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## Catching up on Swiss innovations

### Solar ski lift Tenna

Graubünden's Safien Valley and its tiny community of Tenna boast the world's first solar-powered ski lift. The 450 meter long facility transports snow sport enthusiasts and simultaneously produces solar power.

Tenna's skilift features a long series of photovoltaic "wings", suspended from wires above the ski lift, appearing like a long strings of black diamonds in the sky. During winter, the lift shuttles some 800 skiers per hour. Tenna's sun hours, its exposure to the South, the automatic tracking of the panels and snow shedding position allow optimum use of sunlight.

According to estimates, the solar panels on the ski lift produce 21% more current than customary rooftop panels, because they optimally capture the sun.



Tenna's solar ski lift

<http://www.skilift-tenna.ch>

The solar panels produce about 90,000 kWh per year. Approximately 22,000 kWh is required for the operation of the ski lift. The lift prevents some 48 tonnes of CO<sub>2</sub> being emitted to the atmosphere every year.

The excess power is sold to Tenna's electricity company, from which interested and environmentally conscious parties can purchase the Safien Valley's solar energy.

The ski lift was financed by the cooperative who owns the ski lift, a generous contribution from the Municipality of Tenna, as well as donations by private sponsors. Tenna's ski lift won the Swiss Solar Prize in 2012.

Sources: <http://www.skilift-tenna.ch>, [www.myswitzerland.com/en/solar-ski-lift.html](http://www.myswitzerland.com/en/solar-ski-lift.html)

Ideas on this page contributed by Renate Meyer-Knecht

### Flight by solar power

Solar Impulse is a Swiss long-range solar powered aircraft project being undertaken at the École Polytechnique Fédérale de Lausanne. The project eventually hopes to achieve the first circumnavigation of the Earth by a piloted fixed-wing aircraft using only solar power.

The project is led by Swiss psychiatrist and aeronaut Bertrand Piccard, who co-piloted the first balloon to circle the world non-stop, and Swiss businessman André Borschberg.

The first aircraft is a single-seater monoplane, capable of taking off under its own power and intended to remain airborne for up to 36 hours. The aircraft first flew an entire diurnal solar cycle, including nearly nine hours of night flying, on 7-8 July 2010.



Solar Impulse over the Golden Gate Bridge

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

### The Dragonfly

The Swiss Group Catecar is launching a revolutionary green vehicle named Dragonfly. The Dragonfly is a highly energy efficient vehicle designed for Greener Airports and Cities.

This is the first vehicle with an electric motor which is not an electrical car: No need to plug it into the grid anymore, because energy is created by the vehicle itself, thanks to the solar roof and the so-called "range extender motorisation". Dragonfly is independent from any infrastructure, apart from normal service stations found at every street corner.

Catecar's partners are top Swiss universities and companies. Dragonfly has been produced from September 2012, with airports, ports and military bases being its first market.



The Dragonfly

<http://www.catecar.ch/images/docs/brochurea5.pdf>

In 2012, Piccard and Borschberg conducted successful solar flights from Switzerland to Spain and Morocco.

In 2013, plans call for a flight from the San Francisco Bay Area, California, starting on or about May 1, with extended stops in Phoenix, Dallas, (then either Atlanta, Nashville or St. Louis), Washington and New York.

Building on the experience of this prototype, a slightly larger follow-on design is planned to circumnavigate the globe in 20-25 days.

This flight was initially planned for 2014, but following a structural failure of the aircraft's main spar during static testing, a more likely date is 2015.

*Note: At the time of preparing this page on 23 April 2013, Solar Impulse made its way over the Golden Gate Bridge of San Francisco in the US (see picture above).*

Sources: [http://en.wikipedia.org/wiki/Solar\\_Impulse](http://en.wikipedia.org/wiki/Solar_Impulse), [www.solarimpulse.com](http://www.solarimpulse.com)

In 2013, the vehicle will be manufactured for public use. Dragonfly embeds a cluster of the latest generation Swiss innovations:

- aluminium chassis
- Soltherel™ motorization (thermic range) extender with a mileage of 100 km per liter
- a solar roof and an electrical motor with few batteries (20 kg)
- a body made of plant matter (flax).

This light vehicle (350 kg) has a non-stop autonomy of 500 to 1000 km thanks to a tank of 5 to 10 liters of gasoline. Further technologies will be integrated in an ongoing process, giving Dragonfly a unique position in green mobility technology. Investors willing to participate to this unique worldwide venture are welcome - please refer to the Catecar website.

Source: [www.catecar.ch](http://www.catecar.ch)