

SUN THING

FALL/WINTER 2022-2023



SOLAR ENERGY AS A PATHWAY TO INDEPENDENCE

Solar panels on the roofs of commercial buildings bring energy self-sufficiency.



We have built large solar power parks internationally for more than a decade. Now we are going to use our experience and know-how in the Czech Republic as well. Turnkey construction of photovoltaic power plants for commercial properties*, including subsidies, implementation and optimization with regard to local power systems and power storage.

* Industrial and factory buildings, shopping centres, hospitals, sports arenas, etc.

For more information, please go to www.solek.com/strechy



EDITORIAL



Dear readers,

did you know that the most used statistics in the world is first impression? Really. However, while it would be easy to look at things around us with a superficial idea, it would not allow us to penetrate their depth. To discover, analyse, innovate and step out of established frameworks. Just like we do at SOLEK.

Although the Sun has the advantage that at first impression its positive life energy can be seen quite clearly, our story with it, its use for a better future and greater independence for all of us, began to be written at the very moment when we dared to venture beyond the horizon from the Czech basin. When we used our know-how and looked at the field of photovoltaics from a different perspective. As a complex process. As a mission. As something that will change the world of energy and move us forward again.

Our approach is confirmed by the premiere issue of the company's magazine, Sun Thing. The stories you'll find in it are permeated by a desire to seek more than meets the eye. And so I personally would very much like you to go beyond what is seen, written or conventionally given when reading it.

I sincerely hope that the following lines will delight, and in many ways inspire you.

Enjoy your reading,

Zdeněk Sobotka
Founder, Owner & CEO of SOLEK HOLDING SE

NO. 1 / FW 2022

SUN THING



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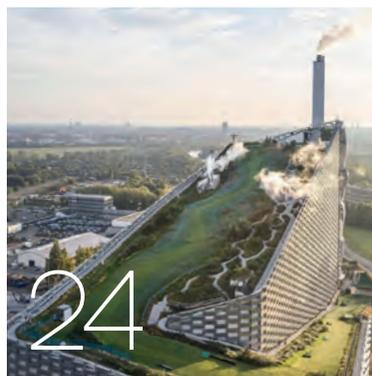
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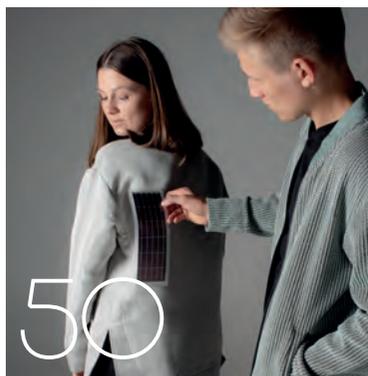
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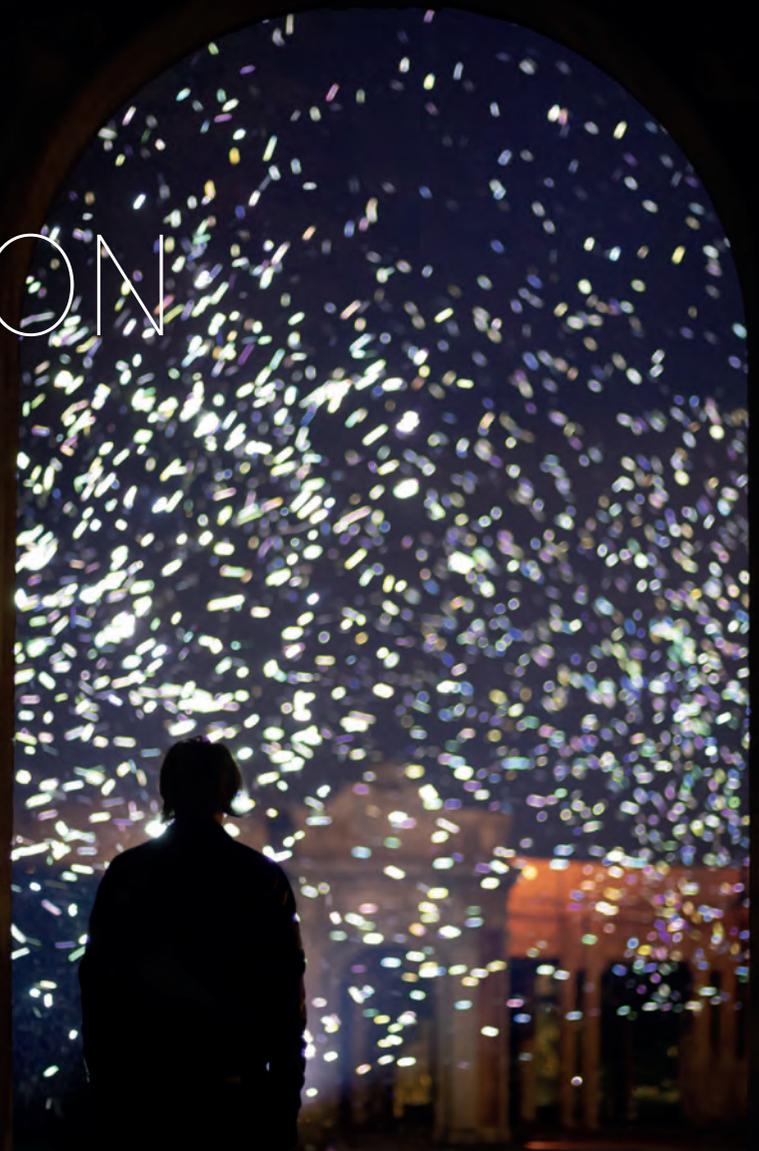
Cartier

for better future

French high jewellery icon Cartier has joined the international CEO Carbon Neutral Challenge initiated by Gucci CEO Marco Bizzarri in 2019. The aim of the challenge is for multinationals to transition to a low carbon economy and take full responsibility for the total amount of greenhouse gas emissions they produce. Another important dimension is to motivate manufacturers to find solutions for the remaining emissions in order to prevent climate change and the loss of biodiversity on our planet as effectively as possible. By joining this challenge, Cartier has reaffirmed its commitment to sustainability. In 2020, the company began monitoring the carbon footprint of its entire supply chain, and the brand also introduced the Cartier for Nature project, through which it is investing in the restoration and protection of ecosystems. Last year, Cartier, in conjunction with Kering, spearheaded the Watch & Jewellery 2030 initiative, which appeals to jewellery and watchmakers on sustainability and climate protection.

CELEBRATION OF LIGHTS

Daan Roosegaarde, the Dutch artist at the helm of Studio Roosegaarde, which focuses on social design, presented a sustainable alternative to an integral part of New Year celebrations, fireworks. The SPARK light installation, his latest work from Bilbao, transforms traditional ways of celebrating, such as fireworks, but also balloons and confetti, which are notoriously polluting. The answer is biodegradable sparks whose movement is naturally controlled by the wind.





ELECTRO-RICKSHAW BY AUDI

A future for discarded batteries from Audi e-tron test models has been found by the German car brand together with German-Indian start-up Nunam. The recycled batteries will give rise to electric rickshaws. Nunam has so far developed a trio of prototypes from used e-batteries that still have power. Their eco-friendly recharging is provided by solar panels on the roof. The eco-powered rickshaws are a second chance for electric batteries, which have reached the end of their life cycle under the hood, besides enabling even low-income groups to provide transport or livelihood in a sustainable manner. First e-rickshaws will hit the streets in India in a pilot project in early 2023.



MINI & PAUL SMITH

MINI's latest collaboration with designer Paul Smith drew a lot of attention at this year's Milan Design Fair. In response to the European Union's plans to restrict the sale of new conventionally powered cars by 2035, the moto-love-brand has unveiled the sustainable electric car Mini Recharged. Paul Smith is behind the design transformation of the classic 1998 model, retaining the typical 90s body design and adding his signature colour, sapphire blue. The car's interior has also been designed in the spirit of an eco-friendly design philosophy.

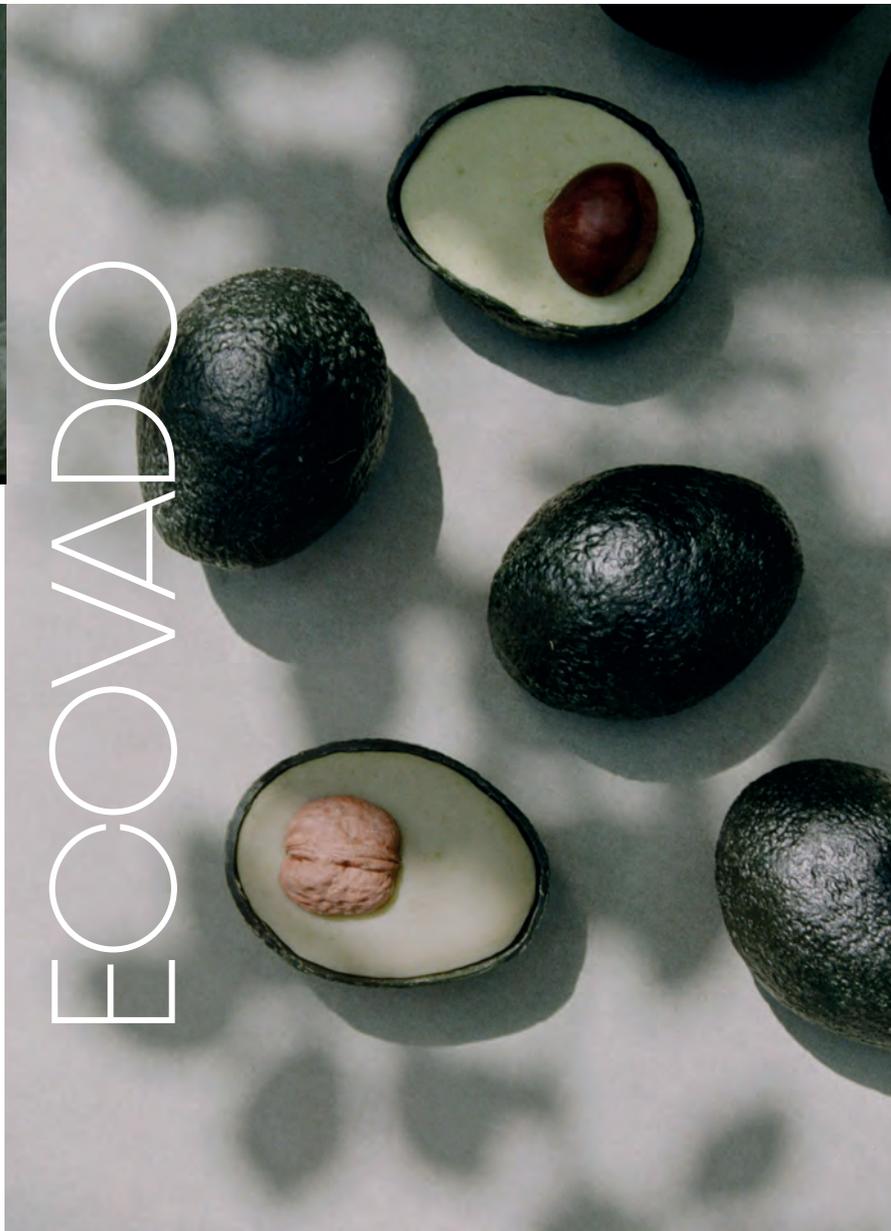


Jachting of a New Era

In collaboration with Italian yacht builder Rossinavi, the team at Zaha Hadid Architects has unveiled its vision for the future of yachting. The Oneiric catamaran concept delivers a 40-tonne reduction in the environmental burden of carbon dioxide compared to conventional vessels, as it features large solar panels that feed the battery power inside the boat. This allows Oneiric to sail in all-electric mode and produce no emissions. The motivation for this level of sustainability in yachting is to preserve vulnerable ocean ecosystems. In addition to indoor and outdoor lounges, the top-of-the-line facilities include, for example, a cinema room or the owner's master bedroom with 180-degree views.



