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Monthly Analysis

Volatile Energy Markets in 2024 Amid Geopolitical Tensions and Economic Shift



Introduction

Today, the global energy landscape presents a complex and challenging scenario. Despite significant advancements in renewable energy technologies, the world's energy system remains predominantly reliant on fossil fuels and is likely to remain so in the foreseeable further. On the other hand, this heavy dependence on fossil fuels is of critical concern, considering their role in greenhouse gas emissions and climate change.

Renewable capacity, though set to meet 35% of global power generation by 2025, still plays a secondary role in the global energy mix compared to fossil fuels. This disparity highlights the significant challenge of transitioning to a cleaner energy future. In 2023, investments in oil and gas exploration, extraction, and production were expected to set a new record high since 2015, touching nearly \$528 billion, keeping the world sufficiently supplied until 2028, as stated by the IEA. (1)

On December 13, 2023, the governments of the world meet at the COP28 climate talks in Dubai and agreed what has been described as a "historic" statement, for the first time setting a goal of transitioning away from fossil fuels (2). That objective could set a change of course for the global energy system. Consumption of oil, gas and coal has been growing, and all three fuels hit new record highs in 2023. But, at the same time, renewable energy has been booming. Production from wind and solar power worldwide in 2023 was about 55% higher than in 2020, according to Wood Mackenzie (3).

The current Monthly Analysis will attempt to shed light on energy trends that continue to prevail, compared to the previous year, as well as new issues emerging. One of the main conclusions is that the market fundamentals of the global energy system are not affected as strongly by geopolitical factors, but are mainly influenced from the perspective of energy demand, supply and stocks.

15+1 Predictions for Energy in 2024

There are 15+1 predictions concerning key developments in energy and natural resources in 2024. These can be summarized as follows:

1. Energy demand searching for a new normal but will be hard-pressed to find it

Once fairly steady due to relatively predictable economic and population growth, energy demand has been subject to unprecedented volatility since the new decade began. From the staggering level of demand destruction from the COVID-19 pandemic and the uneven geographic and sectoral recovery from it, to the repercussions of the Russian invasion of Ukraine, market participants may be wondering what "normal"

demand growth looks like. The delayed recoveries from COVID-19 in China and in the aviation sector are now essentially complete and markets have generally adjusted to altered flows of Russian energy, but there still are still several wildcards for demand in 2024:

- Central banks face the continued challenge of reining on inflation without damaging economic growth
- China's economic slowdown could cause ripples across the region and the globe
- Questions remain around the recovery of European power and gas demand, approaching two years since the start of the Ukraine conflict
- 2024 will be an El Niño year, with a 30% chance that the weather phenomenon could be historically intense. Against a background of rising global temperatures, a strong El Niño could drive extreme weather on both sides of the Pacific (and beyond), amplifying swings in energy demand and increasing the likelihood of a more active hurricane season.

2. Coal demand likely peaked in 2023

Growth in renewables and other clean technology grabbed the headlines in 2023, but the use of coal quietly grew in the background, with consumption likely hitting a new annual record in 2023. The strength in global demand was driven by China's delayed economic recovery from COVID-19 combined with underperforming hydro generation and the government's decision to stick to coal as it hugely contributes in achieving low electricity costs.

In 2024, an expected rebound in Chinese hydro generation, a continued renewables buildout, and slower electricity load growth should see Chinese coal demand growth decelerate notably from 2023 levels. Coal demand will assuredly grow in India and other developing nations in 2024, but with weaker Chinese coal growth the continued structural decline in demand in the US, Europe, and other industrialized nations, global demand very likely has peaked. However, coal often is the fuel to backfill for underperforming renewables, when natural gas is too expensive or unavailable and if overall energy demand is higher than anticipated. As a result, another year or two of growth is not completely out of the question.

