

A report prepared by



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Maximising revenue from your electric crop

**An analysis of the renewable energy
market and the opportunities for
UK farmers and landowners**

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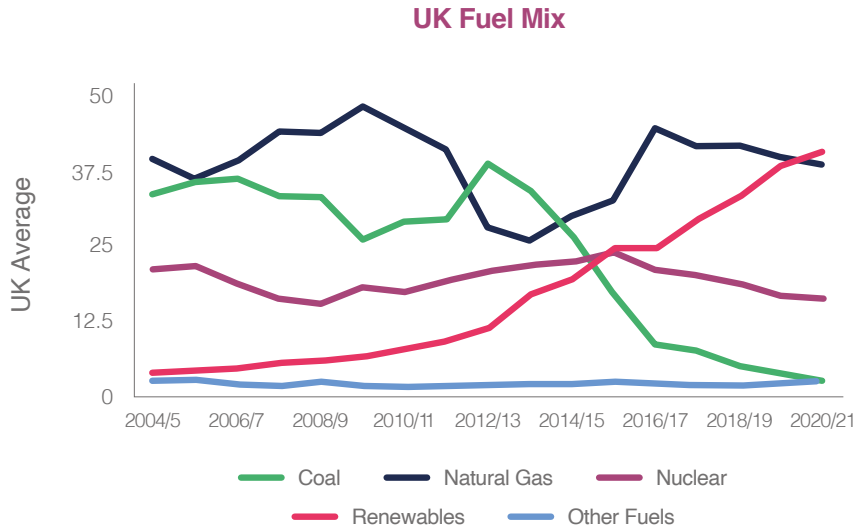
Summary



Introduction

In this report we examine the current energy market landscape and what this means for farmers and landowners with renewable energy assets on their land, and for those thinking about diversifying into renewable energy generation. We look at the electric crop, the tools and resources available, and how to maximise returns from renewable energy.

Over the past two decades, there has been a seismic shift in the UK energy market landscape. Where once the National Grid was predominantly supplied by, polluting sources of energy such as gas and coal, numerous and dispersed renewable energy generators are now increasingly taking up the mantle. Owners of these assets are helping the UK transition to a greener grid and are profiting in the process.



A large proportion of these asset-owners are based in the agricultural industry and therefore the buzzword coined for the renewable power generated is the 'electric crop'. This represents an additional source of income for many farming businesses in a time of uncertainty and transition away from the Basic Payment Scheme (BPS), enabling asset-owners to fix their yearly budgets with more certainty, build resilience through diversification and contribute to a more sustainable future for the country and for their own farms.

These renewable assets are in the form of wind turbines, solar panels, hydroelectricity and anaerobic digesters, biogas and combined heat and power plants. Farmers who own these renewable assets are in a strong position

to capitalise on the increasing demand for green energy thanks to their resources; both the land required, and, in some cases, the raw materials needed, such as energy-rich maize for biogas generation.

But how can farmers be sure they are securing the best price for their electric crop? Like the agricultural markets, the energy market is dynamic, fluctuates daily and is affected by changing global circumstances. This was exhibited by the recent UK wholesale energy market crises triggered by a global surge in demand for gas, and whilst the sharp rises in energy prices will have been unwelcome for most people, hundreds of renewable energy generators have benefited from the spike.





Chapter 1 The Electrifying Future

In the years following 1965, the UK's production of domestic coal, which was the primary source of power generation, was starting to decline rapidly¹, reliance on imports of oil were reaching record highs and energy from gas contributed relatively little to the grid. It was in this year that the first UK offshore gas was discovered, and thereafter similarly large quantities of oil were found in the same fields. These, in combination with an expansive programme of nuclear power plant construction, greatly improved the UK's energy independence and economic growth. The framework of the industry has changed a lot since the 1960s too; state energy assets have been privatised and the markets opened and deregulated².

However, oil and gas from the North Sea has reached maturity and a declining output has started to increase the UK's reliance once more on imports of fossil fuels. The UK became a net importer of natural gas from 2004 with over 60% imported by 2017.

In June 2019 the UK Government passed legislation requiring the UK's net emissions of greenhouse gases to reduce by at least 100% relative to 1990 levels, which is known as 'Net Zero' by 2050. To support delivery of Net Zero, the Government published its Smart Systems and Flexibility Plan 2021 aimed at supporting the development of flexible generation and demand. The Government estimates that we will need a 3-times

increase in existing flexible generation from 10GW to 30GW by 2030 and propose a series of measures to support this deployment.