It takes a staggering 320 litres of water to grow one avocado. London Central Saint Martins University graduate Arina Shokouhi has come up with a way to relieve the environment of this massive burden. Her graduate project, Ecovado, is an alternative almost indistinguishable from the popular fruit. She worked to develop the truest possible texture and flavour with nutrition expert Jack Wallman, who helped identify the chemical and molecular makeup of the avocado. Ecovado retains the typical bottle-green appearance of the skin, which is made of wax. Inside is a light green cream whose composition varies depending on where the ecovado is served, as it is based on ingredients typical of the country's locality. For a comprehensive sustainable solution, the whole nut replaces the stone. The alternative avocado for the UK market contains mainly green fava beans, hazelnuts, apple and rapeseed oil.



IN TATTERS

Drawing attention to the extremes of the fashion industry is the artistic goal of Tenant of Culture, who creates oversized sculptures of clothing or shoes out of many different pieces of clothing. Under the pseudonym you can find Dutch artist Hendrickje Schimmel, who uses both worn out and often almost new pieces of clothing, shoes or accessories. She dyes, cuts, steams and then reassembles, stitches or glues them. The result illustrates the psychology of fast fashion, whose products quickly become obsolete and useless.





MUNICH FOR CLIMA

A climate-neutral multi-purpose hall with a capacity of 20,000 people will be built in the Bavarian capital. The international architecture studio Populous won the competition to build the hall, which will be the first of its kind in Germany. Their winning design is a tribute to Bavaria's cultural heritage. The diamond shape, which is repeated on the building's skeleton, was inspired by the diamond on the Bavarian national flag. The MUCcc Arena will generate its own energy thanks to thousands of solar panels on the roof, combined with geothermal energy and district heating.



SOLAR DOME

Near Taichung, a new building called Sun Rock will be constructed with almost the entire surface covered with photovoltaic panels. Rotterdam-based architecture firm MVRDV has designed the new operations centre for state-owned energy company Taipower, which aims for a zero-emissions future and the production of clean solar energy. The dome-like structure is designed to maximise the absorption of sunlight and generate solar power in the most efficient way possible.



VISIONARY

IN TWELVE YEARS, **ZDENĚK SOBOTKA** HAS MANAGED TO BUILD AN ENERGY COLOSSUS WITH INTERNATIONAL REACH AND GLOBAL AMBITIONS. WHEN ZDENĚK IS NOT DEVELOPING HIS RAPIDLY EXPANDING BUSINESS THROUGH THE SUN, HE IS OBSERVING OUR NEAREST STAR FROM HIS PRIVATE OBSERVATORY. THE STREET WHERE HE LIVES WAS EVEN NAMED AFTER HIS HOME OBSERVATORY.

Text: ANDREA VOTRUBOVÁ Photo: PETR KOZLÍK

The current situation in the European energy sector is quite turbulent. What surprises you most about its development?

I am surprised by the naivety of German statesmen who had decided to depend on Russian gas, which makes sense economically, of course, but not environmentally. I am surprised that the European Union had not been able to promote the construction of new renewable energy sources more intensively. Now, in fact, we have no choice but to make up for these shortcomings in a hurry, because we are in a situation that nobody wanted to be in.

The war in Ukraine is a big problem. However, a company of your focus might not mind its consequences, such as increased interest in alternative energy sources...

It's very sad, but it's true that the current conflict has had a positive impact on our business. Many more opportunities have emerged and, of course, energy assets have increased significantly in value.

What role do you think alternative sources will play in the energy sector in a decade or two?

They will definitely play a majority role and we will learn to balance them. We will learn to use renewables in the context of decentralising production resources, which will bring many benefits and much greater security of supply. We will learn to use much more blockchain and the technologies that will enable it. It will be possible to buy and sell electricity by mobile phone. Finally, we will change the paradigm of energy, which has not changed at all in the last hundred years.

However, there are various problems with alternative energy sources, such as the impossibility of relying on them 100% because the wind does not always blow, or the sun does not always shine. To what extent does this affect the development of your business?

It is important to realise that consumption is not stable either. On the contrary, it has high fluctuations: for example, consumption is extremely high in the early evening and minimal after midnight. So, a source that supplies 24 hours a day must also balance in a way. Because of the lower consumption, there is, for example, a more favourable current after 12 o'clock. For this reason, I do not see fluctuations in the availability of energy from alternative sources as a disadvantage. On the contrary, we need to adapt to the situation and, of course, consumers who can use electricity when it is plentiful and cheap, rather than switching on their appliances as they please, will also adapt.

In the past, photovoltaics in the Czech Republic did not have ideal conditions. How are the authorities approaching this area today?

After years of harassment and abuse by various political entities, photovoltaics has finally recovered. People perceive photovoltaics in a very positive way, and even the new political establishment has made it one of its election goals to support photovoltaics, which I am pleased about. On the other hand, there are still huge obstructions to the authorisation of any project. Everything is lengthy and complicated, which prevents any solid development.

How important are subsidies for the development of your industry and on what basis do they work?

We are basically an enemy of subsidies, because we have had a huge negative experience where subsidies, which were widely used in Europe between 2010 and 2014, were then retrospectively strongly reduced, which caused a huge hit to the development of our company and our business plans. On the other hand, the Czech Republic is the only country where subsidies are actually starting again. In our country, the conditions for electricity production are worse due to less sunlight, and therefore the subsidies make sense here. However, there are currently no subsidies in many countries. In my opinion, subsidies should increase the desire of entrepreneurs to install as many power plants as possible and thus be able to supply the system with cheap electricity.

In Chile, you have built thirty-one solar power plants so far. Why did you choose this country as your primary location?

Chile has the huge advantage of having incredible sunshine. Compared to the Czech Republic, it is possible to generate two to three times more electricity from the same park, which determines the use of this type of energy in the energy mix in Chile. For us, it is mainly a European-type country. It is a leading Latin American country with high investment security, which is very popular with US institutional investors. That was the reason why we took the safe investment route versus some other, more profitable but significantly riskier routes in developing countries.

What are the differences in the construction and operation of solar power plants in Chile compared to Czech and European practices?

Building a power plant anywhere in the world is very similar. Local conditions play a role, but not that significant. In Chile, for example, we have had to respect the risk of earthquakes; there are much more frequent torrential rains that cause flooding, even in Atacama, the driest place on earth. The rocky soil has also trained us in the quality of design and the ability to install structures for photovoltaic panels.

You have also shifted your strategy: originally focused on designing and building photovoltaic parks, the company now aims to own and operate the plants alongside this. Why?

This is a natural evolution, where we naturally see ownership as an important annual income from electricity sales. In addition, the finished parks we own are very important for our attractiveness and for institutional investors, which is why we have also taken the ownership route. This is despite the fact that we are selling a large part of it and ownership for us is mainly an investment in the future.

Which milestones do you consider significant in the life of the company?

The most significant was the decision in 2014 to leave Europe and procure essentially a new company on another continent. And at the same time, 2021, when we were rewarded by the investment company BlackRock for our work. They accepted us as their supplier in Chile, which we very much appreciate.

MANY OF MY DREAMS HAVE
ALREADY COME TRUE.
AMONG THE ONES NOT YET
FULFILLED IS TO GO TO THE MOON
OR TO THE SPACE STATION.

Where is Solek Holding now and what are your plans for the future?

The company now sees Chile as a successful market, and we look forward to completing this part of the USPP* development. For us, it is the conclusion of a stage and the start of further development in Latin America, for example in Colombia and other countries. We are still moving forward and want to expand in Europe, which represents a huge opportunity for us given the astronomic electricity prices and shortages. We want to help Europe build the independence that is so necessary.

You're an amateur astronomer, you even built an observatory near your house. Was this a childhood dream or a later hobby?

My passion for astronomy and space has been with me since I was a child, but now I have the right background to really enjoy it (laugh). In the observatory, I had not only equipment installed for observing the night sky, but also optics for viewing the Sun, which is so fundamental to my professional life. I have always been inspired by new technologies, and it is in the Sun that I see huge potential on all sides. I think its immense energy can replace nuclear energy in the future.

What is the most interesting phenomenon you have observed so far?

Among the most impressive are the solar eclipse in the USA in 2017 and later the two solar eclipses I observed in Chile in 2019 and 2020. The solar eclipses are short, only a few minutes, but they can be a very clear reminder of how life-giving our nearest star is. When a shadow falls on the Sun during an eclipse, the ambient temperature can drop by up to ten degrees Celsius, and animals react very

intensely to this situation. I would recommend this experience to anyone.

Is there a big difference in the level of equipment in your home observatory and professional observatories?

It depends on what one means by a professional observatory. But my home one is very well equipped. The problem, however, is that the conditions in Prague are not ideal for observing the universe; the metropolis suffers from considerable light pollution.

Apart from astronomy, you are also into wine. What characterizes you as a collector?

I consider wine a beautiful and noble hobby. Personally, I prefer wines from France, but thanks to my strong working connection with Chile, where our group has a wide range of activities, I have also developed a relationship with Chilean wines. They are completely different from the French ones.

What attracted you to Chilean production?

Chilean reds are unique because of the sunny conditions there – the sun again. The wine business in the country has really taken off in the last thirty years, with the addition of a lot of French winemakers who are delivering top-quality production.

Do you have any personal favourites among Chilean winemakers?

My favourite wineries in Chile are the smaller Quebrada de Macul or the very specific Domus Aurea, which has received many good ratings, especially from Robert Parker, up to 97 points for the 2016 vintage. Other great wineries here include the world-famous Concha y Torro, with almost two centuries of tradition, Viña San Pedro and the organic wines of Emiliana.

“ I GREW UP UNDER COMMUNISM,
SO THE IDEA OF ENTREPRENEURSHIP
WAS COMPARABLE FOR ME
TO THE IDEA OF GOING TO MARS.
” BUT THAT’S WHAT MOTIVATED ME.

What did your career path look like? What was the defining aspect of it for you?

I grew up under communism, so the idea of entrepreneurship for me was comparable to the idea of going to Mars. But that’s what motivated me, and that’s why I went in the entrepreneurial direction as soon as I could. My mission completely absorbed me and fulfils me to this day.

When did the mission begin?

For me, as for many others, 1989 was a turning point, when overnight the Czechoslovakia turned into a country with a capitalist approach. That was a huge challenge. I was only 17 years old at the time, but as soon as I turned 18, I ran to get a trade license and started my own business.