3. Renewable buildout to persist despite hurdles

High borrowing costs, elevated prices for raw materials, and permitting challenges will buffet the renewables sector in 2024, but deployment will continue to break records. The world is expected to install more than 460 GW of renewables in total this year, the highest on record, according to a June forecast from the International Energy Agency. In the US, the Energy Information Administration predicts that electricity from wind and solar will surpass coal-fired generation this year for the first time ever. (4)



Figure 1: Global Clean Energy Additions Set for Record Highs in 2024

Sources: ICE, Financial Times

Solar will drive global growth, with installations expected to increase 7% year over year, while onshore and offshore wind additions will dip slightly from 2023. Most of this new renewable energy will be deployed in China, which is expected to account for a staggering 55% of new global renewables capacity this year, according to the IEA.

4. Nuclear power will continue to rise up the policy agenda as a climate solution

A quote often misattributed to Albert Einstein is that nuclear power is "one hell of a way to boil water". It was actually coined in 1980, after the Three Mile Island reactor accident that helped to turn the tide of public opinion against atomic energy. In 2024, however, nuclear power is set to win widespread support as a key solution to the global energy crisis, for the first time in over half a century. Nuclear power has faced, and still faces, challenges of public acceptability and economic competitiveness against renewables and fossil fuel generation. But it is the only reliable, dispatchable, small physical-and-material footprint, plug-and-play zero-carbon solution for power generation.

5. The evolving balance between decarbonisation and security of supply will act as a brake on investment decisions in gas and LNG for many companies

After Russia's invasion of Ukraine, the global gas and LNG industry reprioritised security of supply. More than 65 million tons per year of LNG sale and purchase agreements were signed by end-users in 2022 and 2023. Investments in new LNG supply were always going to slow in 2024, given the scale of investments already made and the expected market rebalancing.

But COP28 has added new uncertainty to the outlook for gas since certain governments, as opposed to industry, aim to transition away from fossil fuels. But as energy analysts argue gas, as the most widely accepted "transitional fuel", will still have a role to play in providing energy security for some time. On the other hand environmental activist groups in the aftermath of COP28 insist that companies and governments will need to reconsider investments in all fossil fuels, including gas, with industries realigning their portfolios and strategies to navigate the course of green energy transition. However, according to market sources, industry leaders in USA and Europe are not thrilled with COP28 pronouncements and hence are not willing to abide by such simplistic and dangerous views which undermine energy security.

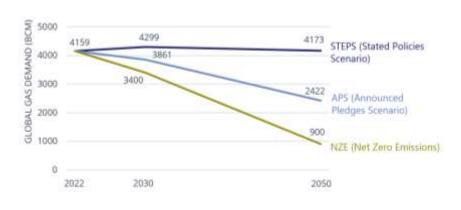


Figure 2: IEA Gas Demand Scenarios

Source: IEA

6. A slowdown in non-OPEC oil production growth will ease the pressure on the OPEC+ countries

In 2023, a large increase in non-OPEC oil production of about 2 million barrels per day was recorded, piling the pressure on the OPEC+ group to cut its output to prevent a slump in prices. This year, Wood Mackenzie expects that non-OPEC growth to slow to just 0.8 million b/d.

The largest factor in the projected slowdown is the expectation of a sharp deceleration in US oil production growth in 2024, but other countries, including Brazil and Norway, will also contribute. The non-OPEC slowdown will relieve the pressure OPEC+ has faced in 2023. Among the caveats to this view: is a surge in US productivity (see below).

7. US oil and gas producers will do more with less

The biggest macro story from the US oil and gas industry in 2024 could be that of efficiency gains which will refuse to plateau. Total upstream capital spending in the Lower 48 states is expected to fall in 2024, for the

second successive year. But, at the same time, total Lower 48 production of both oil and gas will continue inching higher, setting new records for each. Muted movement in the rig count will be more than offset by continued improvement in drilling speeds and pad cycle times, completion efficiencies and improved project execution. All this serves as a reminder of just how lean and mean US shale has become.

