ALPIQ

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Market update | Liquidity status | RES Switzerland: Are we pushing hard enough?

Dear Reader,

At the end of September, the Swiss Parliament approved the **overarching decree ('Mantelerlass')** to push the expansion of renewable energies in Switzerland. The decree was the result of more than two years of negotiations between the political parties and is viewed as one of the biggest achievements of the past legislative period.

Now it seems likely that the decree will be subject to a **public vote** in 2024 as some individuals, supported by an environmentalist foundation, have started collecting signatures for a referendum against it. A hard-won compromise is at stake, endangering a comparatively moderate but vital increase in Switzerland's renewable energy capacity.

In the deep-dive section of this tenth edition of *Watt's the story*, we look at the developments of the past couple of years when it comes to adding **renewable energy capacity and production** in Switzerland and we consider what is needed to ensure the country's security of supply in future.

But first, let's look at the movements on the energy markets in the past two months...

Market update

A return to a sense of normality on the market still seems some way off, as since 7 October the Middle East conflict between Israel and Palestine adding **more uncertainty to an already fragile geopolitical situation.** While the impact on the primary energy supply has so far been very limited, the prospect of a widening regional conflict involving Iran could create material supply shortfalls for oil and gas. Although it is impossible to say how likely this prospect is to materialise, the risk of supply shortfalls hangs over the market like a Damocles sword.

Despite these uncertainties and barring the immediate kneejerk gas price reaction following the attack, gas and power prices have continued a **downwards trajectory** since the end of September.

In part, this is driven by Europe's greater resilience to interruptions in its gas supply **thanks to the extensions to the gas import infrastructure**, notably the LNG import terminals or 'Floating Storage & Regasification Units' (FSRU) completed during the last 12 months. However, this resilience would not shield Europe from a major disruption in LNG supplies, say, if ships carrying gas from Qatar were unable to pass through the Strait of Hormuz.

Other factors are also driving the downwards momentum in prices. Firstly, **economic and industrial activity in Europe remains subdued.** Power demand in Central and Western Europe is still close to 10% below the 2015-2019 average. This drop in demand is not only related to economic activity but also an effect of the changed consumer behaviour triggered by the high prices. Secondly, the vastly **improved availability of nuclear power in France** compared to a year ago has boosted power system resilience. Finally, the **mild but wet and windy weather** of the last weeks is doing its bit by providing an additional storage cushion for the upcoming winter. EU gas storages were still at 98% fullness as per 25 November, with barely any storage withdrawals taking place in November so far.

Nevertheless, given the geopolitical uncertainty, the gas market remains extremely nervous. This will probably prevent a further drop in prices until later in the winter, even if no supply disruptions occur.

On a different note, a **constitutional court ruling** in Germany on 15 November 2023 threatens to force the German government to cut its planned climate-related expenditure by EUR 60 billion or 1.2 percent of GDP. The decision states that it was not lawful for the government to reallocate the unused borrowing capacity from its 2021 Covid budget – which is exempt from the constitutional debt brake – to a Climate and Transformation Fund (KTF). This ruling has the potential to significantly slow down the energy transformation, although it is still too early to fully assess the consequences.

Liquidity status

Since the last edition of Watt's the story, our Group **liquidity balance** has significantly improved and stood at roughly CHF 1.8 billion as per the end of October, while the **headroom** showed a balance of over CHF 2.4 billion. The drivers of this increase are, on the one hand, the reversal of increases in net working capital and, on the other, a good cash flow from operations.

The forecast until the year-end indicates a further increase in the Group liquidity and headroom, even though some major outflows are planned (e.g. the yearly cost adjustment of the nuclear power plants and the hybrid interest payment).

Deep-dive

RES Switzerland – Are we pushing hard enough?

The **electricity shortage** was the topic on everybody's lips in Switzerland in 2022. What had previously seemed unthinkable was suddenly a reality – the country might no longer have enough electricity available to cover demand. In the case of a shortage, **electricity** would have had to be **rationed.** The reasons for the potential shortage are well known to Watt's the story readers: the outage of numerous French nuclear power plants, the sharp increase in energy demand due to the rapid economic recovery after the pandemic and, critically, the geopolitical situation following Russia's attack on Ukraine in February 2022 and the ensuing war.

