consenec

2022 Business Report

2022

Contents

A Message from the CEO

For over two years, it was a virus and its fallout that dominated our thoughts and actions. Then, in 2022, we saw the emergence of new crises: war in Ukraine and the impending energy shortage.

Indeed, the controversial topic of our energy supply has become the subject of contentious debate – not only on the global stage but also here in Switzerland, where it seems increasingly likely that the government's Energy Strategy 2050 will fail spectacularly. Does this mean the energy transition is already doomed? To find an answer, we decided to make the future of energy the theme of our 2022 business report.

Over the course of 2022, Consenec senior managers took on more assignments compared to the previous year. However, due to the reduction in overall volume, the total workload was shy of the targeted levels; by contrast, during the two preceding – pandemic-affected – years, we exceeded our goals in this category (pages 4–5).

But regardless of the numbers, Consenec clients once again benefited from the expertise and experience of our top executives, who led demanding projects and served as interim managers. The repertoire of assignments at Consenec is broad, and our report offers insights into the various topics and tasks our managers tackle (pages 6–7).

The professional and personal backgrounds of our senior managers are as diverse as the assignments we take on. We are pleased to introduce our core team (pages 8–9) and the ten former executives who joined Consenec's ranks in 2022 (pages 10–11).

As mentioned, the focus of this year's report is the future of energy. We look at the companies participating in the Consenec model and present several innovations that illustrate their commitment to exploring and developing new technologies, environmentally friendly solutions, and sustainable products (pages 12–13).

Nevertheless, the pathway to a green future is anything but smooth, as is proven by hard facts and statistics on our current energy consumption and alternative-energy solutions (pages 14–15).

"Will we have to wear our woolens? Dealing with the energy shortage" was the title of one of our two Impuls events held last year. Guest speaker Samuel Leupold gave a blunt assessment of the present situation on the energy market – and of what we can realistically expect in the future. With a mixture of sober reasoning and rhetorical flourish, he also dashed the hopes attached to several "green" illusions (pages 16–17). The Impuls event on corporate social responsibility – a topic that goes far beyond simple risk management – also drew a large audience (page 19).

Once more, our clients expressed their genuine appreciation for the work performed by the Consenec team – feedback that makes us exceedingly proud. I would like to take this opportunity to extend my sincere thanks to our clients, partners, employees, and board members for their trust and for their part in carrying the Consenec model into the future.

Ingo Fritschi, CEO

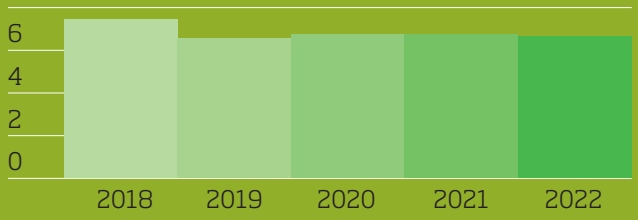
Clients Benefit from the Consenec Model

In May 2022, Stephan Husi was appointed CFO and Deputy CEO of Consenec. During his career at ABB, he acquired expertise in all aspects of corporate finance. In the following interview, he shares stories from his personal and professional life, discusses Consenec's annual figures, and comments on future challenges and opportunities.

Stephan Husi, you worked at ABB for more than 30 years. What were your main tasks?
I worked for upwards of 25 years in finance, first as a business controller in an ABB firm, then for five years as global Business Unit Controller, and another eight years as Local Division Controller for power industry products in Switzerland. After that, I was the Benelux Country CFO at ABB for seven and a half years, followed by one year as Country Finance Manager for ABB Hitachi Power Grids, again in Benelux. All of which means I've pretty much seen everything that a finance department is confronted with: in addition to financial accounting and operative and strategic controlling, this included several demanding projects such as introducing an internal control system based on the Sarbanes-Oxley Act (SOX), mastering the challenges brought on by the development of global business services, dealing with reorganizations and cost-savings measures, integrating acquired companies, splitting off business units – and much more.

Total revenue

in millions of CHF



In your opinion, what are the main advantages of the Consenec model?
It makes an executive career at one of the participating companies more interesting, and clients benefit from the Consenec model by gaining access to a pool of experienced and motivated specialists for their projects.

"I like people with a sense of humor."

How do you rate Consenec's 2022 financial statement?
Well, the number of assignments increased slightly over the previous year, but overall average volume was a little lower. This explains the slight decrease in order intake at 6.6 million Swiss francs. In 2022,

Stephan Husi, Consenec CFO / Deputy CEO

the workload of our senior managers was also lower than in 2021, which contributed to the drop in total revenue. In addition, 2022 was a terrible year on the stock markets, which resulted in book losses on our securities.

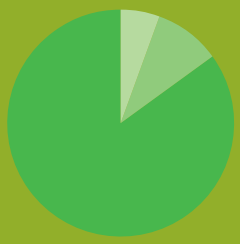
What are your expectations for 2023?
I'm not expecting an easy year. How the economy develops in the face of the various ongoing crises remains to be seen, as does whether we at Consenec will be able to increase our managers' workload. We'll certainly cast a critical eye on revenue – and hope that the financial markets begin to move in the right direction again.

Revenue by client group

52.2 % ABB
12.3 % Alstom
6.4 % Ansaldo
18.5 % Hitachi
2.6 % Accelleron
8.0 % Other

What's your main focus as Consenec CFO?
Consenec's financial statements need to be solid and positive. My main task is to watch earnings and costs closely and, where necessary, act quickly to recommend corrective measures.