8. Oil prices should be kept in check despite volatility

It has been a bumpy start to the year for oil markets. Last Friday (19/1) Brent crude settled at \$78.25 a barrel, a jump of more than \$2, after recent bomb blasts in Iran highlighted persistent tensions in the Middle East. Ongoing geopolitical uncertainty — notably the potential for escalation of the Israel-Hamas conflict — mean crude price volatility is set to persist, but most analysts reckon bearish fundamentals should keep a lid on prices in 2024.

Chief among those is uninspiring global economic data. Surprisingly strong US output should also help keep prices in check. Meanwhile, OPEC+ infighting — as illustrated by Angola's exit from the group in December 2023 — raises questions about its ability to support prices with enduring supply cuts. The US Energy Information Administration estimates average prices of about \$83 per barrel for the year. A recent Reuters' poll concurred, with analysts estimating prices should stay close to \$80 per barrel in 2024, capped by sluggish demand. At the time of going to the press Brent front month oil contract was trading near 79.53\$ per barrel and WTI stood at 74.24 per barel.

9. A large US E&P could merge with a large international E&P

The pure-play model of geographically focused exploration and production companies has lost its lustre since investors began rejecting production growth in favour of cash returns. Large-scale M&A is increasingly targeting diversification, as companies look to build resilient financial platforms. Internationalisation is the next logical step in this strategy. US buyers' strong equity currency will be a lure for overseas targets, helping to make deals happen.

10. Hydrogen project FIDs will continue to skew blue

The ambitions for low-carbon hydrogen around the world, reflected in government policies and corporate project development, are quite remarkable. As is a 108 million tonnes per annum global project pipeline that skews 80% to green hydrogen, made from electrolysing water. However, the rate of project maturation for electrolyser hydrogen will remain slow as developers struggle to overcome key obstacles.

Two of the most important challenges that green hydrogen projects will face are achieving competitive costs and securing firm commitments from offtakers. Projects with credible counterparties and those targeting hydrogen as a feedstock in existing applications are most likely to move ahead. Those targeting new

applications will struggle to achieve costs that compete with traditional fossil fuels. Blue hydrogen projects will also move slowly through the project development cycle, but more will achieve FID as they benefit from competitive economics and scaling more quickly.

11. Carbon offsets is emerging from the Lab as an attractive solution

The voluntary carbon market was at a crossroads in 2023, with market activities bogged down by a loss of confidence, and buyers craving clarity. COP28 couldn't reach an agreement on Article 6 and market sentiment suffered frustration again. The situation seems dire, but there are reasons to believe this could be the dark before the dawn. Buyers are wising up and weeding out low-quality offsets from the market. In the absence of centralised oversight from the UN, independent governance bodies are setting guidelines and offering clarity. And offsetting programmes are working hard to evolve. Wood Mackenzie expects to see the results of these efforts in 2024.

12. Novel carbon capture technologies will finally enter commercial scale

In 2024, new Carbon Capture Utilisation and Storage (CCUS) projects are no longer noteworthy in and of themselves. Wood Mackenzie tracks up to 100 commercial-scale projects, with 50 having a decent chance of progressing. What is new, however, is the much-awaited graduation of novel technologies from pilot to commercial scale. New techniques to capture carbon dioxide such as modularisation, solid adsorption and bio-recycling will be fully deployed for the first time in 2024. These promise lower energy intensity and cost reductions of up to 50% compared to incumbent methods. If successful, barriers will be lowered for emitters in vital heavy industries such as cement and chemicals. And the technology companies can expect a rush of orders.

13. Surpluses in critical metals are coming, but 2024 may be the last year of "low" prices

Battery metals prices surged in 2022 on rapid growth in demand for lithium, cobalt, and nickel. But demand has since moderated due to the global economic slowdown. A significant response on the supply side has already cooled prices, by as much as 50%. Lithium supply has risen more sharply in 2023, boosted by recent project startups notably in Latin America, nickel supply is surging from Indonesia and China and the flow of cobalt exports from the Democratic Republic of the Congo (DRC) has also increased.