Almost with the flick of a switch, **electricity had become a rare commodity** and it suddenly dawned on policymakers, business leaders and wider society just how much the country depends on a secure, reliable and affordable energy supply. **Switzerland** had become **vulnerable** and the need for action was obvious.

The Federal Council took early action by introducing the hydropower reserve for the critical months of winter 22/23. The main purpose of the winter reserve is to ensure the supply of electricity in the second half of winter. As such it is part of several "physical insurances" for the country against energy shortage. For the winter 2023/2024, 400 GWh of energy has again been stored in the reservoirs as a hydropower reserve. As the construction of new power plants generally takes well over a decade, the Federal Council also pushed through emergency legislation to press ahead with the construction of a fossil-fuelled reserve power plant to provide additional power during critical phases until 2026.

At the same time, policymakers came out strongly in support of **expanding renewable energy sources (RES)**. In September 2023, the Swiss parliament passed an overarching decree ('Mantelerlass'), which sets the course for the faster expansion of renewable energies and storage options in Switzerland. This includes the projects agreed upon by the Hydropower Round Table ('Runder Tisch Wasserkraft'), the prioritisation of constructing large solar, wind and hydropower plants over other interests of national importance, as well as enhanced approval procedures for plants outside of building zones. The decree has not yet entered into legal force. In October, a referendum was initiated against it, so the Swiss population is likely to have the final say next year.

Urgent need to expand production

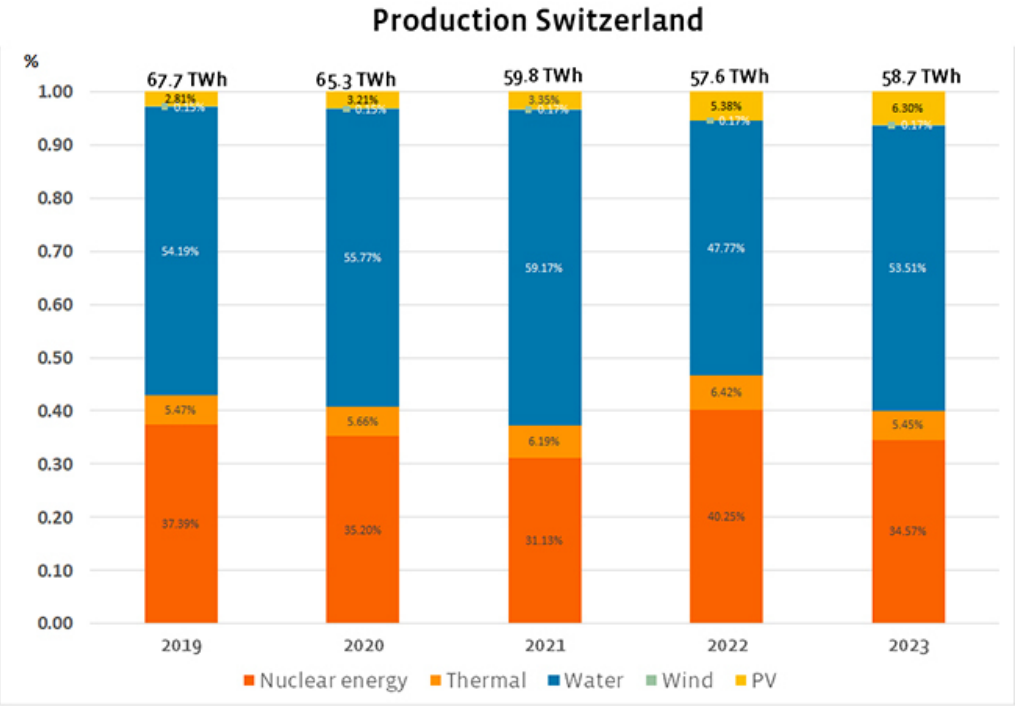
The energy crisis showed that Switzerland has relied heavily on always being able to import sufficient amounts of electricity in winter. Reducing this dependence on foreign imports has to be the objective, especially for the winter months. If Switzerland wants to be able to ensure its

security of supply in future and achieve its climate protection goals, our country will have to significantly expand the production of electricity from renewable energy. To achieve this, policymakers, business and wider society will have to pull together.

