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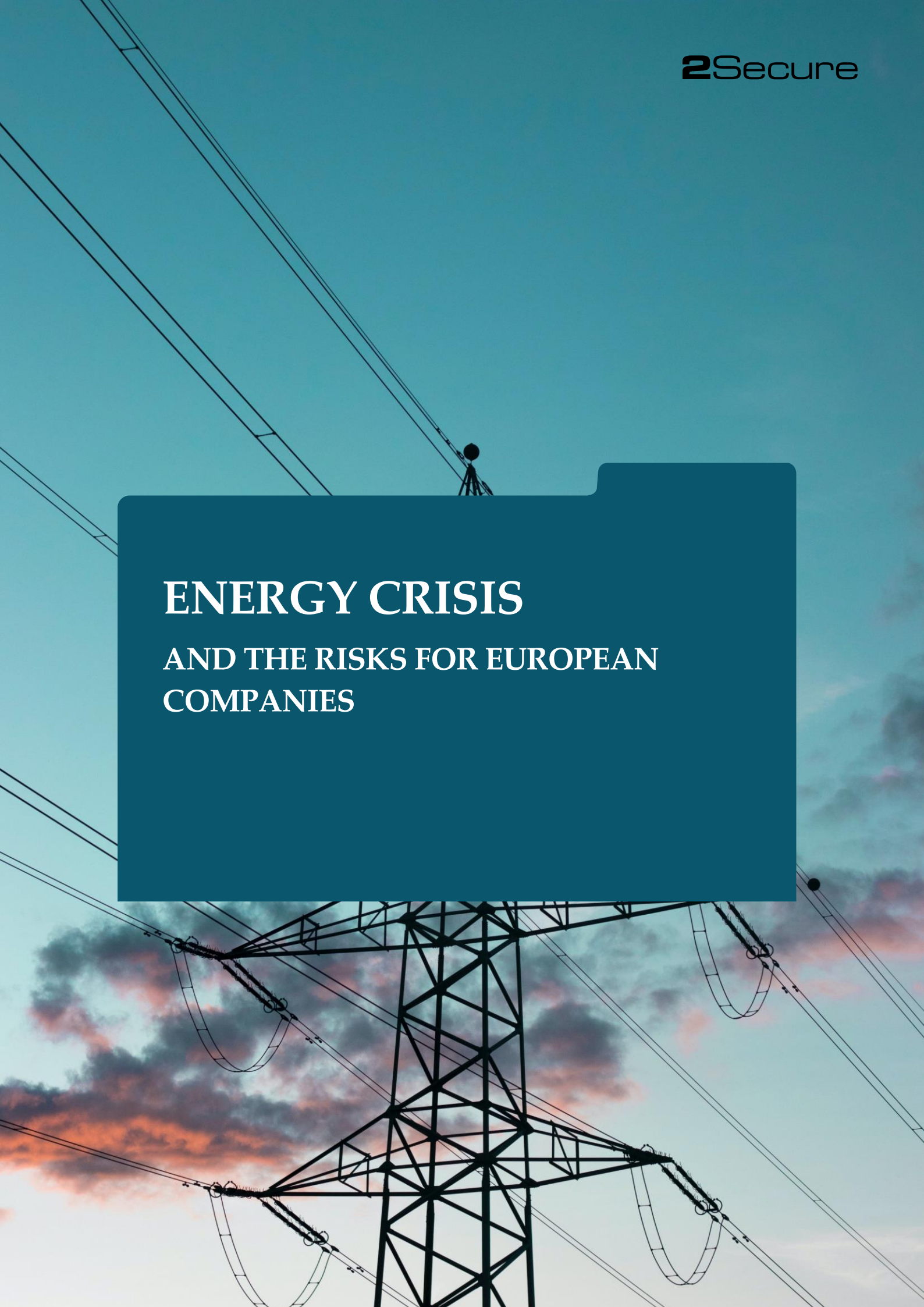