Jobs by duration



5.7 % 1–20 days
9.4 % 21–70 days
84.9 % über 70 days

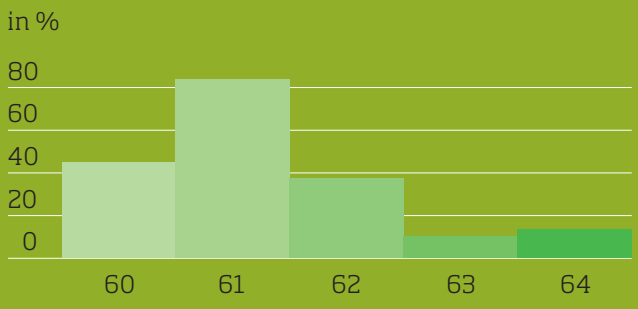
Do you take on other assignments in addition to your role as CFO?
Yes, I do. My most recent task was supporting ABB in splitting off their electric mobility and turbo systems businesses. And my first Consenec assignment was the role of Benelux Country Finance Manager for ABB Hitachi.

What values are most important to you?
At work, I expect reliability, commitment, and honesty. In general, I value respect, tolerance, and consideration. And I like people with a sense of humor – who can laugh at themselves.

"At work, I expect reliability, commitment, and honesty."

What does your life look like outside Consenec?
I stay fit – I exercise and take walks in addition to hiking, biking, and swimming in summer and cross-country skiing in winter. I also enjoy traveling with my wife, even if we've begun cutting back a little – in recognition of global warming. Other interests include music, literature, and sports. And I pursue various philanthropic activities.

Workload of senior managers according to age



Ready to Step In

Problems are there to be solved. This is the attitude Consenec senior managers take to their assignments – whenever the need arises. When an executive falls ill, for example, or when business units are consolidated following a merger. When a new strategy should be put in place or international supply chains stabilized. In short, our experts are at hand whenever the situation demands capable leadership - be it in an international corporation, a small-to-medium enterprise, or on a board of directors.

Back at his desk

It's just a little over a year ago that the long-serving manager of an international technology group joined Consenec. Unfortunately, his successor at the previous firm has been forced to take leave due to illness. It's not yet clear how long the new CEO will be absent – or whether he'll ever be able to return to his post. The technology company contacts Consenec and just one week later, the senior manager is sitting at his old desk. He'll be leading the company until the new CEO returns. Or until another successor is found.

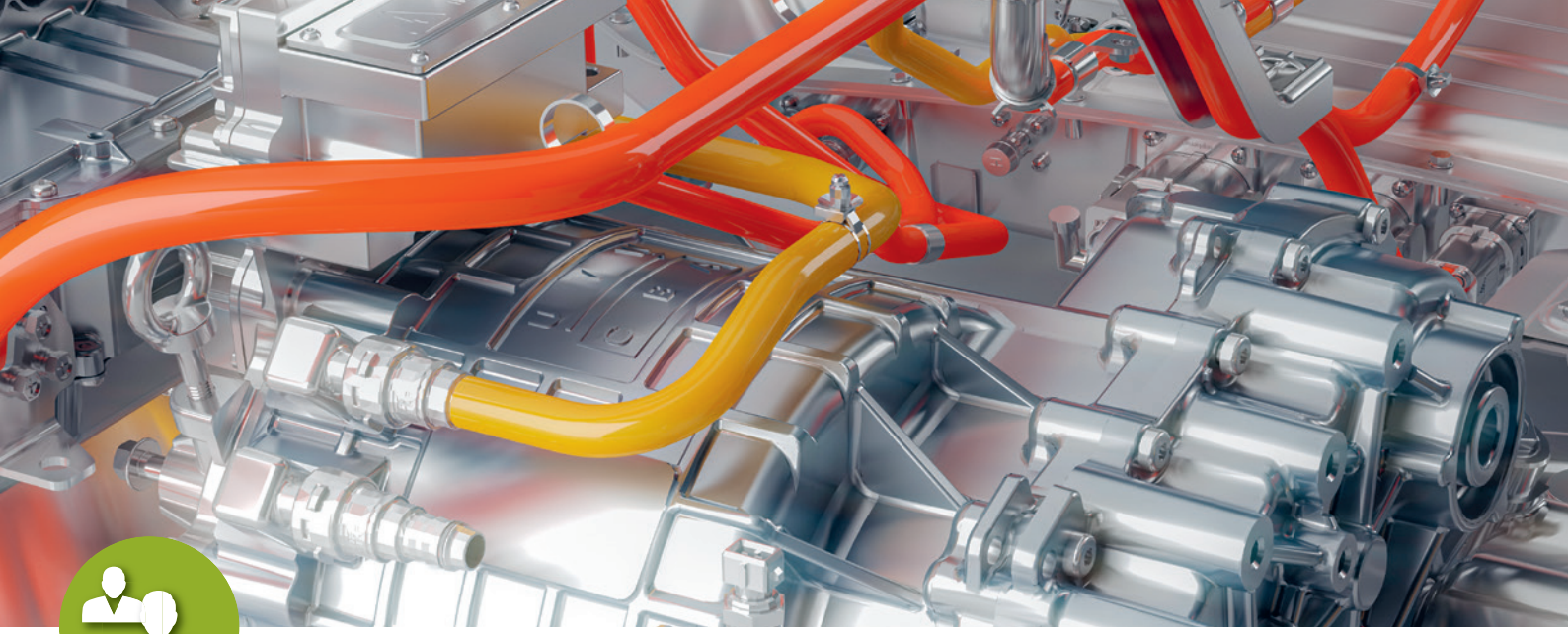
Interim Management

A delicate task

The senior manager – a mechanical engineer with credentials in business administration – held various roles in the global offices of a large technology company. Now, his former employer has decided to split off a business unit and sell it. Part of the workforce will transfer to the new owner; some employees will remain in the original company, some will be made redundant, while still others will take early retirement.

