



Theme: Energy transition for security of supply, lower costs and the climate

The focus of energy policy has shifted dramatically as a consequence of the war in Ukraine. Suddenly security of supply and self-sufficiency are most important, followed by household energy costs. Climate change and environmental issues have been given lower priority. Optimism has started to build among European producers of oil, gas and coal as well as nuclear power. There has been a dramatic shift in energy policy priorities, but the need for renewable energy remains unchanged. Expanding capacity has only become even more pressing and urgent.

The effects of the war would have been far milder if Europe had made more progress in replacing fossil energy with renewables. Obviously, we would have had better potential for managing the current situation if shutdowns of nuclear power plants and some coal-fired power plants had been postponed, but nothing would have been better from a cost and self-sufficiency perspective than expanded renewable energy production with related energy storage solutions.

Energy import costs are now skyrocketing, with today's natural gas prices adding net costs equivalent to about 4 per cent of European Union GDP. Calculated on the basis of peak gas prices, the added costs were equivalent to 10 per cent of the region's GDP. There are additional spill-over effects, for example through electricity prices, which have also seen extreme increases due to marginal pricing. This expensive energy is also devastating for competitiveness in some industries and erodes consumer purchasing power. Expensive natural gas has also caused the price of chemical fertilisers to surge, which will further contribute to food price inflation over the next few years.

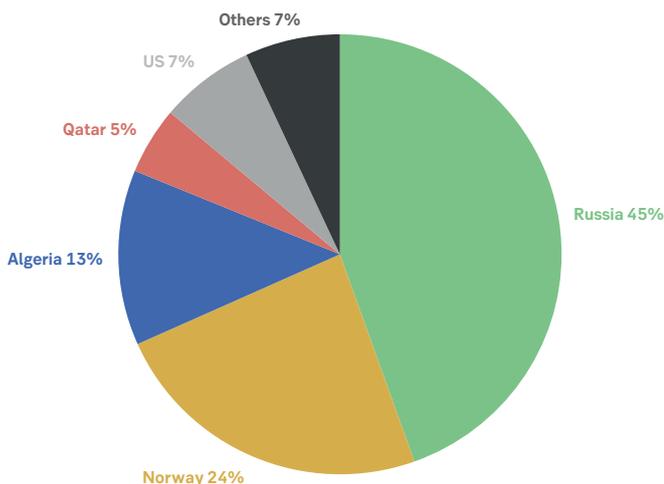
The cost of natural gas has skyrocketed in the EU



Source: Bloomberg, SEB

The chart shows the estimated cost of natural gas in the European Union as a percentage of GDP, based on prevailing forward natural gas prices for delivery the following month.

EU dependence on Russian natural gas is a major political and economic risk



Source: European Commission

The chart shows European Union natural gas imports by country of origin. The region imports 90 per cent of all natural gas consumed there (80 per cent if the United Kingdom is also included). Three fourths of imports come in gaseous form via pipelines whereas only one fourth is in liquid form (liquefied natural gas or LNG). Natural gas supplied by pipelines – unlike LNG, oil and coal – cannot be freely traded globally and it is thus far more difficult to replace the supplier.

The EU's plan – REPowerEU

In early March 2022, REPowerEU – a new plan for how the European Union could phase out the use of Russian fossil energy well before 2030 and thus escape its current dependence – was unveiled. Despite some success in switching to renewable sources for electricity generation, the region is still extremely dependent on fossil energy, especially when we include the transport, manufacturing and heating sectors instead of just zooming in on electrical power. Burning fossil fuels is not only expensive and environmentally damaging, but it also makes Europe dependent on imports from elsewhere. No less than 90 per cent of natural gas consumed in the EU is imported, and so is nearly all crude oil. Self-sufficiency is far better when it comes to coal, especially lignite, but at the same time that is the most damaging alternative for the climate and environment, which is why coal use has been phased down significantly over the past decade. Dependence on Russian natural gas is what makes it enormously difficult for Europe – especially Germany and Italy – to cut ties with Russia.