Electricity demand increases despite higher energy efficiency
Decarbonisation in heating and transport will also increase annual electricity demand in Switzerland from around 60 TWh to 90 TWh by 2050. This means that hydro, solar and wind power will have to produce an additional 30 TWh of electricity, a significant proportion of which will have to be generated in the winter months. It will also be a question of renewing and optimising the entire power plant portfolio and expanding storage capacities. That is the conclusion of the Energy Future 2050 study conducted by the Association of Swiss Electricity Companies (VSE/AES) and its members together with the Swiss Federal Laboratories for Materials Science and Technology (EMPA).

The Swiss population supports this course, as shown by a **representative survey** conducted by the Swiss opinion research institute gfs.bern in spring 2023 on behalf of the VSE. A large majority of the Swiss population is in favour of the domestic expansion of renewable energies because this strengthens security of supply, reduces dependence on foreign countries, and promotes climate and environmental protection. However, when it comes to realizing projects, we do not observe the same support for renewable energy.

So where do we currently stand in Switzerland? What have we already achieved in terms of renewable energies? What challenges still need to be overcome? How much potential is there for expansion? Let's take a look at the figures for the past few years. Switzerland's electricity mix has changed only marginally in recent years:



(Note on production 2023: Start of the year until 23 November 2023)
Source: Swiss Federal Office of Energy, Energy Dashboard / production
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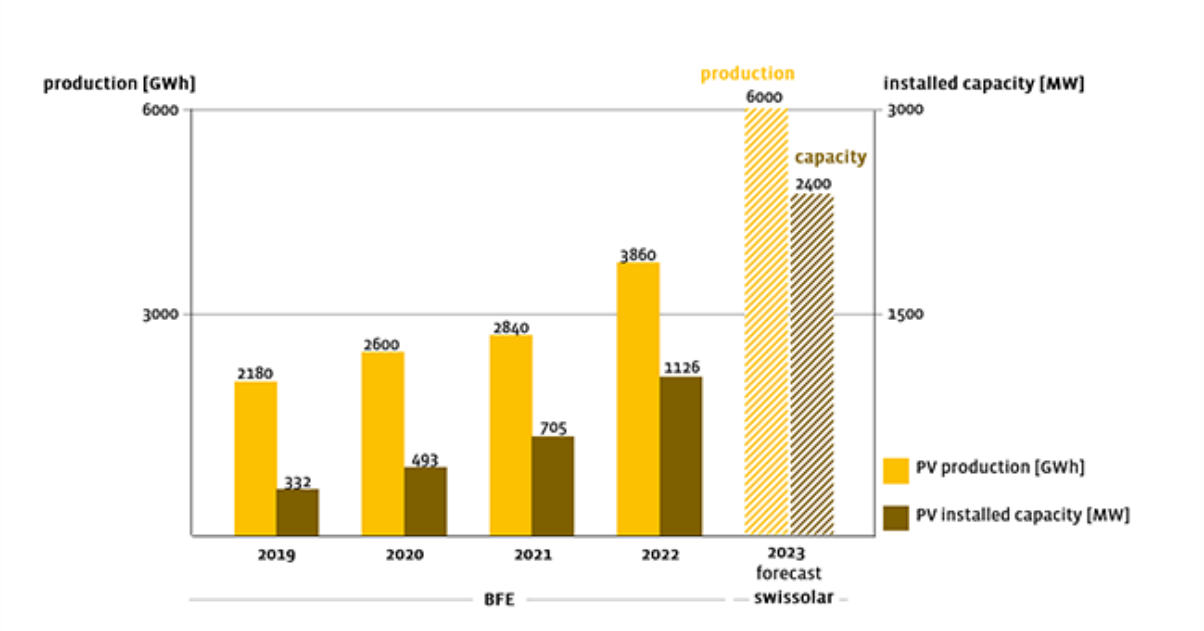
Development of photovoltaics
According to the latest *Solar Energy Statistics 2022* report published by the Swiss Federal Office of Energy, Switzerland once again recorded a significant increase in new photovoltaic installations in the reporting year. New installations rose by 60 percent against 2021 to set a new record of over 1,100 MW. For the third year in a row, the market therefore grew by more than 40 percent across all segments and now comprises some 200,000 photovoltaic systems across Switzerland. According to statistics, solar panels with an output of 4.74 gigawatts (GW) were installed in Switzerland at the end of 2022. They supplied almost 7 percent of Switzerland's electricity requirements over the course of the year, according to the industry association Swissolar, which expects another record expansion of between 1,300 and 1,400 MW to be added this year. This would bring the installed capacity to around 6 GW.