However, due to continued large increases in demand for batteries and potential instability in the DRC, these surpluses will likely fade. Due to the long-lead nature of mining development, another period of tightness is expected from 2025, with copper – the key metal for electrification - expected to see prices moving sharply higher over the medium-to-long term amid the emergence of significant market deficits for both raw material (concentrate) and refined products.

14. Geoengineering is emerging from the Lab and becomes a hot topic

In the conclusions of the first Global Stocktake at COP28, countries acknowledged that the remaining global carbon budget is shrinking rapidly, with a risk of overshooting the 1.5°C goal. According to retain scientist tuhat means hundreds of billion tonnes of carbon dioxide will need to be removed or captured and stored to get the world back on course for no more than 1.5°C of warming by 2100.

Geoengineering techniques can be used to enhance the carbon absorption capacity of the planet, and to reflect sunlight back into space, helping to keep the earth cool. For instance, aerosols or other chemicals can be released a few kilometres up into the atmosphere, thus reflecting more sunlight away from the planet's surface. It is expected that in 2024, governments and scientific institutions will come together to study this fascinating subject more deeply and discuss the pros and cons of pursuing it.

15. The geopolitics of energy and climate are entering a new phase

Using energy as leverage in geopolitical affairs has a long and storied history, most recently in Russia's attempt to weaponize its energy supply prior to its invasion of Ukraine but also after. While Europe has so far managed to balance supply and demand for oil and without too large of a disruption, the geopolitical landscape has likely been permanently altered.

Without Europe as an offtaker, Russia is now extremely dependent on China and India, shifting the balance of power in negotiations regarding the development of the Power of Siberia 2 pipeline in Beijing's favor. China is also bolstering its global influence utilizing its "Belt and Road Initiative" to supply both domestically-produced renewables and project finance to developing countries.

China is not alone in using clean energy as leverage in international trade, as potential trading partners scramble to qualify for use under the US Inflation Reduction Act. Europe is eyeing protections to its domestic industry from trade and will unveil the specifics of its carbon border adjustment mechanism in 2024 as well as add shipping into the EU Emissions Trading Scheme. Both measures will effectively project European carbon pricing policy across the globe, with EU ETS prices set to rise to over €90 per metric tonne on average in 2024.

16. Elections are a wildcard

In 2024, 78 elections are scheduled across the world, over half of which will choose a new president. Over 2 billion people are expected to go to the polls. While perhaps not unprecedented, such a concentration of political risk into one single year is certainly historic. Attention naturally falls to the US, where any return of a

Republican president to the helm of the world's largest economy could threaten to undo the provisions of the IRA, extract the US from participation in the Paris Agreement once again and reshape relations with trading partners.

Elections to the European Parliament in June, as well as polls in individual European countries through the year will indicate whether or not the populist swing observed in some states in 2023 will be maintained. India's next general election will be held mid-year and votes will also take place in Indonesia, Mexico, and South Africa. Amid the emergence of more assertive nations in the Southern Hemisphere, which are seeking to match geopolitical influence with growing economic heft, the election year of 2024 could further reorder what is already a fluid and disjointed world.

Volatile Energy Markets in 2024

According to the S&P Global Commodity Insights (5), a challenging scenario for the global energy sector, citing a mix of macroeconomic headwinds and geopolitical tensions, is presented. According to the report, the energy markets are still striving to find sustainable balance between energy supply and demand. A decelerating macroeconomic framework is adding headwinds to already slowing energy demand growth, while geopolitical events in several regions either reduce energy supply or raise the risks of supply disruptions.

For oil markets, an extended period of elevated crude prices hastened investment and activity outside of OPEC+, with production growth accelerating robustly, particularly in the United States, creating an unclear future for supply cuts within OPEC+.