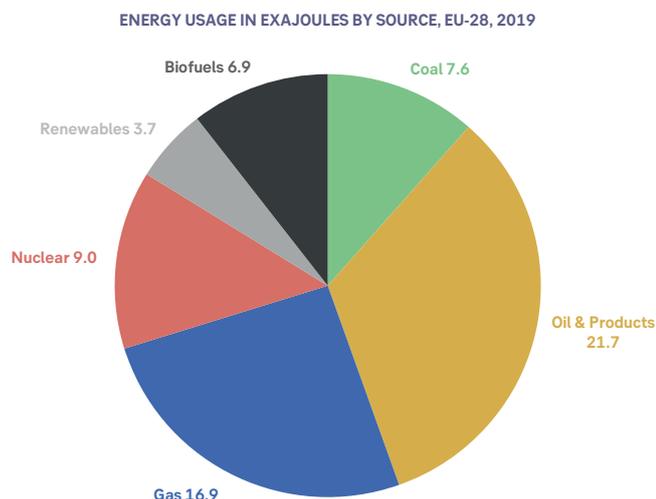
Large parts of REPowerEU are a restatement or intensification of earlier comprehensive plans for the EU's energy transition from the Fit for 55 package that was published during the pandemic. In addition to Fit for 55 measures focused on energy efficiency, electrification and renewable energy expansion, REPowerEU includes plans to diversify natural gas imports and invest far greater amounts in biogas and green hydrogen gas. A further acceleration of Fit for 55 initiatives is also recommended, along with even more energy efficiency improvements and energy saving measures, for example, lowering indoor temperatures in homes.

The problem with these comprehensive EU strategy plans is that in practice, they do not appear to be having any direct impact on EU energy policy. It is up to each member state to implement any changes and up to each local authority or region to make decisions on concrete issues at the micro level – that is, whether permits will be issued for investments in new facilities or related infrastructure, including high-voltage cables. It is at this micro level that the transition is faltering. Given all the permit applications that have been rejected, this is not what is needed to achieve the overall goals at the national or EU level.

Based on the needs already identified and highlighted in Fit for 55, investment activity in Europe should be record-high in solar and wind power. Although installed solar energy capacity is growing at a faster pace, this is due to small-scale solar rooftop systems. The volume being installed in large-scale solar farms has still not returned to its 2019 level. For onshore wind power, installation activity in large economies such as Germany and France peaked in 2017, while the record years in Italy and Spain are even further back in time.

Given today's high energy prices and widespread expectations that European energy prices will remain high, there is enormous interest in new solar and wind farm investments, both by traditional power producers and from niche project development companies and new operators such as oil companies. Yet suppliers of wind turbines are experiencing major obstacles today. Large-scale solar farms also face ever stronger opposition to the granting of the necessary permits.

Imported fossil energy dominates EU energy use



The chart shows energy use by source in the EU-28 countries in 2019. When transport, heating and manufacturing are included, the progress achieved over the past decade in the electric power sector's transition appears to be limited. The supply of natural gas and oil is almost entirely based on imports.

Populism is leading to quick but poor solutions

The ongoing energy crisis upsets many people, including voters with the power to change the government at the next election. This has prompted a number of different policy measures, some with long-term counterproductive impacts. One quick, simple, tried and tested way to address high costs for heavily demanded products is to introduce price regulations and/or subsidies.

Unfortunately, that is often a sure-fire recipe for making the problem worse in the long term, regardless of whether the product in question is bread, onions, electricity or diesel. The price regulations on electricity generated by solar and wind power that were introduced last autumn in Spain decreased the attractiveness to investors of constructing new facilities. These regulations risk undermining supply growth over time, and they temporarily halted all such new investment decisions in Spain. Subsidies and/or lower taxes on electricity and/or fuels weaken the incentive for households to reduce their consumption. By lowering the requirement for the blend of renewable diesel, based on food industry waste, Finland has ensured that – all else being equal – it will need to import even more fossil oil and diesel. Populist measures thus risk intensifying and prolonging Europe's energy crisis.

Critical permitting processes

Many companies have noted that it has recently become harder to obtain permits to build new wind farms; this is a trend in numerous European countries. Despite a widespread consensus on the need for more climate-smart energy supplies at the global and national level, many projects tend to be blocked by local opposition: renewable energy by all means, but not in my backyard (NIMBY). In Sweden, 18 per cent of all planned wind farm projects were vetoed by the affected local authority in 2018; three years later, the share had increased to 78 per cent.

The lack of national coordination also tends to lead to the approval of more expensive projects located further from population centres, while permits for less costly projects situated closer to electricity consumers are more often rejected. Over the past 30 years, more than half of all planned wind power projects and 22 per cent of solar power projects (larger than 1 MW) in the United Kingdom have been rejected. Research at the London School of Economics indicates that suboptimal location of these facilities because of local resistance has helped to make wind power construction in the UK 10-30 per cent more expensive.

It is no exaggeration to describe the current situation as a deep crisis for wind turbine manufacturers. Europe's leading wind turbine companies – Vestas and Siemens Gamesa – have both had to issue repeated profit warnings recently. The crisis is partly related to COVID effects, logistics problems and component shortages, which have made it more difficult for companies to deliver products, and partly due to sharply higher commodity costs.