Did you have any role models among the big entrepreneurs in this respect?

Among my role models from the Czech Republic it is definitely Tomáš Baťa. From a global point of view – and among contemporary personalities – I consider Elon Musk to be a particularly inspiring entrepreneur. He has managed to become the richest man on the planet, and yet he has retained a vision of how to change the world for the better. I respect that immensely.

What was it about the solar energy industry that won you over?

I got into it relatively shortly after the global financial crisis in 2009, when I was looking for further employment and opportunities. At that time, photovoltaics was starting to develop rapidly in Europe, it looked futuristic and the renewable perspective of the world appealed to me. This work brings me not only self-fulfilment, but also the opportunity to make a significant contribution to the protection of the planet.

Do you have a childhood dream that you have not yet fulfilled?

I haven’t managed to go to the Moon or the Space Station yet. Although missions like this still seem out of reach today, I am naturally positive, so I believe that one day I will at least make it to the International Space Station.

SOLEK HOLDING can be classified as a technology company. How close are you to modern technology in your personal life outside of work?

I am a big fan of technology and I see its future positively. Of course, this also includes future innovations. I am very interested in all areas, from medicine to blockchain. I’m always keeping myself informed and educated. It’s something that inspires me and drives me forward.

Speaking of the way forward – what kind of leader do you consider yourself to be?

I have a semi-visionary type of leader in me that I like. I like to work on new and exciting projects. On the other hand, I am a very meticulous manager who expects performance, results and the associated success from my colleagues. This, by the way, is what sport, which I was very much involved in when I was young, taught me. To this day I am still active in hockey, football, tennis and skiing.

**The US private placement market (abbreviation USPP = US Private Placement) is one of the most sophisticated debt markets in the world. Companies that enter the USPP market typically issue long-term bonds that are sold to high-quality institutional investors in the United States, such as large insurance companies, pension funds, and infrastructure funds. Active investors in the USPP market include Allianz, MetLife, AIG, ING, Prudential, New York Life, Cigna, and Pimco, among others.*



FIFTY YEARS AGO, FEW WOULD HAVE CONSIDERED CHILEAN WINE A MAJOR PLAYER IN THE GLOBAL OENOLOGICAL MARKET. IT HAD A REPUTATION FOR LOW QUALITY AND MOST OF ITS PRODUCTION WAS CONSUMED DOMESTICALLY. HOWEVER, IN THE 1980S, CHILEAN WINEMAKING UNDERWENT A RENAISSANCE THAT PROPELLED IT TO THE TOP RANKS OF EXPORTERS. THE PERFECT FLAVOUR IS DUE NOT ONLY TO THE TECHNOLOGY OF FRENCH IMMIGRANTS, BUT ALSO TO THE COMPLEX CLIMATE THAT GIVES THE GRAPES THE RIGHT RIPENESS.

Text: SOŇA HANUŠOVÁ Photo: ARCHIVE, GETTY IMAGES



A scenic landscape in Chile featuring a body of water, a grassy field, and mountains under a cloudy sky. The text is overlaid on the upper portion of the image.

Chile, an unexpected winemaker's paradise

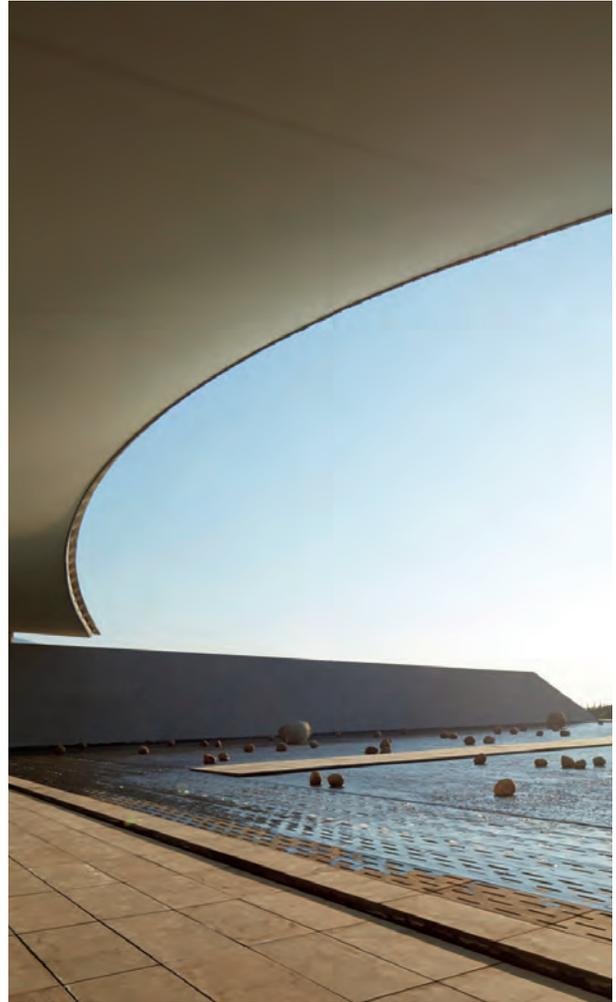
Although the world has only taken notice of Chilean wines relatively recently, their history dates back to the 16th century. Vines were introduced to the new continent by Spanish conquistadors and missionaries, but paradoxically, during their rule, the production of Chilean wines was limited. The locals were only allowed to buy wine from the Spanish, but this was not to their liking as it oxidised and acetated during the long journey from Europe to the Americas. Despite the orders, they preferred to make their own wines.

French Innovation

Chilean winemaking first boomed in the 19th century, when the country grew rich from mining in the Atacama Desert. Although Chile is politically linked to Spain, its wine history has been most influenced by France. Chilean winemakers began to look to the French as a model to follow. The more affluent then went overseas for inspiration. They came back not only with knowledge but also with new grape varieties to plant – just a few years before the oenological tragedy of the grapevine aphid struck Europe. However, Chile has gained from this loss. Many French winegrowers moved to South America, bringing their experience and technology with them. Chilean winemaking began to flourish.

IN THE LATE 20TH CENTURY,
IT WAS DISCOVERED
THAT MUCH OF THE
MERLOT WAS IN FACT
THE ALMOST EXTINCT
CARMENÈRE VARIETY.
CHILE SUDDENLY HAD
ITS OWN UNIQUE WINE.





IN THE ARMS OF NATURE

Where to lay your head so that you can have Chilean wine within reach in maximum style? Of all the options, the Vik Wine Hotel is our first choice and promises an extraordinary relaxation. The entire complex, which includes a number of suites, is spread over 4,400 hectares of private parkland. It guarantees total privacy in the arms of nature. It goes without saying that leading architects and designers have been involved in the interior design of each room. We recommend that you pay attention to one of the seven bungalows, each designed in a different style. Will you choose the funky design created by owners Carrie and Alex Vik themselves, the Mondrian-inspired room, or will you prefer the Boho Pop bungalow with decorations by Lichtenstein and Zaha Hadid?





NONE OF CHILE'S VINEYARDS, WHICH STRETCH ACROSS THE COUNTRY FROM THE ATACAMA REGION IN THE NORTH TO THE BÍO-BÍO IN THE SOUTH, CAN COMPLAIN OF A LACK OF WARM SUNSHINE

Turning point

The real turning point, however, is the 1980s, when Chile once again attracted large numbers of Europeans. The French in particular were delighted by the ideal climate and terroir. Their influence shaped the Chilean wine market towards a focus on Bordeaux varieties such as Merlot and Cabernet Sauvignon. In addition, in the late 20th century it was discovered that much of Merlot was in fact a nearly extinct variety called Carmenère. Chile suddenly had its own unique wine. The country thus benefited from an influx of foreign investment and knowledgeable winemaking talent. One of them was the Catalan winemaker Miguel A. Torres, who was the first in Chile to use stainless steel tanks and French oak barrels. His example was followed by other producers, which led to the international recognition of Chilean wines. The use of oak barrels is commonplace today, but before this revolutionary step, Chileans used to age their wine in barrels from beech wood. This gave it a taste that was unanimously described as unpleasant by the world's experts of the time. With the changes in the production process, the global perception of Chilean production has also changed.

Sun-kissed grapes

The climate is the main reason why wine is so successful in Chile. The local climate and geographical conditions are more than favourable for growing grapes. Chile consists of a long and narrow strip of land which is geographically and climatically dominated by the Andes to the east and the Pacific coast to the west. The vineyards can be divided into three growing zones, ranging from coastal to inland to mountain, and the weather is stable in each of them. From the Atacama region in the North to the Bío-Bío in the South, none of Chile's vineyards can complain of a lack of warm sunshine. The hottest are the valleys in the centre of the country, known for their ripe and juicy Bordeaux-type wines. The coastal area, with its mineral-rich soil, gives the vines plenty of rainfall, but the cold Humboldt sea current means that temperatures are cooler. The combination of these factors gives rise to complex mineral wines with interesting acidity. Finally, the vineyards close to the Andes massifs produce some of Chile's most interesting wines. The high mountain ranges cause the day and night temperatures to fluctuate, so that all-day sunshine is replaced by cool nights. As a result, the grapes ripen more slowly and retain their acidity. The result is a fresh, balanced wine.



Worthy of attention

There are currently around 800 active wineries in Chile. Among them, the Vignadores de Carignan association stands out, which became the first true French-style appellation in Chile, including production criteria. The wines of the various producers in the area are united by the Vigno brand, which combines the word vino and takes the G from the name of the Carignan grape variety. This is one of the original varieties grown in the Maule region. It is characterised by medium-sized grapes with dark bluish berries. In combination with the weather (the variety is resistant to dry climate, it only gets its moisture from rainfall), it produces truly rich wines, such as Vigno Casas Patronales 2018, which comes from an inland winery and is made from grapes from 65-year-old vines. Hand harvesting is followed by fermentation and ageing in French oak barrels. The wine has an intense ruby colour and an intoxicating aroma of forest fruits and cherries. The fruity sweetness in the mouth is replaced by a strong acidity.

The mission to find the best Syrah

One of Chile's most awarded wineries is Polkura, founded in 2002 by university classmates Sven Bruchfeld and Gonzalo Muñoz. When they tasted Syrah at a degustation, they decided to focus exclusively on this variety. They searched for the right soil for maximum yield and discovered a vineyard in the Colchagua Valley. Polkura is close to the coast, but the local hill from which the vineyard takes its name partly deflects the cool air coming in from the ocean. The wine thus contains notes from the cooler climate, such as black pepper and herbs, but also berries and fruits that are characteristic of warmer regions. Experts and the winemakers themselves consider 2018 to be a strong vintage, which also produced the 2018 Block g+i wine, named simply after the vineyard parcels. In that year, the acidity of the grapes was perfectly balanced, and the winemakers were able to let nature take its course. Part of the wine was fermented in concrete eggs and the rest in conventional stainless steel tanks. The wine is dark red in colour, turning purple, the aroma has notes of fruit and spice and the taste shows a nice balance between tannins and acidity.