Of note, from April 2023, distribution connection charges are likely to reduce as less reinforcement payments are required at the time of connection and there will also be improved rules around the certainty or 'firmness' of local connections. We have also seen progress with the rules around co-location of battery storage and renewable generation being confirmed for large scale projects. Over the next couple of years, there will be continued work on network charges and market design to ensure both are fit to support the transition to Net Zero.

In addition to the Smart Systems and Flexibility Plan, the Government published its Net Zero Strategy in October 2021 and has committed to decarbonising the electricity grid by 2035. This will require a significant transition as we move from the current renewable generation of approximately 40%.

In 2020, renewable sources supplied 36% of the UK electricity mix. A key policy of the government's Net Zero Strategy (set out in October 2021) is for 100% of the UK's electricity supply to come from low carbon sources by 2035, subject to security of supply³. Within these policy plans is "a new approach to onshore electricity networks that incorporates new low carbon generation with increasing demand in the most efficient manner."

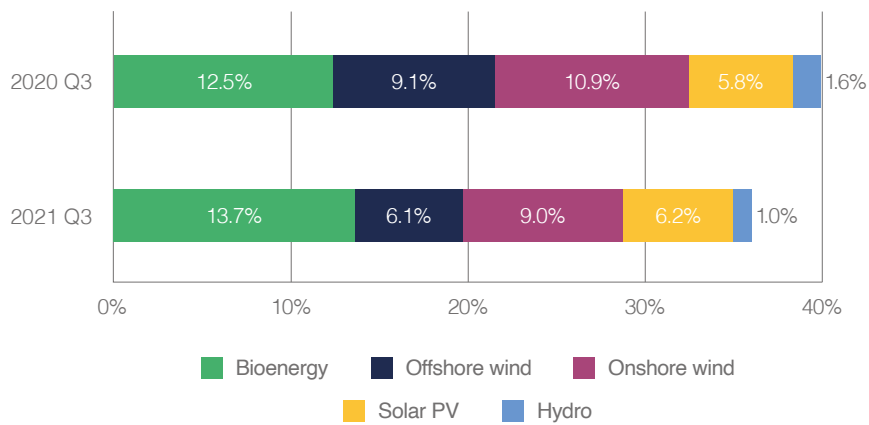
1) <https://www.gov.uk/government/statistical-data-sets/historical-coal-data-coal-production-availability-and-consumption>

2) <https://energyfocus.the-eic.com/eic/report/changing-energy-landscape-75-years-uk-industry>

3) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1007752/fuel-mix-disclosure-data-2020-2021.pdf



Renewables' Share of Electricity Generation



What is certainly helping with these efforts is the increasing number of widely distributed, privately owned renewable energy generators. Individually, these generators contribute relatively little to the grid due to their size, however, taken as a whole network, this is a powerful resource and will certainly help with the UK's green transition.

These actions suggest the government forecasts a strong future for renewable energy generation and this is reassuring for either current or prospective asset-owners.

Chapter 2 The Energy Market

Power, like grain, milk or beef, is a commodity and, as such, it is bought, sold and traded on a market – the power market. Like any other commodity, its price is influenced by supply and demand. However, difficulties in storing power, the inherent need for it to be immediately available when required, and the hour-to-hour variability in its supply and demand, ultimately means markets can be volatile.

2021 and the early part of 2022 are certainly demonstrating this. Challenging market conditions are being driven by high gas and carbon prices, two key commodities that underpin the wholesale power price; this is because they drive the short run marginal cost of gas fired generation, which is currently the marginal generation source in the UK. In combination with unplanned outages and significantly reduced gas storage, this has left the UK more susceptible to price spikes in the energy market, which is exactly what has occurred.

For example, a drive in global demand for gas caused prices to increase almost 500% throughout 2021. High gas prices and the structure of the UK retail market were key factors leading to 28 suppliers going bust with 3.8 million customers moving to a 'Supplier of Last Resort' to manage them. We also saw Bulb fall into 'Special Administration' with its 1.7 million customer base too large to migrate to a single supplier. High prices have seen consumer prices spike and the government jump into action to work with the industry to modify its price cap mechanism to stem further supplier failure, while offering subsidies to manage vulnerable customer's bills. High prices and continued reviews of market design are likely to remain at the top of the political agenda across 2022.