Kurt Barrow, Head of Oil Markets, S&P Global Commodity Insights, said: "Strong non-OPEC+ supply growth and slowing oil demand growth have led OPEC and its allies to curtail output and support prices. While this tactic has achieved some success, maintaining discipline among member countries may be difficult in 2024 as the loss of market share continues and non-OPEC+ volumes increase. OPEC+'s ability to follow through on voluntary production cuts will be key to crude pricing over the next year".

While global gas markets have managed to adjust to sharply lower Russian gas supply, particularly to Europe, demand remains constrained due to high prices and the macroeconomic slowdown. Global coal demand, which saw stout growth in 2023 due to underperforming hydro generation in China, is set to see slower growth or demand decline in 2024.

Philippe Frangules, Head of Gas, Power & Climate Solutions, S&P Global Commodity Insights, said: "Looking ahead, gas consumers in Europe and Asia remain exposed to shortages if winter weather proves to be cold,

and LNG logistics will be the key to meeting regional demand. Similarly, coal producers are faced with rightsizing their output and flows this year, as pockets of demand strength remain in developing countries even if global demand is past its peak. Prices for both gas and coal should ease in 2024 barring unforeseen events".

Attention and investment in the energy transition has clearly heightened over the past year, with project developers scrambling to grab unprecedented financial incentives from governments. While well-publicized supply chain constraints have already started to clear, clean technology development is exhibiting some growing pains, ranging from higher capital expenditure estimates, excess inventories, and high interest rates.

The impact of the economics of decarbonization on international trade and investment will become more apparent in 2024, as China seeks to export its clean technology while international producers look to qualify for incentives in the US under the Inflation Reduction Act (IRA). Europe is looking to both protect its domestic industry from imports from countries that do not impose stringent environmental standards as well as project European carbon pricing policy across the globe by unveiling the specifics of its Carbon Border Adjustment Mechanism (CBAM) and adding shipping into the EU Emissions Trading Scheme (EU ETS).

Simon Thorne, Climate & Energy Transformation Lead, S&P Global Commodity Insights, said: "While the security of oil and gas supply will remain paramount to many countries, the world is focusing more and more on securing source materials for clean energy technology, battery metals, and renewables".

Slow Recovery with Geopolitical Risks

Most economic think tanks and international organisations anticipate that the global economy will grow slightly faster in 2023 than hoped at the beginning of the year. This recovery process is likely to continue in 2024. However, there are also several uncertainty factors, particularly high interest rates, the threat of energy price increases and geopolitical tensions. The uncertainties associated with these factors put a damper on companies' investment activities – and, therefore, also on economic development.

1. Stable energy supply supports growth and employment

The most serious economic risk to the global economy in winter 2022/2023 was the fear of a supply crisis in the area of energy—especially natural gas—and other raw materials. This fear was particularly strong in Europe because many European economies are dependent on imports of raw materials. Without these materials, which are at the very beginning of economic production processes, there is a risk of production slumps and declines in employment.



The feared supply bottlenecks did not after all arise in Europe. There are several reasons for this: efficient use of raw materials, energy imports from new supplier countries and, finally, a mild winter that kept demand for heating energy low. As a result, economic growth in most of the major industrialised nations is now expected to be higher in 2023 than was predicted a year ago.

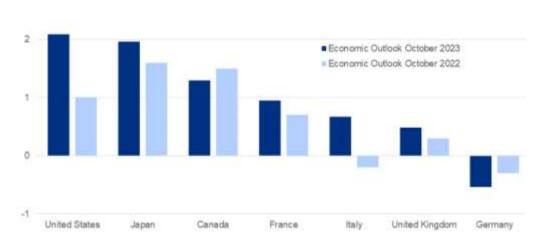


Figure 3: Estimated Change (%) of Real GDP in 2023, Compared to 2022

Source: IMF

2. High energy prices and high interest rates dampen economic recovery

Even though energy and commodity prices fell in the course of 2023, they are still significantly above the level of the last 15 years. It can be assumed that they will remain above the pre-crisis level (i.e. energy prices before the coronavirus pandemic and the Russian attack on Ukraine) in the coming years. Inflationary pressure, therefore, remains high. Of course, monthly inflation rates have fallen as energy and commodity prices have declined. Nevertheless, inflation rates in most developed economies are not likely to drop to the two per cent target set by many central banks until 2025.