KINGDOM OF GREEN



COPENHAGEN WILL BECOME THE WORLD'S FIRST CARBON NEUTRAL CITY BY THE YEAR 2025. IN ADDITION TO A FOCUS ON SUSTAINABILITY ACROSS SECTORS FROM INDUSTRY TO GASTRONOMY, DENMARK IS ALSO FOCUSING ON WATER AND GREEN MANAGEMENT. BUT THE COUNTRY'S AMBITIONS, WHICH HAVE BEEN SYMBOLISED BY WIND POWER AND URBAN CYCLING, GO EVEN FURTHER. BY 2050 IT WANTS TO BE THE WORLD'S FIRST COUNTRY TO BE COMPLETELY INDEPENDENT OF FOSSIL FUELS.

Text: ADÉLA MEINELT Photo: ARCHIV, GETTY IMAGES





The 90-metre high slope of the Amager Bakke power plant even provides a ski lift.

In 2022, Denmark is the most sustainable country in the world. The Nordic European country has won the prestigious Environmental Performance Index (EPI) award, which is compiled every two years by the American Yale University, for the second year in a row. The EPI ranks 180 countries on more than two dozen factors affecting environmental quality and ecosystem vitality. Denmark scored highly in environmental biodiversity and air quality, but also thanks to official policies aimed at reducing greenhouse gas emissions. Since 1996 the country has managed to halve its CO₂ emissions and in 2019 the Danes have reduced their use of coal to just 13%, a drop of 36% in ten years. Denmark is gradually replacing conventional sources with geothermal, wind or solar energy. In addition, the country of nearly six million people has presented an ambitious plan through the government organisation State of Green, where it has committed to becoming completely independent of fossil fuels by the end of 2050, the first in the world to do so.

Ecology in the DNA

In the Danish microcosm, where sustainability and global responsibility are the brightest shining stars, Copenhagen is at the forefront of sustainable development. The capital region regularly tops city rankings of the best places to live and holds the position of one of the most progressive regions in the category of sustainable, healthy and liveable cities. The three main pillars of environmental protection here are bicycles, wind and waste management. Wind farms are one of Copenhagen's main hallmarks, supplying more than 40% of its energy across the country, and the city continues to build more. Taking responsibility for the planet is in the Danes' DNA, mainly because their country is setting an example for its people to behave more sustainably and with respect for the impact of human

activity on the planet. Denmark has involved its citizens in the ownership of wind farms. For example, Middelgrunden Offshore Wind Farm is half owned by investors and half by ordinary Danes. By integrating them into the wind business, the environmental mindset has really been brought into the consciousness of the majority of the population.

Skiing at the power station

Copenhagen invested massively in creating a local cycling culture back in the 1960s, when the city council radically reduced parking in the centre of the metropolis, increased taxes on traffic and car ownership and a comprehensive network of cycle lanes was built with dedicated lanes, traffic lights and plenty of bike racks. There are over 500 kilometres of cycle lanes in the capital alone. Locals use cycling because it is the cheapest, safest and fastest way of daily transport. In addition, the Danish capital is committed to ensuring that all roofs of new buildings with a slope of less than 30 degrees must be covered with greenery. This absorbs more rainwater, improves air quality and regulates the temperature in the city. In the very centre of Copenhagen, the highly modern Amager Bakke power station, designed by the renowned architecture studio BIG, has been built. Completed in 2017, the building with a modular façade is the most modern and environmentally friendly incinerator in Denmark and processes over 400,000 tonnes of waste per year. It is capable of supplying low-carbon electricity to half a million residents and heat to 140,000 Copenhagen households. The sloping shape of the Amager Bakke power plant allows Copenhageners to spend their leisure time actively right on the building, which is not just a passive addition to the city. In fact, the special green surface, where shrubs and trees also grow, allows for skiing, cycling, climbing or hiking. But the Danish capital doesn't stop there, either; it now aspires to meet its commitment to become a completely carbon-neutral city by 2025.

DENMARK HAS INVOLVED ITS CITIZENS IN THE OWNERSHIP OF WIND FARMS. FOR EXAMPLE, MIDDELGRUNDEN OFFSHORE WIND FARM IS HALF OWNED BY INVESTORS AND HALF BY ORDINARY DANES. BY INTEGRATING THEM INTO THE WIND BUSINESS, THE ENVIRONMENTAL MINDSET HAS REALLY BEEN BROUGHT INTO THE CONSCIOUSNESS OF THE MAJORITY OF THE POPULATION.

Eco vacation in Bornholm...

Thanks to all of the above, Denmark has gradually become a frequent destination for eco-conscious travellers. Around 70 percent of the country's accommodation meets modern sustainability criteria, but several places are true pioneers in the field without compromising on comfort or design. These include Green Solution House on Bornholm, a popular holiday destination for Danes, which is gradually being discovered by foreign tourists. Green Solution House is a pioneer in the category of eco-friendly hotels and has won The European Business Award in the field of the environment. Its design comes from architecture and design studio 3XN, which also took care of the hotel's expansion last year with a new 24-room wing with a conference hall and a rooftop SPA with a positive climate footprint. The progressive hotel in Bornholm's largest city, Ronne, is the island's first completely carbon-neutral accommodation option, thanks largely to the replacement of standard building materials such as concrete and steel, which can account for up to 16% of the world's total carbon pollution, with wood. In addition, all components of the building can be reused, with the leftover material upcycled and used for furniture and surfaces. The architects used granite from local Bornholm quarries as decoration in the conference hall, where they were also able to use recycled glass from Bornholm designer Pernille Büllow in the glass pathways. The interior is naturally ventilated through skylights, electricity is supplied by solar panels. The hotel's extensive grounds honour biodiversity so much that deer, rabbits and hares are frequent visitors. In addition, there is a free bike rental service, because the best way to explore the beauty of Bornholm is from the saddle of a bicycle.





...even in Copenhagen

But if you'd rather be in the centre of the action in Copenhagen than rustic Bornholm, you might be interested in the Scandic Falkoner Hotel, where they started sustainability before it became a trend. The Scandic group was founded back in 1993, and it was here that they came up with the idea of reducing the environmental burden generated by hotels through guests' decisions on whether to insist on daily towel changes. This trend has subsequently spread in the hotel industry worldwide and helps to significantly reduce energy consumption. Like Copenhagen, the Scandic Group has set itself the goal of operating on a completely carbon-neutral basis by 2025; to this end, each hotel in the group even has its own environmental manager. Falkoner has undergone a complete renovation and offers accommodation in more than 300 rooms in the Frederiksberg district. The Herman K Hotel, located in a converted transformer station in the heart of Copenhagen, is similarly revolutionary as above mentioned Falkoner. The thirty rooms here proudly respect the legacy of the building's original purpose, as evidenced by the dark bronze mouldings on the façade or the large green doors. The boutique project from the Brøchner Hotels portfolio has been dubbed the 'first chemical free hotel' in Denmark. The rooms have been treated with a special kind of ACT CleanCoat, which is invisible, odourless and all surfaces are self-disinfecting. The coating reduces bacteria, improves air quality and allows staff to use non-chemical cleaning methods.

DANISH HOTEL GROUP
SCANDIC CAME
IN 1993 WITH THE IDEA
OF REDUCING THE
ENVIRONMENTAL BURDEN
GENERATED BY HOTELS
THROUGH GUESTS'
DECISION WHETHER TO
INSIST ON DAILY TOWELS
CHANGE.



New life was breathed into the former substation through the Herman K boutique hotel.



THE ALCHEMIST RESTAURANT'S LAVISH 50-COURSE MENU IS DIVIDED INTO FIVE ACTS AND SERVED IN VARIOUS LOCATIONS, INCLUDING A PLANETARIUM-LIKE DOME.

You are what you eat

The Danish capital's sustainable ambitions go hand in hand with its gastronomic scene. In Copenhagen, organic food has become a standard. At the beginning of Denmark's transformation into a gastronomic matador was the New Nordic Movement, whose symbol was Noma, the restaurant opened by the genius René Redzepi in 2003. Copenhagen's culinary scene is considered the most progressive in the world, and its influence is reflected in the famous French Michelin Guide. In 2020, the guide introduced a new category of Michelin Green Stars, which it awards only to businesses that strictly adhere to sustainability principles and minimise waste. Fifteen companies across Denmark hold the Green Star, seven of them are located in Copenhagen itself. Each is worth a visit, however if we had to pick three favourites, it would be the already iconic Alchemist, the progressive Amass restaurant run by former Noma head chef Matt Orlando, and the charming Alouette,

unexpectedly hidden away in an industrial docklands district. But first things first.

The extraordinary imagination of Rasmus Munk

Fine dining of theatrical format performing under the name Alchemist holds the distinction of a pair of Michelin Guide stars, which are complemented by a green star. The lavish 50-course menu there is divided into five acts and served in various locations, including a planetarium-like dome. The surprising courses are technically complex in the spirit of molecular gastronomy, yet highly creative and full of dramatic contrasts. Chef Rasmus Munk points out that in addition to insects he serves offal, lamb brain or cow udder. The Alchemist avoids serving endangered species of fish and seafood, instead trying to use otherwise waste seafood parts such as cod eyes, tongue, lobster shells, tail parts of



king crab or its roe. The aim is to draw attention to the enormous waste of food in the fishing industry. The restaurant uses some of the waste in its JunkFood project for the homeless, which serves 400 meals a day to people on the streets.

Zero tolerance

Matteo Orlando takes a similarly radical approach to Rasmus Munk, who honours the zero-waste philosophy in its most purist form at his company Amass. Innovation in his cuisine is defined by its novelty, with dishes created from by-products sourced mainly from his own micro-farm, such as miso made from lemon peel or vegan hazelnut ice cream made from coffee ground sediments. Zero tolerance for waste means the restaurant has half the carbon footprint of businesses of the same level. There's a choice of 12- or 14-course menus or chef's selections, but you can also choose via the lunch menu. The restaurant's sleek Scandinavian design was created in an airy space that served as a warehouse. The industrial look is broken up by decorations in the form of graffiti art.

Speak-easy haute cuisine

Drowned in an industrial neighbourhood with docks, hidden behind graffiti-covered corridors and only accessible via a freight elevator – that's Alouette. A visit to an intimate Michelin- and green-starred restaurant has an added flavour of mystery and speak-easy experience. Here, the chefs prepare a five-course menu in a playful symphony with the current season and the Danish harvest, with plenty of live fire, which is the heart of the open kitchen. If the restaurant serves of meat, it always tries to use the whole animal, and in the field of fish and seafood, chef Nick Curtin selects specific species of fish on the menu, caught using sustainable methods. When oysters are served at Alouette, they are exclusively of the giant invasive oyster variety that is destroying the fragile ecosystem of the Wadden Sea.



Copenhagen's gastronomic scene is proving to be a world leader in modern fine dining. At Alouette, the Michelin-starred menu is spiced up by its almost secret location in the spirit of sustainability.

