



# **WINNING IN GREEN ENERGY'S AGE OF INFLATION**

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**INFLATION IN THE RENEWABLES  
INDUSTRY AND HOW IT WILL IMPACT  
ASSET HOLDERS AND INVESTORS**



# TABLE OF CONTENTS

- 01** Executive summary
- 02** Introduction
- 03** Global growth in the noughties
- 04** Where we've come from  
(2010 to 2021)
- 05** Where we're going: a new paradigm
- 06** Inflationary challenges for  
renewables
- 07** Winners and losers in the age of  
inflation
- 08** Conclusion

# EXECUTIVE SUMMARY

In this special report, we look at the potential impacts of inflation and interest rate rises on renewable energy owners, operators and investors in Europe.

Challenges for companies in the renewable energy sector include how to cope with rising costs of raw materials, energy and transport, which make it more expensive to build new projects. These challenges will be exacerbated by ongoing problems in the renewable energy supply chain caused by the Covid-19 pandemic; and rises in costs of borrowing as central banks seek to raise interest rates to curb inflation.

We consider how these emerging financial threats will affect firms in the renewables industry, and share views on which companies will be winners and losers in this new environment. We also share insights on how companies can mitigate their risks.

# INTRODUCTION

We are all feeling the impacts of inflation. Energy and food prices globally are hitting record highs, which is increasing the financial strain on businesses and individuals.

There are many factors behind these increases. The pent-up consumer demand and need for countries to curb borrowing caused by the Covid-19 pandemic; increased competition for raw materials as economies have opened again; and the impacts of Russia's ongoing war in Ukraine on energy and food prices.

The renewable energy sector is not immune to these pressures. Manufacturers of wind turbines have been among the most vocal in the industry about the impact that inflation is having on technology prices. For example, Siemens Gamesa said in May 2022 that onshore wind turbines are set to return to prices last seen in 2017 or even earlier due to rises in material and transport costs, as well as supply chain disruption.

This reverses a decade of gradual cost declines. Total installed costs of onshore wind fell 31% between 2010 and 2020 according to the International Renewable Energy Agency (IRENA), while average capacity factors rose from 27% to 36%. This led to a 56% reduction in average levelised cost of energy (LCOE). The LCOE of solar PV fell 88% in the same period, but the era of gradual yearly falls is now at an end – and this will have knock-on effects on project developers and operators.

Inflation means it will get more expensive to build and operate renewable energy developments, and will force companies to re-evaluate and monitor the financial assumptions related to their projects. This will come on top of some companies exceeding budgets, due to delays caused by bureaucratic permitting processes.



## INTRODUCTION

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In this special report, we consider the impacts of inflation on operators and investors in the renewable energy sector; share our insights on what this means for projects; and pick winners and losers in this new environment. But first, we will look at how drastic the change is in this inflationary era from the decade that preceded it.



# GLOBAL GROWTH IN THE NOUGHTIES



Photo by Rabih Shasha

The global financial crash that hit the world economy in 2008 played a crucial role in setting the rules that would stimulate the wind and solar sectors in the 2010s.

Central banks dropped interest rates to historic lows in a bid to stimulate investment and economic activity. This helped developers of wind and solar projects to keep down capital costs; and made infrastructure assets, including energy developments, look more attractive to investors than government bonds due to the 4%-5% returns renewables would generate.

Investors in renewables also benefited from government-backed returns in the early days in the form of feed-in tariffs (FITs). Central governments wanted to grow the amount of wind and solar in their energy mix to reduce their reliance on fossil fuels, and so backed renewables with government-set FITs in the first half of the 2010s.

Investors were understandably attracted by these government-backed returns, and this influx of capital helped wind and solar to reach commercial maturity. This meant that even when government-set FITs were replaced by FITs determined by auctions, or revenue stabilisation mechanisms such as contracts for difference (CfDs), that the attraction of renewables projects remained. More corporates started using wind and solar power to help them demonstrate their environmental credentials too.

## GLOBAL GROWTH IN THE NOUGHTIES

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The combination of these two factors – low capital costs and stable returns – meant that investment flowed into renewables through the 2010s. Bloomberg New Energy Finance reported that global investment in renewable projects rose from \$210bn in 2010 to \$355bn p.a. in 2021 (see figure 1), and this is forecast to increase further. BNEF reported global investment of \$226bn in renewable projects in the first six months of 2022, which is up 30% year-on-year from \$174bn in the equivalent period of 2021.



Figure 1: (source – BNEF)

That is not to say that investors have found the situation totally benign. The influx of investors into renewables in the second half of the 2010s combined with the sluggish permitting processes in many markets caused an imbalance of supply and demand.

The ‘wall of money’ chasing renewables combined with the limited amount of assets has driven up prices and squeezed yields, as we covered in a previous special report about control issues in renewables. This accelerated in the Covid-19 pandemic as a result of investors wanting to continue investing in ‘safe’ future-proofed assets while countries around the world shut down their economies. But investors have tolerated these rising prices due to falling technology costs and running of projects efficiently.



## GLOBAL GROWTH IN THE NOUGHTIES

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The result of these trends is major growth in renewables throughout the 2010s (see figure 2). IRENA reports that solar PV capacity is set to exceed ITW globally this year with onshore wind on track to hit 833GW, and even the relative newcomer offshore wind is set to exceed 50GW. We also see huge potential for further growth as countries seek to reduce their reliance on fossil fuels, or move towards renewables-powered fuels such as green hydrogen and ammonia.

