

HYDROELECTRICITY

SUSANFE VALLEY* [12]

In the Susanfe Valley, water from the Sauflaz River is captured in two different reservoirs, the Clusanfe (5,400 m³) and the Giétroz du Fond (20,000 m³), built in 1952 and 1965 (1 and 2) respectively. The collected waters (8) are then pumped into the Salanfe Reservoir (3) through more than 4 kilometres (9) of underground galleries at a maximum pumping rate of 2.6 m³/s. During the summer season, nearly all of the melt-water from Susanfe transits through this system, creating hydroelectric energy in the process.

The reservoirs also act as a safeguard against floods, helping to keep excess water and debris from flowing down the mountain to Grand Paradis. Deposit zones upstream of the reservoirs also help to trap some of the debris carried by the river; these areas are dredged periodically as they fill.

Finally, three water intake structures (4, 5 and 6) located upstream of the Clusanfe and Giétroz du Fond reservoirs supply the Martin Well as well as the the Western Sauflaz and Grande Pente reservoirs.

SALANFE S.A.

The impressive Salanfe Dam is 52 m high and has a holding capacity of 40 million m³ (1/10 of the Grande Dixence Dam). From here, water is pushed downhill over 1,470 metres through high-pressure conduits to the Miéville power station in Vernayaz.

The Salanfe SA power company manages this facility, producing electricity for EoS (Energie de l'Ouest-Suisse). Commissioned in 1951, the Salanfe development produces an average of 110 GWh per year ; providing for the annual consumption of 25,000 households (7 and 9).

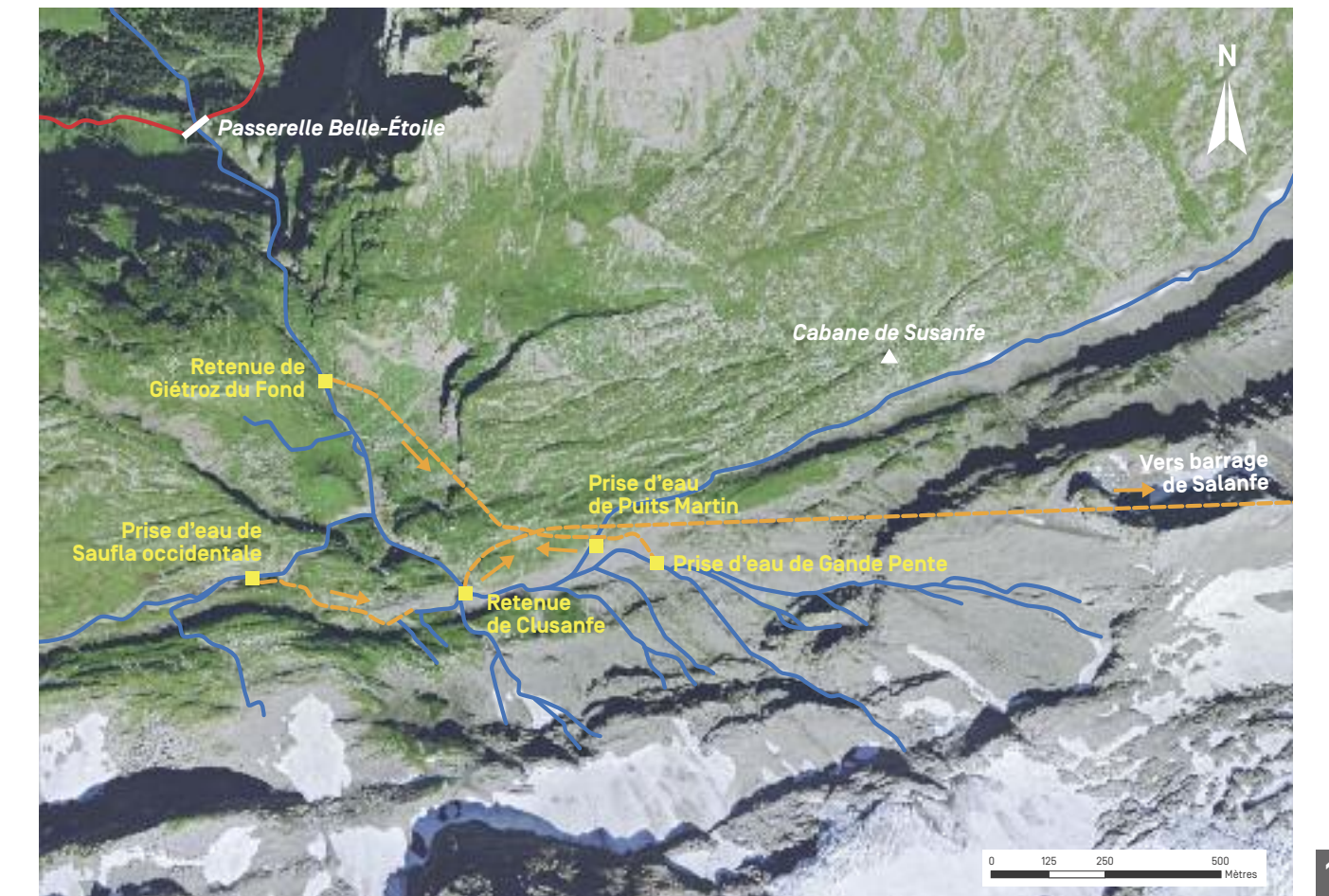
*Susanfe: Previously known as «Clusanfe», a name derived from the term «terra chiusa» or «closed earth» in reference to the narrow valley with its steep, rocky walls.

