

The Sun mirror



Project author or developer:
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Where:
NO / Norway / Tinn

Website:
www.visitrjukan.com/en/attractions/the-sun-mirror

Let the sunshine in: three mirrors to warm the six-month sun-free town of Rjukan

A 100 year old idea is realised - a mirror is built up in the mountain side of Rjukan, to capture the sunlight and send it into the market square.

Rjukan is home to a thriving little community which manages without the sun for almost six months of the year. Rjukan lies at the bottom of a valley that is oriented east to west, with Gaustatoppen (at 1883 metres over sea level) and the other surrounding mountains immediately south of the town rendering the city sun-free from September to March.

Rjukan was built by Hydro's founder Sam Eyde at the beginning of the last century. The town was planned with the best architects and engineers of the time, by Norsk Hydro - a so-called "company town".

The combination of hydro power, industrial history, and architecture form the basis for Norway's nomination of Rjukan (and Notodden) as candidates for UNESCO's World Heritage Site list. This will most likely be formalised on the official list in 2015.

The Solspeil, or sun mirror, is a spectacular project that will strengthen the identity and attraction of the town that is the gateway to the Hardangervidda.

Sam Eyde launched the idea in 1913 of a "Solspeil", or sun mirror, above Rjukan. He saw the importance of the "sun in Rjukan" as well in the winter. He had also a need to give his workers the opportunities for sunlight in the winter. This idea is one of the few Sam Eyde did not manage to follow-through to completion.

Instead, his successors built a gondola in 1928 to transport Rjukan's inhabitants to the winter sunshine. This gondola is called Krossobanen. It remains functional, and is an important connection between the town and the mountains, where the sun's rays are limited to in the winter months. Krossobanen transports thousands of people to the mountains every year.

Today's technology has made an idea that was first conceived in 1913 possible: to deliver the sun to the people of Rjukan.

The idea was taken up again in 2005 by Martin Andersen, an artist and resident of the town.

A computer-driven heliostat, placed at the top of steep mountain wall 400 metres over the town will capture the sun's rays and direct them into Rjukan's centre. The three heliostats consist of computer-driven mirrors that follow the sun's movement over the horizon and will reflect its rays into Rjukan's market square.

The Solspeil is installed on the mountain wall at 742 metres over sea level, about 450 metres above the Rjukan market square. Each mirror is 17 metres in area, or together 51m².

The mirrors will capture the sunlight and send it into the market square, where it will have an ellipse shape of about 600 m². The reflected light will have between 80 and 100% of the effect compared to the light that is captured by the mirrors.

The mirror (heliostat) has two axes on which it moves, and a previously installed computer program follows the sun's route during the entire year. The mirror is guided by wireless computer communication from the market square below. The mirror is powered by solar and wind energy.

