ALPIQ

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Market update | Liquidity status | Partner power plants

Dear Reader,

Exactly **one year ago**, the **market turmoil** in the **energy sector** was **in full flow**. Prices for gas and electricity hit new records on a daily basis. The Nord Stream 1 pipeline underwent maintenance in July, then Russia stopped delivering gas completely at the end of August. In many areas of Europe, the summer was extremely hot and dry, which reduced the capacity of hydropower plants and powerplants with river-fed cooling systems. Anxiety about whether we would have enough electricity and gas for the winter months ahead drove prices to new levels. **Now,** a year on, **where do we stand?** How has the situation changed? **Read** our **market update** to find out.

This month, we'll also address the interesting topic of **"Partnerwerke" – the partner (power) plants**. Why do we have them? What role do they play? We will **deep-dive** into this topic in the final section of this eighth edition of Watt's the story. But first, let's look at the movements on the energy markets in the past two months.

Market update

Power and **gas prices** for the front-quarter and front-year forward products are currently at **similar levels** to **two months ago**. At the time of writing, the German baseload contract for **Cal-24** is trading at **EUR 142/MWh**. However, **prices** have been **volatile** in between: Cal-24 for Germany traded between EUR 118/MWh and EUR 153/MWh during that period, and Title

Transfer Facility (TTF) gas between EUR 42/MWh and EUR 56/MWh. **Gas prices increased** relatively strongly in June **due to** the **gas supply interruptions** caused by maintenance work in Norway's gas processing plants, **uncertainties** on the remaining **gas flows** from Russia to Europe, and **heatwaves** in Europe. Due to the persistently **weak demand** and **high stock levels** for **gas** in Europe, as well as the **efficient supply** of liquefied natural gas **(LNG)**, **gas prices** are **trending downwards** again.

The outlook for **next winter** currently looks much **more relaxed** than in the summer of 2022 as **gas storage levels** in Europe are **high** at around **84%** of capacity, **compared** to around **65%** at the same time **last year**. Gas prices based on the front-year TTF price exceeded three digits a year ago, but this product is now trading at around EUR 52/MWh. While European gas storages are likely to be full ahead of this year's winter season, this was uncertain in 2022, in particular when the Nord Stream 1 pipeline from Russia to Germany was temporarily closed for annual maintenance in July and then shut down completely at the end of August 2022.

Furthermore, gas and power demand strongly contracted in the fourth quarter of 2022 following the implementation of efficiency measures, behavioural changes, and depressed industrial production. The **collapse** in the **energy demand** was **not expected** by many market participants and the supply of gas for the winter 2022/2023 was seen as being at risk in some European countries a year ago – resulting in **high risk premiums** on **forward prices**.

During **recent months**, a combination of **low power demand** and **high renewable power generation** have resulted in **record lows in day-ahead prices** and **high spot price volatility**. For example, the **day-ahead spot price** in **Germany** for the hour 14.00-15.00 on the first Sunday in July 2023 reached a **record low** of **EUR -500/MWh** due to oversupply, and **EUR -142.88/MWh in Switzerland** in the same hour.

According to the European price adjustment rules for the **spot market power exchanges**, the **price floor** is **decreasing** and **further lows** are **expected** in the **future**. The growth in behind-the-meter photovoltaic installations, which do not respond directly to negative spot prices with curtailments, increases the likelihood of this in the future. One way of **responding to** this phenomenon of **negative prices** and **temporary oversupply** is to **achieve more flexibility** in the power markets – both on the **production** and the **demand side** – for example **through storage capacities**.

Liquidity status

In contrast to the previously forecast slight decrease – and based on better operational **cash flows** (collaterals and backswings in net working capital) – the **headroom** ended at roughly **CHF 2.3 billion** as per end of June.

The group **liquidity** of more than **CHF 1.7 billion** translated into a consolidated net cash position, which is a **very positive** result.

The **forecast** for the next two months shows a **temporary decrease** in the **cash balance**, driven on the one hand by **larger operational payments** and on the other hand by an **increase** in **net**

working capital. The latter will be offset by the end of the year.