Project Management

As project leader, the Consenec senior manager is heading a team of HR specialists and legal experts charged with finding optimal solutions for the staff while guaranteeing production quality and customer care services at all times. The senior manager is also responsible for internal and external communications to ensure that employees, shareholders, and stakeholders remain updated on the situation.



Repositioning an SME

The client is a family enterprise that produces mechanical parts widely used in the European automotive industry. However, recent years have seen a drop in sales, while the coronavirus pandemic disrupted the procurement of components and raw materials. In addition, the company patron has decided to retire and hand the reins to the next generation, which plans to modernize and grow the firm's IT, development, and production units.

One focus is seeking additional suppliers to minimize the risk of material shortages. Other goals include developing new products and accessing new markets. The Consenec senior manager advises the new management team, which benefits from the broad experience he gained at a technology company – from setting up and managing a new factory, for example, or in his role as production manager in Europe and Asia.

Business Consulting

Securing the power supply

"Can we guarantee that our customers have access to an uninterrupted power supply?" To answer this question, the management of a regional electric company commissions a risk analysis. A Consenec senior manager leads the project team with the aim of reviewing – and, where necessary, optimizing – existing partnerships and supply chains. After four months, the senior manager is ready with a detailed risk report that includes pragmatic solutions, which he presents to the client's management team and board of directors. He also draws up a provisional plan of action and a communication strategy for the worst-case scenario of a blackout. The client is so impressed with the Consenec manager's work that he's asked to remain in an advisory capacity during the implementation process.

Project Management

Top Managers for (Almost) Every Situation

As executives at ABB, Accelleron and Alstom, at Ansaldo Energia, or Hitachi Energy, they pursued highly distinguished careers. Now they're bringing their skills, expertise, and experience to their assignments as Consenec senior managers. Presenting the Consenec team.

Roland Bächli
Peter Bill
Philippe Crausaz

Arthur Eckert
Willi Egger
Wolfgang Felber

Stefan Florjancic
Ingo Fritschi
Gabriele Gabrielli

Erwin Gerber
Andreas Glitsch
Ulf Hallensleben

Peter Hansen
Roland Heller
Werner Hofbauer

Mats Holgersson
Stephan Husi
Martin Hutzli

Hans Imboden
Ralf Jäger
Roger Klee

Manfred
Kraxenberger
Edwin Krämer
André Kuntz

Interim Management
39 senior managers

Individual Consulting
11 senior managers

Operational Exellence
25 senior managers

Project Management
32 senior managers

Strategy
25 senior managers

Change Management
33 senior managers

Moritz Küng
Loriano Lorini
Kurt Lötscher
Andreas Lusch

Peter Maritz
Fritz Megerle
Renato Merz
Yann Moor

Andreas Mölich
Marcel Mueller
Markus Mühlethaler
Christian Müntener

Daniel Neeser
Philippe Pfeffer
Stefan Ramseier
Margrit Reck

Markus Richter
Oliver Riemenschneider
Jürg Schmidli

Rolf Schweizer
Hansruedi Stalder
André Voskuil

Frank Wentzler
Stéphane Wettstein

Alois Wyss

Sales and Marketing
15 senior managers

Human Resources
7 senior managers

Mergers and Acquisitions
4 senior managers

Finance
8 senior managers

IT
3 senior managers

Making a Great Team Stronger

Over the course of 2022, ten experienced senior managers joined Consenec's ranks. As successful executives during their careers at ABB, Accelleron, Alstom, Ansaldo Energia and Hitachi Energy, they all command great knowledge and valuable experience in a diverse range of business areas. The motivated leaders are now applying their professional expertise and personal capabilities to assignments at Consenec – for the short, medium, or long term. As project or interim managers, in business consulting, or in project management.

Kurt Lötscher "After earning my degree in history and German at the University of Zurich, I continued my education in the fields of management, public affairs, and communications. I worked in corporate communications at various companies for many years, and most recently I was Head of Government Relations & Public Affairs at ABB Group in Oerlikon. My strengths lie in the development of strategies and concepts as well as in the efficient and effective implementation of tasks in public affairs and communications. In German or English, as the client wishes."

Wolfgang Felber "My degrees in natural science and business administration as well as an IMD qualification in leadership laid the basis for the various positions I've held throughout the world: in industry standardization and in organizational development, as the head of global business units, in HR management and talent development, in sales, and in key account management. As a Consenec senior manager, I'm interested in assignments in interim management as well as strategy and organization development. In addition, I support production optimization projects and take on duties as a member of a board of directors."

Fritz Megerle "After earning my degree in aeronautical engineering in Stuttgart and Oregon and a management qualification at the London Business School, I worked in international sales and marketing in the field of power plant construction. My responsibilities covered the power-plant business and drawing up proposals as well as developing country and project strategies, and negotiating and concluding contracts. I was involved in strategy development, transition management and project leadership. My last position was Vice President Sales and Board Member at Ansaldo Energia. I now look forward to fascinating assignments with Consenec."

Andreas Glitsch "As a Consenec senior manager – I was former Vice President Quality of Alstom/Bombardier's Germany-Austria-Switzerland region – I offer a wide range of services: from leading global teams to interim management assignments at factory and cross-factory level, on to coaching and individual consulting as well as developing and managing strategic quality projects. For my clients, I draw on my years of international management experience in operations, in quality function development at the global or regional level, and in leading global quality assurance initiatives."