But what are the underlying drivers of volatility in the UK energy market, and will they persist? And do we know what influences are going to affect the energy market in the future?

Geopolitics

Although there has been an increase in electricity production from renewable sources, the UK still burns gas for approximately 40% of its electricity³. Additionally, 85% of homes use gas central heating, making the UK dependent on this fossil fuel⁴. Around 47% of the UK's gas supply comes from across Europe and 9% is imported as Liquid Natural Gas (LNG) from around the world in tankers, with the remainder mostly piped in from the North Sea and the Irish Sea in addition to Liquefied Natural Gas imports from Russia, Qatar and the USA⁵. This leaves the UK particularly exposed to global events

that affect our international supplies.

Take, for instance, the increasingly turbulent energy trade relationship between Europe and Russia. Russia is the European Union's (EU) main supplier of crude oil, natural gas and solid fossil fuels. Nord Stream is a system of offshore natural gas pipelines running underneath the Baltic Sea that supplies Germany with Russian gas. Whilst Nord Stream 1 has been supplying gas for nearly a decade, the inauguration of Nord Stream 2 (NS2 - a two-pipeline expansion of Nord Stream) was delayed in the latter part of 2021, impacting gas prices.

In November, the German energy regulator said it would not continue the approval process until Nord Stream brought itself in line with German law which required it to set up a subsidiary to show it had enough funding before a four-month certification period resumed. The event led to a spike in prices, as energy traders had to price in a risk premium due to the uncertainty this created, causing gas prices to increase approximately 25% over a 48-hour period.

Weather

Increasingly, a large proportion of UK's energy comes from renewable sources. Solar and wind energy is dependent on weather conditions which vary from hour-to-hour, causing the energy market to fluctuate within the same time intervals.

Looking more closely at wind, the UK has invested heavily in both onshore and offshore wind turbines to capitalise on the UK being one of the windiest countries in Europe. In Q3 of 2020, wind constituted exactly 20%



3) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1007752/fuel-mix-disclosure-data-2020-2021.pdf

4) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1044598/6.7408_BEIS_Clean_Heat_Heat___Buildings_Strategy_Stage_2_v5_WEB.pdf

5) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1006628/DUKES_2021_Chapter_4_Natural_gas.pdf

6) <https://www.nationalgrid.com/>

of the UK's total electricity generation. In the same quarter in 2021, that figure had dropped to 15.1%, due to an unusually still autumn. In particular, a two-week period of severe low wind led to extreme power price volatility and high prices, and it also witnessed the de-rated margin, which is the measure of excess supply above peak demand or the 'safety-belt', drop concerningly low. Incidentally, this exacerbated the issue of gas supplies in the UK as more gas was consumed to make up for the reduced output from renewables.

A particularly cold winter in Asia was another key factor in the high gas prices seen throughout the winter here – increased demand across the continent (especially in China who have recently made large transitions from coal to gas heating) was higher than Europe's. This resulted in the usually steady streams of LNG tankers moving away from Europe, and towards Asia where gas prices were twice as high.

In the short-term, a combination of high winds and clear skies can increase renewable energy generation significantly. On 5th April 2021, the UK witnessed a new record for the lowest level of carbon intensity on the National Grid, with wind and solar accounting for 41% and 23% of energy generation respectively, reducing the need for electricity from carbon intensive sources such as coal and gas⁶.

Carbon Prices

As mentioned previously, carbon prices, alongside gas prices, were driving the challenging energy market conditions experienced throughout 2021. As part of the UK's goal to be Net Zero by 2050 and the UK's departure from the EU, the UK Emissions Trading Scheme (UK ETS) market was established on 1st January 2021, replacing the EU Emissions Trading System with the first auction being held on 19th May. This enabled the trading of carbon emissions (in the form of a UK Allowance, or a 'UKA') for approximately 1,000 permit holders with high carbon emissions such as power stations, oil refineries and energy intensive industries such as steel, glass and chemicals.

Effectively, the government controls a limited number of UKAs (each equivalent to one tonne of greenhouse gas), with participants required to hold the amount equal to their emissions. If they produce more emissions than they have UKAs for, then they will have to purchase them on the market from participants who have not exceeded their emissions. The aim of this scheme is to decarbonise the country by allowing the market to find the most cost-effective way to reduce emissions.