High energy prices, in combination with high-interest rates, are dampening economic development - in terms of production and employment – in at least 3 ways. (6)

- High interest rates make it more difficult for companies to realise investments. As a result, demand for capital goods - i.e. machinery, tools and buildings - is falling. For the companies that manufacture these goods, this means reduced production.
- When interest rates are high, demand for credit-financed consumer goods purchases also falls. This results in a reduction in production and employment in the consumer goods industry.

 Rising energy prices reduce the purchasing power of disposable income. Hence, demand for consumer goods declines.

3. Energy exporters gained, but industrial production weakened

The global economic recovery in 2023 differed from region to region. Countries that live primarily from the export of raw materials are benefiting from rising energy and commodity prices. Their income is growing. Countries that must import natural gas, oil and other raw materials, as is the case in SE Europe, are suffering from high commodity prices. Production costs of their domestic companies are rising, which has a negative impact on the international competitiveness of these companies.

The growth-dampening effect is particularly strong in countries that are characterised by a high proportion of industrial production in the overall economy. As industrial products are generally more energy-intensive than, for example, services, above-average declines in production – compared to a situation with lower commodity prices – are to be expected here. This is particularly evident when looking at Germany: according to the IMF estimates from October 2023, Germany is the only major industrialised nation (G7) for which a decline in real gross domestic product (GDP) is forecast in 2023.

About 2024

As prediction, widely accepted by industry players, is that falling energy and commodity prices will help reduce inflationary pressure worldwide this year. This will help industrialized economies to recover. Another stabilising factor for the global economy is the easing of the production and supply chain disruptions that led to economic downturns during the coronavirus pandemic. However, there are still considerable burdens on global economic development. Two factors play a particular role here: the persistently high interest rates and geopolitical tensions.

(a) High debt limits room for manoeuvre

In the developed economies, inflationary pressure is easing due to falling commodity prices. Central banks will, therefore, most likely ease their monetary policy somewhat in 2024. Nevertheless, key interest rates will remain at an above-average level for the foreseeable future. This will not only have a negative impact on the investment activities described above, but high interest rates also lead to rising interest payments for companies and governments. This restricts their scope for e.g. the possibilities of implementing climate-friendly public investments or financing measures to stabilize the economy in the event of a renewed economic downturn.

The high level of government debt in many countries is particularly troublesome. When governments replace expiring loans with new ones, they must pay higher interest rates. If this additional expenditure is not compensated for by tax increases or spending cuts, debt continues to rise. Four southern European countries (Greece, Italy, Spain and Portugal) and France have above-average levels of debt – i.e. government debt in relation to GDP.

(b) Geopolitical tensions weaken international trade

Geopolitical tensions are another global economic development with a negative impact on growth and employment. After the global economic crisis of 2008/2009, numerous countries took protectionist measures that dampened the growth of global trade. In addition, more and more countries are now using their economic power to increase their geopolitical influence. The result: trade-restrictive measures – i.e. punitive tariffs, export bans, economic sanctions, etc. – are increasingly being used. The associated restrictions on cross-border trade are affecting export-oriented economies, including many European countries. Large economies such as the U.S. are less dependent on foreign trade relations due to the size of their domestic market. Therefore, they suffer less from a slower pace of global exports.

The two factors mentioned above are dampening economic recovery in the euro area. In a phase of economic weakness, governments often support economic growth with credit-financed stimulus packages. Given the high public debt incurred during the coronavirus pandemic and the war in Ukraine (see state subsidies of some €800 bn in the Euro area alone), the government's ability to stabilise the economy is diminishing. Europe can therefore hardly hope for government stimulus to strengthen the economy – especially not in those particularly heavily indebted countries.