Andreas Mölich "I was Chief HR Officer and member of the executive management and board of directors in various international and Swiss companies. At Consenec, I'm now contributing my experience in HR management, M&A, digitization, and other fields, including artificial intelligence, HR marketing and development, training and further education, diversity and inclusion social media strategies and implementation, assess-

Board of Directors
Volker Stephan, President of the Board
Nicole Kamm Steiner, Member of the Board
Urs Gribi, Member of the Board
Adrian Zurbriggen, Member of the Board
Ingo Fritschi, Board Delegate of the Board and Consenec CEO

Management
Ingo Fritschi, CEO
Stephan Husi, Finances and Deputy CEO

ments, and developing HR, organizations, and teams, as well as in the field of corporate universities. I take on projects in HR strategy, organization development, M&A, and digitization in addition to assignments as an executive coach."

Daniel Neeser "After gaining experience in production and process optimization, business unit relocation, and restructuring, I was appointed Operations Manager for Gas-Insulated Switchgear at Hitachi Energy Switzerland Ltd. I'm well versed in global product management and interested in work as an interim manager and as a project leader for change and investment projects. In addition, I'm available for duties on a board of directors or activities in trade associations as well as for team and project coaching."

Markus Richter "As a business economist with a degree from the University of St. Gallen, my specialization is finance: from export and project financing, suretyships, on to the operative and financial reorganization of companies. My last position was Senior Director Project/Export/Corporate Finance at Alstom, and I'm now offering Consenec clients my expertise in corporate and project financing as a commercial manager or CFO, in the financial realignment of companies, or in the leadership of global teams."

Oliver Riemenschneider "Until recently, I was Division President at ABB Turbocharging and am currently chair of the board of directors at V-Zug Ltd. and Accelleron Industries Ltd. After earning my engineering degree at ETH Zurich and an MBA at City University in Bellevue, Washington, the focus of my professional career was to further develop organizations, business culture, and HR at various corporate levels with regard to strategy development and implementation. As a Consenec senior manager, I support clients in management coaching and questions concerning digital services."

Jürg Schmidli "My last role was President of Ansaldo Energia Switzerland. As a Consenec senior manager, I'm now interested in assignments in interim and project management as well as change management. My clients benefit from my extensive professional experience and expertise, which I acquired after earning my degree at ETH Zurich: defining and optimizing processes, setting up regional organizations, project management for power plants and developments, and executive management."

Rolf Schweizer "I'm a mechanical engineer and a sales manager with an Executive MBA from the University of St. Gallen. Before joining Consenec, I was project manager at ABB. Having held positions in Switzerland, Germany, and the US, I look back on extensive international experience, particularly in purchasing and sales, and in the function as a member on the board of directors. I now look forward to applying my knowledge in international management, in interim or change management – with pleasure in the US, too."

Innovation for Climate and Environment

Whether ABB, Alstom, or Ansaldo Energia, Hitachi Energy or Accelleron: the companies participating in the Consenec model are all working towards a sustainable future – through responsible actions and with climate-friendly solutions.

ABB

Replacing natural gas with wood

Since the fall of 2022, the ABB Segelhof campus in Daettwil – where some 600 employees work – has been heated by Baden's regional electric utility headquarters, located nearby. The plant operates mainly using wood fuel harvested through landscape conservation measures – as well as forest woodchips – stemming from a radius of 20 kilometers at the most. The system can also transform materials such as composting waste into thermal heat.
The old gas heating system, including its two burners, was sold to Baden's electric utility, where it's kept as a reserve for absolute peak load times, when temperatures are extremely low.
Replacing the old gas heating system will reduce CO_2 emissions at the ABB Daettwil campus. The ABB locations in Baden-Nord and Untersiggenthal/Turgi have already been using district heating for some time.

Alstom

Testing battery-powered passenger trains

It heralds a major step towards climate-friendly propulsion technology in rail transport: with their tests on the first fully approved battery-powered train, Alstom and Germany's national railway, Deutsche Bahn (DB), have written a new chapter in ecological train travel. The test operation on the Alstom technology – with passengers on board – ran from January to May 2022 and provided valuable data about sustainable rail transportation in Germany. Deutsche Bahn has set the goal of attaining climate neutrality by 2040 – and the first battery-powered passenger train is the next big step towards emission-free travel in Germany's regional railway network.

Ansaldo Green Tech

Focusing on hydrogen power

Ansaldo Green Tech, a company belonging to Ansaldo Energia, operates in the field of renewable energies and energy storage. In May 2022, the firm signed an agreement with French energy company ENGIE that incorporates the design of ecological hydrogen production plants and other solutions for energy storage. The facilities will be built on industrial sites in various regions of Italy. Like the entire Ansaldo Energia Group, Ansaldo Green Tech believes it's imperative to pursue the goal of climate neutrality without compromising energy security. ENGIE is known worldwide for its extensive expertise in the transition to climate neutrality and provides a comprehensive range of energy solutions and services.

> "If you look up, there are no limits."
>
> Japanese proverb

ABB: ecological heating systems thanks to district heating with local wood.

Alstom: testing climate-friendly passenger trains.

Ansaldo Energia: working to make green hydrogen production a reality.

Hitachi Energy: the Al Kharsaah solar power plant in Qatar.

Accelleron: optimizing fuel consumption at Maersk Tankers.

Hitachi Energy

Meeting sustainable energy goals in Qatar

With more than 10,000 installations worldwide, Hitachi Energy is a leader in technology and markets for grid connections and power quality solutions. Recently, the company launched a series of modular and prefabricated grid connection solutions that make it easier, faster, and more efficient to increase power grid capacities – which will speed up the transition to more sustainable energy systems. One such solution is connecting one of the world's largest solar power plants – Al Kharsaah in Qatar – to the national grid. The plant has a capacity of roughly 800 megawatts; during its operating life, it will emit 26 million fewer tons of carbon dioxide compared to a conventional power plant. Al Kharsaah is a major factor in helping Qatar reduce its greenhouse gas emissions by 25 percent by 2030.

