28 March 2024 – 07.00

Market update | Liquidity status | Flexibility solutions for the future energy market | progRES Switzerland

Dear Reader,

Welcome to our Easter edition of Watt's the story. First of all, the good news: We got through this winter without any bottlenecks in the energy supply again. In fact, Switzerland even generated an electricity surplus this winter and exported more electricity than it imported. So, does that mean there's no longer the need to worry about a winter shortfall? Unfortunately, it's not that simple. It's just the weather again! Mild temperatures and relatively high precipitation meant we could relax this winter, but as we don't know what the weather will be like next winter, the situation remains unpredictable.

In other words, we can't rule out a shortage of electricity in the future, as emphasised recently by the Swiss Energy Minister, Federal Councillor Albert Rösti, when he explained why the Federal Council is in favour of the law for security of power supply (formerly known as "Mantelerlass" energy decree) and is supporting a "yes" to the law in the referendum on 9 June.

A key concern of the law, which aims to secure Switzerland's electricity supply, is the expansion of renewable energies to boost energy production and storage in the winter season. We provide an update on the current status in the "progRES Switzerland" section of this month's newsletter.

In this month's deep dive, we focus on **flexibility in the electricity system** – another key factor for tomorrow's energy system. **Lukas Gresnigt, Head International and Executive Board Member at Alpiq**, explains why flexibility is so important when it comes to balancing out fluctuations in demand and supply and ensuring the overall security of supply within a decarbonised energy system.

As usual, let's start with an overview of developments on the energy markets in the past two months.

Market update

The continuous fall in energy prices since mid-October 2023 ended in February. The turnaround in prices was triggered by the US adding two more Russian companies to their sanctions list: the coal producer SUEK and the steel and mining company Mechel. The sanctioning of SUEK had a marked impact and was followed by a strong price increase in the European (Atlantic) coal market, which in turn triggered a strong response on the gas markets. This strong reaction reflects the huge quantities of coal that SUEK produces. SUEK is responsible for around 100 Mt of Russia's 400 Mt coal production and exported 37 Mt of coal in 2023, which equates to 25% of Russia's total thermal coal exports, or about 4-5% of global trade.

The fall in gas prices since October triggered a pick-up in demand among price-sensitive Asian buyers (through tenders for LNG cargoes), and gas prices are now off the lows recorded at the end of February. Even so, demand remains weak globally, most notably in Europe. Industrial activity generally remains depressed and significant over-capacity and competition from China and other parts of the world has hampered industrial activity in Europe. It still looks likely that overall economic growth in the eurozone will be close to zero at the end of Q1-24.

The power markets in Central West Europe are relaxed and the winter has come and gone without any stress in the system. The weather was once again a major factor, with the unusually high temperatures continuing into February and March and, by the looks of it, April too.

Liquidity status

As predicted in the previous update, the first two months of 2024 showed a strong operational cash flow, despite seasonal and collateral outflows on account of water taxes and the lower price level. The Group liquidity balance stood at roughly CHF 2.3 billion and headroom at CHF 2.9 billion as per the end of February. We foresee a further increase in both Group liquidity and headroom over the next two months, again driven by high operational cash flows.

Deep-dive

Supporting the energy transition through flexibility

Lukas Gresnigt

Head International and Member of the
Executive Board at Alpiq

In recent years, the energy transition has led to a steep increase in renewable energy capacities. The growth in the number of wind farms and solar parks is accelerating, and photovoltaic panels are appearing on the roofs of more and more houses. Renewable energy production is already the largest source of electricity in many markets.

However, wind and solar power alone is not enough to achieve the 1.5°C limit set out in the Paris Agreement. The generation of wind and solar power is not linked to electricity demand but depends on the weather and this intermittent production is not easy to manage. Either we need to build up much greater capacity to meet demand and ensure security of supply or – as a more efficient and cheaper option – we need to use flexible generation and storage systems to integrate and optimise our use of renewable energy.

This is where Alpiq comes in. Thanks to our highly flexible asset portfolio in Switzerland, Spain, Italy and Hungary, Alpiq is already contributing to the security of supply by integrating the intermittent production from renewables into the energy system. And we're further strengthening our capabilities to provide even more flexibility throughout the energy transition.

Lukas Gresnigt, Head International at Alpiq, discusses what flexibility means, why it's important, and what role our company will play in this market in the future.

