

3

Solutions

Climate-friendly
energy solutions
for complexes and
sites

04 Fischermätteli, Burgdorf
10 Jardins du Couchant, Nyon
12 Greencity, Zurich



Christoph Deiss
Head of Energy Solutions, ewz
Member of the Executive Board

Because the environment is important to us and we want to hand it down to future generations intact, we are committed to its conservation. We work in partnership with our customers to meet our social responsibilities and develop individual, innovative energy solutions.

In this magazine, we'll show you three climate-friendly energy solutions for complexes and sites that we've developed, planned and implemented. We're particularly keen to draw your attention to the new Fischermätteli site, built according to the Minergie-A ECO standard. With a positive energy balance, the site is characterised by healthy, environmentally friendly construction using Swiss timber.

We rely on economical and environmentally friendly solutions and we are committed to ensuring security of supply and energy efficiency.

Of course, we also implement cost-effective energy solutions for towns and municipalities along with special constructions such as sports and leisure centres, hospitals and care homes.

'Climate protection takes top priority – and we work in partnership with our customers to implement environmentally friendly solutions!'

Fischermätteli site, Burgdorf BE

Top environmental performance thanks to Minergie-A ECO and Swiss timber

ewz.ch/en/fischermatteli

The apartment buildings in the new Fischermätteli district are environmentally impressive and also cost-effective. As sustainable energy-plus buildings, they supply at least as much energy as they consume over the course of the year – and the healthy, environmentally friendly building method using Swiss timber is completely geared towards the well-being of future residents. We supply the site with 100% renewable energy and issue bills for service charges according to usage. We offer an insight into consumption and considerably reduce the associated administrative burden. The first apartments were ready to occupy in summer 2021 – and construction of the ten buildings, providing a total of 169 apartments, is due for completion in 2024.

The challenge



Bruno Kälin
Head of Marketing, Member of the Executive Board Strüby Konzept AG

'Fischermätteli achieves a perfect combination of energy independence, a healthy indoor climate and construction ecology.'

Mr Muheim, the Fischermätteli district will be the largest complex in Switzerland to achieve the Minergie-A ECO standard, and will be built from Swiss timber. How did this come about?

We've had very positive experiences with the Minergie-A standard in our previous projects. This project has additionally implemented the Minergie ECO standard to ensure healthy and environmentally friendly building techniques. We're using Swiss timber from spruces and silver firs. Timber is a perfect match for our requirements in environmental and sustainability terms – it's available locally, grows back, it's carbon neutral, creates jobs in the region and provides a pleasant and healthy indoor climate.

When it came to the energy solution, you opted for ewz. Why?

In our invitation to tender, we were seeking an experienced partner for the planning, financing, implementation and operation of a sustainable energy supply. ewz offers all of this from a single source and it is highly experienced in the implementation of intelligently combined energy solutions. Working in partnership, we developed a climate-friendly and cost-effective solution.

The solution



Christian Rolli
Project Manager ewz

'The entire annual energy demand is met on-site using photovoltaics and local wood.'

How did you manage to implement the strict sustainability and energy-efficiency guidelines for Minergie-A ECO certification cost-effectively?

We were able to fulfil the demanding guidelines by leveraging our considerable experience and by involving specialists. For the environmentally friendly energy solution at Fischermätteli, we've used wood from the local region to supply the pellet-fired central heating plant. With limited available space, we came up against some challenging limitations when it came to the photovoltaic systems. So we decided to use high-performance monocrystalline modules with increased efficiency; our energy solution meets the entire energy demand with 100% renewable electricity.

What challenges did you face in forming a self-consumption association and billing service charges?

It was important to combine and bill all of the costs for electricity, heating and electromobility charging stations within a single bill for each dwelling. We've also integrated the costs for fresh and waste water by processing bills from the local water company and incorporating them into the total bill for each dwelling. To implement all of this, we're installing and operating some 800 meters across the site.