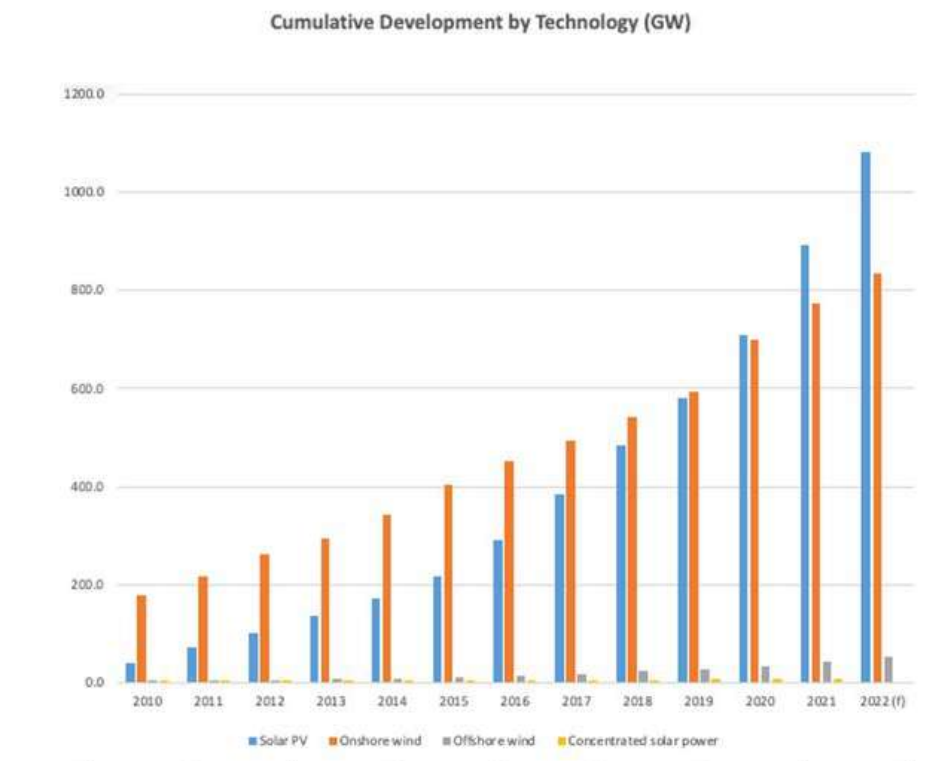


Figure 2: (source – IRENA)

But while renewables continued to perform strongly through the Covid-19 pandemic, the reality is that developers, operators and investors in this industry are now facing challenges they have never faced before. Technology costs are rising, raw materials are becoming scarcer, and governments are curbing subsidies in an effort to pay down massive stimulus packages introduced in the darkest days of the pandemic.

In addition central banks are seeking ways to curb inflation, including by raising interest rates. In the next section we will look at the changes we see in financial markets.



Photo by Zhang Fengsheng

## WHERE WE'VE COME FROM (2010 TO 2021)

Renewable energy capacity has grown globally in developed economies in the last decade but, to get a better sense of the economic trends at play, we should look at the underlying data.

To do this, we should draw on information from the Organisation for Economic CoOperation & Development about the economic performance of the US, the UK and the five largest renewables markets in the European Union.

This gives us a helpful insight into why wind and solar have been so attractive for investors in the previous decade – and why the situation is changing in the current economic climate.

Renewable energy projects were attractive for investors in the 2010s because they offered stable government-backed returns at interest rates that were higher than the rates investors could receive on government securities.

## WHERE WE'VE COME FROM (2010 TO 2021)

These rates stayed below 3% in the seven markets we analysed (see figure 3) for most of that decade.

This made the 4%-5% returns from renewables projects for much of the decade look more attractive than the returns they would make on government securities (figure 4).