THESE

NUMBERS

A WORLD FUTURE BUILT ON SOLAR POWER DOES NOT NECESSARILY COME AT THE EXPENSE OF ECONOMIC PROGRESS OR WITH THE CONSEQUENCE OF ELIMINATING JOBS. ALTHOUGH THE SOLAR POWER IS CATEGORIZED AS AN ALTERNATIVE ENERGY SOURCE, IT IS THE MOST NATURAL WAY TO HARNESS THE VAST ENERGY THAT NATURE PROVIDES US WITH EVERY DAY. HOWEVER, HOW TO CAPTURE THIS ENERGY, HOW TO DISTRIBUTE IT AND HOW TO STORE IT FOR LATER USE ARE FUNDAMENTAL QUESTIONS THAT NEED TO BE RESOLVED IN ORDER TO TRANSFORM HUMANITY INTO THE FASCINATING WORLD OF SOLAR HOMES, CARS AND SPACE POWER STATIONS.

Text: MARIANA KRÁSENSKÁ

Light produced by the Sun travels the distance between its source and Earth in 8 minutes, which is 4 years, 2 months, 23 days, 5 hours and 52 minutes shorter compared to our second closest star, Proxima Centauri. The energy of solar radiation powers almost every process on Earth, from changes in weather and climate to tides and photosynthesis. It is produced by a thermonuclear reaction that converts hydrogen into helium. The Sun is about 4.6 billion years old, so it is a middle-aged star. Scientists predict it has enough hydrogen to last another 5 to 7 billion years. Until then, there is plenty of time to think about how the energy from the Sun can be used more efficiently.

Is there a tipping point?

Currently, the cost of solar energy is by far the lowest compared to other alternative sources. This is mainly due to the low production cost of solar panels and their easy installation on roofs and building envelopes or in open spaces. With rising energy prices, the issue of alternatives to fossil fuels and petroleum products is becoming even more pressing. Decarbonisation of the planet has been at the centre of social and political debate for the last few decades and many countries have committed to reducing or even eliminating emissions. The war conflict in Ukraine has greatly accelerated this thinking and it is possible that we are now experiencing the beginning of a global transformation towards alternative sources, and perhaps the Sun, as the central star of our solar system, will soon also become the central star of our global energy strategy. But for now, let's look at what is already a reality.

The official beginning of the history of solar energy use dates back to 1839, when Alexandre Edmond Becquerel discovered the photovoltaic effect. This French scientist was experimenting in his father's laboratories when he discovered that a sunbeam falling on an electrode immersed in a conductive solution would create an electric current. It was not until about a century later, however, that an American engineer, Russell Ohl, applied for a patent, and so today the simple term photovoltaic effect is used instead of the Becquerel effect. Becquerel also worked in the field of photography and attempted to create the first colour photograph. However, this mission too was eventually accomplished by someone else, namely Gabriel Lippmann in 1891.

1839

AND THE UNLUCKY BECQUEREL

5-7 BILLION YEARS TO GO

The Sun is a main sequence star of spectral class G, or more simply a yellow dwarf star. Its surface temperature is about 5500 °C. The Sun's internal processes work by burning hydrogen nuclei into helium. It is thought that when the star has exhausted its hydrogen reserves, it will enter the red giant stage and engulf Mercury, Venus and perhaps even Earth. Given that the total lifetime of the Sun is estimated at 10 billion years, we have roughly another 5-7 billion years to go.

SALE! SALE!

SOLAR ENERGY IS ONE OF THE CHEAPEST ENERGIES IN THE WORLD. IN 1956, ONE WATT COST MORE THAN A THOUSAND DOLLARS; TODAY IT COMES OUT TO A FEW CENTS. SUCH A SIGNIFICANT REDUCTION IN PRICE HAS COME ABOUT AS THE AVAILABILITY OF SOLAR PANELS HAS IMPROVED OVER TIME – THE MORE THEY HAVE BEEN MADE, THE CHEAPER THEY HAVE BECOME. FURTHER JUMPS IN PRICES WERE CAUSED BY NEW TECHNOLOGIES FOR THEIR MANUFACTURE.

THE TEMPERATURE AT WHICH DIAMONDS MELT

Have you heard of the Odell solar oven? It's a type of solar parabola that is one of the largest in the world. It is capable of concentrating up to 10,000 times the light radiation and has a temperature of up to 3,200 kelvins, at which even diamonds melt. For now, it is purely for scientific purposes, but who knows what will happen when it turns its ability to concentrate into practical applications.

SOLAR SUPERPOWER

CHINA IS THE LARGEST PRODUCER OF SOLAR ENERGY IN THE WORLD. WITH 208 GW, IT COVERS ONE THIRD OF GLOBAL PRODUCTION. THIS IS FOLLOWED BY THE EU AS A WHOLE WITH MORE THAN 150 GW, THE UNITED STATES AND JAPAN. THE CZECH REPUBLIC RANKS AROUND 30TH.

ONE HOUR
PER YEAR

Every hour, the Sun produces enough energy to meet humanity's consumption for one whole year. So, if civilization could invent a way to capture and store the sun's radiation, then there would be no need to use any other energy sources.

IN THEORY, IT WOULD ONLY TAKE ABOUT 335 SQUARE KILOMETRES OF THE SAHARA, JUST 1.2% OF ITS LAND AREA, TO MEET THE WORLD'S ELECTRICITY NEEDS.

IN FACT, SAND IS AN IDEAL REFLECTIVE MATERIAL TO ENCOURAGE SOLAR PANELS TO ABSORB THE SUN'S RAYS. HOWEVER, THIS WOULD SIGNIFICANTLY INCREASE THE SURFACE TEMPERATURE OF THE ENTIRE AREA, WITH HEATED AIR RISING UPWARDS, THEN PRECIPITATING AND RETURNING TO EARTH AS RAIN. SUCH AN ARTIFICIAL CHANGE COULD SIGNIFICANTLY DISRUPT THE EARTH'S ENTIRE ECOSYSTEM.

Sunny 70's

As early as in the 1970s, solar energy was used to power small appliances such as pocket calculators. Amorphous silicon was used as a solar cell, which acted as a mini photovoltaic device. So perhaps everyone has used at least one solar appliance in their lifetime.

THE UNITED NATIONS PROJECTS THAT THE WORLD POPULATION WILL GROW BY ABOUT 2 BILLION PEOPLE TO JUST UNDER 10 BILLION BY 2050. THE LARGEST ABSOLUTE INCREASE IS EXPECTED TO BE IN AFRICA, BY 1.1 BILLION PEOPLE. THE INCREASE IN THE PLANET'S POPULATION IS ACCOMPANIED BY A HUGE INCREASE IN ENERGY CONSUMPTION.

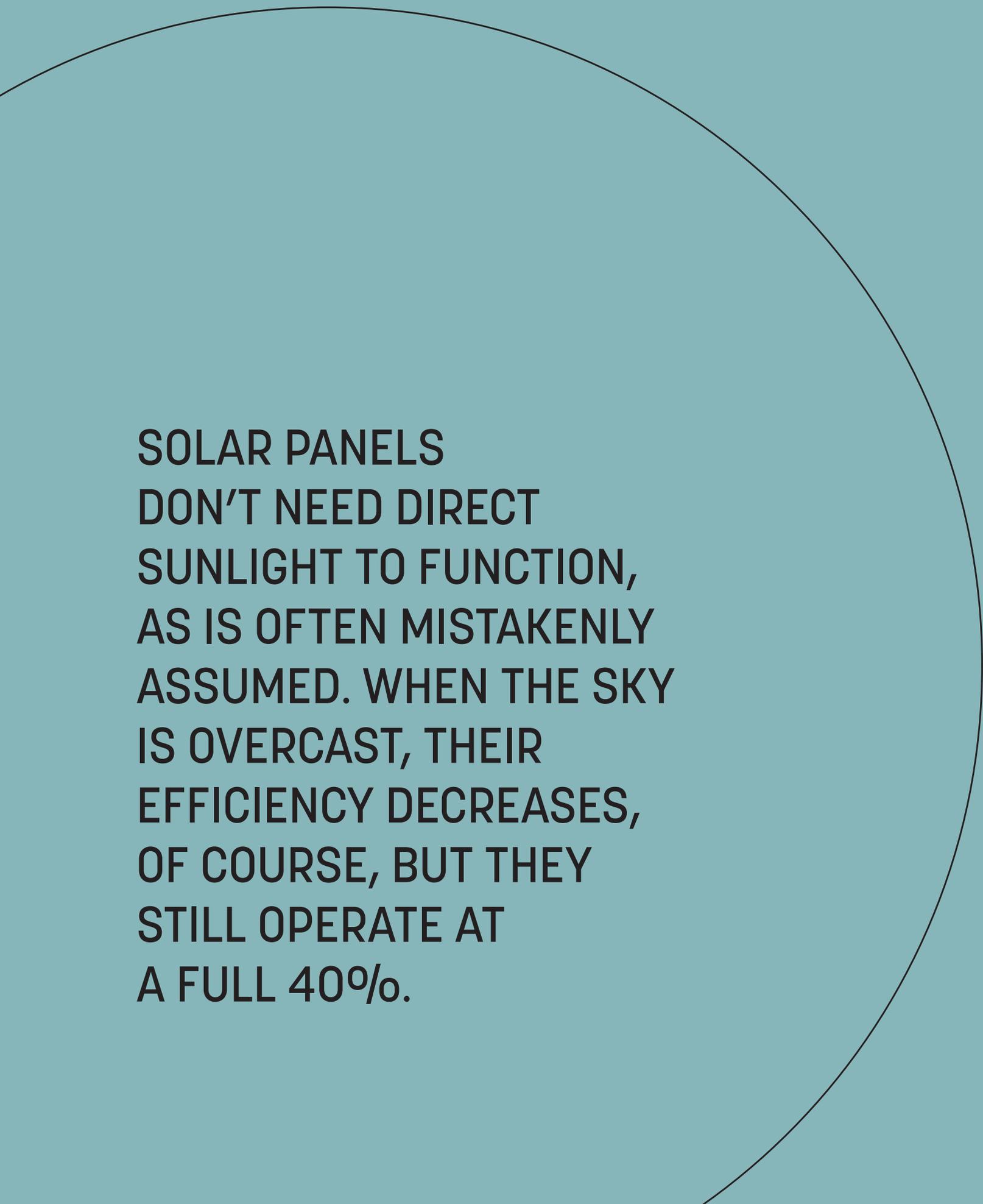
4 x 10²⁶

The Sun is a star at the centre of the Solar System, about 150 million kilometres from Earth. It is a ball of hot plasma that is constantly producing huge amounts of energy. Its power is roughly 4 x 10²⁶ watts.

FASTER THAN LIGHTNING

Lightyear 0 is one of the most famous attempts to create a fully solar car. Designed by engineers who originally worked for Ferrari and Tesla, it features multiple solar panels that cover the hood and roof of the car. But traditional carmakers are not lagging behind in this regard either, with Audi teaming up with Israeli start-up Apollo-Power for solar power, Mercedes-Benz creating the Vision EQXX and the Hyundai Ioniq 5, for example, already representing the hybrid solar car segment.





**SOLAR PANELS
DON'T NEED DIRECT
SUNLIGHT TO FUNCTION,
AS IS OFTEN MISTAKENLY
ASSUMED. WHEN THE SKY
IS OVERCAST, THEIR
EFFICIENCY DECREASES,
OF COURSE, BUT THEY
STILL OPERATE AT
A FULL 40%.**

CHINA GOES TO SPACE TO SEE THE SUN

China plans to build a solar power plant in space. If everything goes according to carefully guarded plans, we will see the first solar farm by 2050. It should be able to generate more than 2,000GW, roughly ten times more than the largest terrestrial solar power plant.