ENERGY CRISIS

AND THE RISKS FOR EUROPEAN COMPANIES

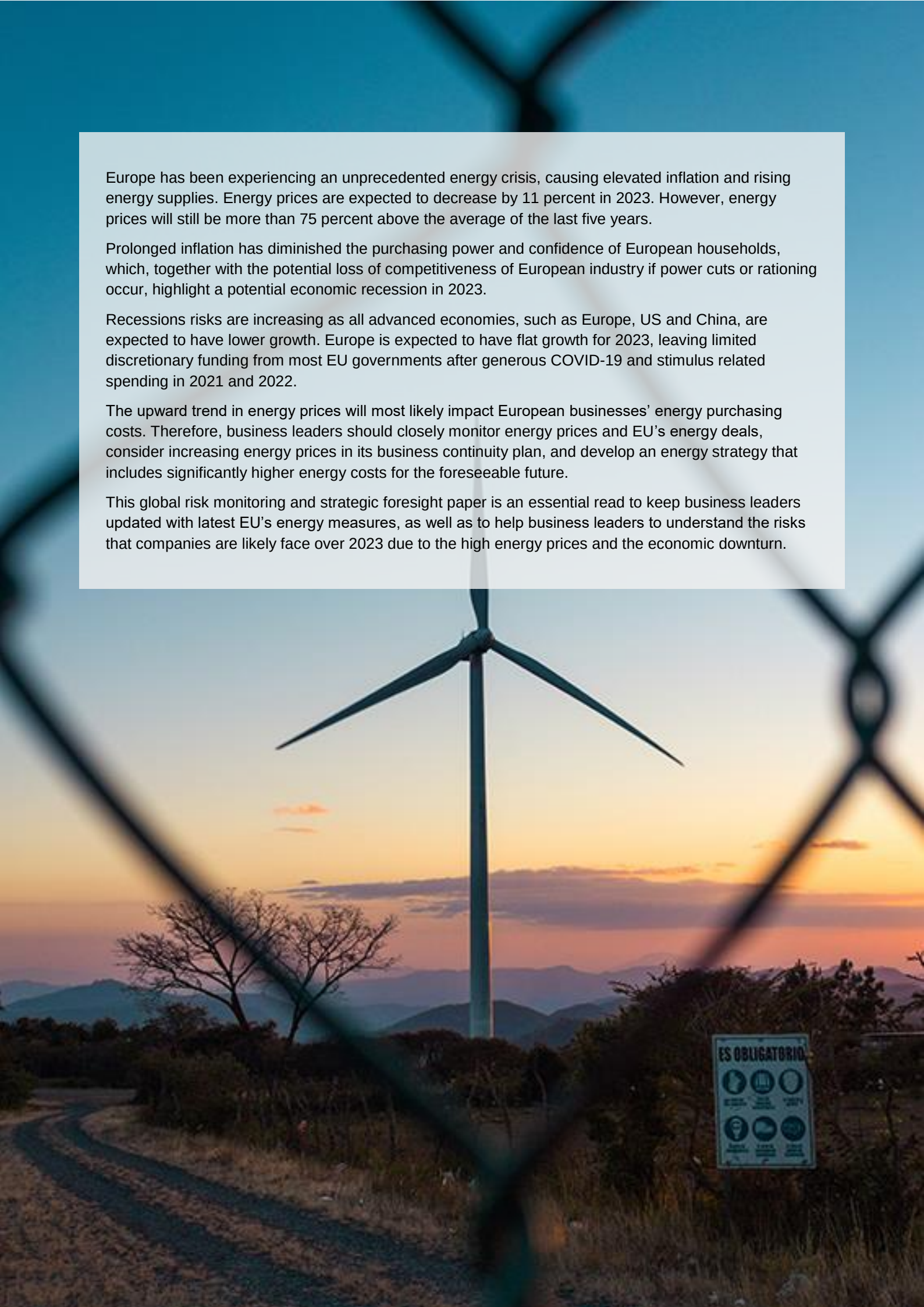
Europe has been experiencing an unprecedented energy crisis, causing elevated inflation and rising energy supplies. Energy prices are expected to decrease by 11 percent in 2023. However, energy prices will still be more than 75 percent above the average of the last five years.

Prolonged inflation has diminished the purchasing power and confidence of European households, which, together with the potential loss of competitiveness of European industry if power cuts or rationing occur, highlight a potential economic recession in 2023.

Recessions risks are increasing as all advanced economies, such as Europe, US and China, are expected to have lower growth. Europe is expected to have flat growth for 2023, leaving limited discretionary funding from most EU governments after generous COVID-19 and stimulus related spending in 2021 and 2022.

The upward trend in energy prices will most likely impact European businesses' energy purchasing costs. Therefore, business leaders should closely monitor energy prices and EU's energy deals, consider increasing energy prices in its business continuity plan, and develop an energy strategy that includes significantly higher energy costs for the foreseeable future.

This global risk monitoring and strategic foresight paper is an essential read to keep business leaders updated with latest EU's energy measures, as well as to help business leaders to understand the risks that companies are likely face over 2023 due to the high energy prices and the economic downturn.



THE ENERGY CRISIS AND THE RISKS FOR EUROPEAN COMPANIES

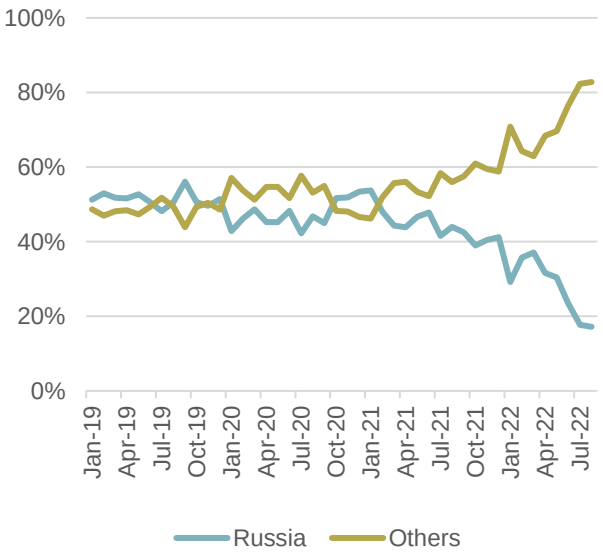
The energy crisis has been caused by the reduction of Russian gas supplies to Europe due to:

1. The Russian war in Ukraine
2. Russia's militarisation of its gas supplies to Europe
3. The European sanctions against Russia

The limited gas supplies in Europe have caused a sharp rise in natural gas prices as Europe is heavily dependent on fossil fuel imports - in 2021, the EU imported 83 percent of its natural gas.