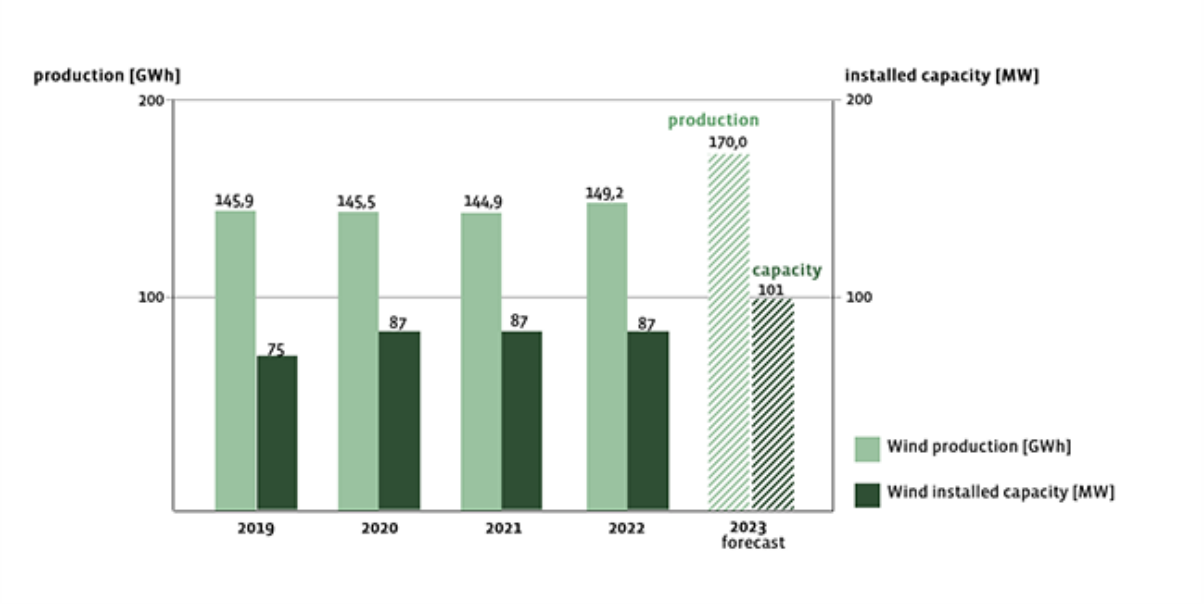


Source: Swiss Federal Office of Energy, Solar Energy Statistics 2022 and Swissolar Download image

In addition to the further expansion of private, commercial and public systems in urban and rural areas, **alpine photovoltaics** will play a crucial role in future. The main aim of these systems is to increase production in the winter months. Large-scale solar plants in the high mountains, which experience intensive sunshine in the winter, can propel the energy transition and boost electricity production during the winter months. Alpine projects such as **Gondosolar** in Valais, which Alpiq is supporting, are designing innovative plants to enable optimum integration into the sensitive mountain environment. In this way, they set high standards in ensuring environmental and nature compatibility and conserving the landscape.

Development of wind energy
Only 47 turbines are currently in operation in Switzerland. The latest wind farm was connected

to the grid in the Vaud municipality of Sainte-Croix in October 2023. Six new turbines went into operation after 25 years of project planning, approval and construction. The last wind farm commissioned prior to that were the five new turbines that went into operation on the Gotthard Pass in 2020. The proportion of wind energy in Switzerland is negligible compared to the rest of Europe. More than 7,000 turbines are connected to the grid in our neighbouring countries alone.



Source: Swiss Federal Office of Energy, Swiss Renewable Energy Statistics 2022 Download Image

Switzerland – not a windy country?
According to an SFOE study in August 2022, Switzerland's wind potential is much greater than long assumed. There are enough suitable locations and the differing wind volumes in the Swiss regions complement one other, meaning that wind power can always be produced at one or more locations. What's more, the plants produce around 60 percent of their electricity in the winter months, thus compensating for solar and run-of-river power in winter which – with the exception of alpine photovoltaic plants – generate less electricity precisely at that time when demand in Switzerland is at its highest. The VSE's Energy Future 2050 study estimates that wind power could contribute around 3 TWh to the electricity supply.