In October and November, key international institutions published their economic forecasts. The growth forecasts for selected economies are shown in the following figure. The data is taken from the International Monetary Fund's "World Economic Outlook" of October 2023, the EU Commission's "Autumn 2023 Economic Forecast" of November 2023 and the "OECD Economic Outlook" of November 2023.

Figure 4: Estimated Change (%) of Real GDP in 2024, Compared to 2023

| | IMF (October 2023) | EU Commission (November 2023) | OECD (November 2023) |
|---------------|-----------------------|----------------------------------|-------------------------|
| World | +2.9 | no data | +2.7 |
| United States | + 1.5 | + 1.4 | + 1.5 |
| Euro area | + 1.2 | + 1.2 | + 0.9 |
| France | +1.3 | +1.2 | + 0.8 |
| Germany | + 0.9 | +0.8 | + 0.6 |
| Italy | + 0.7 | + 0.9 | + 0.7 |
| Spain | + 1.7 | + 1.7 | + 1.4 |
| China | + 4.2 | no data | + 4.7 |
| Japan | + 1.0 | + 0.8 | + 1.0 |

Source: IMF

Real GDP growth in the euro area is expected to be around 1% in 2024 in total. Countries with a high proportion of industrial production – above all, Germany – must expect somewhat lower growth due to the interrelationships outlined above. In the US, economic growth is somewhat stronger. This is partly because the US itself produces large quantities of energy and is, therefore, less affected by high energy prices than the European economies.

According to analysts, the predicted economic growth will only occur in 2024 if there are no additional growth-dampening effects. If, for example, new global supply bottlenecks occur, this will lead to interruptions in production. (Geo)political uncertainties pose an additional economic risk. An escalation of existing conflicts (above all, The War in Ukraine and the conflict in the Gaza Strip) could lead to significant supply chain problems and rising commodity prices. If political parties that focus on economic isolation prevail in the upcoming elections in Europe (above all the elections to the European Parliament, but also in individual countries) and the US, this would have a negative impact on global trade – with adverse consequences for all export-oriented economies.

While the biggest economic risk in 2023 was energy security, in 2024, it will be political and geopolitical uncertainties. Market players observe that uncertainty is poison for investment, and declining investment not only weakens growth and employment in the short term but also in the long term, because low investment weakens overall economic production capacities permanently. This means that 2024 could turn out to be another year of considerable economic uncertainty.

Discussion

The energy industry has gone through trial after tribulation in the last 12 months – from war and political unrest affecting energy supply, to the lasting effects of the pandemic, to the energy crisis felt across all corners of the globe.

Post-COP28, the 2024 energy transition outlook is a mix of challenges and opportunities. The conference underscored the urgent need to shift from fossil fuels to renewables, a transition fraught with complexities like geopolitical, economic, and regulatory hurdles. However, there is optimism, too. Increased focus on renewable technologies, increased investments, supportive policies, and advancements in grid technologies are bright spots. In essence, while the path to a sustainable energy future is complex, COP28 has laid the groundwork for innovative, collaborative efforts towards a cleaner, renewable energy landscape in 2024 and beyond.

Of course, delivering on the goals set at COP28 will not be easy, nor will it happen by inertia. Especially since several main stream global operators are rejecting the very idea of energy transition, as this is propagated by environmental activists and some international institutions. But rather than macroeconomic issues or lack of ambition, progress rests on urgent action to address the barriers that have held back until now progress on critical issues. These include ensuring stable, positive frameworks for investments, simplifying permitting processes, implementing a truly "green" tax system, bolstering global supply chains to ensure they are robust and secure, investing in green skills to drive the energy transition forward, and promoting the consumption of green products. The anticipated energy transformation may appear massive but it is already under way, note analysts familiar with energy transition dynamics.

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