The UK Emissions Trading Scheme is what is called a 'cap and trajectory' scheme. In this case, that means the number of allocated allowances is reduced in line with the carbon budgets – if the government wants to reduce the amount of carbon emissions, then it reduces the amount of UKAs. In 2020, the sixth carbon budget was approved which requires carbon emissions to be reduced by 78% of its 1990 levels by 2035.

At times of lowered energy generation from renewable sources, carbon intensive generation needs to increase output to meet demand. In September 2021, low winds reduced the amount of electricity being generated from low-carbon sources and the subsequent increase in the use of gas and coal meant the carbon intensity of the grid suddenly grew, increasing the price of UKAs from £55/mt to £75/mt in less than a week.

Decarbonising the grid

With the UK's commitment to Net Zero, including the electrification of infrastructures such as transport and heating, it is expected that electricity demand will increase. The government's ambition to decarbonise the electricity grid by 2035 will require progress with carbon capture and increased flexible generation (energy storage).

For the UK to meet this demand, grid scale battery capacity will need to increase to supply the grid more effectively with electricity as its demand varies throughout the day. For example, more energy is required at 6pm when people return home from work. Currently, most of the energy from renewables is only available when the wind is blowing or the sun is shining, which is a disadvantage when compared to gas-generated electricity which can be turned on and off at will.

This variability in weather can lead to volatility in the price of electricity throughout the day. But, with a greater demand for renewable energy, this volatility is likely to increase further without the battery capacity to store it. Inversely, should battery capacity increase, volatility in price may decrease as the market becomes less reliant on temporarily produced energy.



Chapter 3 A good time to harvest the electric crop

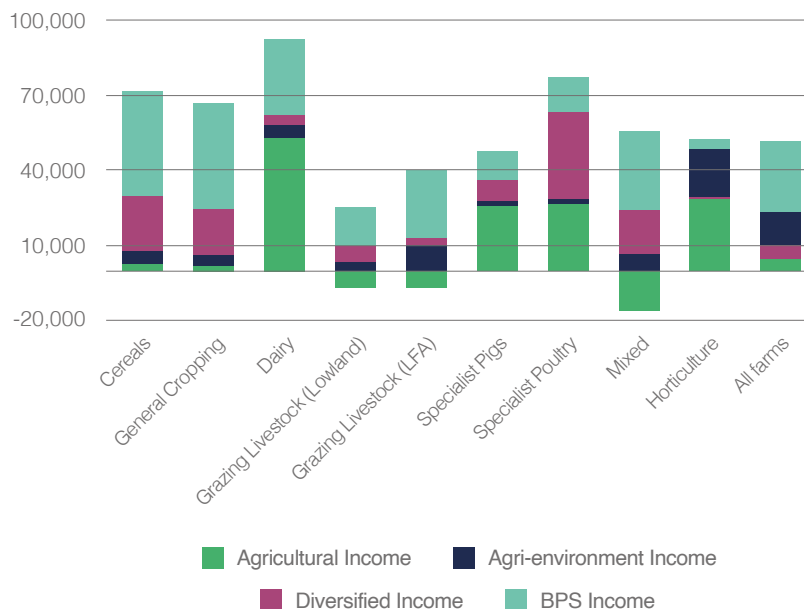
It is clear farmers will be heavily involved in the government's objectives to reach their Net Zero targets. According to the Agricultural Transition Plan, by 2028 the UK government wants to see farming and the countryside contributing significantly to environmental goals including addressing climate change, but it wants to achieve this by drastically changing the method of financing farming that has been in place for decades.

The implementation of the post-Brexit Environmental Land Management Scheme (ELMS) replacing the EU's Common Agricultural Policy means the tapered phasing out of the Basic Payment Scheme (BPS) between 2021

and 2027, and farmers will be expected to produce environmental outcomes or 'public money for public goods.'

As you can see from the graph, most agricultural sectors are still heavily dependent on the BPS payments, with it accounting for more than half of the average Farm Business Income for cereal, general cropping, grazing livestock and mixed farms in 2020/21, the year it started to be phased out. What is also apparent from the graph is how little the agricultural income is for many sectors, and for some such as livestock grazing, there is even negative agricultural income.

