4 Solutions

Climate-friendly energy solutions for sports and leisure centres

ewz

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

One thing is clear: we will only get to grips with the ongoing issue of climate change by working together.

The environment is extremely important to us, which is why we are committed to working sustainably on your behalf. Hand in hand with our customers, we develop tailored and innovative solutions that protect the climate as effectively as possible and thus fulfil our social responsibility.

Using four reference examples, we will show you that you can implement optimal climate-friendly energy solutions anywhere. Together with our customers, we worked in the interests of the climate during the planning and building of the sports and leisure centres featured in this magazine. This hard work has resulted in sustainable solutions that address a range of different technical challenges – including complex buildings featuring various spaces and diverse requirements. The results represent an ideal blend of cost-effectiveness, security of supply, energy efficiency and environmental protection.

And of course, we also create climate-friendly systems for residential buildings, offices and service buildings, and even for entire sites and developments.

‘Developing optimal climate-friendly solutions in partnership with our customers – that’s our aim!’

Swiss Life Arena, Zurich

Ice hockey with a carbon-neutral energy concept

ewz.ch/en/swisslifearena

It might sound odd, but it's true: the sophisticated energy concept at the Swiss Life Arena reduces CO_2 emissions by around 650 tonnes per year.
In part this is because it connects to the Altstetten energy network which uses local, environmentally friendly energy sources such as treated waste water from the Werdhölzli sewage treatment plant. Connecting to the energy network enables the building to release excess waste heat from the cooling process to other connected properties via the network as climate-friendly heating energy. Through this innovative solution, we and the ZSC are making a significant contribution towards achieving the 2000-watt targets.

The challenge

Peter Zahner
CEO ZSC Lions

'We owe it to our fans and our younger generations to set an example.'

'When we were designing our new home, it was clear that it needed to include two halls under one roof: a main hall for around 12,000 fans and a training hall. We also chose an energy concept that would ensure environmental sustainability. This was developed by our long-term partner ewz. We were particularly impressed by the innovative approach of exploiting synergies – not least from an economic perspective.'

'The wide-ranging challenges required innovative solutions.'

Matthias Eckerle
Project Manager ewz

'The arena was highly complex and this posed a huge challenge for us. We overcame it with a holistic, carbon-neutral energy concept. A key part of this concept was the integration of the Swiss Life Arena into the new Altstetten energy network, which uses treated water from the Werdhölzli sewage plant as its energy source.'

The solution

Reto Burkhart
Head of Sales
and Implementation ewz

‘The Swiss Life Arena project is a good example of how we work with our customers to develop environmentally friendly solutions. Together with the ZSC, we decided to produce cooling for other buildings via the arena’s energy centre – enabling us to exploit synergies. The energy network offers all connected properties the opportunity to benefit from climate-friendly heating and cooling solutions. We also produce solar power on the roof of the arena which is used to operate the power generation plants and the arena itself. It was important that our solution used local resources and technical synergies – and that they were optimally coordinated. Of course, we also took all current and future legal requirements into account in order to achieve the targets of the 2,000-watt society.’

Location	Zurich-Altstetten, Untere Isleren
Customer	ZSC Lions Arena Immobilien AG
Floor space	approx. 28,000 m²
Capacity	12,000 seats and standing places
Construction cost	CHF 169 million
Architects	Caruso St John Architects, Zurich