CAPTURED WATER VOLUMES

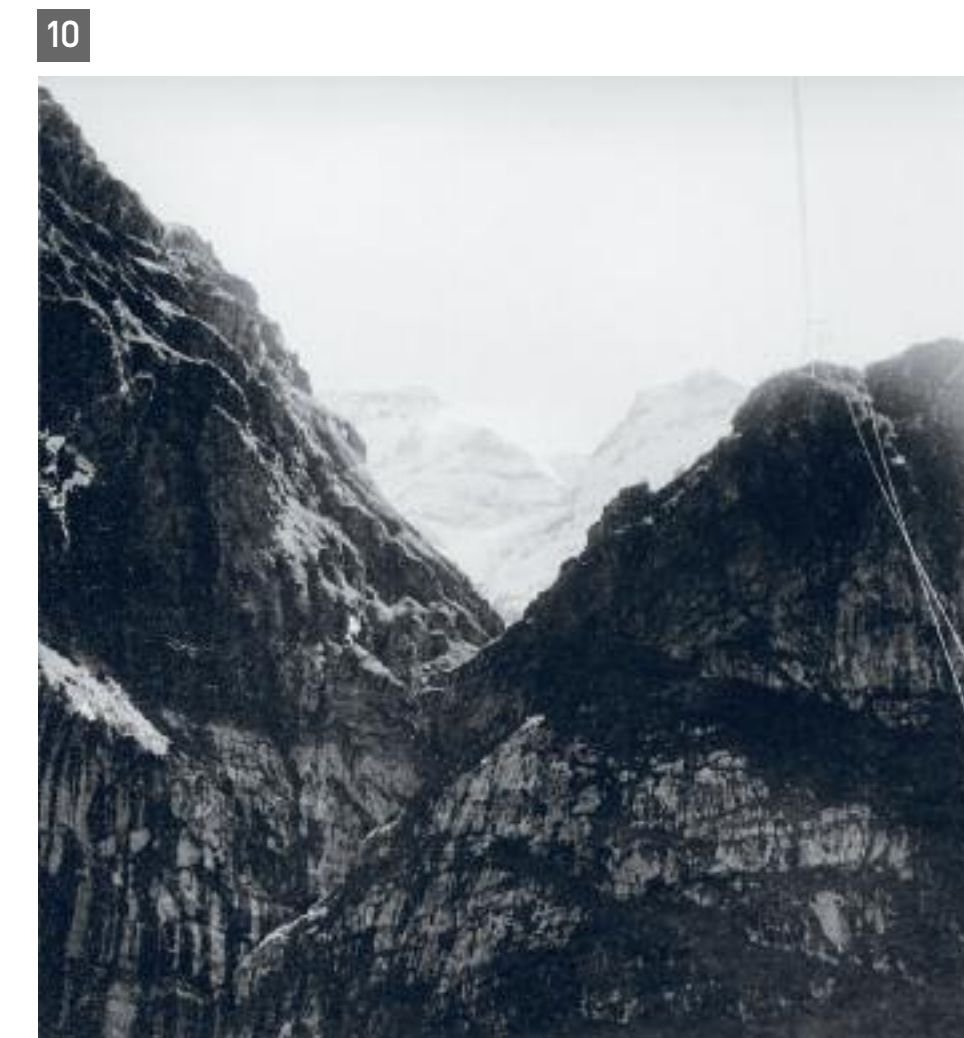
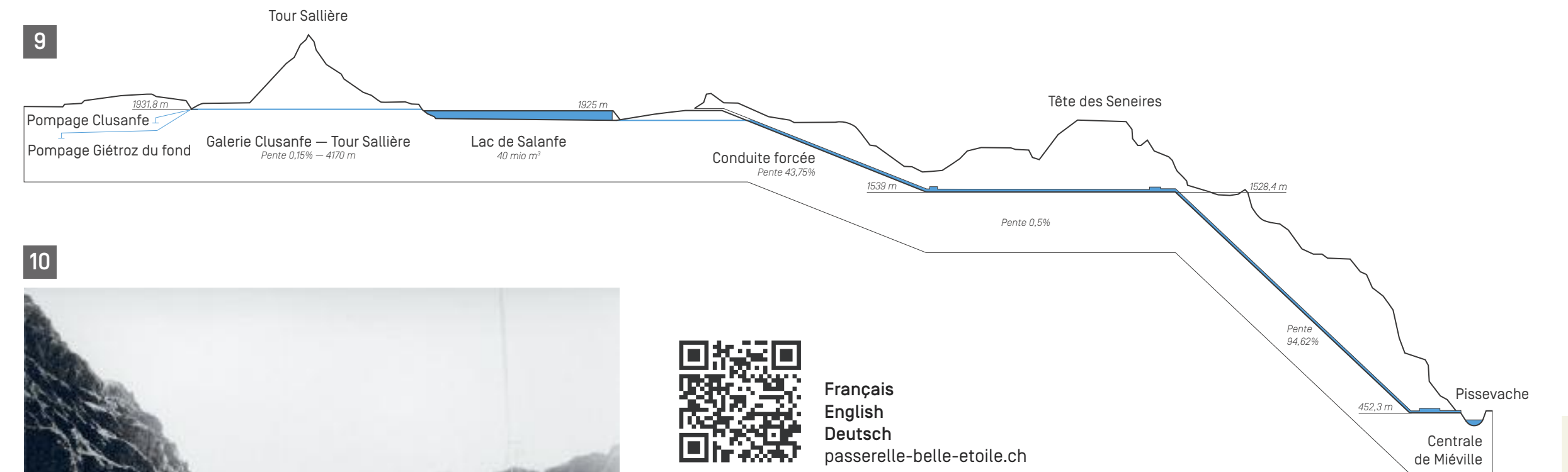
In 2013, the Susanfe Valley hydroelectric installations captured 11 million cubic metres of water. This is enough to fill 3,000 Olympic swimming pools and represents a median annual output of 350 litres per second ! Interestingly, the volume of water captured actually only represents about a third of the annual precipitations (Cardis, 2014), which goes to show how much water escapes these installations and filters through the valley floor (see the Water Table panel).