Accelleron

Optimizing fuel consumption at Maersk Tankers

In the future, Maersk Tankers, which commercially manages vessels in the tanker industry, will use Accelleron's Tekomar XPERT marine engine module in its pool fleet. Tekomar XPERT marine will provide Maersk Tankers with detailed technical and operational data on machine performance while also proposing corrective actions, thus enabling the company to grow the fuel optimization service it offers its pool partners. Prior to signing the contract, the Accelleron product underwent six months of testing on six Maersk Tanker ships; fuel savings of up to three percent were achieved. The agreement covers vessels with non-electric engines and includes an option for the Accelleron engine module to become a standard tool within Maersk Tankers performance optimization services.

Facts, Forecasts, Opportunities – At a Glance

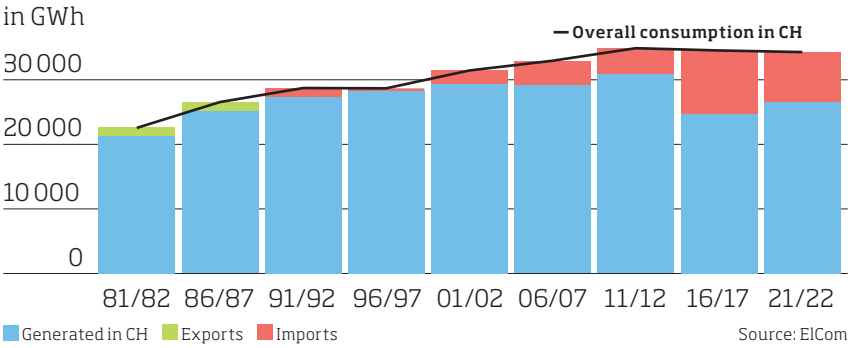
Will Switzerland's energy strategy deliver on its promise of energy security? Probably not. The path to clean power is less straightforward than originally thought. And if politicians fail to react quickly to the looming deficits, we'll soon be facing energy shortages.

Energy Consumption

In the past 20 years, energy consumption in Switzerland has increased by 10 percent. Shortages during the winter months have posed no problem so far, as we've always been able to import electricity – on average 5000 gigawatt hours per year. However, once all nuclear power plants in the country have been removed from the grid, energy deficits will increase dramatically, and electricity produced via hydropower and photovoltaics will be unable to compensate the lost output.

Energy consumption in winter

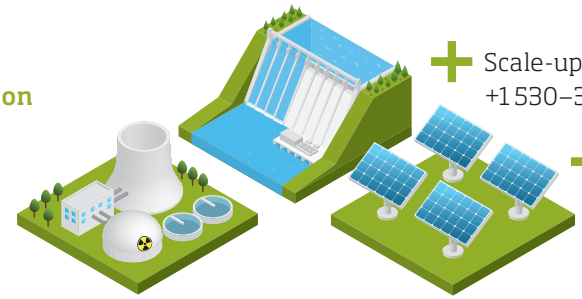
Imports since 2006/2007 on average approx. 5000 GWh