Until the second half of 2021, Russia's share of EU gas imports averaged around 50 percent; however, in August 2022, Russia's share of EU gas imports was 17.2 percent.

EU's diversification away from Russian gas



Energy price inflation varies from country to country depending on the fuel mix, the level of energy efficiency and the structure of the economy, as well as government policies such as fuel taxation and energy bill support strategies.

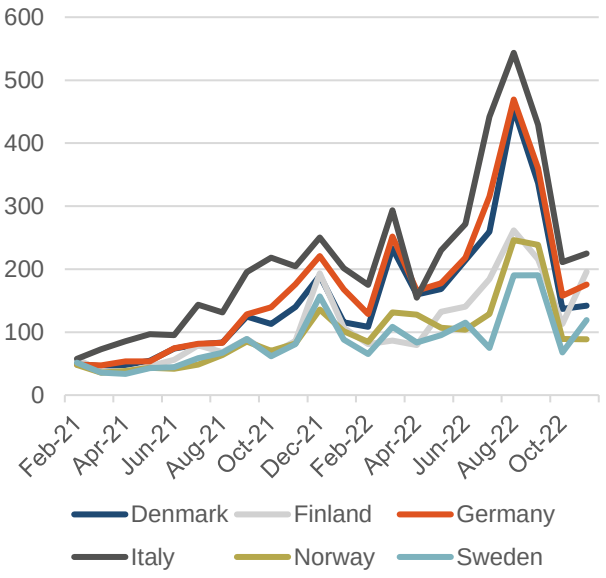
Between February 2021 and 2022, the price of natural gas rose from 20 to 80 EUR/MWh, with spikes of up to 180 EUR/MWh, which consequently raised electricity prices as well.

The increase in wholesale electricity prices reflects higher natural gas prices and deficits in nuclear and hydroelectric generation in Europe, which needed to be supplemented with more expensive power: coal and gas-fired plants. In some cases, even increased coal and gas-fired generation has not been enough to meet demand.

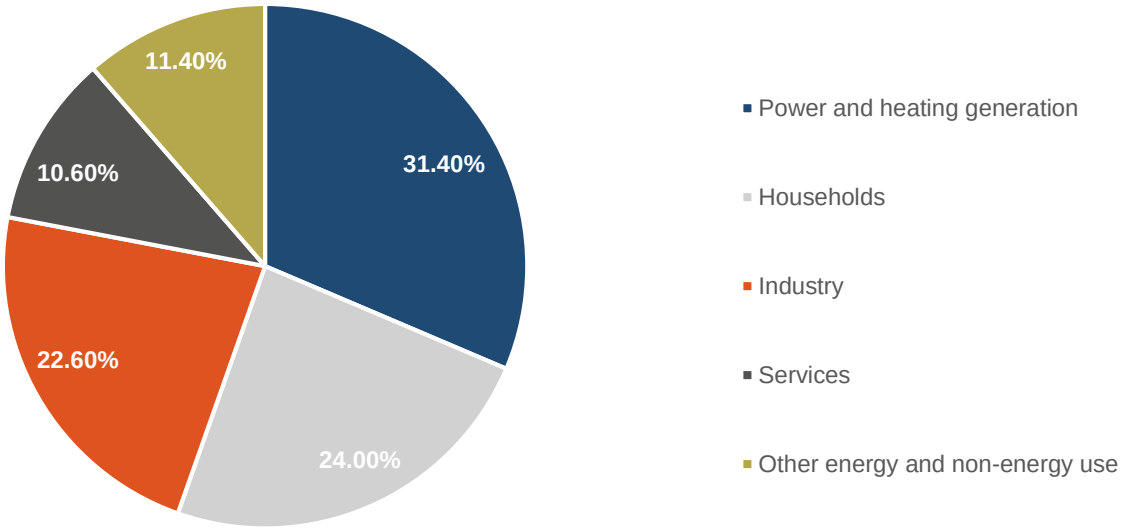
As a result, high electricity prices in Europe have caused both businesses and households to reduce their demand, some drastically.

European energy markets have tightened to the point where small changes in supply have large effects on prices, explaining the great volatility that energy prices in the European market are also experiencing.

Wholesale electricity prices EUR/MWh



Gas consumption in the EU in 2021



In the European Union, consumer energy price inflation up to October 2022 rose to 39 percent, and around a quarter of households are estimated to be living in energy poverty. Vulnerable groups are the most exposed and often live in older and poorer quality buildings, use less efficient appliances and older vehicles with lower energy efficiency levels. This results in these vulnerable groups paying several times more for their household energy bills.

For the majority of households, electricity bills are renegotiated once a year. For this reason, by early 2023, some European households will experience an increase of up to 200 percent in their electricity bills compared to the previous year.