Heating required
2,800 MWh/a

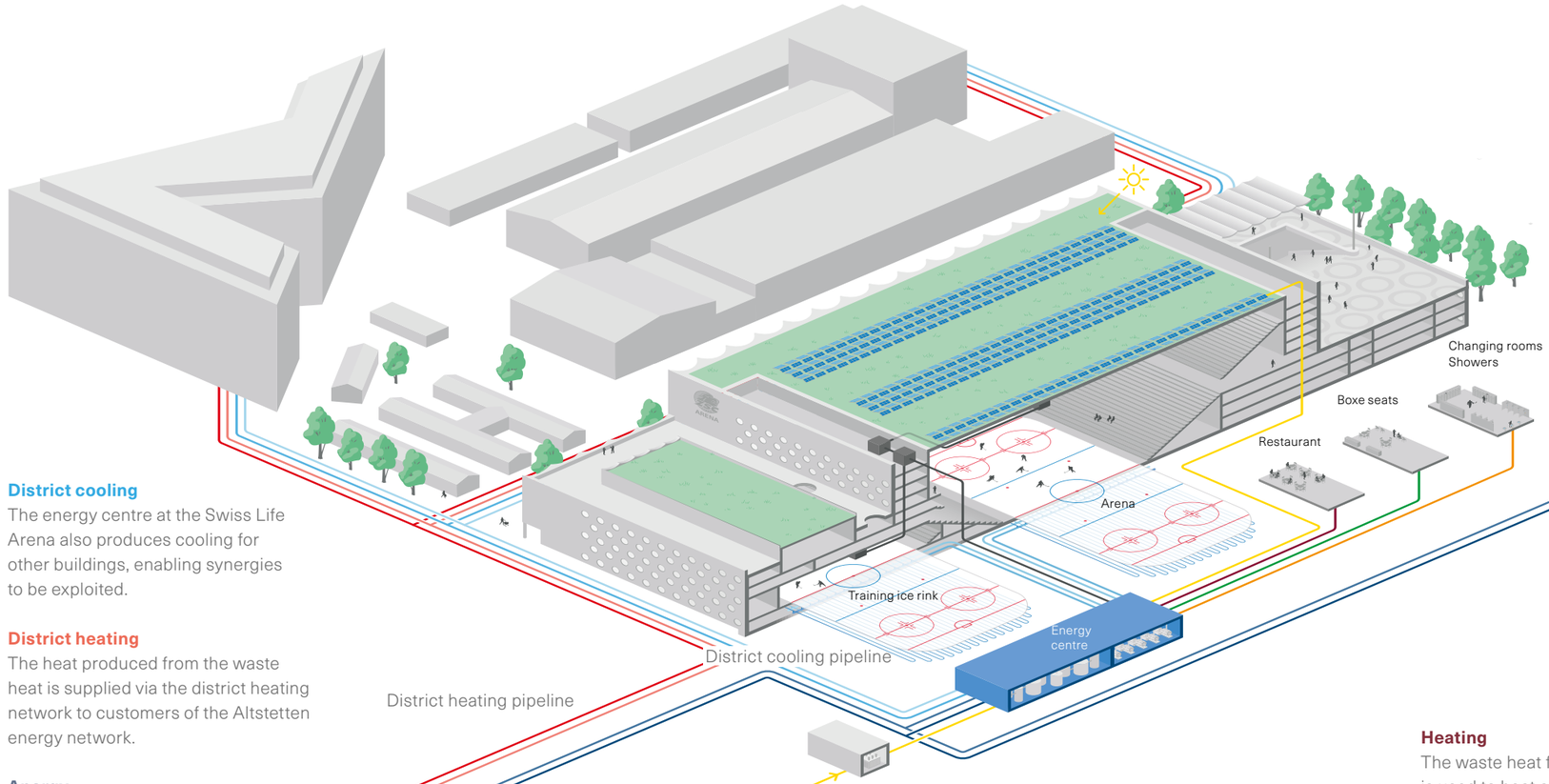
Cooling required
3,700 MWh/a
2’600 MWh/a for ice rinks

Reduction of CO_2 emissions
650 t/a

Cooling for adjacent cooling network
4,200 MWh/a

Photovoltaic production
Approximately 400 MWh/a

Certified Minergie
100% CO_2-neutral



District cooling
The energy centre at the Swiss Life Arena also produces cooling for other buildings, enabling synergies to be exploited.

District heating
The heat produced from the waste heat is supplied via the district heating network to customers of the Altstetten energy network.

Anergy
The Swiss Life Arena is connected to the Altstetten energy network. This means that excess waste heat from the cooling process can be redirected to the Anergy network.

Electricity
The electricity required is supplied via a new in-house medium-voltage transformer station. Production of this electricity is carbon free.

Photovoltaics
The solar power produced on the roof of the arena is used to operate the power generation plants and for the Swiss Life Arena itself.

Ice production
The high quality of ice required on the main rink is guaranteed by a dense network of cooling pipelines supplying the environmentally friendly refrigerant ammonia.

Dehumidification
In addition to ice production, the cooling process is also used to dehumidify the ambient air and ensure an optimal climate in the halls.

