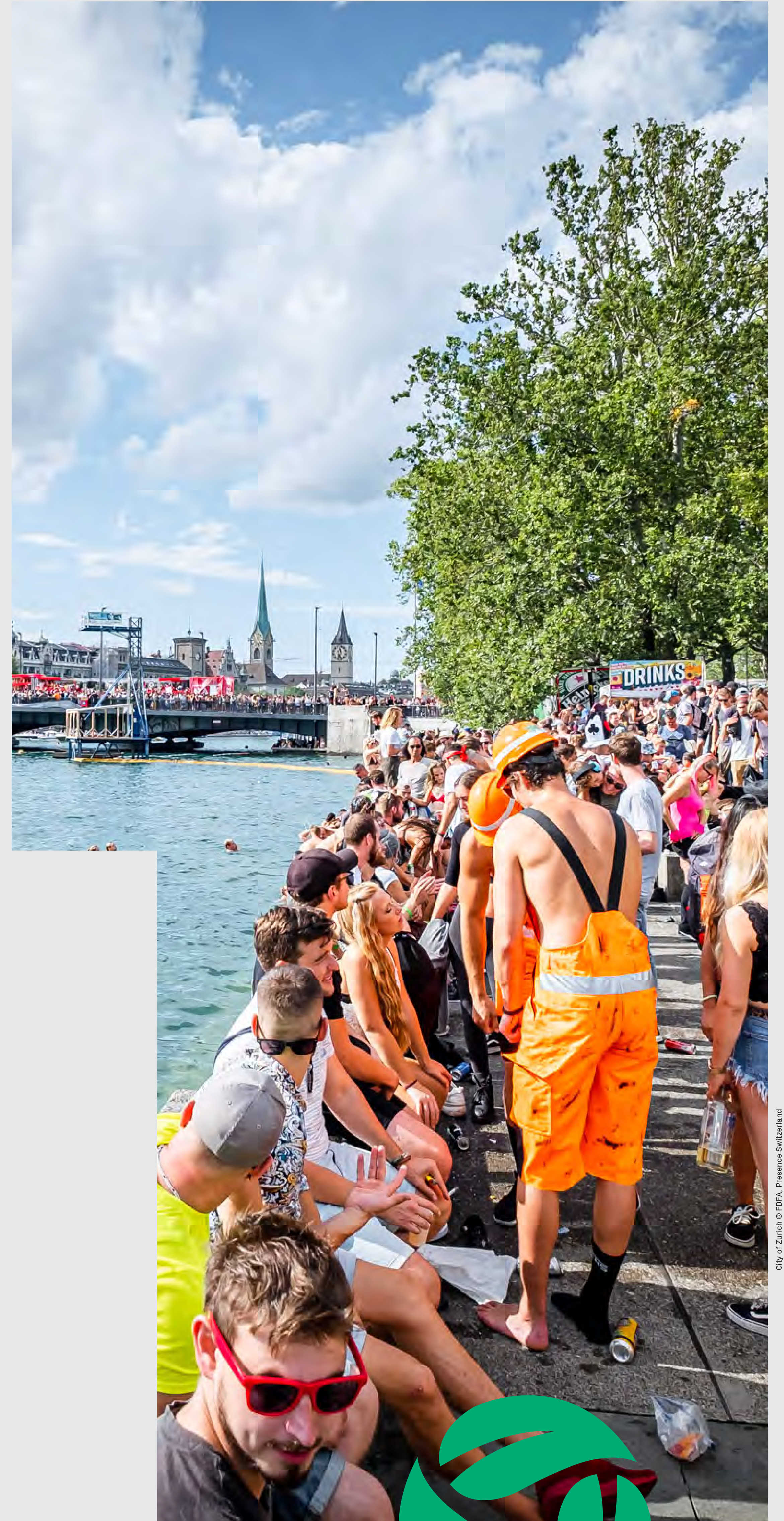
[www.greenmotion.ch](http://www.greenmotion.ch)