Lukas, what does "flexibility" mean in the context of electricity?

By flexibility, we primarily mean the ability to produce additional electricity when it's needed and stop producing or storing it when there's too much. This is important because the electricity grid needs to be in balance at all times, that is, demand and supply have to be equal. This ensures a constant frequency and voltage level, which is essential for the security of supply. However, achieving this has become more complex as demand fluctuates and generation becomes increasingly intermittent. For example, fluctuations in weather conditions such as cloud coverage and wind speed mean we're limited in our ability to predict how much energy can be generated from wind and solar.

How can we ensure security of supply in this changing energy landscape?

The geographic diversity across Europe means that different countries and regions can complement one other. Flexible hydro generation from reservoirs in the Alps, the Nordics and the Balkans can be used to balance the fast-growing wind capacity in and around the North Sea and Spain as well as the increasing solar generation from photovoltaics across Europe. This makes it all the more important that we expand the existing interconnections between high-voltage grids. However, this process is complicated and often slow, which puts growing emphasis on demand-side management, flexible generation and storage. These last two factors have always been a strength of Alpiq given our long history in flexible Swiss hydropower.

What does the flexibility market look like?

Basically, there are three distinct categories of flexibility, each of which addresses a different need. First, the short-term flexibility needed to balance the grid during unexpected events such as the failure of a power plant or sudden changes in demand. In these cases, grid operators like Swissgrid provide what is known as ancillary services, whereby they procure installed capacity to balance the grid, usually via auctions, and dispatch this capacity when needed. Secondly, we need flexibility on the intraday or day-ahead markets, for example when the weather forecast changes. At Alpiq, dedicated teams of traders monitor and optimise these developments 24/7. Thirdly, we have seasonal flexibility, which is particularly important in Switzerland, where we have higher production in summer than in winter, but lower demand in summer than in winter. That means we need to store some of our summer energy for the winter in our dams like Grande Dixence or Lake Emosson.

There's talk of new developments in technologies such as batteries, hydrogen and virtual power plants. What's on the horizon?

There's certainly a lot of innovation in the energy market. We're encouraged by the potential of battery electric storage systems (BESS) – not for long-term storage, but to serve the short-term and intraday flexibility markets. The fast growth of electric mobility could play a role in these markets too, because electric cars are basically batteries on wheels. Alpiq is experienced in managing the market exposure for large fleets of wind and solar plants, especially in Germany and Spain, so a similar model could be applied for distributed storage capacity. Green hydrogen will also play an increasingly important role in decarbonising industry and could potentially replace diesel in heavy duty transportation. If the cost of green hydrogen falls, it could potentially become a substitute for gas-fired power plants because it's storable, transportable and climate-friendly. We're also following developments in sustainable fuels with interest. Increased ambition in aviation and industry could see these fuels take off in the next five years.

How does Alpiq contribute to flexibility in the energy system?

In Switzerland, we already offer a large volume of renewable flexibility capacities. We can react swiftly to changes in the energy system thanks to our powerful Nant de Drance and FMHL pump-storage plants. However, for us to unleash our full potential, it's important that Switzerland remains integrated in the European electricity market. That's why we support talks between Switzerland and the EU to reach an agreement in this regard. When it comes to hydrogen, we at Alpiq are pioneers in Switzerland. We've been producing green hydrogen for more than four years now to power a fleet of around 50 hydrogen trucks. Alpiq's highly flexible gas power plants in Italy, Spain and Hungary also contribute to security of supply in their respective markets. Although they were originally built to deliver base load, Alpiq has invested in making these plants highly flexible by increasing the speed at which they can be deployed. This makes it possible to have frequent starts and stops, fewer running hours, and therefore meet the needs in the local electricity system.

You mentioned CCGTs – are those not harmful in terms of climate impact?

We need to look at the context here. In markets that don't have an abundance of flexible hydropower, gas-fired generation is a bridging technology that enables the integration of intermittent renewables and paves the way for the energy transition. Looking at their operating pattern, we see two clear trends: fewer running hours and more frequent starts and stops of these plants. It's precisely this flexibility that allows more wind and solar to be integrated into the energy system. Of course, we could sell them to improve our carbon footprint as a company, but then they'd just be run by someone else. Instead, our aim is to be the best owner for our gas-fired power plant assets by operating them as cleanly, efficiently and flexibly as possible and in this way improving the security of supply in the energy system.