Heating
The waste heat from the cooling machines is used to heat all of the spaces.

Air conditioning
A sophisticated control system and TABS distribution system ensure the optimal exchange of air and optimal room temperatures to suit their various uses.

Hot water
The water for the showers is heated by heat pumps that use the waste heat from the cooling process.

Vaudoise Aréna, Lausanne

Where heating and cooling work together

ewz.ch/en/vaudoisearena

Together with our partners, we developed a sophisticated energy solution for Lausanne's Malley sports centre which uses the waste heat from the cooling process – part of the city's energy future. This means that the complex multifunctional arena, which has 10,000 spectator seats, a training hall, an open-air ice rink, an indoor aquatic centre with three pools, a sports hall and various other spaces, meets every specification in terms of environmental impact, energy efficiency and cost-effectiveness.

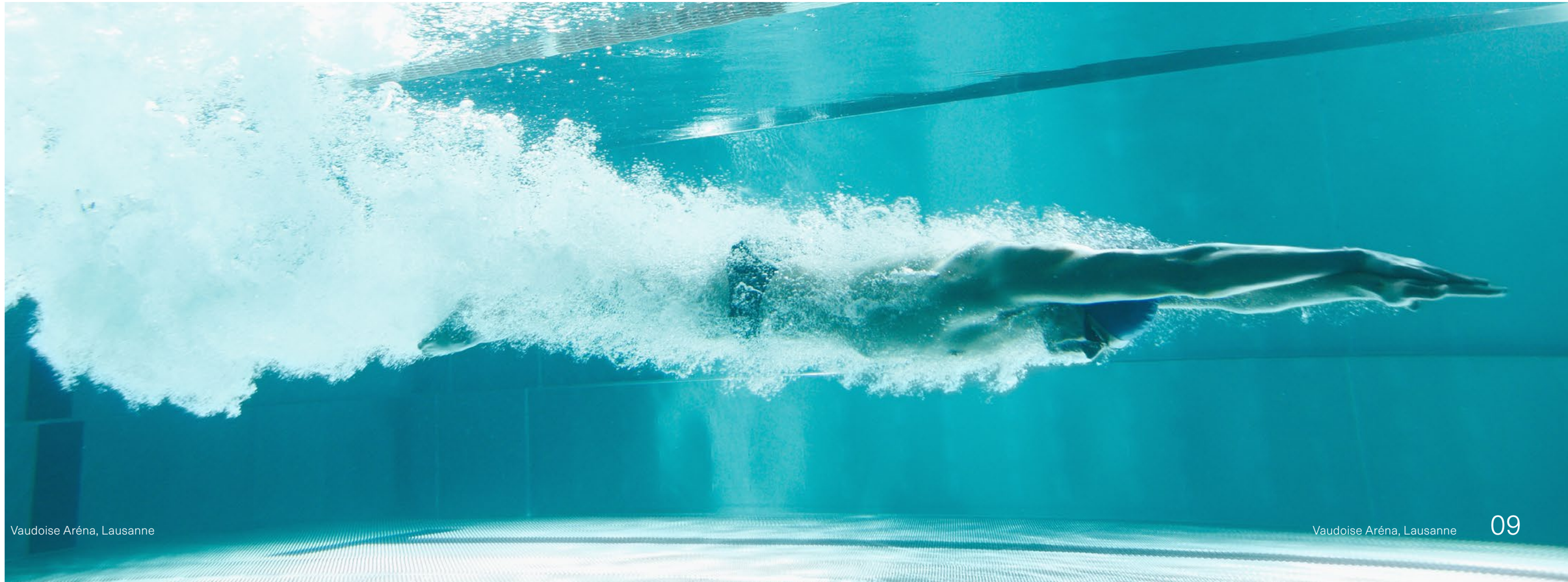
The challenge

Jean-Jacques Schilt
Chair of the Board of Directors
Centre Sportif
de Malley SA

'An energy-conscious city like Lausanne needs a sustainable sports centre.'