Why climate-friendly heating is also economically attractive

In complex installations, it's important to make optimum use of local resources and technical synergies. This has a lasting positive impact not only in terms of cost-efficiency but also environmentally.

We worked with the customer to develop an integrated, holistic energy solution that meets stringent economic and environmental requirements. All buildings are connected to a site heating network, at the heart of which is a heating plant with an output of 550 kW. We use wood pellets from the local region as an energy source, and efficient heat production is ensured by the quality management consortium for wood-fired power stations. Given the geological conditions at the site, we ruled out the option of installing a heat pump in favour of the wood-fired heating system.

The site is supplied with 100% renewable electricity by roof-mounted photovoltaic systems, which have an area of some 3,200 m².

The energy management system coordinates production and consumption according to demand, allowing us to avoid excessive overproduction in summer.

We're also installing five semi-public charging stations for electric vehicles, and there are plans to expand these with a further five stations in a second phase if needed. Homeowners can also request that we connect their private parking spaces – and charging stations will also be installed for electric bicycles.

We founded a self-consumption association (ZEV) to produce a bill for each dwelling according to usage. We handle the administration of the ZEV and, if necessary, buy in additional renewable energy or sell off the overproduction from the site's own photovoltaic systems. The data is visualised on an online platform and can be used to further optimise operation.



Fischermätteli district – everything from a single source:

Full-service package

We take care of the planning, implementation and financing of all energy systems. The owner risks nothing – all investments go through us, and we take responsibility for both the finances and the technology.

Carbon-neutral heating solution using wood pellets

Our 550-kW energy centre supplies the entire site via district heating pipelines. Locally produced wood pellets are used as the energy source.

Photovoltaic systems with high-performance modules

Construction of ten photovoltaic systems (one per building) with high-performance monocrystalline modules and a total output of 714 kWp.

Formation of a self-consumption association (ZEV)

Formation of a ZEV with 169 owner-occupiers and several owner communities. Supply and billing of solar and residual power using a simple billing model.

E-mobility with intelligent charging management

Construction and operation of five semi-public charging stations. Contactless billing via RFID cards for annual, usage-based service charge statements for multiple media. The system has been designed for future expansion with additional e-mobility charging stations.