You said flexibility will become more important for Alpiq. Does that involve growth through acquisitions?

We're screening the market and actively seeking opportunities that will increase our flexibility in Switzerland and other European markets. Every country is different and so are its needs. We're currently prioritising opportunities to grow our presence in flexibility through battery storage, for example. Providing portfolio management services to third parties is also a natural role for Alpiq. We'll build on our market capability and expertise in the management of our flexible assets to provide solutions to wind and solar generators and to owners of battery storage. In addition, we're exploring opportunities for flexible hydropower in the markets where we operate. Alpiq's expertise in hydropower – especially pumped hydropower – is widely recognised thanks to Nant de Drance. Partnerships with local developers and investors could be an interesting way to deploy this expertise.

What about building up a larger renewable energy portfolio?

Alpiq plays a number of different roles. When it comes to wind and solar, we're the integrator – our strength is in flexible generation. We have a number of intermittent wind and solar parks but, with the exception of our photovoltaics plants in the Swiss Alps to bridge the winter gap, we don't plan to invest further in greenfield renewables. Instead, we build on our core competence and will increasingly support the integration of renewables by using our existing flexible assets and by building and investing in new flexibility combined with trading and origination. We believe that these are the areas that will be increasingly important in achieving the energy transition.

Thank you for these insights, Lukas!

progRES Switzerland

Speaking at the 22nd Swiss Photovoltaic Conference, Federal Councillor Albert Rösti said that he would never have believed that solar energy would already account for 10 per cent of electricity today. If expansion continues at this rate, it will reach 20 per cent in four years' time. Photovoltaic systems with an output of over 6 gigawatts have already been installed in Switzerland. However, with electricity often in short supply in Switzerland, particularly in the winter, it's important to increase winter production to ensure the success of the energy transition. Unlike the photovoltaics installed on rooftops in the Swiss lowlands, alpine systems supply up to half of their production during the winter. Legislators have responded by adopting the 'Solar Express' law to simplify and speed up the construction of large new photovoltaic systems with a maximum total annual production of 2 terawatt hours (TWh), for a limited period until 2025.

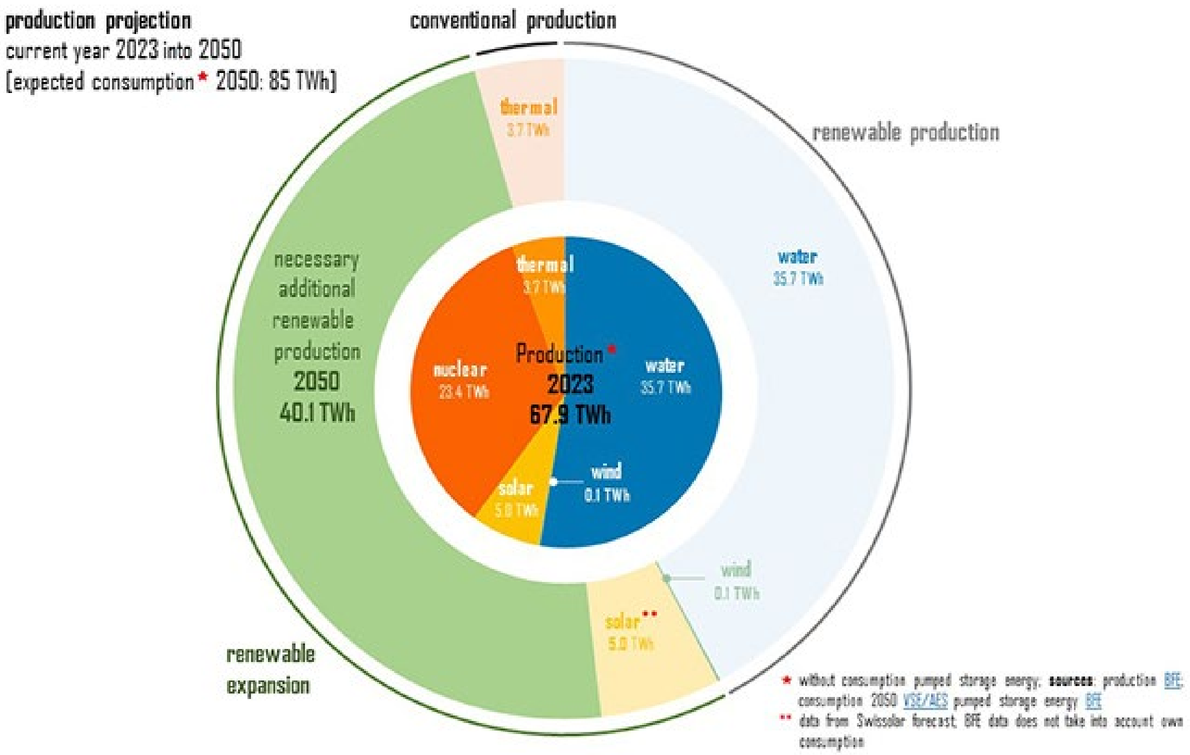
Alpiq is pressing ahead with various projects for alpine photovoltaic systems. The most advanced of these is the Gondosolar project, for which a building permit application and environmental impact assessment were submitted to the cantonal building commission in Valais in December last year. This is the first of many alpine solar park projects in this region. In March of this year, the nature conservation organisations Pro Natura Valais and Mountain Wilderness Switzerland lodged an objection against Gondosolar, arguing that the environmental impact report for the planned project was significantly flawed and lacked overall cantonal planning. According to David Jossen, Project Manager at Gondosolar, the objections are about finding a common way forward and discussions will be needed. "We need to find solutions that suit both sides."