'In 2014, the Lausanne municipal authorities commissioned us to build a new sports complex. The brief was ambitious: they wanted an energy solution that would set an example to others. For example, the heat generated in producing ice needed to be used as efficiently as possible to heat the water in the swimming pools and within the building. For this project, in the interests of sustainability we formed a partnership with ewz and SiL. SiL and ewz established a joint venture and we were therefore able to provide the entire power supply for the Centre Sportif de Malley via LaZur Energie SA – from the planning to the financing and implementation, right through to operation. Obviously, we also benefited from the extensive experience of the ewz specialists along the way.'

ewz SiL
LaZur Energie SA



The solution

Catherine Martin-Robert
Project Manager ewz

What challenges did this major project present?
The Malley sports centre with its various facilities for ice-based sports and swimming was an extremely complex project from the point of view of energy supply. Specifically, it required an integrated system that would help to meet the demanding requirements in terms of environmental impact, energy efficiency and cost-effectiveness. The tight schedule was an added challenge.

What was the key to finding a solution?
Our proven systems approach and clever partnership with Services industriels Lausanne (SiL) were a great help. SiL provides power in the greater Lausanne area so they have considerable expertise in coordinating activities on a local, legal and administrative level. We, on the other hand, have the necessary expertise in building and operating the systems that will supply the Vaudoise Aréna with cooling for the ice rinks, room cooling and air conditioning, heating and hot water.

What distinguishes the chosen energy supply solution?
The cooling is generated using five powerful cooling machines. The waste heat from these machines is then used to operate two heat pumps. These are used to regulate the water temperature in the swimming pools and showers and to heat other rooms. This clever interaction in the generation of heat and cooling massively increases energy efficiency. Our energy solution is therefore not only eco-friendly, but also cost-effective.

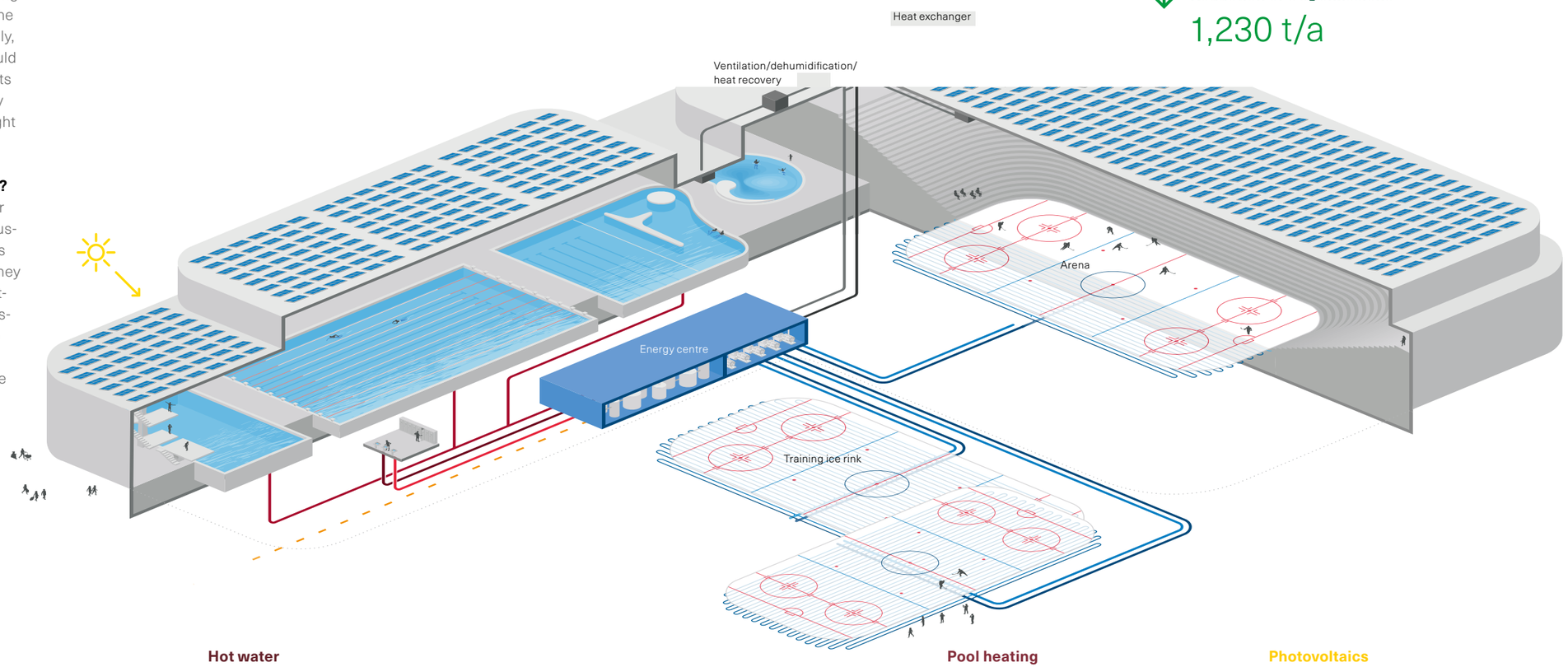
Location	Prilly, Lausanne, Chemin du Viaduc
Customer	Municipalities of Lausanne, Prilly and Renens
Floor space	approx. 61,200 m²
Capacity	10,000 seats and standing places
Construction cost	CHF 229 million
Architects	Pont12, Chavannes-près-Renens