Source: ElCom

Developments in production up to 2044

Phase-out of nuclear power plants –23 350 GWh

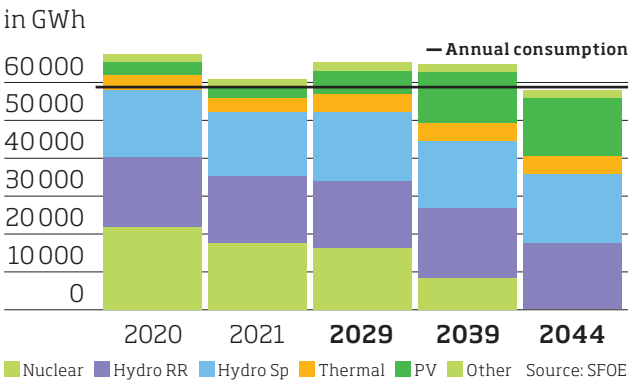


+ Scale-up of hydropower plants +1 530–3 160 GWh

+ Scale-up of photovoltaics (PV) +7 050 GWh

Yearly forecast

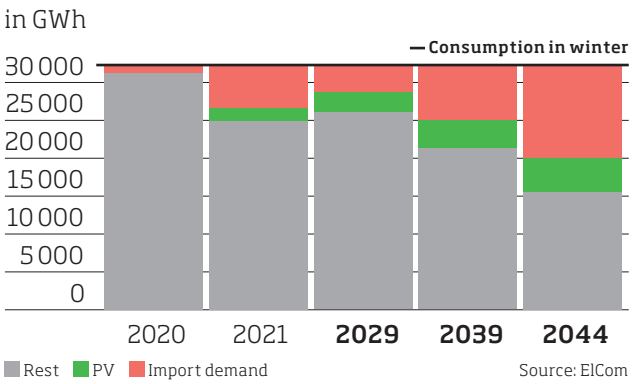
Summer surplus



Source: SFOE

Winter forecast

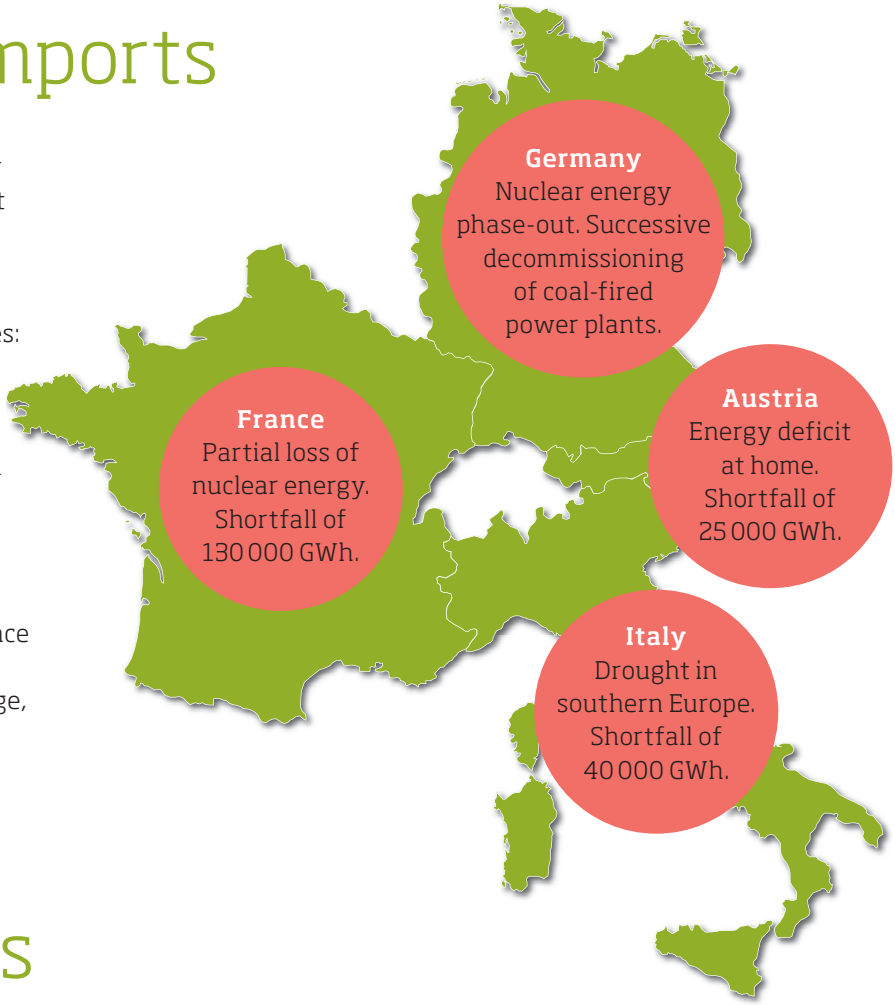
Winter deficit, import demand 2044 approx. 15 000 GWh



Source: ElCom

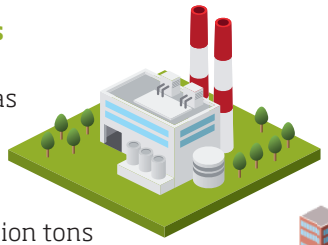
European Imports

The main problem in securing the country's future energy supply is that Switzerland wants to import electricity from countries that will no longer be able to deliver it. Even France, the most reliable exporter to date, is facing massive challenges: 58 reactors must be replaced, while the construction of new nuclear power plants has met with delays. Germany has removed its nuclear power plants from the grid and plans to replace coal with natural gas – which now faces a dollar shortage. Italy and Austria also want to reduce their dependence on fossil fuels – and they, too, are feeling the effects of climate change, which has had an impact on their hydropower output.



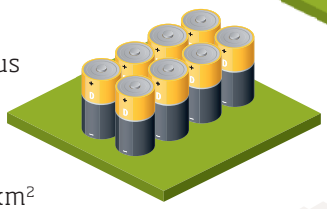
Alternatives

Importing natural gas
Construction of 10–12 combined cycle gas turbine plants (CCGT)
Import of fracked gas from US
CO_2 emissions +5.25 million tons

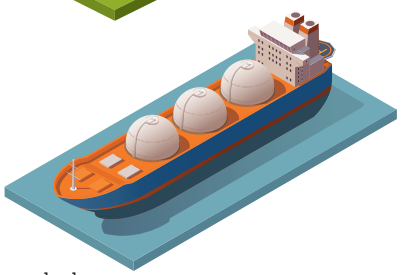


Small modular reactors and micro-reactors
Technology not yet ready for the market

Batteries
Storage of summer surplus energy in batteries
Need: 116 000 battery parks, 129 MWh each
Space requirement: 610 km^2
Cost: CHF >2 000 bn



Hydrogen
Technology not yet ready for the market
Cooling to –253 °C necessary
Huge infrastructure buildup needed
Loss during transport –70 %



What alternative sources of energy are there that would enable us to do without fossil fuels and still avert an energy shortage? Should we import fracked natural gas from the US? Construct storage facilities or promote hydrogen production? Or should we even install the type of miniature nuclear reactors used in submarines to supply regular households? On closer look, ideas that initially seem promising often prove difficult, if not downright Utopian, impossible, or simply too expensive.