# Effective Waste Reduction, Recycling and Recovery

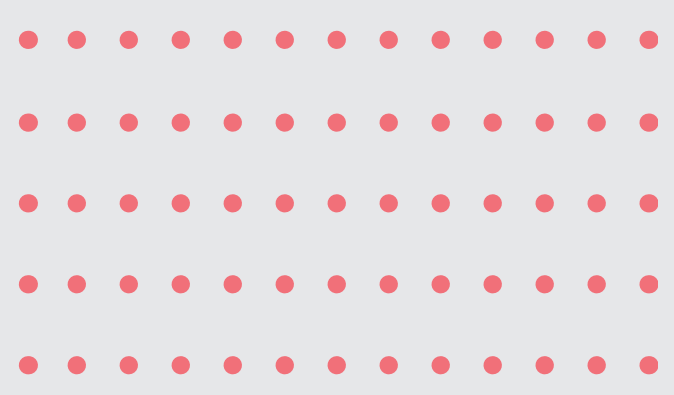
Switzerland consumes more natural resources than the global average, mainly due to its high levels of prosperity. Public bodies, research institutes, companies and citizens are taking action to reduce their impact on the environment and society. Businesses are innovating and developing technologies for resource management, refuse collection and recycling more effectively with a view to creating a more circular economy.



Global population growth is inevitably putting greater pressure on natural resources. It is therefore essential to find a balance between society's economic needs and the needs of the global ecosystem so that we can fully transition to a system of sustainable development encompassing the environment, the economy and society.

With greater energy efficiency needed in future, recycled waste is becoming an important source of raw materials. With this in mind, traditional waste treatment plants are now being converted into thermal recycling facilities. This is clearly the shape of things to come, with towns and cities ultimately being exploited as urban mines. Through recycling, urban areas will generate the metals and other materials needed for society to function.





## Selfrag



### High Voltage Discharges to Boost Recycling

Swiss company Selfrag aims to minimise the quantities of waste that is not recycled. Its high-voltage pulse fragmentation technology, which is unique in the world, replicates the effect of a lightning strike on a tree. This controlled disaggregation process fragments different materials before reintroducing them into production lines. It gets the most out of the recycling chain by extracting metals such as copper, lead, tin, zinc and aluminium from the slag which is the result of waste incineration at treatment plants. Selfrag has been using this technology in Switzerland since 2017, and is planning to export it to countries that incinerate large quantities of household waste, including Germany, Scandinavia and the United States.

[www.selfrag.com](http://www.selfrag.com)

## UHCS



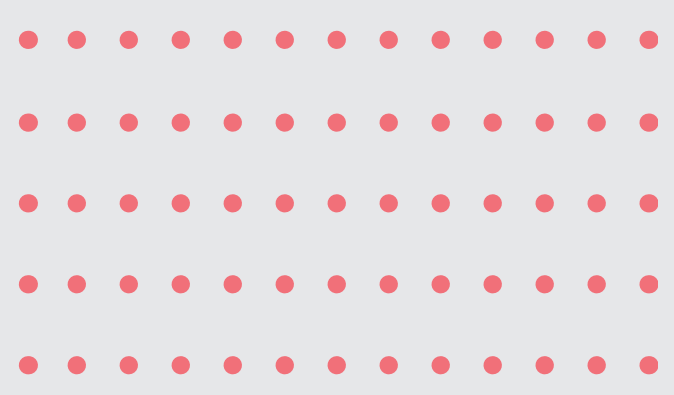
### Modular Housing made of Recycled PET

The Ustinov Hoffmann Construction System (UHCS) is developing a modular construction system using composite materials based on recycled PET. UHCS is designed to be produced on an industrial scale through a process of extrusion, which compresses the material. The composite bricks are assembled like lego to form a cubic post-and-beam structure, with load-bearing walls which can be adapted to different cultural contexts. This system facilitates high-quality construction while reducing the impact of humans on the natural world and produces buildings with better environmental performance. A pilot house will be built in Switzerland, followed by other buildings all over the world.

[www.ustinovhoffmannconstructionsystem.com](http://www.ustinovhoffmannconstructionsystem.com)







## BioApply



### Biodegradable, Compostable Bags

A plastic bag takes five seconds to produce and is only used for 25 minutes on average. But it takes at least 500 years to break down in the environment. Swiss company BioApply is helping to reduce the use of plastic and its serious environmental impact by supplying alternative biodegradable, compostable bags and other items, such as biodegradable crockery. The products are supplied to businesses and individuals to help them sort their organic waste more effectively. Organic waste can be placed in BioApply bags, which are compostable and help reduce the quantity of waste that needs to be incinerated.