Breakdown for Farm Business Income by type, England 2020/21



In addition to this, there are increasing concerns about other potential negative influences on the industry. New trade deals such as the one the UK recently struck with Australia without safeguards in place to stop UK farmers being undercut by cheaper imports, and the escalating issue of being unable to secure labour are causing increased levels of uncertainty about whether some UK farming businesses will remain economically viable.

Diversification

Farm diversification is a useful strategy to ensure long-term financial prosperity and could be an effective method of offsetting the turbulence that farming businesses may experience. It is widely thought to offer considerable scope for improving the economic viability of many farms and has been put forward as a great technique to reduce the stark gap between income and assets that is common among farming households⁷.

Since 2010/11, the percentage of farms in England that have diversified their activity has increased from 52% to 66%, and diversified activity that was not letting buildings from 25% to 48%. Across all farms in 2020/21, income from diversified enterprises accounted for 26% of Farm Business Income⁸. Evidently, farmers are realising the financial opportunity of creating income from activities that aren't raising livestock or growing crops.

When compared to income from the Basic Payment Scheme, the income generated from diversification varies dependent on the sector, with the average total industry income of £51,400 and BPS payments of £28,400, 54% of the total. For example, in the specialist poultry industry, diversified income totalled £34,600 in 2020/21, with just £13,900 from BPS. For cereals however, the amount generated from diversification

7) <https://www.struttandparker.com/knowledge-and-research/diversifying-your-farm>

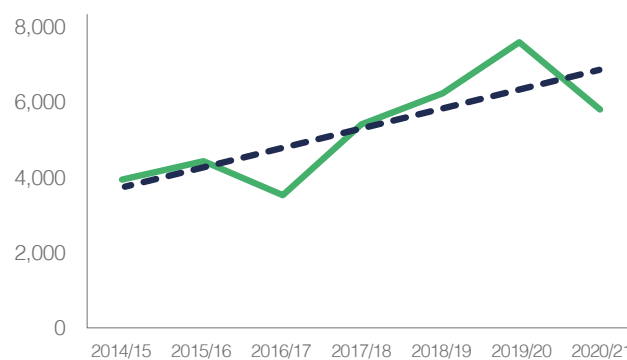
8) Farm Accounts in England Results from the Farm Business Survey 2020/21

was half of the contribution from BPS, at £21,900 and £41,800 respectively and for sectors such as grazing livestock, income from BPS was nearly 10x greater than income from diversification⁹. Whilst this is a big range, some sectors are demonstrating that the reliance on BPS can be successfully reduced through diversification.

Concurrent with the increase in farm diversification activity that is not letting buildings, an increasing amount

of Farm Business Income comes from renewable energy enterprises. Between the years of 2014/15 and 2019/20, the average income from renewables in England nearly doubled from £3,900 to £7,500 per farm^{10/11}. This is up from a total combined income of £40m to £100m for farmers, more than enterprises such as processing/retailing of farm produce, sport and recreation, and tourist accommodation and catering.

Average enterprise income from renewables (£/farm)



Farmers opting to 'grow' the electric crop as a method of diversifying are capitalising on key resources inherent to them; the land needed to house renewable assets, such as fields for solar farms or watercourses for hydropower, and the raw materials required, such as maize as feed for anaerobic digesters. With a reduction in Basic Payments, over time, designating an acre of land to the electric crop may become more financially appealing and viable than the arable crop.

More recent owners of renewable assets are also taking advantage of their reduced costs. Solar Photovoltaics (PV) has seen the sharpest decline in the cost of any electricity technology over the last decade. A report by the International Renewable Energy Agency (IRENA)

found that since 2009, the cost has dropped by approximately 90% globally¹². Wind turbine prices have also fallen by 50-60% since 2010, suggesting a much greater return on investment for both assets now in comparison to a decade ago.

However, as we saw in chapter two, energy is a commodity like other agricultural products, so its price fluctuates in tandem with the market. How can farmers that have either chosen or are considering renewable energy generation as a method of diversification ensure they are getting both the best and most secure price for their energy? How can they understand and navigate the energy marketplace confidently?