Heating required
6,600 MWh/a

Cooling required
4,100 MWh/a

PV capacity for self-consumption
690 kWp

Reduction of CO_2 emissions
1,230 t/a



Hot water
The water for the showers is heated by heat pumps that use the waste heat from the cooling process.

District heating
The sports centre is also connected to the local district heating network so it can meet peak demand.

Ice production
The uniform temperature of -6 °C on the ice surfaces is achieved by a dense network formed by around 60 km of glycol pipes.

Pool heating
Heat pumps are used to maintain the temperature of the water in the swimming pools.

Heating of buildings
The waste heat from the five cooling machines is used directly to heat all of the spaces.

Photovoltaics
Some of the power produced is used to operate the power generation plants.

Ventilation/dehumidification/ heat recovery
A sophisticated control system is used in the various halls to ensure optimal humidity and air temperature.

Allmend Sports Arena, Lucerne

Groundwater as an energy source

For supply of power to this major urban development project in Allmend, Lucerne, we consistently rely on renewable energies – primarily groundwater, but also waste water and waste heat. They drive the heat pumps that we use to meet most of the energy requirements at the swissporarena, the sports building and the two high-rise residential blocks – an advanced energy concept that has been awarded the Minergie certificate by the canton of Lucerne.

The challenge

Remo Mattman
Managing Director
Hallenbad Luzern AG

'On one hand, we needed to meet the individual requirements of the numerous different spaces – in terms of cost-effectiveness, transparent costs and security of supply. On the other, our objective was environmentally friendly design of this urban project using groundwater, which would be used for cooling the business area in summer and heating the turf in winter.'