ZERO TO HERO

THE INTERNATIONAL ENERGY AGENCY'S NET ZERO BY 2050 STUDY PREDICTS THAT THE SHARE OF SOLAR AND WIND POWER IN TOTAL CONSUMPTION WILL INCREASE FROM THE CURRENT 10% TO NEARLY 70% BY 2050.

70 %

SOLAR MAPS

SO-CALLED SOLAR MAPS ARE USED TO ASSESS THE SUITABILITY OF PLACING SOLAR PANELS AT SPECIFIC LOCATIONS AROUND THE PLANET. THEY ARE AVAILABLE ON THE INTERNET, SHOW THE EXACT PARAMETERS OF THE SUN AND SHOW HOW MUCH SOLAR ENERGY CAN BE PRODUCED IN A GIVEN LOCATION.



THE LARGEST SOLAR POWER PLANT IN THE WORLD IS THE BHADIA SOLAR PARK IN INDIA WITH A TOTAL CAPACITY OF 2,700 MW. IT WAS BUILT IN 2018 ON A TOTAL OF 160 SQUARE KILOMETRES AND IS CONSTANTLY EXPANDING. THE TARGET IS A CAPACITY OF 3.5 GW.

THE CHEAPEST ALTERNATIVE

ONE MEGAWATT-HOUR PRODUCED BY SOLAR TECHNOLOGY COSTS \$32, COMPARED TO \$36 FOR ONSHORE WIND AND \$55 FOR HYDROELECTRIC. BIOMASS ENERGY CAN BE PURCHASED FOR \$89, AND THE MOST EXPENSIVE ALTERNATIVE ENERGY REMAINS THAT FROM OFFSHORE WIND – IT COSTS MORE THAN \$120.

Even architecture can be solar. The idea of solar buildings first emerged around the 5th century BC, when the ancient Greeks chose materials that absorb light rays – such as stone – to construct their buildings and positioned the buildings facing south to allow plenty of light into the interior. The great thinker Socrates himself described the whole strategy as follows: Houses that face south benefit from the fact that in winter the sun's rays pass through the colonnade and warm the interior; in summer, when the sun travels at a level above our heads, the roof acts as a perfect shade.

SOLAR ARCHITECTURE OF ANTIQUITY

BLACK & WHITE/ NORTH & SOUTH

Santorini is poetic with its white buildings, which form a typical contrast with the sea in the style of the Greek flag. The locals paint their homes white to prevent heat absorption and to keep their houses cool. The Nordic peoples have the opposite problem, so they paint the walls of their houses black to trap as much heat as possible. The typical highly absorbent material basalt, which is of lava origin, helps them to do this.



AMONGST THE GLACIERS

TWO HUNDRED AND FIFTY KILOMETRES NORTH OF THE ARCTIC CIRCLE, AT THE END OF A FJORD IN GREENLAND, THE MOST PRODUCTIVE GLACIER IN THE NORTHERN HEMISPHERE. THE LOCAL VILLAGE OF ILIMANAQ, WHERE THERE IS NOT EVEN A ROAD, WAS CHOSEN BY CHEF POUL ANDRIAS ZISKA AS TEMPORARY LOCATION FOR HIS MICHELIN KOKS VENTURE. WITH ITS ADDRESS IN THE FAROE ISLANDS, IT WAS ALREADY CONSIDERED THE MOST REMOTE MICHELIN RESTAURANT IN THE WORLD, BUT CHEF POUL ANDRIAS ZISKA DECIDED TO BREAK EVEN THAT BARRIER.

TEXT: ADÉLA MEINELT PHOTO: CLAES BECH POULSEN





Before Koks returns to its home in the Faroe Islands in 2024, it will set about interpreting the strictly local raw materials of Greenland's Nordic terroir.

The Føroyar or Sheep Islands, where more sheep live than people, are defined by their remoteness and the proximity to the wild sea all around. Chef Poul Andrias Ziska has the vast majority of the ingredients he works with in his restaurant fished or picked just hours before they end up on the plate. Their uncompromising quality and freshness are based primarily on the pristine purity and integrity of Nordic nature. In Koks, they serve up the richness and history of the Faroe Islands in a secluded wooden hut painted black in the mountains by Lake Leynavatn, about 24 kilometres from the capital Tórshavn, with a grass-covered roof from the 18th century. Ziska's culinary style full of contrasts has been awarded two stars by the Michelin commissioners, as well as the prestigious Green Star, which highlights establishments that meet the strictest criteria for sustainable haute cuisine.

THE 30-YEAR-OLD HOLDER OF TWO MICHELIN STARS PERSONALLY HARVESTS SEAWEED AND, TOGETHER WITH LOCAL FISHERMEN, GOES FISHING FOR FISH AND SEAFOOD IN THE ROUGH WATERS.



From the pizzeria to Greenland

The heritage of Faroese cuisine is above all the unique technique of preserving called *raest*, which combines smoking, drying and fermentation. The raw, unsalted meat of sheep, whales or birds hangs for weeks or even months in a traditional wooden *hjallur barn*, where the salty island wind blows through the holes between the planks. As time passes, the meat develops a layer of characteristic greyish mould, which gives it a salty, savoury flavour. A classic example of its use on the menu at Koks is a variation of dried mushrooms and pickled berries served with a spicy slice of fermented lamb. In the Faroese establishment, however, you can taste even more interesting and unique dishes. Nowhere else can you get the meat of the redfish, which has been around since the prehistoric Miocene, or the Icelandic Arctic fish, which lives up to 500 years. Chef Ziska, whose creations earned him his first Michelin star at the age of 26, started out as a pizza maker in his native Tórshavn. But the translation of the restaurant's name, Koks, which refers to someone who overcomes obstacles in the pursuit of excellence, makes even more sense with the announcement of the business's temporary presence beyond the Arctic Circle.

At the end of the world

Koks and his entire team took advantage of the forced hiatus given by the building of a new restaurant in the Faroe Islands to relocate to Greenland for two summer seasons. Before returning to his homeland in 2024, he will set about interpreting the strictly local ingredients offered by the richness of the unique Nordic terroir on the shores of the glacial fjord in Ilulissat, a UNESCO-protected natural treasure. In the Arctic Circle, Ziska will expand its gastronomic portfolio to include local berries, herbs or seal meat. For the first time in Greenland, guests will taste up to a 20-course Michelin tasting menu. A visit to the restaurant is conditional on a stay in nearby Ilulissat or at the Ilimanaq Lodge bungalows overlooking Disko Bay. The micro-resort with its glacier views can only be reached by boarding a boat, which makes its way through the glacier fields where, with luck, guests can spot whales. After a forty-minute cruise through the frigid waters of Baffin Bay, guests will be greeted by the settlement of Ilimanaq, with only fifty permanent residents. Coby Claushavn was founded in 1741 by a Dutch whaler, and it is no coincidence that it loosely translates as a place of assumptions.





While many in the foodservice industry superficially embrace the buzzword 'sustainability', Ziska and his team at Koks truly live the concept. The 30-year-old and two-Michelin-starred chef personally travels to the rocky shores of the Faroe Islands to harvest seaweed and, together with local fishermen, catch fish and seafood in the rough waters there. Koks has consistently included a variety of different seaweeds on its tasting menus; you can find them, for example, in the salad with mussels, but also in the pudding with blueberries. Sustainability and responsibility towards the planet are simply part of the DNA of the company, which only imports raw materials from the southern Nordic countries to the Faroe Islands when necessary and unavoidable. What is a raw material constraint for other chefs, Ziska enjoys, because the focus on localism feeds his creativity.

GREEN MICHELIN STAR





THE FUTURE IS NOW

CLOTHES MADE OF ALGAE, SHOES MADE OF CHEWING GUM - THE FASHION OF THE FUTURE IS NOT ONLY CREATED IN ATELIERS, BUT ALSO IN LABORATORIES, WHERE INVENTORS IN THE FIELD WORK ON MATERIALS AND TECHNOLOGIES THAT MEET THE PHILOSOPHY OF SUSTAINABILITY. THEY DO SO BECAUSE THE FASHION BUSINESS IS ONE OF THE BIGGEST POLLUTERS OF OUR PLANET. WE PRESENT YOU A SELECTION OF REVOLUTIONARY SOLUTIONS THAT AIM TO COMBINE TRENDS AND ECOLOGY WITHOUT COMPROMISING AESTHETICS.