This will lead to a decrease in the purchasing power of European citizens. The cost-of-living crisis is likely to continue at least until mid-2023 as people will continue to be affected by soaring bills and inflation. In addition, several European countries have already warned of the possibility of planned blackouts during the winter 2022-2023, limiting access to electricity in households.

RISKS FOR EUROPEAN COMPANIES

European businesses should be aware and prepare to deal with the following risks triggered by the energy crisis:

Rising electricity prices: despite efforts to secure sufficient gas supplies for the coming winter, energy market dynamics for Europe in 2023 will be as challenging as in 2022. Energy prices are expected to decrease by 11 percent in 2023. However, energy prices will still be more than 75 percent above the average of the last five years.

The upward trend in energy prices will most likely impact European businesses' energy purchasing costs.

Business leaders should closely monitor energy prices and EU's energy deals, consider increasing energy prices in its business continuity plan, and develop an energy strategy that includes significantly higher energy costs for the foreseeable future.

Business operations interruptions: the European Network of Transmission System Operators for Electricity (ENTSO-E) reported in December 2022 that electricity supply for this winter is at risk in Ireland, France, southern Sweden, Finland, Malta and Cyprus. The European electricity system remains heavily dependent on gas, with minimum gas requirements for electricity adequacy equivalent to approximately one third of total European usable gas reserves. In the coming months, close monitoring of the uncertainties surrounding nuclear availability in France, Sweden and Finland, as well as coal supply in Germany and Poland, will be crucial in order to anticipate possible power outages and energy rationing.

In the event of electricity rationing during the winter, European governments have established plans in which priority would be given to critical services and infrastructures, such as hospitals, police services and food production facilities, to ensure the least possible impact if blackouts were to occur.

Business leaders should assess the likelihood and impact of power outages into its areas of operations and include energy blackouts and electricity rationing in its business continuity plan.

Decrease in competitiveness: sustained higher input prices will reduce the competitiveness of European goods compared to those produced in North America and Asia, likely until at least 2024. As higher energy prices are likely to persist through 2023, global supply chains will likely shift, with international buyers moving to non-European suppliers. There is a risk that these shifts will consolidate over several years of disruption and permanently damage European competitiveness.

Competitive pressures will also influence the decisions of industrial companies whether to remain inactive, relocate to countries with lower energy costs or become insolvent, or whether to produce goods at an uneconomic price.

Business leaders should therefore consider a decrease in competitiveness in the European market in their business continuity plans and orient their strategies towards differentiation if they are not to be competitive.

Supply chain disruptions: due to high energy prices, potential power outages, and competitiveness reduction, organisations that depend heavily on energy power - such as companies in the manufacturing, chemical, steel, ceramics, telecommunications, textile and automotive sectors - are likely to reduce their production or have their operations interrupted or allocated for extended periods of time, also leading to supply chain disruptions. High energy prices, a potential recession, and the economic pressure on several businesses will- likely negatively affect the labour market as companies will be forced to reduce costs, which is likely to lead to an increase in strikes across Europe as well. High oil and energy prices have already led to strikes across Europe in 2022 that have disrupted supply chains.

It is therefore critical for business leaders to monitor supply chain disruptions and conduct robust third-party risk assessments.

Reduction of customers' purchasing power: the energy crisis is likely to lead to prolonged inflation in Europe in 2023. Incising cost-of living will reduce household disposable income, especially in lower income countries where wholesale energy price caps will not be implemented. In addition, the likely recession will negatively affect the labour market and the consumer confidence. Therefore, customers are likely to seek ways to reduce discretionary spending, which may affect the sales of European companies.

Businesses should consider these demand disturbances in their business continuity plans. Sales and marketing should be considered in light of the expected long-term trajectory of economic trends.

EUROPEAN UNION (EU)'S ENERGY CRISIS STRATEGY

EU's energy price cap

On 19 December 2022, EU energy ministers agreed on a gas price cap with the aim of reducing gas prices across Europe. Ministers agreed to trigger a cap if prices exceed EUR 180 per megawatt hour for three days in the Dutch one-month title transfer facility (TTF) contract, which serves as a European benchmark. The cap can be triggered from 15 February 2023.

The TTF price must also be 35 EUR/MWh higher than a reference price based on existing price assessments of liquefied natural gas (LNG) for three days. Once activated, no trades will be allowed in first-month, three-month and one-year TTF contracts at a price 35 EUR/MWh higher than the LNG reference price.

The agreement limits the price at which gas can be traded, while allowing the maximum level to fluctuate in line with world LNG prices, a system designed to ensure that EU countries can continue to offer gas at competitive prices on world markets.