Energy monitoring and billing solution with 800 meters

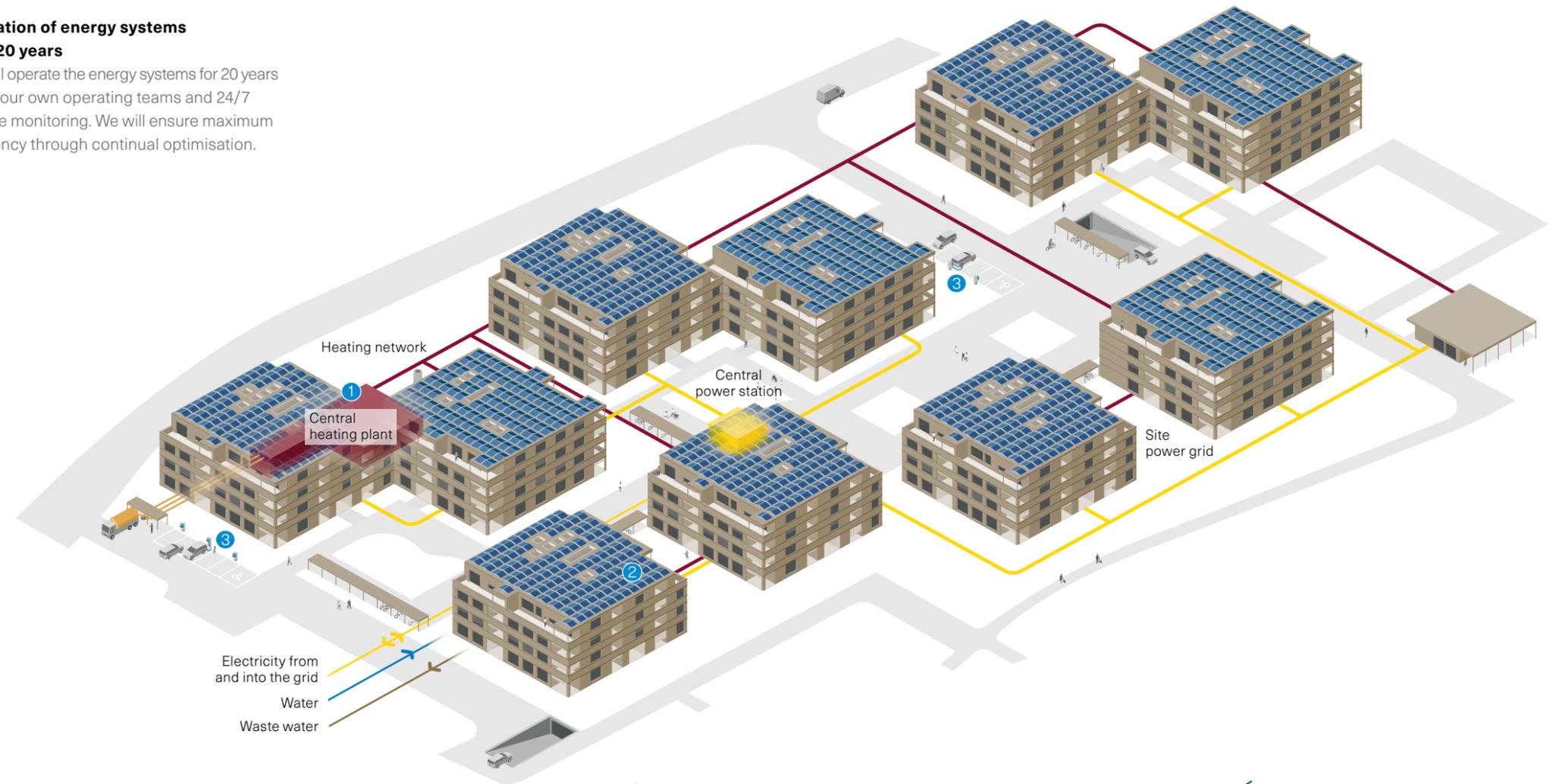
Monitoring of energy flows and ongoing optimisation of operation in accordance with the Minergie-A ECO standard. Preparation of individual service charge statements for multiple media – heating, hot water, cold water, waste water and electricity. Installation and operation of 800 meters.

Operation of energy systems over 20 years

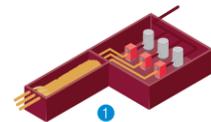
We will operate the energy systems for 20 years using our own operating teams and 24/7 remote monitoring. We will ensure maximum efficiency through continual optimisation.

Site developer	Strüby Konzept AG, Seewen SZ
Location	3400 Burgdorf, BE
Dwellings	169
Heat output	550 kW (with wood pellets)
PV output	722 kWp (for self-consumption)
Features	5 electromobility charging stations, 800 meters for intelligent billing solution

	Heat required
	1,200 MWh/a
	Photovoltaic yield
	700 MWh/a
	Reduction of CO₂ emissions
	350 t/a



Planning, implementation and financing of energy systems



Heating solution with wood pellets



Photovoltaic solution with high-performance modules



Formation of a self-consumption association (ZEV)



E-mobility solution and intelligent charging management



Energy monitoring and billing solution with 800 meters



Operation of energy systems over 20 years



Jardins du Couchant site, Nyon

Geothermal and solar energy as energy sources

ewz.ch/en/jardinsducouchant

A pioneering energy concept that consistently embraces renewable energies

The new complex comprises 13 buildings with around 400 apartments, a day nursery, and office and commercial spaces. The energy centre distributes heat generated by geothermal heat pumps via a local heating network – and natural gas is used for peak demand and emergencies. As well as geothermal energy, there are thermal solar collectors on the roof that serve as energy sources for the heat pumps.