TEXT: JAN TOMÉŠ PHOTO: BRAND ARCHIVE



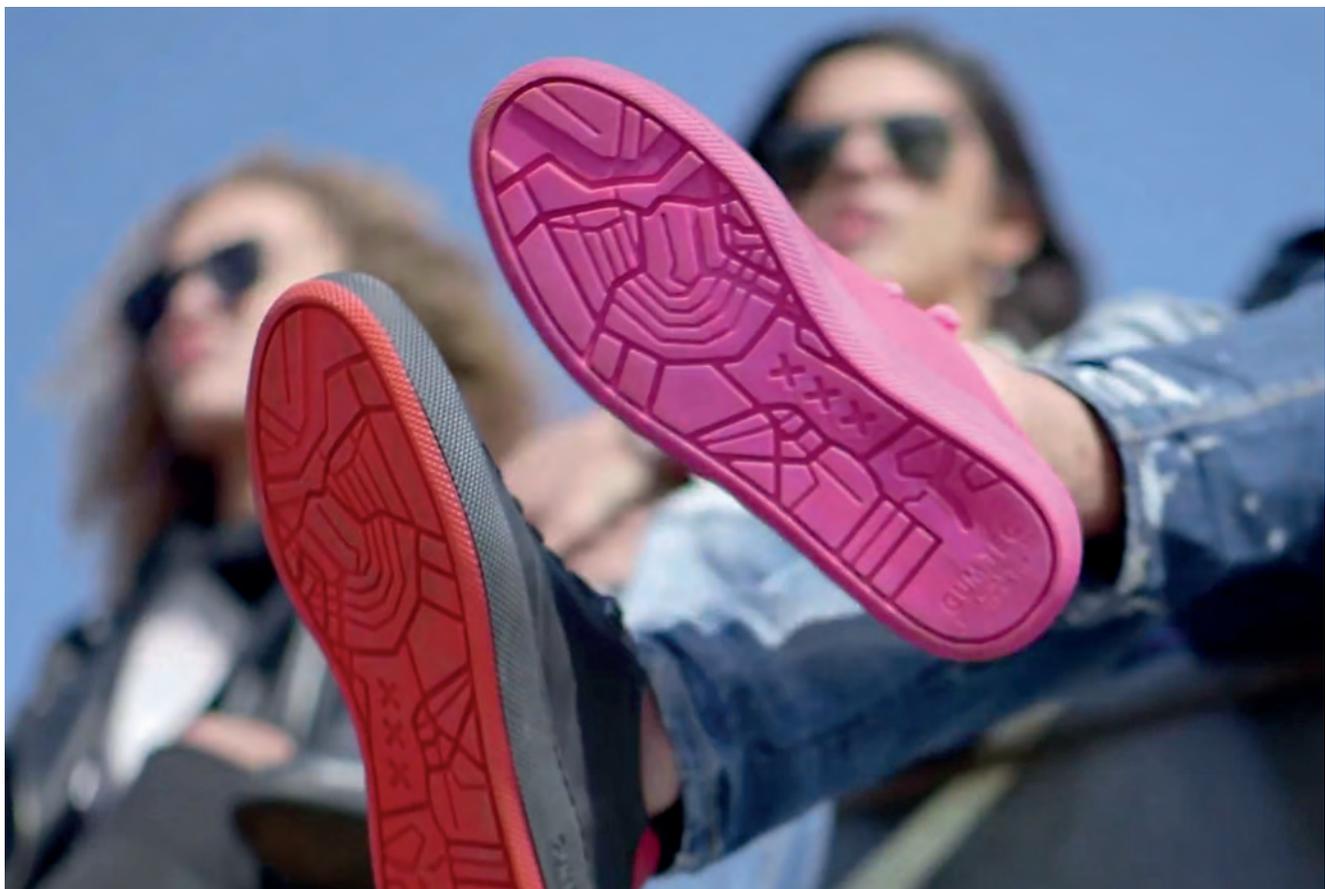
In architecture or interior design, few people are surprised by new and often extravagant materials, but in fashion this approach is not nearly as common. For example, the Spanish company Ecoalf, founded by Javier Goyenech, has set out to prove that clothing does not have to be made only of cotton, linen or synthetic substitutes. After ten years of existence, Ecoalf already has several stores across Europe, where customers go to buy shoes made from recycled plastic or trousers made from organic cotton with a seaweed blend. In addition to his native Spain, the brand owner also looks for unconventional elements in his clothing in Greece and Italy, where he helps clean the Mediterranean Sea by collecting waste. “We work with local fishermen. They have a choice: they can either throw the waste that gets stuck in their nets back into the sea, or they can collect it for us, and we can continue to use it. Fishermen love the sea, so more and more volunteers are signing up for our initiative,” Javier explains. In Amsterdam, for a change, the locals love clean streets, so they’ve taken it upon themselves to get rid of the layers of discarded chewing gum. The GumDrop initiative not only collects the leftovers stuck to the pavement itself but has also placed several collection bins around the centre where used chewing gum can be dropped off. They are then turned into Gum-tec, a material that can be turned into sneaker soles and even office supplies. Just to give you an idea: It takes about one kilo of used chewing gum to make one pair of shoes, and thanks to GumDrop, about half a tonne of gum disappears from the streets of Amsterdam every year.

Nothing must be wasted

Scenes of children from developing countries rummaging through tons of garbage have become a sad part of globalised society. But more and more fashion brands are now trying to prevent the export of waste to third world countries by turning it into functional clothing. A pioneer in this field is the Californian outdoor brand Patagonia, which started producing its fleece jackets from recycled plastic bottles thirty years ago. The brand has collaborated with several research centres to develop the technology and still has been refining processes to make production as energy efficient as possible and to prevent the release of microplastics into the environment. Recycling is not taboo even for luxury brands such as Italian giant Prada. It built a reputation in this respect in the late 1980s with nylon bags and travel luggage, which are now

made predominantly from so-called econyl, which is produced from discarded fishing nets, old carpets and other plastic fibres collected from the ocean floor. Another Italian brand, Gucci, also started making accessories from econyl a few years ago, decorating handbags and totes with appliqués made from recycled cork or reclaimed polyamide.

German brand Freitag has focused on recycled materials since its inception. The company produces bags popular all over the world from used ship sails. But it's not just from the West that innovative solutions are flowing into fashion; Cambodian brand Tonlé, whose pieces can also be bought on European e-shops, buys surplus fabrics from mass producers for its collections and uses them to create new original garments and bags.



THE GUMDROP INITIATIVE RECYCLES USED CHEWING GUM INTO A MATERIAL THAT CAN BE USED TO MAKE, FOR EXAMPLE, SNEAKER SOLES. IT TAKES ABOUT FIVE KILOS OF CHEWING GUM TO MAKE ONE PAIR OF SHOES, WHICH WILL ALSO DISAPPEAR FROM THE PAVEMENT THANKS TO THE NEW USE.

RESEARCHERS AT FINLAND'S
AALTO UNIVERSITY HAVE
DEVELOPED A TECHNOLOGY
THAT CAN IMPLEMENT
MICROSCOPIIC SOLAR PANELS
INTO TEXTILE FIBRES.



Solar powered coat

Not only fashion designers but also scientists are working to ensure that the clothes of the future actively reduce the carbon footprint of their wearer. A team of researchers from Finland's Aalto University is even using solar panels to make this vision a reality. In fact, they have developed technology that can be embedded directly into textiles, making them invisible. Their ultra-thin solar panels can be applied to natural and man-made fibres and can harvest energy from both sunlight and artificial light. However, the amount of energy generated depends on many factors, including the type of solar cells used and the structure of the material. "These garments could greatly reduce the need for traditional energy sources, most of which generate greenhouse gases. The great advantage of our solar panels is that designers don't have to change the aesthetics of a garment to make them work, yet these invisible panels are capable of charging phones and other portable devices," says Elina Ilén, head of the research team. "Moreover, such fabrics may not only be used for clothing, but also for home textiles. Just imagine if your curtains or sofas collected energy from light and used it to power devices," she adds.

Truly functional clothing

Established fashion brands such as Ralph Lauren and Tommy Hilfiger have experimented with the use of solar panels in clothing in the past, for example in the form of jackets and backpacks with built-in solar technology. However, their experiments have never met with much public acclaim – solar panels simply look unsightly on clothing. Thanks to Elina Ilén, however, the first sports brands are already working on prototypes of clothing with invisible panels. "We are currently offering the results of our research to activewear brands that are already developing add-ons for our technology, such as built-in heart rate sensors," explains Elina. "It's a way for fashion to go from being a big polluter to a contributor to the planet," she concludes.

NFT OFFERS THE POSSIBILITY TO TRACK ENERGY CERTIFICATES IN HOURLY INTERVALS, WHICH REPRESENTS A NEW WAY TO ENSURE ABSOLUTE TRACEABILITY OF ENERGY ORIGIN.

NFT is an abbreviation of the English non-fungible token, meaning something like ‘non-interchangeable document’. It is a term used to refer to digital assets with unique characteristics. But to be more specific: For example, if you and your friend exchange a ten-dollar bill for another ten-dollar bill, the result is the same for you – so a ten-dollar bill is interchangeable, just like shares in the same company or two units of the same cryptocurrency. On the other hand, if you traded a real Picasso for a replica, you would regret it for the rest of your life. And every single NFT is like that Picasso. Although NFTs are currently heard of mainly in connection with various Internet images of contradictory quality, the very essence of the technology is more than robust. NFT is an extension of the blockchain, or virtual chain database, on which the aforementioned cryptocurrencies are based. Because blockchain has the ability to verify and transfer ownership of assets, NFT is becoming the digital standard in many industries for verifying ownership of unique digital and physical objects. These include, for example, designer handbags or works of art, whose provenance can be traced in a database whose data cannot be manipulated if it is accompanied by a token.

New certification standard

It is in this direction that the NFT is also beginning to make its mark in the energy sector, more specifically in the renewable energy sector, through bold projects. In these pages, there is no need for a long introduction to Energy Attribute Certificates, or EACs, which mark the physical flow of electricity with unique characteristics and allow consumers to choose their preferred energy source. Each such certificate, for a single megawatt-hour, is a certification of the technology and location of generation as well as the month and time it was produced. Each year, EACs are traded between electricity producers who can use the certificate to demonstrate sustainability standards or the origin of the electricity to their customers. However, such a system is not seamless. Sometimes the wind doesn’t blow and sometimes the sun doesn’t shine, so if one really wants to consume carbon-free energy, one cannot rely on the monthly EAC – the electrons can come from any source, after all. Therefore, there is now talk of tightening up these certificates, which should also have an hourly granularity, so that the information on the energy provided by the grid is as accurate as possible. This is where the practical use of NFTs comes into play. The Spanish company FlexiDAO already allows the issuance of hourly EACs in the form of NFTs on its platform, thus creating a tradable and immutable digital attribute that can be controlled and used to report on carbon-free electricity achievements.





THE SUN AS AN ENGINE

HE HAS AMBITIONS TO SUCCEED IN BUSINESS, BUT ALSO IN HIS MISSION TO SAVE THE PLANET, WHICH HIS WORK CLEARLY ENABLES HIM TO DO AT A TIME OF ESCALATING ENERGY CRISIS. "WE WANT TO HELP EUROPE BUILD THE INDEPENDENCE THAT IS SO NECESSARY," SAYS **PETR SEDLÁČEK**, RESPONSIBLE FOR THE CONSTRUCTION AND MANAGEMENT OF AND REVENUE FROM THE CONSTRUCTION AND SALE OF POWER PLANTS IN CHILE, WHICH, AS WELL AS ITS SOLAR POTENTIAL, HAS ALSO BEWITCHED HIM WITH ITS WINE.

Text: ANDREA VOTRUBOVÁ Photo: DAN HROMADA

How many solar power plants have you built in your career?

In the last two years we have built 27 plants in Chile, which represents 171 MWp if you want, and another 11 are in various stages of construction. In Cyprus, we have completed the first power plant project, and more will follow.

How time-consuming and costly is this process?

If we take into account the construction of the power plant itself, up to about 10 MWp, then we are talking about 8 to 10 months from the start of engineering, that is, from the preparation of the supporting documentation to the handover to the client. Of course, this only applies if all the permits are in place. Cooperation with development is absolutely essential for the success of the project. And development, including the preparation of all permits, is a two-year job. As far as finances are concerned, photovoltaics is not a cheap hobby. The final cost of a project is influenced on the one hand by the complications of the land, such as its profile, soil type, water-proofing measures and so on, or by the special requirements of the distribution company. On the other hand, the solar irradiation at a particular location determines how much electricity the plant can generate. The bottom line is that a price of over a million dollars for 1 MWp of capacity is not unusual.

To what extent is the current situation, where material deliveries are delayed and all inputs have become significantly more expensive, affecting your business?

The current market situation is very dynamic. After years of increasing the efficiency of production of individual components and simultaneous price reductions, we are facing a reversal from mid-2020. Scissors between demand and supply have opened up considerably as the Chinese government has massively supported the construction of photovoltaic power plants on its territory. This has rocked the entire supply chain – while the capacity to produce its own panels has grown rapidly, the supply of the main elements for the panels, i.e. silicon cells, has remained pinched already on the supply of ingots. All this is further supported by a shortage of special glass for panels or a global

shortage of semiconductors, in this case for inverters. The epidemic of Covid-19 has then complicated transport in a way that has surprised even logistics specialists. The shortage of containers, or their excessive delay in the USA, or, on the other hand, the blockage of entire ports in China, escalated shipping prices to eight times the standard prices and led to an increase in transport times of up to 50%. The Russian war in Ukraine then crashed the market for transformer sheets. We can only partially compensate total price increase for the 10-20% by optimising the design and further increasing efficiency, but our room for manoeuvre is really small.