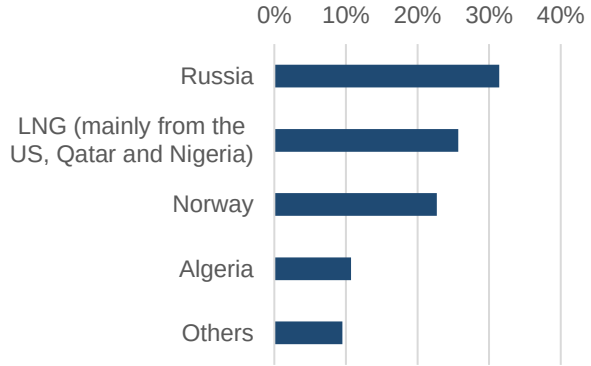
The agreement has been reached after months of negotiations. Some European countries were concerned about the impact of this policy on Europe's ability to attract gas supplies on competitively priced world markets. The price cap agreement includes safeguards such as the suspension of the cap if the EU faces a gas supply shortage, or if the cap causes a drop in TTF trade, an increase in gas use or a significant increase in gas market participants' margins.

EU diversifying energy supplies

EU Commission and the EU countries are working together to overcome high prices and secure energy supplies for all Europeans. Russia's last invasion of Ukraine, exposed EU's states dependence on Russian energy. Since then, the EU has been trying to reduce its dependency looking for new energy suppliers.

European LNG imports are expected to increase by more than 60 billion cubic metres (bcm) in 2022, i.e. more than double the added global LNG export capacity, which will keep international LNG trade under strong pressure in the short to medium term.

EU gas suppliers in the first half of 2022



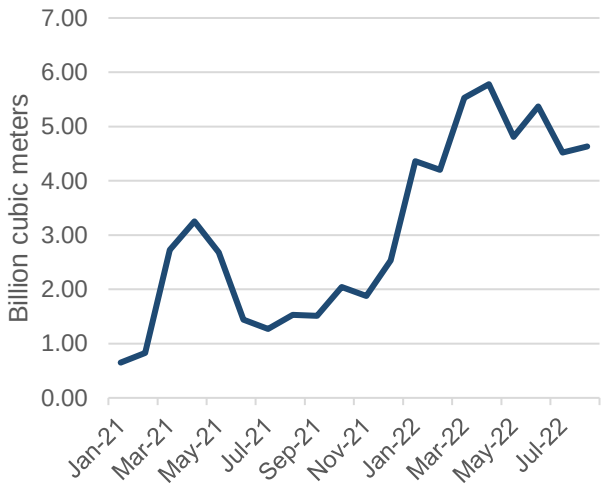
In 2022, 56 new energy agreements were signed between EU countries and third countries. At least 18 of the 27-member states have signed at least one agreement by 2022, with Italy, Germany and the European Commission being the most active with 12, eight and nine agreements respectively.

56 new energy agreements were signed between EU countries in 2022

To replace piped Russian gas, European countries have also started to import more LNG especially from the US, Qatar and Nigeria, as well as alternative pipeline supplies mainly from Norway and Algeria.

Between January and August 2022, LNG imports from the US accounted for almost 40 bcm (billion cubic meters), almost twice as much as the total figure for 2021 (over 22 bcm).

Monthly volumes of LNG imports from the US to the EU



In addition to diversifying energy supplies, the European Union and its member states have taken other actions to increase gas security, such as setting minimum storage obligations and implementing energy-saving measures for the coming winter.

EU storage facilities were almost 90 percent full at the end of September 2022. However, the lack of Russian supply poses difficulties in 2023.

According to the International Energy Agency (IEA), without demand reductions and if Russian pipeline supplies are completely shut off, EU gas storage would be less than 20 percent full in February, assuming a high level of LNG supply, and close to five percent, implying a low level of LNG supply.

Dropping storage to these levels would increase the risk of energy disruptions in case cold weather at the end of the winter and the beginning of the spring. A reduction in EU winter gas demand of nine percent from the average level of the last five years would be necessary to maintain gas storage levels above 25 percent in case of lower LNG inflows.

Potential new risks

EU new agreements have diversified energy supplies, and reportedly reduced energy risks in the EU, however, these agreements also entail other risks:

Excessive dependence on other suppliers: the EU and member states have so far compiled a broad portfolio of new energy suppliers. In addition, they have started to import increasing quantities of liquefied natural gas (LNG), instead of relying mainly on piped natural gas. This allows EU countries to rely on a larger number of suppliers. However, whether this translates into greater flexibility will depend on the volatility of new suppliers and the details of new agreements, which are often not public. For example, whether LNG suppliers are pressuring Europeans to sign longer-term agreements or to import a certain amount of gas.

On 29 November, Germany signed an agreement with Qatar in which 2mn tonnes of LNG will be sent to Germany annually for at least 15 years, with deliveries expected to start from 2026. By investing in a pipeline to import Azeri gas and relying heavily on Qatar to import LNG, Europeans may face new limitations imposed by Qatari demands, in addition to signing agreements with countries where human rights are not respected.

Algeria, Nigeria, Egypt and even Norway and the US have replaced Russia as the EU's main gas suppliers. Increasing energy dependence on the US could also jeopardise the European unity shown after the Russian attack on Ukraine, especially if a Republican president takes power in 2025.

Therefore, the EU and its member states need to avoid repeating the same mistakes as in the past, not become overly dependent on their suppliers and continuously monitor these suppliers to deal with an increasingly uncertain and volatile risk environment.