However, probably the greatest problem for the wind power industry is the difficulties faced by power producers in obtaining the necessary permits to build new facilities. The CEO of the world's biggest manufacturer of onshore wind turbines, Vestas, summed up the situation thusly: "There is

only one way to speed up the power supply to the system. Accelerate licensing.” Based on how the market functions today, Bloomberg New Energy Finance (BNEF) estimates that less than half of the additional wind power capacity that the EU aims to install between now and 2030 will become a reality. Not only are permitting processes time-consuming and unpredictable, but their administration is also costly. One example is from EnBW in Germany, which was obliged to submit no less than 36,000 pages of documents to obtain permits to build three new wind turbines. The cost of this administration is equivalent to EUR 800 per MW.

Fortunately, there are now also many reform proposals, measures and regulatory changes that may have a large positive impact on energy supplies, the cost picture and the environment.

Sweden, Germany and the UK are reviewing their permitting processes

To tackle suboptimisation and time-consuming permitting processes, whose outcome is perceived in many cases as arbitrary, the Swedish Ministry of the Environment is now studying the possibility of compensating those who are considered to be adversely affected by new facilities. Local authorities will also be given incentives to support the expansion of wind power. In addition, the period during which local authorities can veto projects will end earlier in these processes. There should not be a surprising “No” after ten years of preparatory work. To facilitate offshore wind power in particular, a number of other possible measures are being studied.

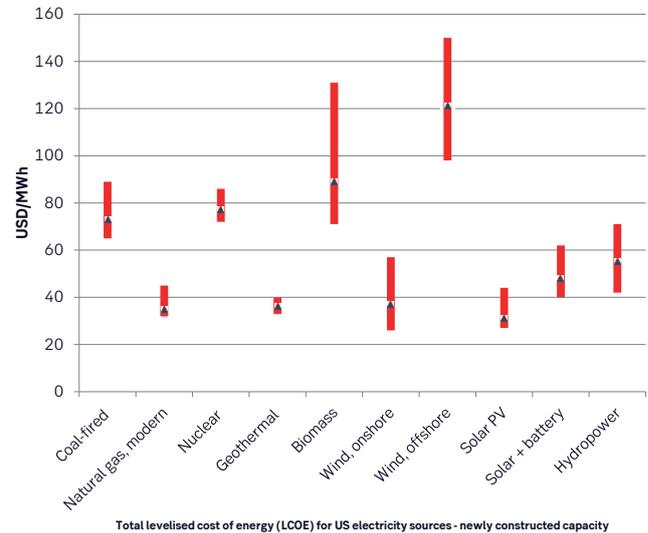
Similar changes are planned in the UK. Permitting processes for new offshore wind farms will be made easier and speedier, while residents in the vicinity of onshore facilities will be guaranteed lower electricity prices as compensation. Permitting processes for solar energy facilities will also be reviewed, up to eight new nuclear reactors will be built, and investments in the domestic oil and gas sector will be encouraged.

In Germany, just before Easter the government unveiled a package of measures aimed at dramatically speeding up the expansion of renewable energy production in the country and enlarge its power transmission network. The package includes measures to make permitting processes more efficient. The national goal of a carbon dioxide-free energy supply will take precedence over a number of other common problems such as local opposition or the risk of disruption to nearby weather stations and radio masts. The aim is to more than triple the pace of annual solar power expansion to 22 GW starting in 2026, while onshore wind power expansion will quadruple to 10 GW annually starting in 2025. Solar power subsidies will be increased, especially for facilities where solar power production and agriculture are combined. A special subsidy system is also being introduced for offshore wind power. To improve access to biogas for manufacturing and transport applications, the use of biomass for electricity generation will be scaled down.

Spain and Portugal have also recently lowered environmental requirements for approving new solar and wind farms. This kind of deregulation may have a major impact. In Spain, solar power projects totalling 120 GW of capacity are planned, which is seven times the capacity currently in service.

One major advantage of solar farms compared to traditional power plants is that once the permitting process is over and the construction phase has begun, the facility can be ready to supply electricity to the power grid after just a few months.

Renewable energy sources are competitive even without subsidies



Source: EIA, SEB

The chart shows total electricity generation costs in USD per MWh for new US electric power plants using different energy sources, without subsidies or taxes, according to the US Energy Information Administration (EIA). The prices refer to estimates for new power plants expected to be operational in 2027 and show the range between projects with the highest and lowest prices as well as the unweighted average price of electricity to be generated by them. The cost of fossil fuelled power obviously depends greatly on the price of natural gas or coal, for example. It is worth noting that solar energy is relatively cheap even when the facility is supplemented with batteries providing power equivalent to four hours of use. In practice, costs are in some cases strongly affected by taxes and subsidies; in the US, it is mainly offshore wind power that is subsidised, but so are nuclear, geothermal and solar energy.