On 3 July, **Nant de Drance** launched a new **eight-year bond** for **CHF 200 million**, which offers a **coupon** of **2.35%** to investors. The transaction saw **strong investor demand** and the **bond sold out** in less than two hours. The green hydro footprint mainly attracted investors in the asset management and insurance sectors, which are known for their focus on investing in environmental, social and governance (ESG) themes. Nant de Drance will use the proceeds to refinance the bond that is due to expire on 23 October 2023, a transaction Alpiq is managing on Nant de Drance's behalf.

Deep-dive

Partner power plants

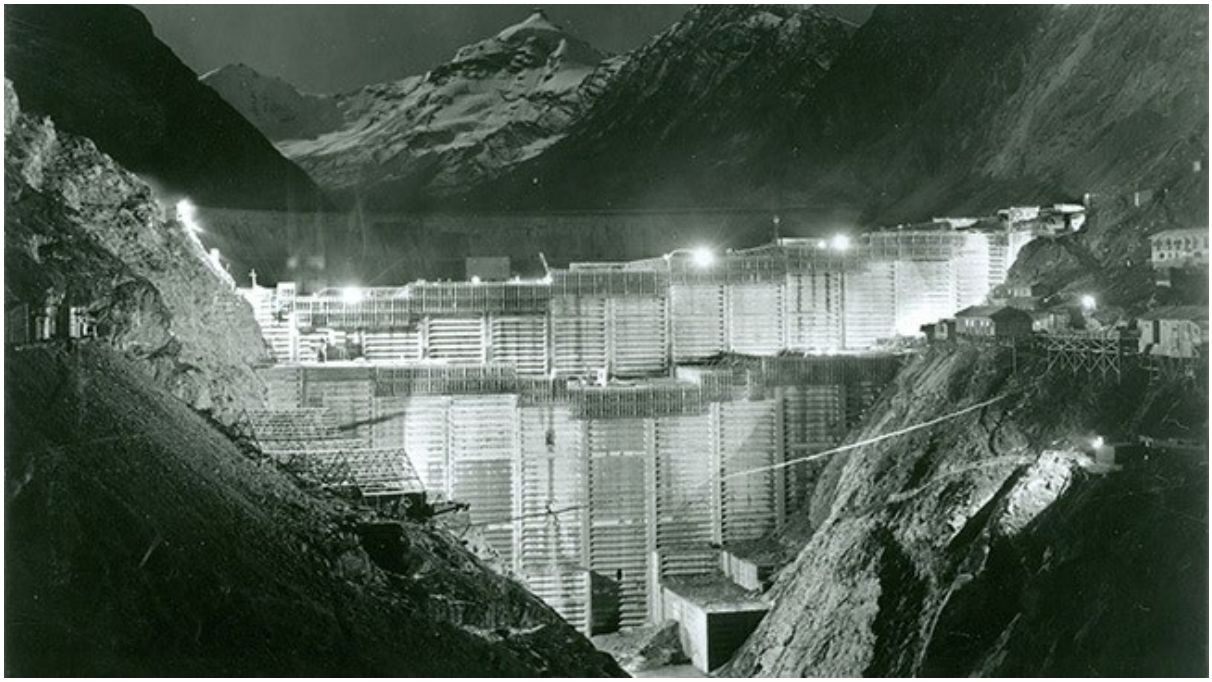
In Switzerland, many larger power plants have a structure known as a "partner power plant". Well-known **examples** include the large hydropower plants **Grande Dixence** in the Valais and the **Kraftwerke Oberhasli** in the Grimsel area, or the two large nuclear power plants in **Gösgen** and **Leibstadt**. Below, we explore why these partner plants exist, how they differ from one other, and why some have many employees while others have almost none.

Why do these partner power plants exist?

The large storage power plants are all located in mountainous areas because of the topography. When these power plants were **planned** and built, the **mountain regions were economically weak** and the **demand** for **electricity** there was still **low at that time** – in stark contrast to the cities and the **Swiss Midlands**, where the possibilities for **generating hydropower** on the Central Plateau alone were **not sufficient** to meet the already rapidly increasing demand for electricity. In the mountain regions, there was a lot of potential for the construction of dams and this is how the first Alpine partner plants came into being.

They were called **partner plants** because **several investors participated** in a joint stock company to spread the **risk** over **several shoulders**. Those with a need for electricity invested. These plants, **developed** with a great deal of **pioneering spirit**, even made it possible to **produce an oversupply of electricity**. The **lack of customers** was therefore a **risk**, and the **partner plants model** made it possible to spread this risk over several investors. It could be described as a **joint venture** with the **legal form** of a **public limited company**.