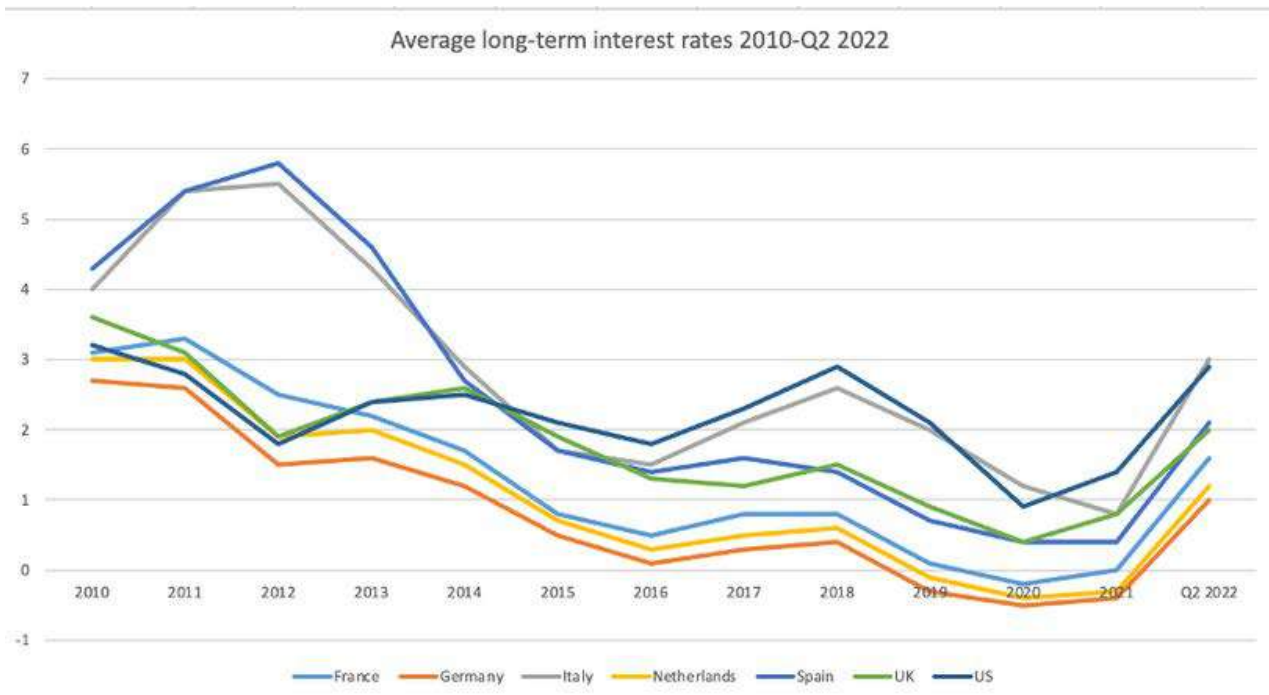


Figure 3: (source – OECD)

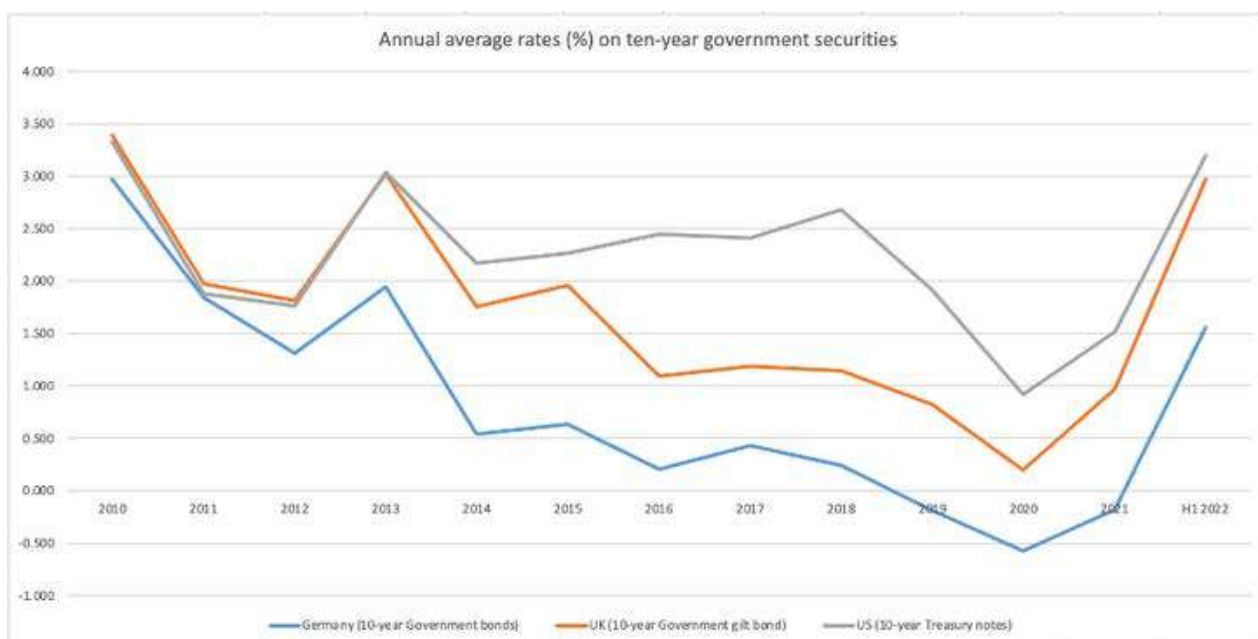


Figure 4: (source – Marketwatch.com)

## WHERE WE'VE COME FROM (2010 TO 2021)



Meanwhile, inflation in those seven countries was benign (see figure 5) and helped to shield the renewables sector from significant cost rises. Average annual inflation moved between 3% and negative territory until 2020, when the Covid-19 pandemic started to take its toll. Investor interest in renewables stayed high in the pandemic, which has led to rising prices as investors have chased a limited pool of assets.