The expansion of wind production in Switzerland would help to increase security of supply in the winter, but progress is slow. The development at the Peuchapatte wind farm is positive: the three wind turbines at Alpiq's wind farm in the Jura achieved record production in 2023: 17.1 million/kWh, renewable and domestic electricity for around 3,800 households. In March, however, the Federal Court published its judgement on the Bel Coster wind farm. Alpiq, together with local communities in the Vaud Jura, has been pressing ahead with the project since 2008. The latest judgement has not accelerated the expansion of wind energy in Switzerland. Alpiq regrets the Federal Court's decision to allow the appeal against the partial utilisation plan for the Bel Coster wind farm project.

When it comes to photovoltaics, the Swiss Federal Office of Energy (SFOE) and Pronovo only record the portion of production that passes through the electricity meter and is fed into the grid, but not self-consumption. Swissolar collects this data on behalf of the SFOE and is expected to publish it in June 2024. No updated data is available for installed capacity either. The production data for wind has not been updated and no further plants have been connected to the grid.

For those reasons, our charts have not changed since the 11th edition of Watt's the story at the end of January 2024.

Production Switzerland



Sources: production BFE; consumption 2050 VSE/AES pumped storage energy BFE
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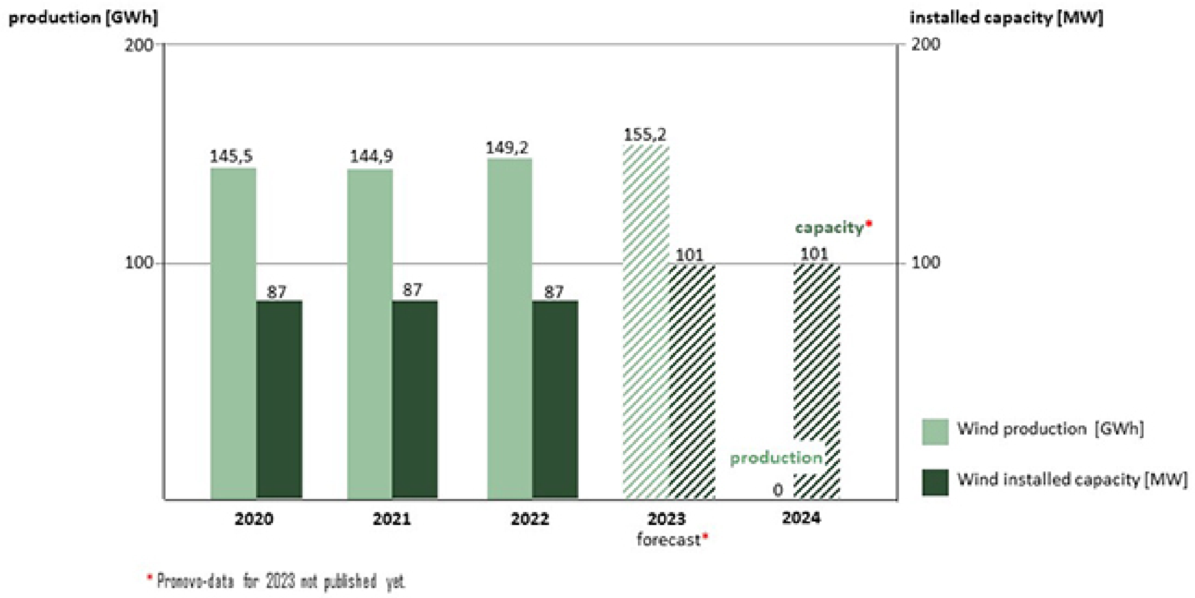
Development of wind energy