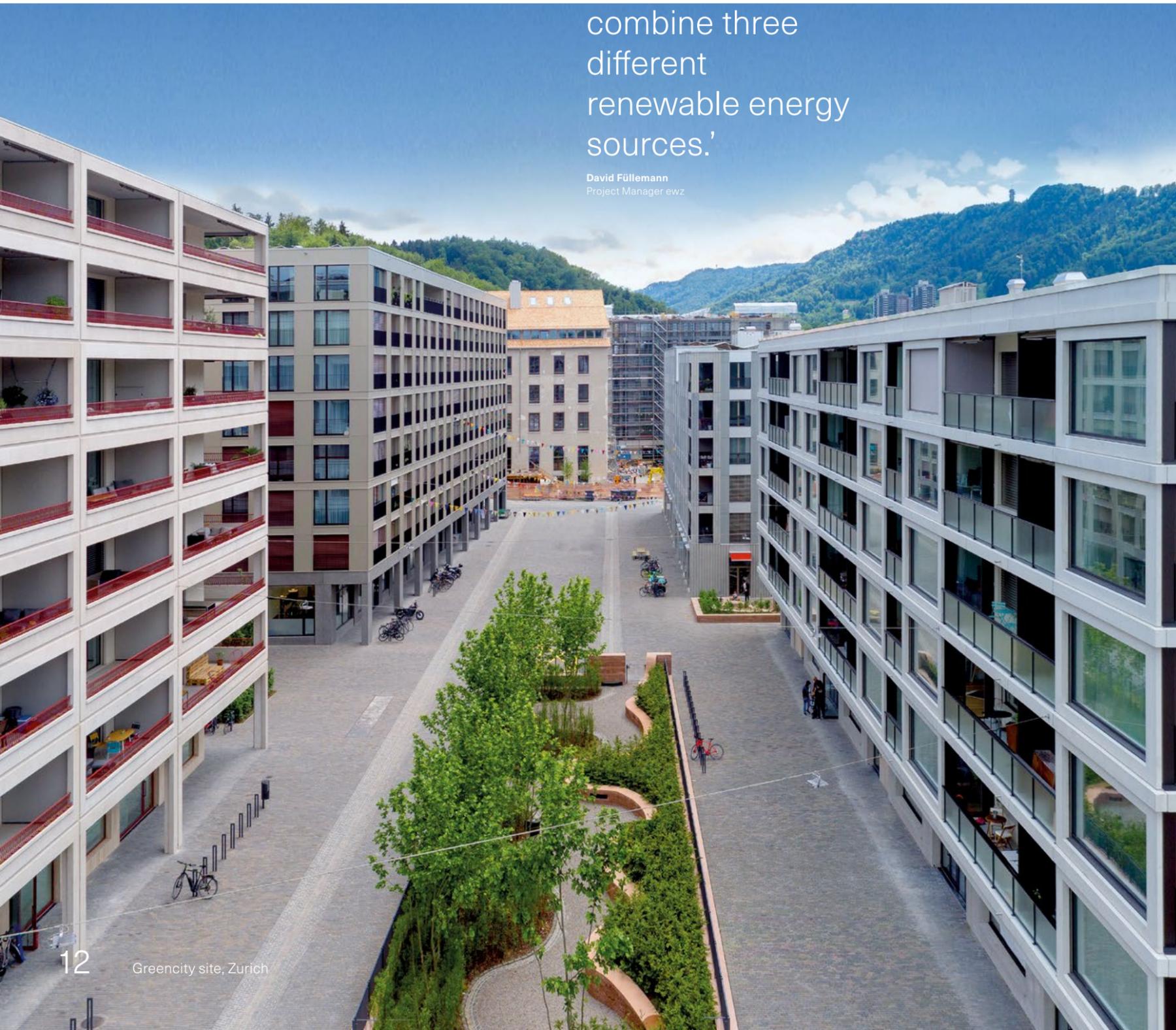
The borehole heat exchangers also cool part of the buildings in summer using the free cooling method. This method not only reduces the indoor temperature but also simultaneously regenerates the subsoil, as heat extracted from the rooms is returned to the ground. In the commercial sectors, additional cooling machines can be used to meet high demand for cooling.