The **basic characteristic** of a partner plant is that the **shareholders** undertake to **pay** the **operating costs** on a pro rata basis and **in return** they **receive** the corresponding **share of electricity** at "cost plus" price, plus, due to tax reasons. This is usually done via a shareholders' agreement. Since most of the shareholders are not located in the mountain regions, a large part of the value added (and the potential losses) does not occur at the location of the partner plants, but at the locations of the shareholder companies of the partner plants.



Picture: Construction of the Grande Dixence dam by night – The construction of the dam lasted from 1951 to 1965. Source: Grande Dixence SA

Why are partner plants still needed today?

For the same reason as before: to **spread** the **risks**. Once the partner plants are in operation, however, the risk **today** is no longer that the electricity might not be sold, but rather the risks associated with **fluctuations** in the **electricity price, operational unavailability, stock market fluctuations** related to the nuclear decommissioning and waste disposal fund, **lower inflows**, etc. This is because the operating costs, including the level of charges such as water rates (tax on the water used = "Wasserzins"), are fixed.

However, whether the **operating costs** of the partner plants can be **covered depends** very much on the **selling price** of the **electricity**, be it the retail price or the wholesale price. Before **electricity prices rose** sharply in **2022**, they had been **below production costs** for almost a **decade** in Switzerland. For the reasons mentioned above, the **losses** were **not incurred** by the **partner plants**, but had to be **covered** by the **shareholders**, just as the profits are incurred by them today. This has **led to large "impairments"**, i.e. changes in the valuation of the power plants as assets.

Michael Wider, Alpiq's Head of Business Unit Switzerland, knows the world of partner plants like no other – in good times and in bad. He says: "Just like the projects we have today, these were huge, **pioneering construction projects** that often took **over a decade to complete**, with huge **economic** and **technical risks** and **opportunities**. Therefore, it was better to **undertake them together** rather than alone."

Michael speaks from direct experience. Under his direction, Switzerland's most recent partner plant, the **Nant de Drance** pumped storage power plant, was commissioned last year after 14 years of construction. **During** the **construction** period, **electricity prices** initially **fell** from their highest to their lowest level, only to **climb** from a long lean period to record new levels just at

the **time of commissioning**. It was a true rollercoaster ride of emotions. For a **pumped storage power plant**, however, the level of the electricity price alone is not relevant. Rather, the **difference** between the **price of the energy** for **pumping** and the **energy produced** must be sufficiently large for a pumped storage plant to **operate profitably**.

Picture: Machine cavern of the Nant de Drance pumped storage power station. The power station went online in 2022 after 14 years of construction.

How do partner plants actually work?

The **partner plants** primarily **produce electricity** and are **responsible** for its **smooth operation**, while the costs of operation are distributed proportionately among the shareholders. In return, the **shareholders receive** the **electricity produced**. Each participating company can then **sell it** on itself either to their **direct customers** or via **electricity trading** on the market, depending on the company's structure. The investments in the plants are decided by the governing bodies of the partner plant companies and in most cases are also financed by the partner plants themselves.

Nevertheless, the **partner plants differ** in many respects. **Energy management, investment policy,** types of financing need to be optimally adapted to the characteristics of each plant. Three examples of power plant structures are given below:

- In a **nuclear power partner plant**, such as Gösgen, shareholders purchase a proportion of the energy produced by the power station at cost price. With a 40% stake in the Gösgen nuclear power station, Alpiq purchases 40% of the energy produced each year. With an average annual production of 8,000 GWh, this corresponds to 3,200 GWh.
- In a **storage power plant**, such as Grande Dixence, the reservoir volume is distributed proportionally. The share of the participation corresponds to a "virtual" water volume. For example, Alpiq has a 60% share in Grande Dixence, which means it can use 60% of the water stored. The remaining water is divided among the other three shareholders,

with each shareholder deciding when and how he wants to produce his water volume in accordance with its shareholding.

- In a **power plant with a small reservoir but a lot of water**, such as Electra-Massa at the foot of the Great Aletsch Glacier, the distribution of the water is also based on the shareholding. However, the values of the water are defined on the basis of different production profiles, because the reservoir is not large enough for all the water to be turbined only at peak times. Especially in the summer months, the power plant runs at full load practically around the clock so that as much water as possible can be used and does not flow unused over the dam wall. It is clear that peak energy does not have the same value as band energy and thus a smaller amount of water is allocated for peak energy.