Source: BFE
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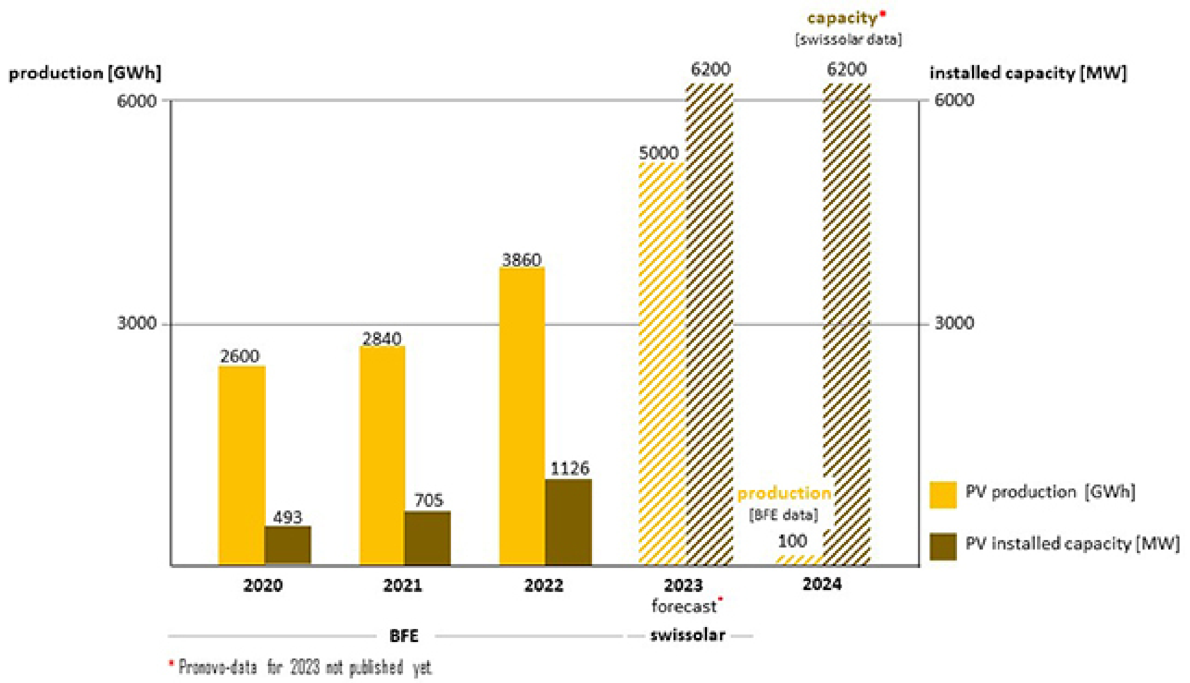
Development of photovoltaics



Source: BFE/Swissolar
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And with that, it's time to say goodbye for another edition. We hope you enjoy some time off around Easter and can prepare your balconies or gardens to blossom in spring. The next issue of **Watt's the story** is planned for the **end of May 2024** – shortly before the public referendum in Switzerland against the law for security of power supply.

Until then, we send you our best wishes – stay tuned for more soon!

Best regards,
Your Investor Relations Team @Alpiq

PS: Please feel free to forward this newsletter to other interested parties, who can also sign up to receive it directly HERE. All previous editions, including our deep dives, are also available HERE.

PPS: Please send us your feedback, thoughts, and requests for future deep-dive topics to investors@alpiq.com. Thank you!

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