'With ewz's sophisticated energy concept, the energy supply for the new complex is up to 80% CO₂-free.'

Catherine Martin-Robert
Project Manager ewz

-  **Heat required**
2,300 MWh/a
-  **Cooling required**
190 MWh/a
-  **Reduction of CO₂ emissions**
400 t/a





'To supply energy to this 2,000-watt site, we combine three different renewable energy sources.'

David Fülleemann
Project Manager ewz

Greencity site, Zurich

Cost-effective, forward-looking and CO₂-free

ewz.ch/en/greencity

Complete infrastructure: heating, cooling, electricity, telecommunications and electromobility

In accordance with the 2,000-watt targets, we use renewable energy sources to supply heating and cooling. This is primarily groundwater from the district, which is collected in six wells. As a secondary source, we use the energy from 215 borehole heat exchangers at a depth of 220 metres. The third renewable energy source is solar energy, with photovoltaic systems on the roofs supplying environmentally friendly power for the heat pumps and to meet the electricity demand of Greencity tenants. Our investment model offers tenants a direct share in the photovoltaic systems.

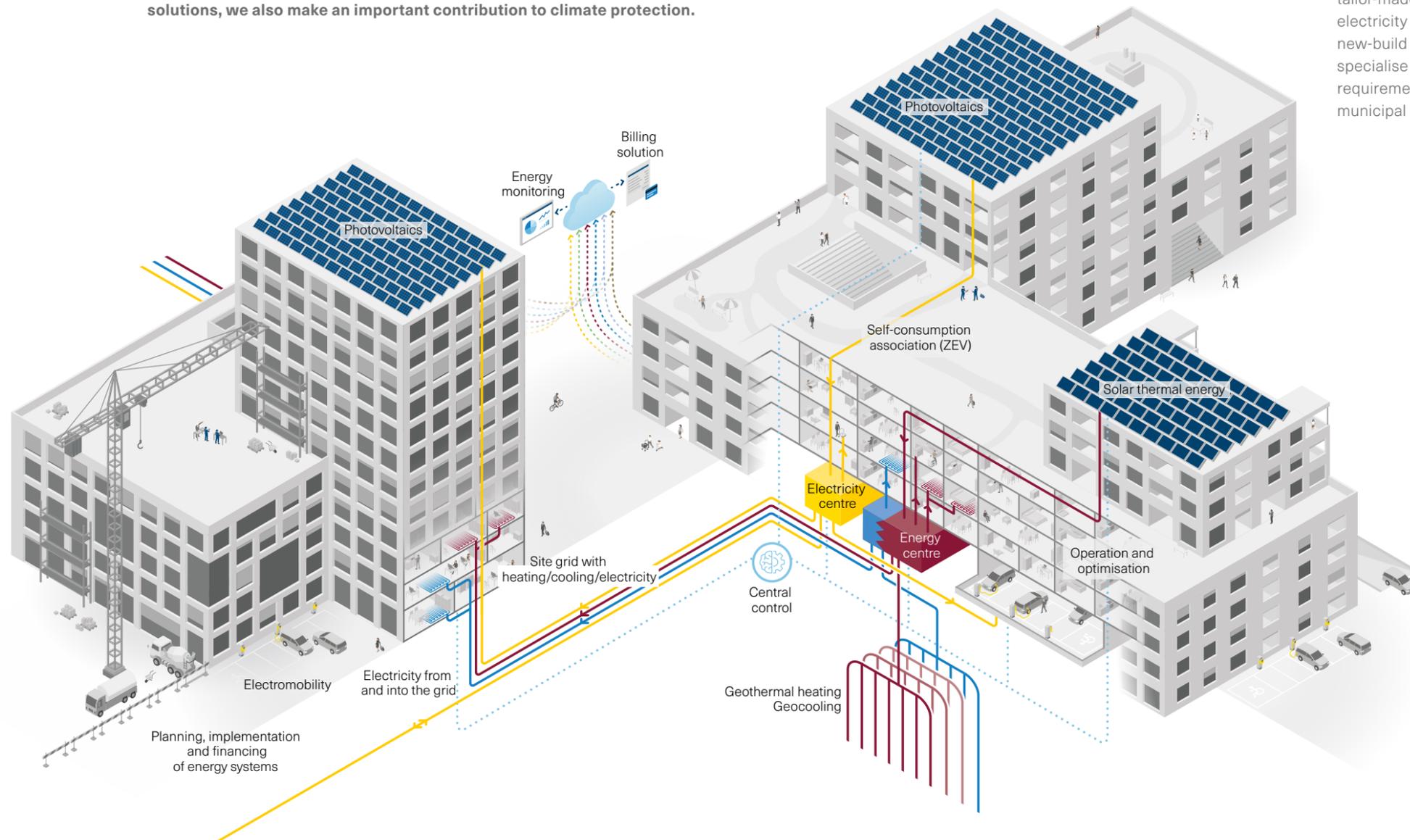
Four heat pumps/cooling machines, with a total output of 5 MW, generate the required heating and cooling, which is distributed via an energy centre. Two of the heat pumps use geothermal energy, one uses groundwater, and the fourth is suitable for both sources. This ability to combine different energy sources was important because the supplied energy and heat output are limited when groundwater is used. We planned, financed and implemented the power generation plants – and, for the next three decades, we will also ensure efficient, sustainable operations. This includes the connection to the fibre-optic network, the electricity supply, and the development of underground car parks with charging infrastructure for electromobility.