You are currently building power plants in Chile. How does this process differ from the Czech, or even European, situation?

Chile is the most developed country in Latin America, but it has no fossil fuel resources of its own, so electricity generation is doomed to import raw materials or make greater use of renewable sources. In addition to the highly developed hydroelectric sector, the construction of photovoltaics is now widely promoted by society. Permitting processes in Chile are quite sophisticated and at the level of the most advanced European countries. On the other hand, the Chilean labour market is overheated and finding available capacity for construction work is a challenge. The truth is, of course, that our culture and Chile's are different, whether in the way we communicate, our perception of time or our preference for flat or hierarchical organisation. But these are not problems that other international societies do not face. Mutual respect is essential, then most misunderstandings can be resolved.

Why is Chile so interesting to your company that it has moved most of its business there?

As already mentioned, Chile needs electricity from renewable sources and there is a high demand for photovoltaics. In addition, the country has a transparent and relatively fast permitting and connection process. The solar irradiance here is roughly double that of Central Europe, which in itself is an extremely interesting factor for our business.

AFTER YEARS OF BULLYING AND ABUSE //
 BY VARIOUS POLITICAL ENTITIES,
 PHOTOVOLTAICS HAS FINALLY BEEN
 GIVEN ROOM FOR DEVELOPMENT.
 // PEOPLE PERCEIVE IT VERY POSITIVELY.

Which other countries do you see as promising in this respect?

At the moment, whether due to the energy crisis triggered by the Russian war or in the context of the Green Deal, the situation in Europe is changing even more than we expected. Therefore, our areas of interest include not only Cyprus, where we have already built our pilot project, but also Romania, where we would like to return, and France and Hungary. Last but not least, we want to be an active and strong player again at home in the Czech Republic.

In addition to construction, you are also responsible for the maintenance of the power plants. What all goes into this area and how costly is maintenance in the overall investment?

The so-called O&M, operations and maintenance, normally cover comprehensive asset management. In other words, the client buys a photovoltaic power plant including the subsequent management and their only concern should be to pay the O&M invoices. We handle the rest, from monitoring to preventive maintenance and regular cleaning to predictive and corrective maintenance or billing for the electricity generated. That's our job. Prices for such service are then around 1% of the purchase price per year.

What is the average lifetime of the power plants?

In the case of onshore structures, it is thirty years.

There are various problems with alternative energy sources, such as the fact that they cannot always be relied on because the wind does not always blow, or the Sun does not always shine. To what extent does this affect the development of the solar business?

We cannot really rely on the Sun or the wind 100%, although today's predictive models give us a fair amount of confidence for planning, at least in the short or medium term. What we cannot do, however, is to adjust the production curve in line with consumption. The solution lies in energy storage, a matter that is theoretically very well handled. Today, individual solutions are slowly getting

technically to the point where they are applicable at an economically feasible scale. It does not matter whether we are talking about the use of battery storage or energy storage using liquefied CO₂ or the production of green hydrogen and the use of fuel cells.

On the other hand, solar panels have the green light in view of the current energy situation in the world – what role do you think alternative sources can play compared to traditional ones in the energy sector 10 or 20 years from now?

Alternative and renewable sources will play at least a significant role in that timeframe. The lessons learned from the crisis of the last few months will accelerate the push for decentralisation of resources, for their management and remote control, for removing dependence on external fuel supplies, for redundancy and grid stability. Renewable sources combined with energy storage are naturally one of the few possible alternatives for further development.

How did you get into this field?

Energy and renewables have always been a part of my career, but it is only now that I have the opportunity to focus 100% on this discipline.

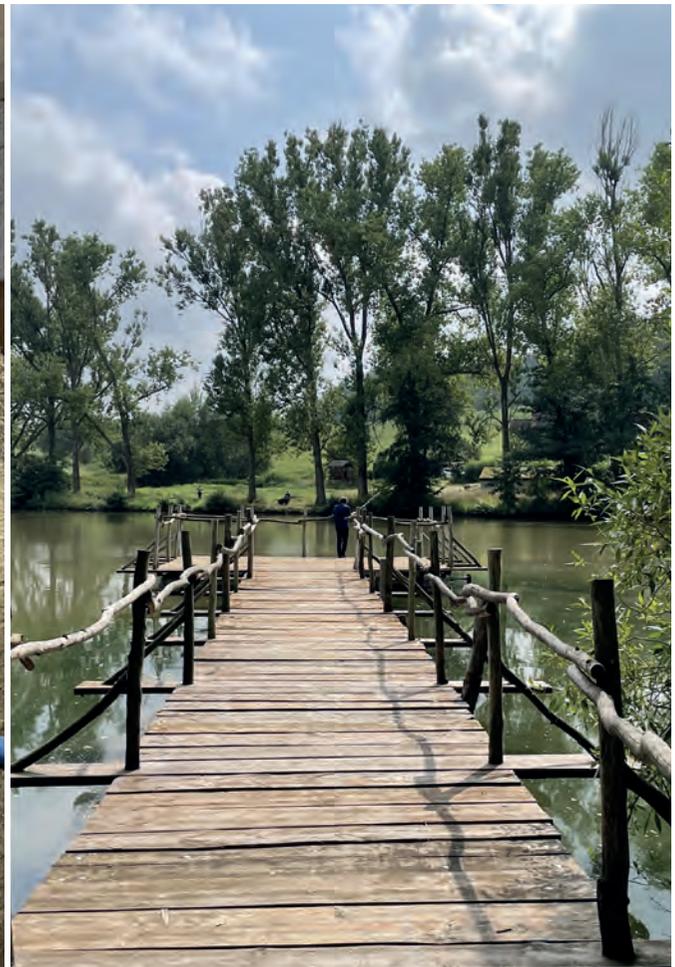
How important is the experience in Chile for you? What have you learned through it – professionally and personally?

After years of focusing on Northern and Central Europe, or South Africa, I have moved from this north-south axis to an east-west axis running from China to Chile. In terms of cross culture training it was again something new and very interesting. Working with clients like BlackRock is an opportunity to look at the business through a slightly different set of eyes and move the company in the right direction. Or else, on a lighter note, in the last two years I had to learn both patience – thanks to Chile – and counting and forecasting for 30 years and many places after the decimal point – thanks to BlackRock.

CHILEAN-CZECH TEAMBUILDING IN SLAPY



As most of SOLEK's activities take place in Chile, establishing closer relations with the local employees is more than desirable. An opportunity for this was the international workshop and teambuilding between Chileans and Czechs, which took place on 26th and 27th July at the Michael Farm near the Slapy Lake. The participants had mental fun discussing topics such as financial strategy, project construction support or new market opportunities, while they got physically exhausted with activities such as fishing, archery, knife throwing or jumping in bags.





MEETING IN ŽLUTÉ LÁZNĚ

SOLEK employees had the opportunity to have fun, air their heads and discuss other than normal work issues during a teambuilding afternoon held on 14th July in the Žluté lázně (Yellow Spa) recreational area in Prague. In addition to team activities such as volleyball or badminton, there was also ping-pong or paddelboarding on the program, and after the sports performances there was a rich refreshment.

We do business with respect

As responsible business is one of SOLEK HOLDING's key principles, it was only a matter of time before we joined the United Nations Global Impact initiative, bringing together thousands of companies around the world with the same vision – to do business with a positive impact on the planet and the surrounding community. SOLEK made this commitment in May of this year, when the company also set out specific sustainability steps, including a timeline.



WHEN SOLEK
IS HAVING
BREAKFAST

A good day starts with a good breakfast, is a well-known saying that we at SOLEK HOLDING honour consistently. That's why one morning a month we have a fun and themed breakfast: sometimes the morning meal is accompanied by a presentation of the work of one of the departments, other times by giving out gifts to employees before the summer holidays, doing crossword puzzles on the theme of Easter, or the breakfast itself is festive on special occasions such as office expansions or the connection of 200 MW power plants.

12
YEARS

THE COMPANY WAS FOUNDED IN 2010 BY THE VISIONARY ZDENĚK SOBOTKA AND THIS YEAR IT CELEBRATED 12 YEARS OF ITS EXISTENCE. SINCE THEN, IT HAS IMPLEMENTED ALMOST FIVE DOZEN PROJECTS. IN CHILE ALONE, SOLEK HOLDING'S LARGEST MARKET, IT HAS CONNECTED 30 POWER PLANTS. AND THE COMPANY HAS OTHER BIG AMBITIONS IN LATIN AMERICA.

286 000 000 \$

THIS IS THE ESTIMATED CURRENT MARKET PRICE OF SOLEK HOLDING SE'S CONNECTED POWER PLANTS. THIS FIGURE WILL CONTINUE TO RISE.

2025

By 2025 SOLEK HOLDING SE plans to start building wind power plants and also produce green hydrogen, the only environmentally friendly and climate-neutral hydrogen on the planet.

212 MW

THIS IS THE AMOUNT OF ELECTRICITY CURRENTLY PRODUCED BY THE POWER PLANTS BUILT BY THE SOLEK HOLDING SE.

28

SOLEK HOLDING SE IS A COSMOPOLITAN COMPANY THAT EMPLOYS PEOPLE OF TWENTY-EIGHT NATIONALITIES IN VARIOUS LOCATIONS AROUND THE WORLD.

SOLEK has connected solar power plants in the Czech Republic, Chile, Cyprus, Romania and Slovakia. As part of its strategic development, the company also has offices in Hungary, Greece, France and Spain, where it is planning further projects.

5 COUNTRIES

100 % & 0

Sustainability and social responsibility are not just a trend in SOLEK' concept. By 2023, the company plans to have 100% of its operations covered by the international ISO 45001 certification, which confirms that it ensures the health and safety of its employees at work. By 2040, the company should achieve zero emissions.

502 MW

By the end of 2023, SOLEK aims to achieve a capacity of 502 megawatts in Chile for its connected power plants.

SOLEK HOLDING SE TEAMS PLAN TO HAVE A PORTFOLIO OF UP TO **2GW** OF POWER PLANTS IN EUROPE AND LATIN AMERICA BY THE END OF 2025.

SUN THING

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THE QUALIFIED INVESTORS' FUND



Investiční fond
SICAV

INVEST IN THE ENERGY OF THE FUTURE WITH US

The qualified investors' fund, MW Investiční fond SICAV, a.s., invests in projects related to the construction and operation of solar power plants. Our delight in supporting renewable energy sources is combined with conservative investment opportunities, long-term appreciation and attractive yield. We co-fund

the project portfolio of SOLEK Group, which constructs, owns and operates solar power plants in Chile and Europe. Volatility-proof investments are now available to you in five versions. All information about the fund and its activities can be found on www.mwinvest.cz.

Product name	Investment class	Yield (2021)
Class R	Re-investment class	8.32%
Class D	Dividend class	7.23% (dividend paid for 2021)
Class D15	Dividend class with minimum investment of CZK 15 million	VIP Dividend class Class
R10	Reinvestment class with minimum investment of CZK 10 million	VIP Reinvestment class
Class R20	Reinvestment class with minimum investment of CZK 20 million	VIP Reinvestment class

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