[www.bioapply.com](http://www.bioapply.com)

## Tyre Recycling Solutions



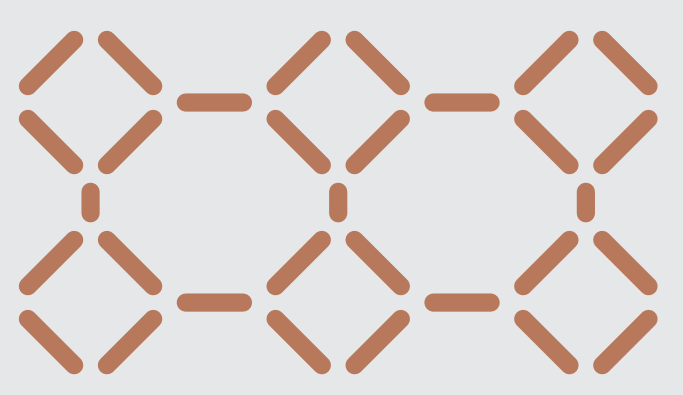
### Giving Used Tyres a new Lease of Life

Roughly two billion used tyres need to be disposed of each year all around the world. Tyre Recycling Solutions has developed a unique process involving three innovations that allow used tyres to be fully recycled. The first stage involves cutting the tyres into three flat parts, making them easier to transport. Secondly, a water-jet system pulverises the tyre tread into fine powder, free from steel and synthetic fibres. And, thirdly, the rubber sidewalls and carcass are ground to a powder, removing toxic substances such as sulphur. The remaining rubber powder can, for example, be used to manufacture shoe soles, floor coverings and cable casings.

[www.tr-s-ch.com](http://www.tr-s-ch.com)







# Reducing the Impact of Climate Change



Monte Rosa, Valais © Zornetti Tourism / Tommaso Ambrosetti



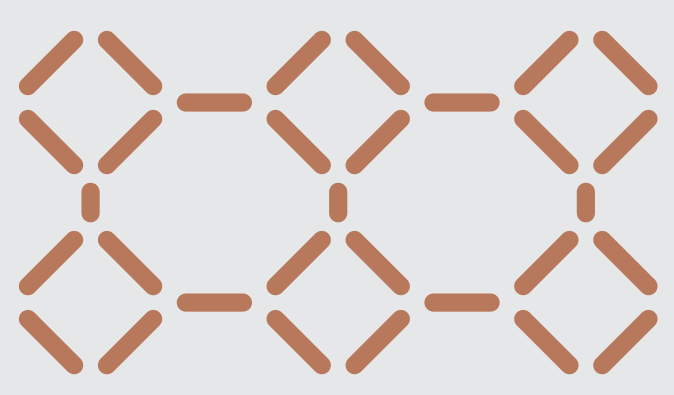
Climate change has no borders. Our changing climate affects everyone on the planet, although some regions are feeling the consequences more than others. The measures we must take to mitigate climate change sometimes pose a dilemma: how can we reduce the impact of climate change while maintaining a sufficiently comfortable lifestyle for people?



One thing seems clear: a secure and affordable energy supply improves living conditions and enables stable production processes for goods and services. Energy access for all is therefore key to sustainable development, reducing poverty and protecting the climate. Switzerland is committed to developing pragmatic and concrete solutions to these challenges, especially in the areas of air quality and energy efficient buildings.

Until very recently, the pursuit of energy access for all has relied on centralised heavy infrastructure like power plants and distribution grids. Digital and other technologies are changing this, and more local, flexible solutions are now beginning to spread to the four corners of the world. We are seeing the emergence of decentralised storage solutions, microgrids and energy management platforms for connected devices. Working with Leclanché, one of the world's leading battery storage solutions companies, Switzerland is in a position to offer solutions like these.





## Climeworks



### Capturing CO<sub>2</sub> from Air to make Rock!

The technology developed by Climeworks simply and effectively captures CO<sub>2</sub> from air using giant 'vacuum cleaners'. The gas is then mixed with water and pumped 700 metres underground. When it comes into contact with basaltic rock, the CO<sub>2</sub> turns safely and permanently into stone. Clime-works raised 600 million Swiss francs in early 2022, and the technology is currently being deployed in a pilot plant located in Iceland. The CO<sub>2</sub> captured by Climeworks is also suitable for other industrial processes, such as manufacturing carbonated water or fertiliser. The Zurich-based company, also active in Italy and Iceland, aims to capture 1% of the world's CO<sub>2</sub> emissions by 2025. The site in Hinwil in the canton of Zurich is already capturing up to 900 tonnes of CO<sub>2</sub> per year.