This makes the signal Swiss politicians sent out in summer 2023 through the introduction of the '**Windexpress**' all the more important. This federal law aims at accelerating the approval procedures for wind turbines by enabling the cantonal authorities to issue building permits for advanced wind energy projects in future, instead of the municipalities as is currently the case. Furthermore, there will only be one appeal body at the highest cantonal court.

The accelerated procedures, which will apply to wind energy plants of national interest that have an annual production of 20 GWh or more, will only be in place until Switzerland's installed wind energy capacity has increased by 600 MW against 2021 levels. Projects in Jura, Vaud and Valais will be the first to benefit from the Windexpress. Nevertheless, industry association Suisse Éole warns that, despite this wind energy offensive, it will still take a long time to realise

projects.

Hydropower in Switzerland's water kingdom
In Switzerland, most of our national electricity production comes from hydropower. Hydro has been the mainstay of the Swiss energy system for decades – accounting for around 60 percent – and will remain so. In recent years, only a few new large power plants have been connected to the grid. For example, Alpiq, together with SBB, IWB and FMV, inaugurated and commissioned the 900 MW Nant de Drance pumped storage power plant in 2022 after 14 years of construction. In September 2023, BKW and Energie Thun inaugurated the Augand run-of-river power plant (7.4 MW) on the Kander in the Bernese Oberland. In total, around 700 hydropower plants (> 300 kW) in Switzerland produce electricity from hydropower. This production must be maintained and optimised wherever possible, especially when it comes to storing power for the winter.

In the **hydropower** sector, the projects agreed by the **Hydropower Round Table** convened by the federal government in December 2021, involving energy companies such as Alpiq and environmental and nature conservation organisations, are crucial for the future. Alpiq, for whom hydropower is part of our DNA as a Swiss energy producer, is involved in five of the 15 projects. Hydropower forms the backbone of Switzerland's energy supply and the storage power plants make a major contribution to flexible electricity production and strengthen the security of supply, especially in winter. The 15 projects are to be realised by 2040 and will be able to store around 2 TWh of additional electricity, thereby reducing Switzerland's dependence on imports in the winter months.

The **"Gornerli" multi-purpose reservoir project** near Zermatt offers the best potential: the rapid melting of the Gorner glacier is creating the possibility of a new reservoir. Providing an impressive 650 GWh of storage capacity for the winter months, this lake would cover a third of the potential identified in all the Hydropower Round Table projects. The lake also serves as a flood retention basin and can be used for irrigation and as a source of drinking water, thereby optimising the protection of Zermatt and having a positive impact on the entire Matter Valley. Only a comparatively small dam wall would need to be built in order to create the multi-purpose reservoir, while the water would be turbined in the existing, highly efficient and powerful Grande Dixence power plants. The project is currently in the planning and approval process and, assuming the support of the cantonal and environmental policy players, the aim is for it **to be commissioned in 2030.**

A look at the list of projects in the recent past shows that **expansion** in Switzerland is progressing **very slowly** – despite the fact that many projects exist. Photovoltaics is the only area in which expansion has accelerated significantly in the last four years, primarily through installations on the roofs of houses and industrial plants. This expansion needs to speed up in order to strengthen security of supply and protect the climate.

It is a challenge facing all of us. We need to successfully demonstrate the **urgent need for action** by having a broad social debate, we need to pave the way for **more acceptance of a new energy infrastructure,** and we need to repeatedly emphasise the **need for the pragmatic expansion of renewable energies.** One thing is clear: security of supply, sustainability and economic efficiency go together hand-in-hand. One is not possible without the other. We will only overcome the challenges by working together and realising that the **common good** comes **before individual interests.** To achieve this, we need the **cooperation** of politics, society and business and a **willingness to compromise** on all sides.

The next edition of **Watt's the story** is scheduled for the **end of January 2024**. It will include our new section "prog**RES Switzerland**", in which we will provide an update on the latest progress of building up renewable energy sources (RES) in Switzerland.
In the meantime, we wish you a happy end to the year and hope that you start the new year full of energy, creativity and impact. Winter is coming! Take care and we'll see you in 2024.

Best regards,
Your Investor Relations Team @Alpiq

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