FLOOD DANGER

Alpine riverbeds downstream of dams, water intakes and power plants can be dangerous. Water purges and releases occur regularly, especially in summer, causing sudden and unpredictable fluctuations in water levels and/or flooding. Islets, gravel shoals and riverbanks can disappear underwater with no warning ! It is important to exercise extreme caution in and around the riverbeds, even when they are dry, as there is a real risk of being carried away by a sudden flood. This danger is even more significant in the river gorges.



Hydroelectric installations Conduits The Sauflaz River and its tributaries Educational trail



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Études hydrologiques et géologiques
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1

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2

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3

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4

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5

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6

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7

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8

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- 1 Clusanfe Reservoir.
- 2 Giétroz du Fond Reservoir.
- 3 Salanfe Dam.
- 4 Martin Well water intake.
- 5 Western Sauflaz water intake.
- 6 Grande Pente water intake.

- 7 Miéville power station.
- 8 Clusanfe power station.
- 9 Profile view of the hydroelectric installations at Salanfe SA.
- 10 La Loëx – Susanfe cable-car cables which were used to transport equipment and building materials to the hydroelectric building site [1966].
- 11 Construction of a water intake structure in the Susanfe Valley [1966].
- 12 Hydroelectric network in the Susanfe Valley.

*Only ideas won by walking
have any value.*

Nietzsche