Fossil fuel transition and the use of renewable energies at risk: the energy insecurity facing Europe this year has led many member states to accelerate some important decisions on gas import infrastructure. Of the 56 agreements that Member States and the EU have concluded with third countries, 33 have implications for upgrading or building new infrastructure.

For example, the EU has committed to invest in the Southern Gas Corridor pipeline to import large quantities of Azeri gas, while some of the existing pipelines (such as those connecting Algeria to Spain) may need increased capacity to service growing imports.

In addition, several infrastructure developments have also taken place within the EU: the recently inaugurated interconnection between Greece and Bulgaria, plans to extend Croatia's Adria pipeline, the construction of a pipeline between Barcelona and Marseille, and new LNG terminals from Germany and France to Ireland and Estonia.

In addition, the use of nuclear power as an alternative energy source is increasing in the EU. Countries such as Germany, Belgium and the Netherlands have prolonged the operation of their nuclear power plants. Poland has just selected a company to build the country's first nuclear power plant, and is considering building another. Latvia is discussing possible investment in nuclear power, while Sweden is considering expanding its nuclear capacity.

Further discussions on nuclear energy in the EU are likely to take place during the Swedish EU Presidency in spring 2023.

These investments in European energy infrastructure and nuclear power should increase EU energy sovereignty by ensuring greater resilience and better integration.

However, the decision to invest in much of this infrastructure and nuclear power is likely to undermine the transition away from fossil fuels and to displace some of the political support and financial investment in renewable energy hinder its future transition away from fossil fuels, which is very likely to lead to increased climate protests and to put the EU's international credibility on risk.

ENERGY CRISIS IN THE NORDIC COUNTRIES

Energy markets in Europe are experiencing challenges in the form of rapidly rising prices for most energy carriers, and uncertainty about the adequacy of fuels and electricity. This is caused mainly because of three simultaneous problematic developments: the war in Ukraine and consequent sanctions on Russia, drought, and extensive maintenance due to aging thermal power plants.

As a result, the Nordic countries are experiencing difficulties in the energy sector. The possibility of exports and imports between countries is a cornerstone of the European electricity system and the spirit of solidarity is strong. However, due to the extreme situation, countries have signalled that they need to look after their own houses.

The Nordic countries have positive energy balances, although the margins are between three and eight percent. These small margins create many uncertainties regarding the availability of gas, nuclear, hydro and wind power generation.

The desire of governments and society to increase the shift to renewables will continue, but for the foreseeable future, energy demands will largely be meet by non-renewable energy sources.

> ! According to Nordic countries' expectations of electricity consumption and production capabilities, energy intensive industries could face electricity cuts and shortages during 2023, especially if the winter is cold, dry and slightly windy.

Business leaders from energy intensive industries should assess the likelihood and impact of power outages into their areas of operation in the Nordic countries and should assess the security of back-up systems, such as batteries and diesel generators installed in mobile phone base stations, as they are easy targets of both vandalism and theft.

Sweden

The developments in Europe are likely to affect energy adequacy in Sweden, especially in relation to import availability. Northern Sweden has a strong surplus, while the south has a large energy deficit. Therefore, the transfer capacity from north to south is critical for adequacy.

Southern Sweden is therefore more dependent on energy imports. The Swedish Energy Agency stated that in the worst-case scenario power cuts in southern Sweden are contemplated. Swedish households are expected to pay 85,000 SEK in electricity area 3 and 95,000 SEK in electricity area 4 for their electricity bill during winter months: October to March 2022/2023. That is almost three times as much as compared to last year when the electricity prices were 31,000 SEK in area 3, and 34,000 thousand SEK in area 4.

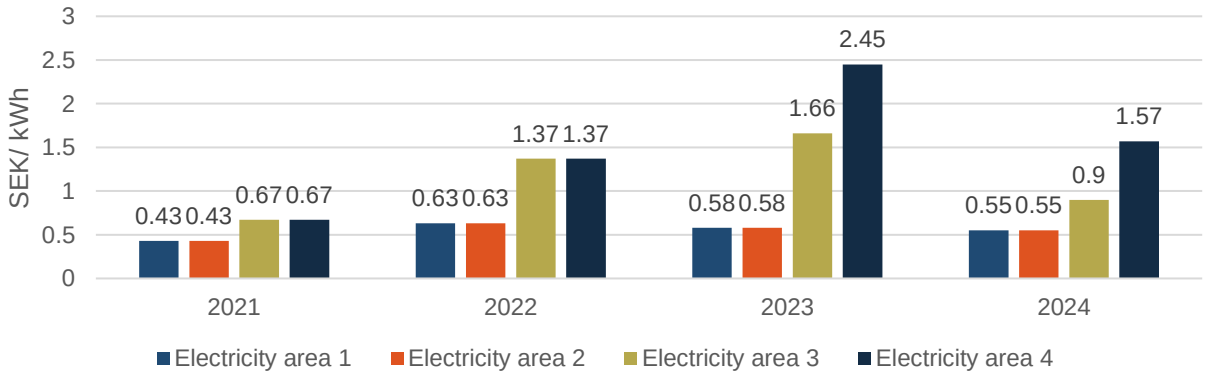
Since the 10 January the energy situation in Sweden is strained, but stable. There is risks of power shortages during winter peak hours, if margins are reduced due to loss of production or transmission.