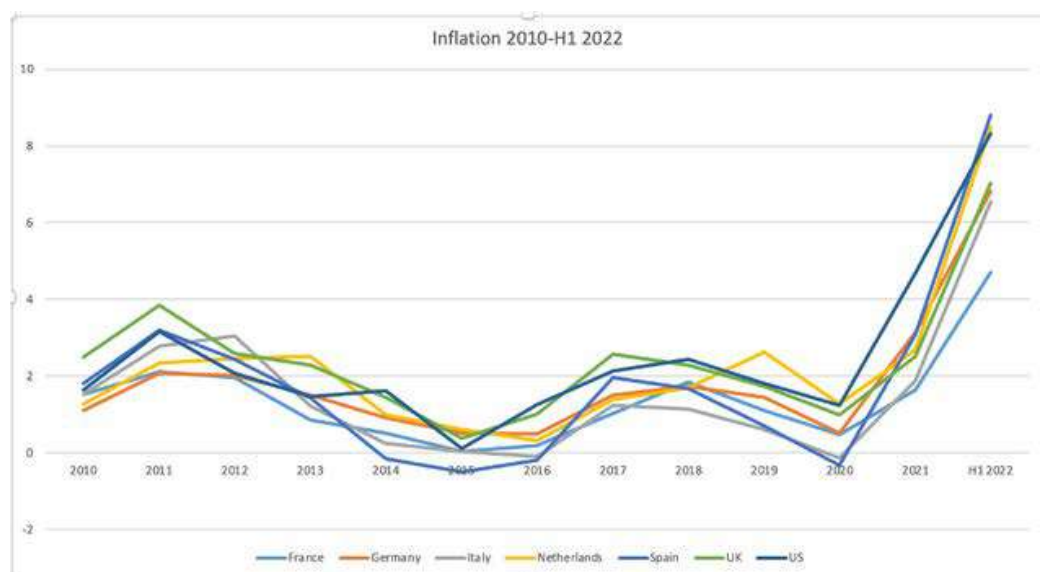


Figure 5: (source – inflation.eu)

As the prices of renewables assets have risen, companies have been able to sustain these rising prices because manufacturers have been able to cut installation costs of wind and solar projects (figure 6).

IRENA statistics show that installation costs for onshore wind projects dropped 31.5% over the decade to \$1,349/kW in 2020; and by 82.3% to \$883/kW for solar PV projects in the same period. This is due to increased efficiency of renewable energy installation practises as the sector has matured.

## WHERE WE'VE COME FROM (2010 TO 2021)

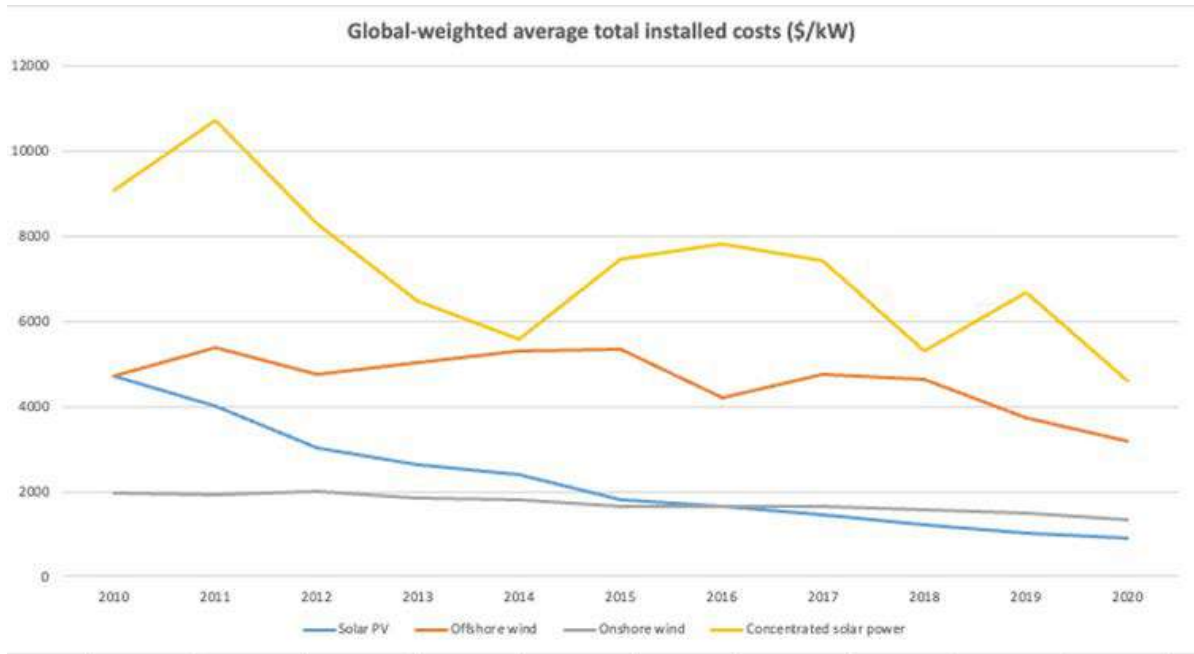


Figure 6: (source – IRENA)

The growing maturity of the renewables sector through the 2010s, as well as larger and more efficient technology with increased capacity factors, has enabled firms to generate more power from their assets. This led to sharp drops in the LCOE from these different technologies (figure 7) over the decade. The LCOE of onshore wind halved in the decade, while the LCOE of solar PV fell 88%.