The US energy transition is flagging

President Joe Biden ran for office on the promise of a Green New Deal and has set ambitious targets for the country’s energy transition. Electrification will be speeded up and electricity generation is to be carbon-free by 2035. To achieve this, a quadrupling of the pace of new solar power installations is needed, according to calculations from the US Energy Information Administration. So far, concrete measures to reach that goal are conspicuously absent. The most important federal subsidy programme for wind and solar power has not been extended; that was largely expected. Consequently the system has not improved, as many had hoped when the Democrats won the presidency. Since the end of last year, it has been clear that Biden’s Build Back Better (BBB) package of social reforms and green stimulus measures, which the Democrats tried to pass in 2021, will not become law. However, the main problem was probably a lack of support for various social reforms in the BBB package rather than opposition to renewable energy. So far, the White House has unfortunately not tried to push through the parts of BBB that have the greatest likelihood of passing, such as an extension of the tax credit on solar and wind power investments.

On top of this, an ongoing investigation into alleged circumvention of punitive US tariffs on Chinese solar cells has raised great concern among many stakeholders in the solar energy sector and led to a physical shortage of solar panels for large-scale projects. Assembly plants in South East Asia whose products are based on solar cells from China have avoided exporting goods to the US, forcing some companies to warn of extensive delays in solar farm projects. California, the single most important state for solar energy, is also planning reforms in its incentives for households to use rooftop solar panels. This has raised concerns in the industry, but so far it has not had any discernible impact on market growth.

Combined with difficult permitting processes in Europe, the Biden government's surprising lack of interest in the energy transition and the total lack of progress in this area are contributing to the current market situation and to the cool investor sentiment. We see great potential for improvement (from the solar and power industry's perspective) in US energy policy, and we believe such decisions must be made before November this year. After that, there is a risk that it will be much harder to push through such changes.

Investment upturn in distributed solar energy and efficiency measures is already here

The most immediate effect on the energy sector is the accelerated growth in small-scale distributed solar energy generation, including batteries, and in energy efficiency measures. Households, businesses and other organisations are expected to invest far more in rooftop solar panels and heat pumps to reduce and stabilise energy costs. A number of companies noted in their Q1 2022 reports that this has already started to happen; there was no normal seasonal dip at the start of the year.

To the extent higher petrol and diesel prices accelerate the electrification of passenger cars, this in turn will probably further contribute to interest in rooftop solar panels for homes. An American survey indicates significantly higher interest in generating their own electricity among households that have recently purchased an electric car. An average US household that wants to supply its own electricity and also switch to an electric car needs a system that is about 40 per cent larger than for a household that continues to drive cars with internal combustion engines. The Ukraine war is likely to make this equation even more enticing in Europe.

Even before the outbreak of the war, there was a strong international trend towards increasingly combining rooftop solar panels on a building with a large battery to balance energy use at night. This helps to improve the reliability and stability of energy supply and helps boost the value of such installations. An investment boom in distributed solar energy generation and storage as well as many kinds of energy efficiency measures does not require any major political reforms. It is enough for households and businesses to be persuaded by favourable financial calculations.

Summary and conclusion

European energy policy has fundamentally changed since Russia's invasion of Ukraine, which is yet another argument for expanding renewable energy. This transition has become even more urgent. Investment activity in distributed solar energy generation and energy efficiency has already clearly accelerated; no new policy incentives have been necessary. It is enough to let households and companies take action based on prevailing market forces. However, the greatest improvement potential is probably in large-scale facilities, mainly offshore but also onshore wind farms as well as solar farms. Faster permitting processes and giving higher priority to self-sufficiency could lead to an even bigger upturn in this segment. It remains to be seen whether this will be the case, but political leaders in a number of countries have clearly begun to realise that these problems are slowing down the energy transition.

For the fossil-based energy industry and nuclear power, the game plan has changed significantly. Suddenly political leaders want to see large new investments instead of closures. Expectations for the biogas industry, which is already growing rapidly, have also risen further. The same is true of green hydrogen gas, which at least on paper has suddenly become much more cost-competitive than natural gas. Even larger investments in new power generation capacity are needed for this.

If Europe chooses to invest its way out of the current energy crisis and reduce its dependence on Russian fossil fuels, this will lead to major business and investment opportunities. Investments on this scale will have significant spill-over effects on energy sector sub-contractors and eventually a major positive impact on the economy as a whole. This will also generate long-term returns in the form of reduced import dependence and hopefully positive effects on climate change and the environment.