Samuel Leupold,52, holds an MSc in mechanical engineering from ETH Zurich, an INSEAD MBA, and serves on the boards of several global energy companies

Energy Strategy 2050 – Towards an Uncertain Future

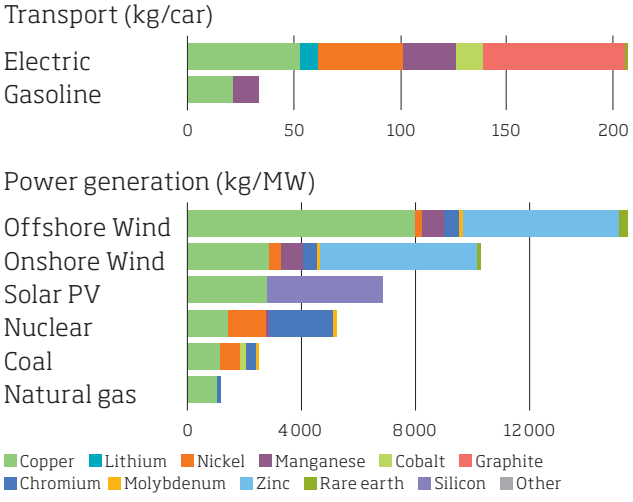
"Will We Have to Wear Our Woolens? Dealing with an Energy Shortage." This was the title of the November 2022 Impuls event at the ABB Research Center in Daettwil. Guest speaker Samuel Leupold, a respected expert in the field, tackled the complex topic – and convinced the large audience.

Where is Switzerland's federal energy strategy leading us? Will we ever be able to generate enough energy without fossil fuels and nuclear power plants? In his talk, Samuel Leupold shed light on the current energy market by discussing global interdependencies, regional contingencies, and possible future scenarios. Excerpts from his presentation follow below.

Riding the global price rollercoaster

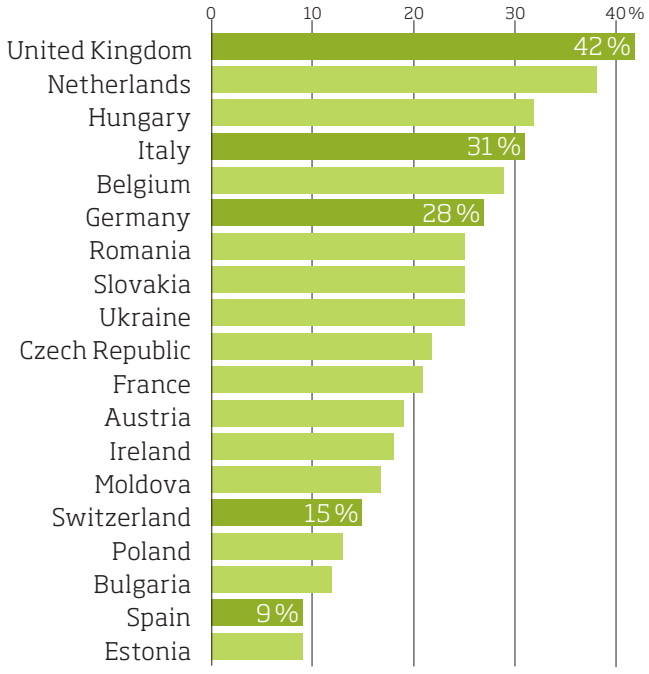
In 2021, global primary energy demand rose by 30 exajoules. By 2050, the world's population will have increased by another 1.7 billion people, and energy consumption will have risen by 58 percent. High demand is driving the price for all raw materials – oil, copper, palladium, soy, wheat, and natural gas to name a few. And no change in the fossil fuel market can be expected. Yet even if high hopes have been placed on green energy, electricity from photovoltaic and wind power currently covers just three to seven percent of primary energy demand.

What's more, new ecological technologies are also driving demand for other raw materials. To name two examples: electric vehicles need more copper than conventional cars; as such, electric mobility is a contributing factor to the rise in copper prices. And although offshore wind turbines function without fossil resources – unlike coal-fired power plants – they require transition metals such as copper, zinc, and cobalt.



New technologies increase demand for additional raw materials. Source: IEA

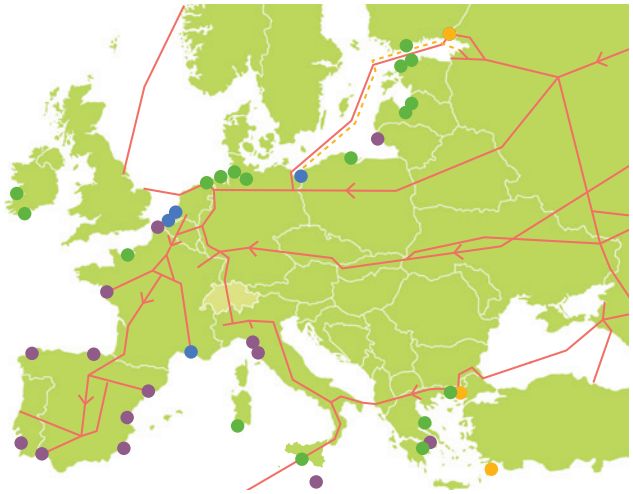
Natural gas – demand higher than ever



Percentage of natural gas in energy consumption: major differences across European countries. Source: EIKE

Natural gas is a major component in the overall energy mix in European countries. Leading the pack is the UK, where natural gas makes up 42 percent of all energy consumption. In Italy, it's 31 percent, in Germany 28, in Switzerland 15, and in Spain 9. With the exception of the UK, these nations have not only made themselves dependent on natural gas but also on its suppliers. This holds true for Switzerland, too, where 44 percent of the country's natural gas is delivered through Russian pipelines.

The situation is more propitious in areas of Western Europe, where ships carrying liquefied natural gas (LNG) can dock at so-called LNG terminals. These terminals are found in the Netherlands, Belgium and France; there are some in Italy, and they're particularly numerous in Spain. Current LNG capacity would cover 40 percent of Europe's demand for natural gas. Unfortunately, however, the gas can't flow to Germany or Switzerland due to the almost complete lack of east-west pipelines.