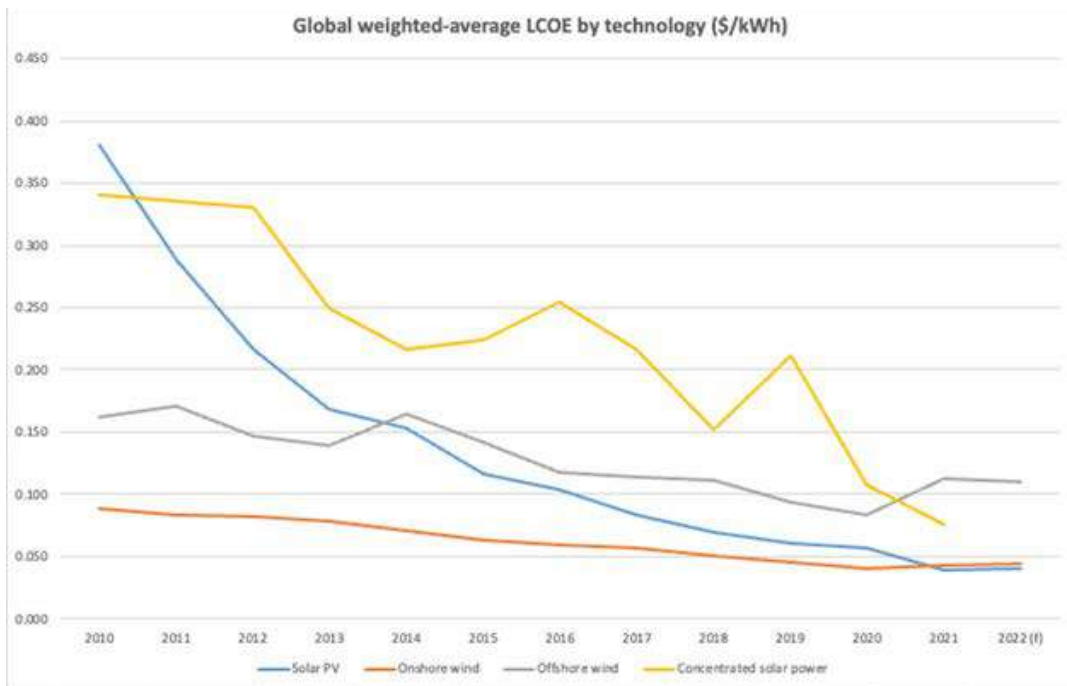


Figure 7: (source – IRENA)

## WHERE WE'VE COME FROM (2010 TO 2021)

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However, this period of continually falling LCOEs has come to an end.

While manufacturers now produce renewable energy technology that is far larger and more efficient than it was at the start of the decade, they are being forced to contend with higher costs for energy, transport and raw materials. Developers will also face higher installation costs as they deal with their own inflation and supply chain problems following on from the Covid-19 pandemic.

In the next section, we look in greater depth at the new pressures facing investors in the renewable energy sector, and what this means for projects through the life cycle.



# WHERE WE'RE GOING: A NEW PARADIGM



Photo by Ibrahim Boran

The next few years for the renewable energy sector will look very different from the decade just passed.

Inflation has been a key talking point in the global renewables industry in 2022, after warnings from wind turbine manufacturers including Vestas, Siemens Gamesa, GE Renewable Energy, Nordex and Enercon. The trend is similar in the solar industry, which is also being affected by raw material prices, disruption, and import bans.

These trends were accelerating at the start of 2022 as economic activity continued to return following the pandemic. This has driven up the costs of goods, materials and energy including fuel; and added extra pressure to supply chains, including ongoing disruption to transportation. Russia's invasion of Ukraine, and economic sanctions that followed, has added to costs for oil and gas, some metals, and grain too.

In addition, governments around the world are raising taxes to cover the cost of their huge fiscal stimulus packages to support businesses through the pandemic. Massive stimulus packages and loose monetary policy have contributed to resurgent demand and negative borrowing costs.

These are perfect conditions for a big spike in inflation, which we are now seeing in countries around the world.

For example, inflation in the European Union and US were only around 1%-1.5% at the beginning of 2021, but are over 9% now (see figure 8). Inflation in the US and UK is now at its highest level for 40 years, and is contributing to the largest cost of living crisis for many decades in some of the world's largest economies.

## WHERE WE'RE GOING: A NEW PARADIGM

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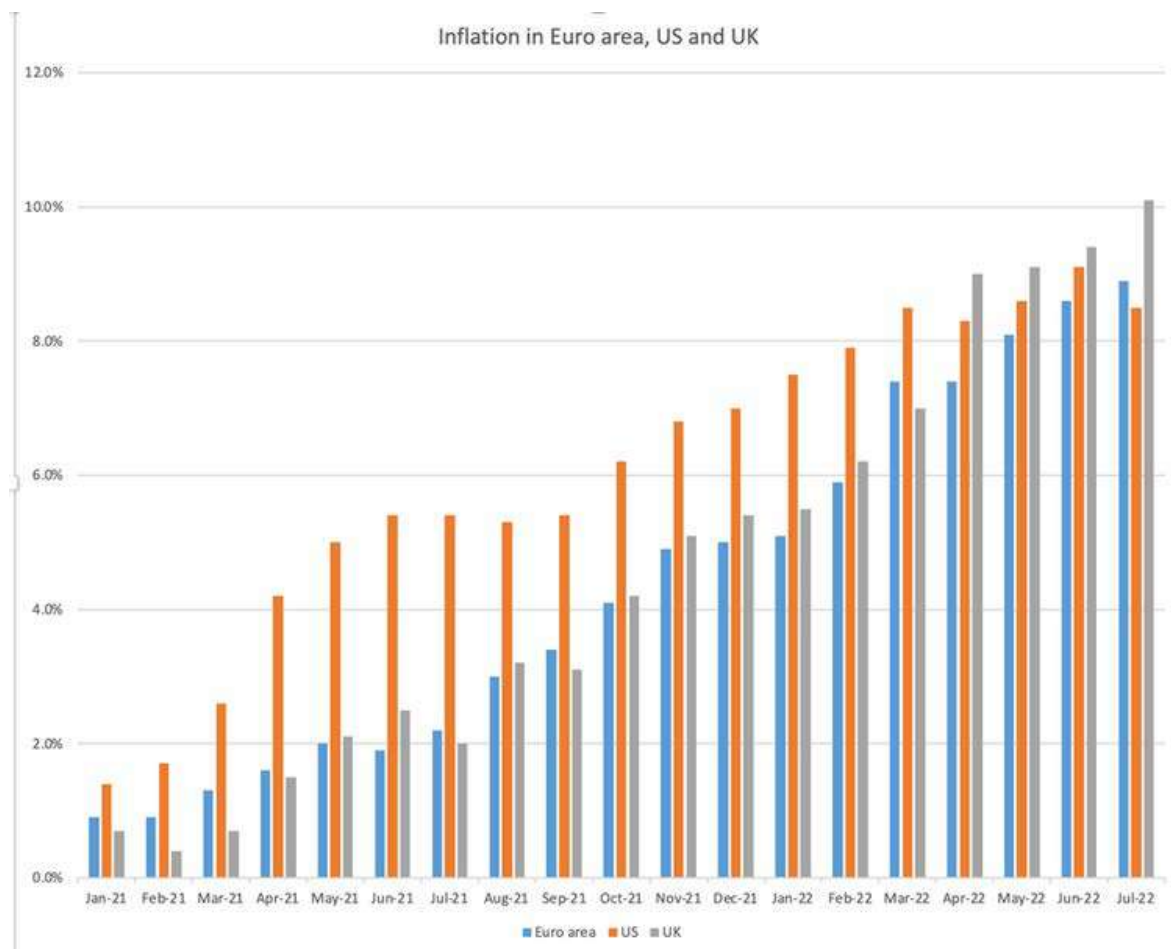