-  **Heat required**
13,000 MWh/a
-  **Cooling required**
5,300 MWh/a
-  **Reduction of CO₂ emissions**
2,400 t/a



What makes us special

Together with partners from business, politics and society, we play an active role in designing the future of energy, acting as an initiator, integrator and implementer. With our holistic energy solutions, we also make an important contribution to climate protection.



Working in partnership

As a strong partner and integrator, we support our customers across the entire life cycle of their properties and take responsibility for all energy-related matters in the background – from planning to implementation and efficient operation.

Holistic energy solutions

We work with our customers to develop tailor-made integrated heating, cooling, electricity and mobility solutions for new-build and renovation projects. We specialise in energy solutions with complex requirements for complexes, sites, municipal buildings and special properties.

Forward-looking and cost-effective

We rely on local renewable energy sources as well as technologies both tried-and-tested and innovative from leading manufacturers. Through intelligent networking, we achieve economic and environmental added value.

Reliable and rooted in the local region

We're a Swiss company with locations in Zurich, Grisons and Vaud. Thanks to regional operating teams and 24/7 remote systems monitoring, we guarantee maximum security of supply and short response times.

Leading the Swiss market

With over 1,500 successfully completed projects and over 40 energy networks throughout Switzerland, we can call on extensive expertise and a robust network of proven experts.

Responsibility and quality

We can prove our commitment to our customers and to climate protection: we've been named the most sustainable Swiss energy service provider by the SFOE, and we've been awarded gold status by EcoVadis for the fourth time in a row. Our subsidiary SunTechnics Fabrisolar has already won numerous European and Swiss solar prizes.

Benefit from our experience

Our experience pays dividends for you. We would be delighted to analyse your project plans and draw up cost-effective, environmentally optimised solution variants. We look forward to hearing from you.

We're never far away



energysolutions@ewz.ch
ewz.ch/energy-solutions
+41 (0)58 319 47 12