Heating required
5,000 MWh/a

Cooling required
750 MWh/a

Reduction of CO_2 emissions
900 t/a

The solution

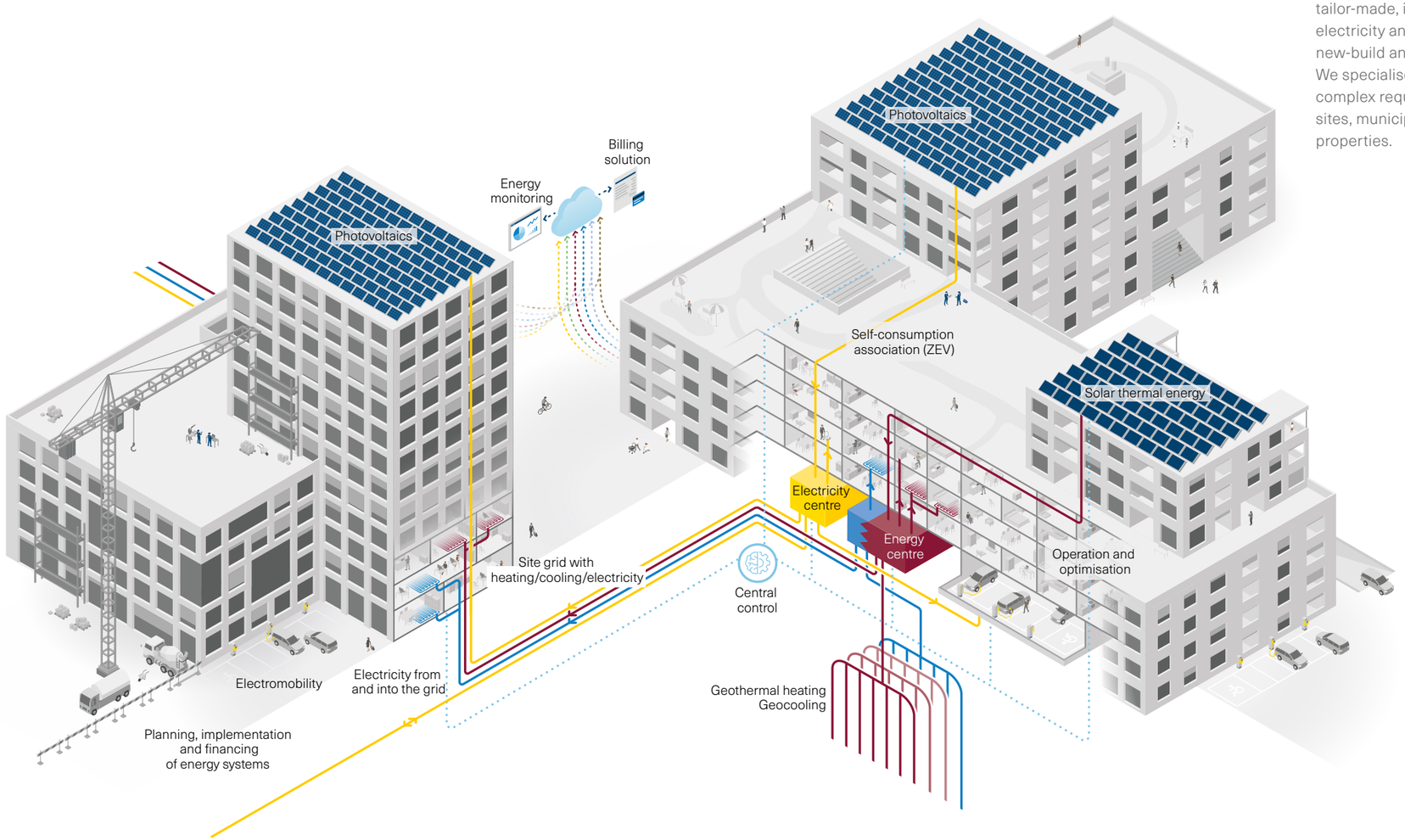
Ivan Califano
Project Manager ewz

'To ensure we met all requirements, we opted for a holistic energy solution. For the heating, we use the energy from groundwater and waste water as well as waste heat. The electricity we need is supplied as green power. We use ammonia as the refrigerant in the heat pumps – a substance that neither damages the ozone layer, nor adds to the greenhouse effect. It was also important for us to support the operators with our expertise throughout the entire planning, implementation and operational phases. And we're still doing that to this day.'

Location	Lucerne, Horwerstrasse
Customer	Credit Suisse Investment Foundation and LivingPlus fund, City of Lucerne, Stadion Luzern AG
Building	Football stadium with 16,800 seats and standing places, 13,000 m^2 sports building, 283 apartments and 48 serviced apartments
Construction cost	CHF 260 million
Architects	Marques AG and Architekturbüro Iwan Bühler, Lucerne

What makes us special

Together with our 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 turnkey energy solutions for the neighborhood of the future, we contribute 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. Intelligent networking then enables us to achieve economic and environmental value add.

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 monitoring of systems, 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 benefit from extensive expertise and a robust network of proven experts.

Responsibility and quality
We demonstrate our commitment to our customers and to protecting the climate: we've been named the most sustainable Swiss energy service provider by the SFOE, and we've been awarded gold status by EcoVadis. Our subsidiary SunTechnics Fabrisolar has already won numerous European and Swiss solar prizes.

How you can benefit
Our experience will pay dividends for you. We'll be delighted to analyse your project plans and draw up cost-effective and environmentally optimised solution variants. We look forward to hearing from you.

Learn more about our reference projects www.ewz.ch/projects

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1. ewz highest-ranked energy service provider
Swiss Federal Office of Energy benchmarking 2022

06/2023 AD

Ein Unternehmen der Stadt Zürich