Figure 8: (source – Trading Economics)

The result is that central banks including the Federal Reserve and Bank of England have repeatedly raised their interest rates since the start of 2022 (figure 9). The US Fed made its first move in February 2022 by increasing the rate from 0.25% to 0.5%, and it was up to 2.5% in July; while the BoE has raised its base rate from 0.1% to 1.75% between November 2021 and August 2022.

On 21st July, the European Central Bank followed suit by increasing its base interest rate from 0% to 0.5%, with more set to follow this year. However, these are likely too small to curb inflation, which will pose a challenge for investors in the coming years, as borrowing costs will get more expensive at the same time as materials are.

# WHERE WE'RE GOING: A NEW PARADIGM

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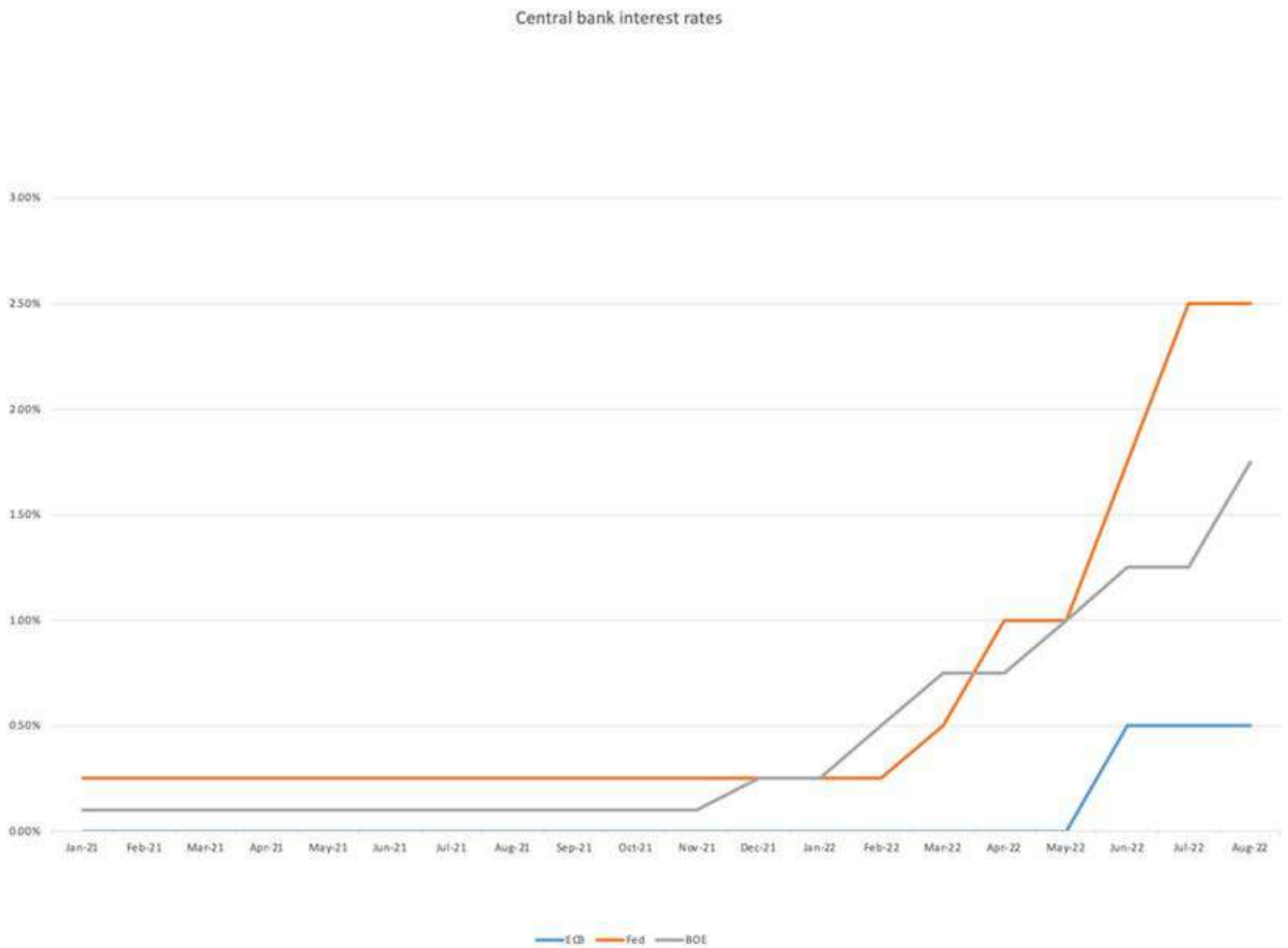