[www.climeworks.com](http://www.climeworks.com)

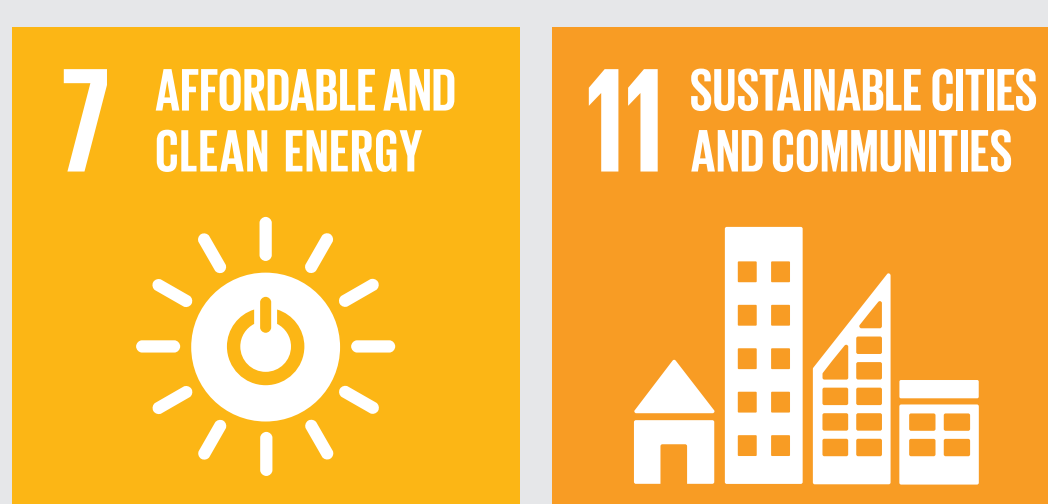
## Solaxess



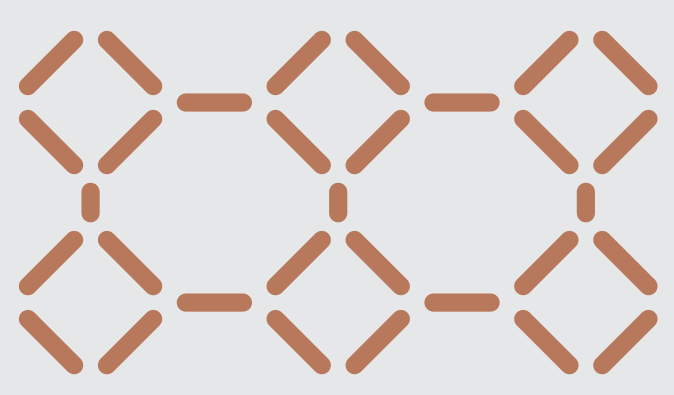
### Solar Facades with Style

Together with the Swiss Center for Electronics and Microtechnology (CSEM), Solaxess has developed a nanotech film that is taking the construction industry by storm. The film can be applied directly onto solar panels to obtain a white or coloured surface without affecting the efficiency of the panel. It works like a selective mirror, scattering visible light to create a white surface while allowing infrared light to reach the solar cells behind. Surfaces covered in the innovative solar film are both more attractive than conventional solar panels and help to insulate the building. Solaxess panels are already in use on the exteriors of buildings in China, Singapore, Sweden and Switzerland.

[www.solaxess.ch](http://www.solaxess.ch)







## Fixit

## Studer Innotec



### The Ecological Alternative to Polystyrene Insulation

### Access to Electricity for All

Fixit is the world's first company to market an aerogel for the environmentally-friendly thermal insulation of buildings. Composed of minerals and over 90% air, Fixit plaster is ideal for the renovation of listed buildings to 21<sup>st</sup> century standards, reducing their energy consumption. Its high water vapour permeability prevents mould. The aerogel is an environmentally-friendly alternative to polystyrene insulating panels, which are neither recyclable nor renewable. The Fixit Group is already present in 19 European countries including Russia.

1.6 billion people in the world are not connected to an electric grid. The Studer Innotec company develops a range of inverters; a power electronic device that makes it possible to flexibly manage the power flow between renewable production – mostly solar – and consumers. This system ensures a continuous supply of electricity by alternating between a battery, renewable energy production and sometimes the grid. Studer Innotec inverters, which are widely used in Africa and Asia, have proven ideal for isolated areas. They are also used in off-grid buildings, such as mountain huts, in-vehicle systems and emergency power supplies for hospitals and industry.

[www.fixit.ch](http://www.fixit.ch)

[www.studer-innotec.com](http://www.studer-innotec.com)