Picture: Gebidem dam. The melting Aletsch glacier brings more water than the power station can turbine. The surplus is diverted over the dam into the Massa Gorge.

As a rule, the **main responsibility** for **energy management** is **assigned to** the **shareholder** with the **largest stake** in the company. These shareholders, such as Alpiq, are also the companies that have the competencies and systems to use the energy as optimally and profitably as possible.

The large plants in the Alps, such as **Grande Dixence** or **Nant de Drance**, are **characterised** by

their **performance** and **flexibility**. These plants were built as systemic ones that benefit the stability of the Swiss high-voltage grid and **contribute** to **security of supply**. Their energy is not intended for the basic supply, but among other things creates the grid conditions to ensure it.

Who operates the partner plants?

Plants like the **Leibstadt** and **Gösgen** nuclear power plants employ many of their **own staff**, who **ensure the operation** of the plant. This makes sense for **highly specialised plants** such as nuclear power plants.

In Valais and Vaud, numerous partner plants are **managed by** an **operating company,** Hydro Exploitation, which is responsible for the operation and maintenance of these plants. These include **Grande Dixence, Electra-Massa, Forces Motrices Hongrin-Léman** and **Forces Motrices de la Gougra**. Hydro Exploitation specialises in the operation of hydroelectric power plants and has an extremely high level of technical and professional competence. The focus here is on professionalism in operation and maintenance, because if a power plant fails for even a few days, this can lead to a major economic loss for the partners.

Various partner plants, such as Grande Dixence and energy suppliers like Alpiq, have a stake in Hydro Exploitation. Management of the asset, above all the strategic aspects of the partner plant, is carried out by the partners and shareholders of this plant.

Is it possible to finance partner plants via the capital market?

Power plants such as **hydropower** or **nuclear power plants** are very **capital-intensive**. The **concessions** for **hydropower plants** usually run for **80 years**. This means that **investments** in the plants will **maintain** their substance over at **least 80 years**. This expenditure needs to be financed. As a rule, the partner plants are usually financed through bonds, and in the case of majority holdings and consolidation by one shareholder, also through so-called intercompany financing.

Should the community **exercise reversion** at the end of the concession (the so-called **“Heimfall”**) and take over the facility, the **facility** must be **depreciated**, and the **debts repaid**. The amortisation and capital costs are part of the annual operating costs that must be generated. Even after the reversion and/or the possible change of the “Wasserrechtsberechtigten” – that is, the concessionaire who receives the right to use the water – the plant retains its energy and operational value with a new initial balance.

So far it has been shown that the **capital markets** are **interested** in **hydropower plants**. This is undoubtedly related to the fact that the partners and shareholders of the partner plants are often directly or indirectly in public hands. But, more importantly, it is also related to the fact that hydropower is a **clean energy source** and thus also gives the **financial market access** to **green investments**, which are in high demand. This is shown by the recent example of Nant de Drance (see above in the text).

What is the biggest advantage/disadvantage of partner plants?

The **biggest advantage** is that the **risks are spread** over several partners – but that’s **also** a **disadvantage**. Why? It is more **difficult** to **reach decisions** when many partners are involved than when one company alone is responsible. On the other hand, it also **encourages** us to look for **viable solutions** and to **find majorities**. “The partner plants are typical for Switzerland,” says Michael Wider. “We are dependent on each other, and we have to be able to

rely on one other. As a country and as companies, we are too small to go it alone with large projects. In return, we receive stability and a long-term perspective."

The situation becomes more challenging when the various partners have different interests, a change is pending as a result of democratic processes, or one party runs into economic difficulties. Particularly in the context of business continuity management, the three energy companies that ElCom defines as systemically important – Alpiq, Axpo and BKW – work to ensure that operations can be maintained in the event of the failure of one party in a partner plant. A project has been underway since last year to take this into account.

So, that's it for now, we hope that this edition has been insightful and that you now have a deeper understanding of partner power plants in Switzerland. The next edition of **Watt's the story** will appear at the **end of September.** Until then, we wish you an enjoyable summer. Take care!

Best regards,

Your Investor Relations Team @Alpiq

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