Figure 9: (source – Trading Economics)

This is the new economic paradigm for investors in the renewable energy sector. In the next section, we consider what it means for wind and solar owners and investors.



Photo by Evgeniy Alyoshin

# INFLATIONARY CHALLENGES FOR RENEWABLES

The new era of inflation is increasing costs throughout the project life cycle – from development through to operations – and will affect investors' business cases.

Construction is going to become more expensive, as a result of higher technology costs driven by more expensive raw materials and transport. Companies reliant on debt will find that their borrowing costs become more expensive. Everyone will be affected by rising costs, but the impact of inflation will disproportionately hit those who rely on debt to fund project acquisitions or construction.

We expect to see shortages in technical staff because the renewables workforce is not growing as fast as the industry requires, according to IRENA's 2021 review of renewable energy jobs. This may increase staffing costs and disruption as well.

This is not just a challenge for construction either. Maintenance would become more expensive too if wages, materials and transport costs are higher. This is a reminder that operators also face higher prices to maintain, repair and replace parts at their operational scheme; and that this will affect those who own and invest in projects.





Photo by Appolinary Kalashnikova

### **The re-financing challenge**

In addition, we expect more challenges for projects that were financed since the Covid-19 pandemic hit in early 2020, compared to those in the decade before.

Renewable assets became progressively more attractive for investors through the 2010s as their business case became stronger, as we saw earlier in this report. This drove increased demand for assets between investors, and led to yield compression in the sector. Nevertheless, these projects were generally financed sensibly on terms reflective of their credentials as long-term income-generating assets.

By contrast, the pandemic reduced investor demand for assets in sectors that were hit hardest by lockdowns – fossil fuels, leisure and travel – and increased interest in assets that were perceived as future-proofed investments, including wind and solar projects. This included projects with strong environmental, social and governance (ESG) credentials, such as renewable energy generation, and led to more demand for renewables projects between 2020 and 2021.

This further raised prices and led to unsustainable yield compression. Most investors are reluctant to reveal their own figures, but we understand that there are significant numbers of projects funded at high prices since early 2020, that are over-leveraged and will face problems when it becomes time to re-finance.



Photo by Micheile

Our view is that the companies that leveraged aggressively post-2020 will need to replace debt with equity in the coming years.

We also anticipate challenges for firms that need to raise follow-on financing when asset prices fall from pandemic-era highs; and those that secured their funding with floating / variable interest rates, which are set to see repayment costs rise steeply over the next 12-18 months as interest rates rise further. The high prices paid for assets since 2020 will lure many to re-finance at higher, potentially unhealthy rates, and this may become unsustainable when prices recede to healthier levels.

Re-financing these projects is an important emerging issue for owners in the years ahead – but with the caveat that the economy and renewables are changing fast.

### **Inflationary unknowns**

There are two significant unknowns for the owners of renewable energy projects.

The first is energy prices are currently high due to reasons including the imbalance of supply and demand in Europe, global economic recovery after Covid-19, and the geopolitical fallout from the war in Ukraine. This is positive for asset operators and investors in the short term, as it means that they may be able to sell power for high prices in the open market and will not immediately feel the pain of inflation.



## INFLATIONARY CHALLENGES FOR RENEWABLES

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The challenge here will come when power prices fall, as it will expose those who have made overly-optimistic price assumptions when buying assets and overpaid.

The second is how far governments will be able to accelerate the growth of wind, solar and other renewables as they seek energy independence in response to the rising price of importing oil and gas globally.

If countries deliver on promises to ease permitting challenges and make it easier to build renewable projects then this could add more projects to the market, and thus help to address the supply-demand imbalance that has helped fuel rising prices for renewable energy assets over the last five years.

However, increasing the supply of renewable projects is not wholly good news for developers and investors. This may also exacerbate demand for raw materials, from rare earth materials to steel, and thus continue to drive up the cost of assets. Once schemes are completed, there is also the risk that higher penetrations of wind and solar on grids increases power price cannibalization when production is high. There are no simple solutions and investors will need to weigh their decisions carefully.

The clear message for renewables in 2022 is the game has changed and businesses will need to change approach. Who will win and lose in that environment?



Photo by Moritz Kindler



Photo by Feri Tasos

# WINNERS AND LOSERS IN THE AGE OF INFLATION

In this section, we will consider those who will win and lose in the new era. We want to include holders of existing assets and those buying into new assets.

## **The winners:**

The winners will be those whose projects benefit from returns that are linked to, or beat inflation. This includes projects with some types of power purchase agreements (PPAs); or those with Contracts for Differences (CfDs) with revenues linked to inflation. This includes those used in the UK, as well as in France, Poland and Hungary.