LNG terminals are located in Western Europe only. Source: ENTSO Gas

An important supplier of LNG is the US, where fracking mines deliver enormous amounts of natural gas. Production at these huge sites – in western Texas, for example – can be ramped up on short notice. For the first time ever, the EU imported more liquefied natural gas from the US than from Russia in June 2022. As mentioned, this is fuel from fracking, a method that is banned almost everywhere in Europe.

But regardless of where the natural gas is from: it's expensive. One reason is that gas has to be cooled to minus 162 degrees Celsius in order to liquefy it and transport it by ship. But the main reason for the high costs is strong demand in Asia. For example in Japan, which has shut down nuclear power plants and now produces electricity from hydropower and imported natural gas.

Europe is facing complex energy problems. Because many countries aim to phase out coal, base-load power plants are successively being removed from the grid. In addition, Germany closed down its three last nuclear power plants at the end of 2022. As a result, we have a shortage of natural gas combined with fewer coal-fired and nuclear power plants. Production at the coal-fired power plants still in operation is currently being stepped up again, which of course causes a massive rise in CO_2 emissions.

Switzerland: the real problems lie ahead

Since winter 2001/2002, we've seen an average structural power deficit of five terawatt hours during the cold months. To compensate the difference, Switzerland relies on imports. The fundamental problem with this approach is that we plan on buying electricity from countries that are increasingly unable to supply it.

And despite all the energy-efficiency measures enacted in recent years, power consumption in Switzerland hasn't declined. To the contrary: over the past 20 years, it has risen by 10 percent. The reason for this is immigration, which has led to a population increase of 1.4 million people. So although we've attained a per capita reduction in consumption thanks to increased efficiency, any gains are lost because there are so many more "heads." Another factor behind high energy consumption is the current trend of replacing fossil fuels with electrical power.

And while demand remains stubbornly high, supply is dwindling. By decommissioning the Mühleberg nuclear power plant, 3 000 gigawatt hours – roughly five percent of Switzerland's annual power generation – have now gone off the grid.

Questionable national energy strategy

Boost efficiency, decrease consumption, ban the construction of new nuclear power plants, promote renewable energies, and reduce dependence on fossil imports: in May 2017, the Swiss electorate approved a new energy policy containing these five approaches. However, because key information was left out when the bill was drafted, voters were unaware of the consequences their decision would have.

The plan was to replace nuclear power with renewable energy sources, including hydropower. A federal study published in 2012 identified a potential growth in green power production of 1500 to 3100 gigawatt hours by 2050. In the meantime, however, these numbers have been scaled down: according to current estimates, half the predicted amounts would be more accurate. Photovoltaics has great potential, with optimistic forecasts predicting that the technology could – at a push – cover the annual demand for electricity as calculated in the Energy Strategy 2050 by 2044.

But because photovoltaics is subject to seasonal fluctuations, the deficit in winter would increase from our current 5 000 GWh to 15 000. Imported energy would have to make up the difference. But where will Switzerland procure its electricity? All our neighboring countries have plans to replace fossil fuels with electricity and will thus become reliant on imports themselves.

"We'll be seeing substantial energy deficits in the colder months."

The federal strategy bears no blame for the current situation, but the real question should be whether the policy will solve our energy problems for the years between 2028 and 2044 – and beyond. From today's perspective, it's clear: the strategy doesn't offer a viable solution for the future.

A recording of Samuel Leupold's talk is available at cutt.ly/C3Wuaky

Ways out of the energy crisis

- Population growth and resource availability must be aligned.
- As long as a potential energy shortage is a real danger, an enforced shift from fossil fuels to renewable energies in the domains of heating and mobility is inadvisable. The current situation demands that we retain a diversified energy mix.
- Switzerland's nuclear power plants must remain in operation up to the end of their service life, granting us time to implement long-term solutions. One option would be for the federal government to finance maintenance of the plants and thus keep them running longer.
- We need new climate-compatible base-load power plants in the form of two nuclear power plants. Although the construction of these facilities will take at least 20 years and cost billions, this is unfortunately the best of all (bad) solutions.
- Increasing winter storage capacities in reservoirs is a good idea, but not nearly enough. The federal government has reserved 500 gigawatt hours, but more is probably needed.
- Switzerland should actively promote "demand response," an exchange system for large-scale consumers to keep power supply and demand in balance.
- Photovoltaic systems should only be approved if combined with a battery so that peak loads at noon can be stored rather than fed directly into the grid. In addition, all PV systems should be capable of stand-alone operation; at present, this isn't the case 95 percent of the time.
- Local distributors must be given access and permission to turn off PV systems in summer when there is a surplus of energy, which results in negative prices and grid overload.

Prof. Dr. Thomas Beschorner
Professor of Business Ethics and Director of the Institute for Business Ethics at the University of St. Gallen

Companies Must Assume Responsibility

Corporate social responsibility (CSR) is much more than risk management, and ethical business practices are quickly becoming a prerequisite for success. This was the key takeaway at the Consenec Impuls event on CSR.

June 2022 – In recent years, businesses have increasingly been viewed as a major source of social, environmental, and economic problems – this was the premise of Consenec guest speaker Thomas Beschorner, professor of business ethics and director of the Institute for Business Ethics at the University of St. Gallen. Innumerable scandals have shaken the trust society at large has in the business world, and calls for comprehensive social accountability on the part of companies are growing louder – be it with regard to human rights, the environment, employment conditions, or fair market practices. As the ethics professor explained: "Today, the spotlight is on how companies create profit." That the significance of corporate social responsibility will increase in the future was the bottom line from the well-attended Impuls event. Indeed, only businesses that take their social obligations seriously will be successful – at least in the liberal Western hemisphere.

A recording of the talk is available at cutt.ly/R3WiQdl

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