The Swedish government still recommended to reduce the electricity usage and the Swedish Energy Agency continues to assess that the risk of disruption in the supply of middle distillate fuels is elevated.

The gas supply on the Swedish market is currently stable, but there are uncertainties about the future developments. January and February will be challenging months where the weather is a crucial factor.

The prognosis for the electricity prices in Sweden is assessed as follows:

Electricity prices in Sweden 2021-2024



The current situation implies enhanced energy costs which will put pressure on households and businesses. For a lot of households, it will be difficult to make ends meet if the current price prognosis becomes a reality. The enhanced prices are expected to lead to reduced consumption, changed living conditions, and an overall worsen economic situation.

Crisis response

The Swedish government instructed the Swedish Kraftnät to apply to the Swedish Energy Market Authority to use the revenues from the bottleneck to finance new electricity subsidy. The support targeted Swedish households and provided compensation for household's electricity costs during November and December 2022. Furthermore, electricity subsidy has been decided for consumers based on electricity costs during the period of October 2021 to September 2022. However, this subsidy only applies for households in Southern and Central Sweden. The subsidy for November and December applied throughout Sweden.

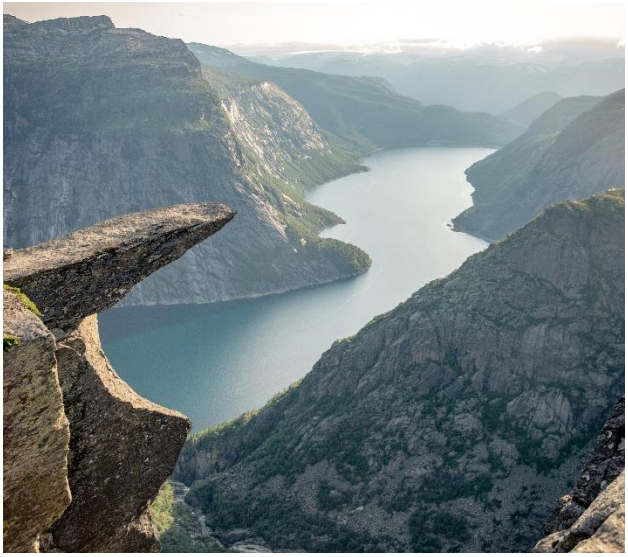
To ensure that the support levels do not differ between the previously decided electricity support and the new electricity support, the Swedish government considers that the reference price also will be a reference price for this application. The compensation paid to households will commence in the end of February and will be a compensation for the consumption that has had a higher average electricity price than the reference price of 0.75 SEK/ kWh per electricity area on the spot market during November and December 2022. A gas price support will be introduced for the period of October 2021 to September 2022 for households connected to the Western Swedish natural gas system. The support is designated to be equivalent to the electricity support during the same period. The gas price support amounts to 79 cents per kWh and about 27 000 households are covered by it. A consumption cap will be applied which households can receive electricity support. Depending on the future situation, the consumption cap will be set at different levels to consider the colder climate in Northern Sweden which requires more consumption than in Southern Sweden. However, the revenue cap will be implemented earliest from 01 March 2023.

Norway

The energy prices have increased, but not throughout the whole of Norway. Central and northern Norway have had cheap electricity prices compared to other parts of the country.

The electricity prices are expected to be the same as in 2022, in southern Norway the prices could even be lower in 2023. However, the gas prices are expected to remain high during 2023 due to the uncertainty of Europe being able to secure access to enough gas in the coming year and the weather If it will be a cold and dry year, the prices may increase.

Norway's government expects to maintain higher output on the Norwegian continental shelf to supply Europe with high gas exports since the Norwegian energy cooperation strengthened the collaboration with the EU in June 2022. The Norwegian transmission system operator stated 06 December that the capacity to transport electricity to Sweden has improved sustainably this year, allowing it to end some capacity-limiting measures that existed since last year. The available capacity has increased as a result of close cooperation with its Swedish counterpart Svenska Kraftnät. This will improve the utilisation of resources in the electricity market and help to improve cross-border access in certain situations.



Norway´s water reservoirs are the country´s most important power source, which creates risks if rainfall is lacking. Lack of rain creates low levels in the reservoirs and in normal situations, there should be enough import capacity to cover any shortfall. However, there is a risk of lacking surplus generation in other countries to export. In that case, demand may need to be rationed in a short period.

For now, there are no restrictions on generation and/or export energy in Norway. However, to secure supply in case import possibilities are reduced, further measures are likely to be taken.

The estimated electricity prices in Norway 2023 is 0.2 NOK/kWh. However, there is a possibility for a rise since the price still is linked to needs on the continent. If the winter is mild with a high wind and a high rainfall, prices are likely to stay low.

Crisis response

The Norwegian government has approved a household subsidy of 44.7 billion NOK for 2023, which is allocated to payments under the scheme in the period December 2022 to November 2023. The subsidy for consumption in December 2023 will be paid in January 2024.