Other beneficiaries of the current market will be those with a meaningful percentage of merchant risk that can take advantage of the very high power prices in Europe.

For example, onshore wind farms in Germany built with LCOEs of €45-€65/MWh will be able to make huge margins in a system where open market power prices exceed €250/MWh at the end of June 2022. The benefit will be biggest for projects that are already operational, as they were built before inflation started to bite but now benefit from inflated returns. However, the economics help new-build developments too.



Photo by Levan Badzgaradze

Finally, the winners in the current market include those with projects that have been financed at the very competitive terms that have prevailed in the past few years and which are now enjoying inflation-beating revenue while paying negative or low interest on cash.

It also means that cash-rich utilities that can build projects on balance sheet, without a need to go to debt markets and incur higher borrowing costs, are well-placed too.

Projects built on an all-equity or high-equity basis, without debt, are likely to profit from being able to sell power on a 100% merchant basis for the foreseeable future and then only contract with power purchase agreements from year three onwards, if the economic situation is favourable for the owners to do so. Going all-merchant for the next two years and then contracting will allow operators to create outsized value.

### **The losers:**

The losers will be projects with returns that feature fixed feed-in tariffs or PPAs that are not linked to inflation, and which are set to see operational costs rise due to the inflationary pressures identified above. These arrangements will eat into their profit margins and reduce their ability to reinvest in new projects. It may be that this opens opportunities for investors to buy assets from distressed sellers.

This group includes investors that own renewable assets with fixed nominal revenue, such as under Germany's Erneuerbare-Energien-Gesetz (EEG) regime. They will not see their revenues rise in line with any squeeze they feel on their operational costs.



Photo by Karsten Wurth

Another group that is set to struggle are investors who paid ‘top dollar’ for assets in recent years on the assumption that operations and maintenance costs would come down, inflation would stay muted, and refinancing would lower overall debt service.

This will force investors to think carefully about the debt financing terms and off-take structures they put in place. If these deals take into account the rises in interest rates and energy prices then investors may have the chance to invest in inflation-beating assets, but they will need to be sensible about valuations to achieve the real value.

Over the longer term, rising interest rates may eventually put downward pressure on pricing, as projects need to compete with rising bond rates by delivering higher returns. This may leave assets with a high leverage ratio exposed when interest rates move higher.

The good news is that renewable energy continues to become a more attractive investment class, even while slow permitting processes are preventing the sector from adding as many new projects as investors and some politicians would like.

Investors see that the sector has achieved maturity and has become the most economical way of delivering energy for a greener future. This gives us great confidence that companies in this industry will remain willing and able to adapt to the technical and financial challenges they face.

Renewable energy assets continue to offer attractive ESG credentials to investors, and an opportunity to balance stable revenues with power price risk in the merchant market. If interest rates keep rising then some institutions may be drawn to invest in other infrastructure or government bonds, which may mean changes in the types of investors that are active in the market. This can be a positive evolution.





Photo by Zbynek burival

# CONCLUSION

The renewable energy industry is heading into unprecedented times. The sector was only a fraction of its current size and maturity when the 2008 financial crisis hit, which means there is little template for how renewables investors are likely to respond.

Our view is that this is a great opportunity. Considering the radical and enduring changes that we will see in the decade ahead, we cannot rely slavishly on the solutions of our recent and more benign past. Ultimately, the asset owners, operators and investors that see this early, and challenge themselves to reappraise the ways of working that have become the norm, will be best placed to navigate the difficult days ahead. This means opening their minds to innovative approaches to funding and partnerships.

This is the approach we take at RealPort. We operate a regulatory-compliant digital investment platform that facilitates passive capital of small institutional investors in sustainable infrastructure assets, to fulfil asset owners' requirements for mezzanine and secondary capital. [Click here to find out more about our approach.](#)

We see plenty of reasons to be positive about the future, though.

## CONCLUSION

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More governments are committing to their energy transitions, including taking steps to reduce permitting and bureaucratic hurdles. Wind and solar are also reaching an exciting series of inflection points in how they can be paired with other technologies, such as energy storage and green hydrogen. This remains a fast-moving sector that will lead to the emergence of new technical solutions and deal structures.

The appetite from investors remains high, and that will continue to contribute to high prices for wind and solar assets in the short term. Current high power prices will help shield owners from the impacts of rising costs to develop, build and operate projects, at least in the short term. However, this may hit them in the longer term, as we must be keenly aware that power prices will not stay at inflated prices forever.

Therefore, the key for firms buying and operating projects is to ensure they do not overpay for assets now while prices are rising, which may leave them exposed in the future when the market changes again. Investors must ensure their business cases are sustainable in the long-term and they retain the control they need to give them flexibility. Getting a balance between short-term profits and long-term control is key.

Carefully assessing the underlying economics of assets, particularly off-take deals and the amount of leverage, is essential for investors to ensure they sign the right deals in an inflationary market. At RealPort, we look forward to helping you navigate these fast-moving times.



*RealPort is an investment brokerage platform that aims to create global tradability for sustainable alternative assets. RealPort enables asset holders to partially divest positions in operating renewables assets while empowering small and medium-sized investors to build and divest smaller positions in single assets. RealPort is unique in automating compliance requirements as well as transaction and settlement processes. The company combines a flexible structuring platform with an innovative digital issuance and securitisation infrastructure, thus enabling asset holders (issuers) and investors to significantly reduce transaction cost and time.*

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