An electricity subsidy has been introduced to help households to cope with exceptional electricity prices. The subsidy works when the average market price for the month - in the price area the household belongs - exceeds 0.70 NOK/kWh.

The Norwegian state will pay 90 percent of the power price above this level form September 2022 to March 2023, as well as an 80 percent rate from April to September 2023 and a 90 percent rate from October to December 2023.

Finland

Due to the warm and windy weather and the lower energy consumption during the Christmas holidays, Finland's energy prices stayed generally low at 48,3 EUR/MWh. Furthermore, a floating LNG terminal in the Gulf of Finland arrived in early January 2023. The vessel, with a ten-year contract, will contribute with 68,000 tons of LNG to Finland and the Baltic states, which allows some relief in terms of security of supply in Finland. It also neutralizes the risk of operational reliability of the gas pipeline Balticconnector connecting Finland and Estonia, as Finland now have its own LNG supplies.

There may be occasional power shortages in Finland, factors affecting the viability of electricity include long periods of freezing temperatures with no wind, service disruptions at power plants, and the high demand for electricity in central Europe.

Crisis response

The government has proposed a temporary 10 billion EUR loan and guarantee scheme to stabilise the electricity market. The purpose of the programme is to ensure that actors playing a key role in the functioning of the electricity market have sufficient liquidity and are able to operate.

The Finnish government has unveiled the following measures to support households: lowering the value added tax on electricity to 10 percent; introducing a fixed term tax credit for electricity; temporary assistance with electricity costs from the Social Insurance Institution of Finland, Kela; lump-sum reimbursement for electricity costs; lump-sum reimbursement for housing companies' electricity costs; and extending the payment period for electricity bills.

The Finnish government has launched a support package of 100 billion SEK to the energy sector, which is supposed to operate as liquidity guarantee for energy businesses that are threatened of bankruptcy. Furthermore, the Finnish government launched the campaign "significantly less" to get both households and companies to save electricity.

Denmark

Denmark is one of the most wind-dependent countries in Europe, making it vulnerable this winter due to the wind dependency. The country has invested heavily in wind power, which accounts for around 50 percent of the country's total electricity production of 32 TWh for the full year. However, if there is no wind, it will have to back up the electricity supply with imported fossil-fuel. Denmark exports about 15 TWh per year, but imports more than 20 TWh, which means that it has a deficit of about 5 TWh per year. The largest share, 8 TWh, is imported from Norway. Sweden is number two, accounting for 7 TWh of imports, while Germany lands on 4 TWh. The situation is therefore strained since the Norwegian and Swedish hydropower facilities are currently underperforming.

Therefore, there is an increased risk of power outages this winter in Denmark. However, at this time, the Danish Energy Agency does not expect that there will be any need to introduce controlled power outages in 2023. measures are likely to be taken.

The Danish Government has ordered to continue operating the Esbjergværket Blok 3 coal-fired power station power plant, and to restore operations of two other power plants: Studstrupværket Blok 4 and Kyndbyværket Blok 21, in order to ensure Danish electricity security for the next two winters.

Crisis response

The electricity prices in Denmark were close to 5 DKK per kWh hour in November, and as the temperature lowers the prices are enhancing. This, combined with inflation of almost 10 percent in October 2022, and increasing energy bills for businesses by 45.8 billion DKK, is hitting the Danish economy hard. In the first half of 2023, the general electricity tax of 69.7 øre per KWh is temporarily reduced to the EU's minimum rate of 0.8 øre per kWh.

In order to shield customers from even higher prices, the possibility of temporary and voluntary postponement is being introduced for the part of household and business expenses for electricity, gas and district heating costs that exceed the Q4 2021 prices. For district heating, this applies to the part that exceeds the district heating price in January 2022 for the ten most expensive district heating companies. This means that part of the electricity, gas and heating bill can be postponed and paid later.

A financial support will be inserted for disadvantaged citizens who are affected by rising energy prices. This applies, among other things, to pensioners who receive a pension check.

2SECURE RECOMMENDS

1. Business leaders should closely monitor energy prices and EU's energy deals, consider increasing energy prices and potential energy blackouts in its business continuity plan. Your scenario planning exercises should include robust consideration of fluctuating energy prices and business interruptions in your areas of operation. If you do not have in-house experience facilitating scenario development activities, or robustly testing Business Continuity Plans, contact 2Secure for support.

2. Advanced analytical procedures can help companies assess energy blackouts and economic downturns in the future, and therefore improve risk mitigation, crisis management processes and pricing. Increased information and predictive analytics also have a huge potential to significantly expand risk assessment. Companies should be looking now for how to use available information to improve foresight. 2Secure can assist you in increasing awareness of future risks and trends that are relevant to the success of its business.

3. To reduce supply chain disruption due to potential blackouts or energy rationing, it is critical for companies to be well prepared with cost-effective third-party oversight and risk management, maintaining a strategic and responsible partnership across the globe. Third-party risk assessment includes key stakeholders screening, company ownership research, company diligence and third-party suppliers monitoring. 2secure can support you from initial screenings to deeper levels of research and on-the-ground diligence

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