9) <https://www.gov.uk/government/statistics/farm-business-income/farm-business-income-by-type-of-farm-england-202021>

10) <https://www.gov.uk/government/statistics/historic-farm-accounts-in-england>

11) <https://www.gov.uk/government/statistics/farm-accounts-in-england>

12) <https://www.irena.org/costs>



Chapter 4 Achieve the highest yield

As a farmer or landowner who is either a current or prospective renewable asset-owner, this report has so far demonstrated the strength of your position. Entering or being in the power market can, at times, be a confusing and sometimes volatile environment. But farmers are no strangers to volatility, and seeking expert advice to deal with commodity markets, whether that be wheat, dairy or livestock, is something many farmers already do. The energy market is no different, and agribusinesses need to manage the risk associated with energy market volatility to achieve the best price possible.

Informing yourself of the various elements involved and working with the parties who have your interests at heart can help minimise risk and maximise revenue generated by assets.

PPAs 101

First, a quick 101 on Power Purchase Agreements (PPAs) - a method of trading/selling energy. They are bilateral contracts between two parties – a seller who is typically the owner of energy-generating assets, and a buyer (or ‘offtaker’) who provides the seller with access to wholesale power market pricing and purchases the electricity at an agreed price per megawatt hour. The energy is then sold into the wholesale power market by the offtaker.

PPAs provide both parties with a collaborative approach and flexibility for greater mutual benefit; locking in the price for a set period can give the seller the ability to fix their costs in the long-term, shoring up their finances and reducing risk.

Since 2002 large scale renewables were funded by a ‘Renewable Obligation (RO) scheme’. The Government placed an obligation on suppliers to source a proportion of their electricity from renewable sources. This was achieved by purchasing RO Certificates (ROCs) from renewable generators or from the ROC market. The Scheme was later closed to new business, but ROCs were issued for 20 years for renewables projects. We saw 31GW of built capacity under the scheme.

The scheme was replaced by a Contracts for Difference (CfD) scheme brought in during 2013. This ensures low carbon generation a guaranteed price for between 15 to 35 years depending on technology.

To encourage smaller generation the Government also introduced a ‘Feed-in Tariff’ which provided a price for small renewable generation of less than or equal to 5MW which offered a 20 to 25- year contract depending on generation type. 6GW was built under this scheme which closed to new builds in 2019 and has not really been replaced.

During these schemes we have seen the cost of assets reduce and more and more assets are coming to market on a subsidiary free basis. Those assets still claiming ROCs are required to use a PPA. PPAs are enabling these asset-owners to thrive in the power market. According to Cornwall Insight, across June-September 2021 forecast all green generator revenues increased for a sixth consecutive quarter¹³, with a key element of this being the inflated wholesale power prices which are continuously breaking records due to a range of previously highlighted global trade circumstances.

13) <https://www.cornwall-insight.com/five-highlights-from-our-latest-ppa-market-research/>

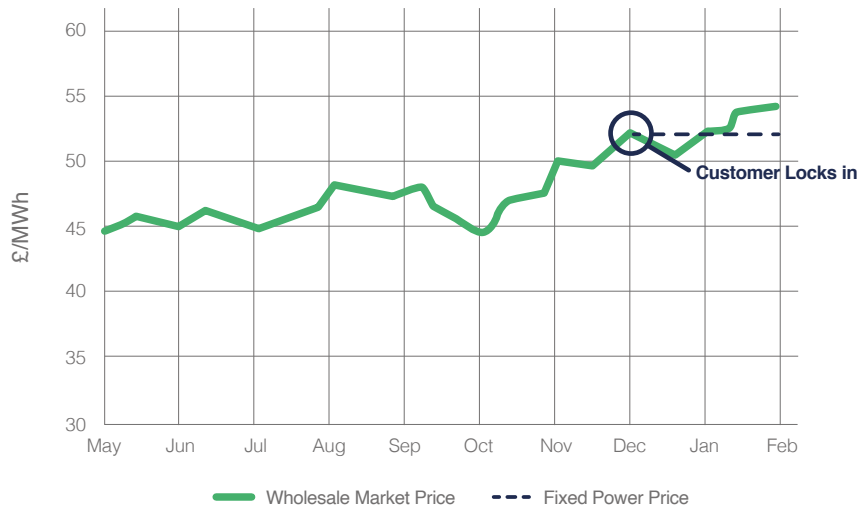
Choosing the right PPA

Fixed PPA

Fixed PPAs are fixed-term agreements that 'lock in' a price for an agreed amount of time – often from one to five years. Power market volatility in the latter part of 2021 caused by a shortage of gas in Europe and an increased demand in Asia has seen many UK generators secure substantially more lucrative Fixed PPAs by locking in when energy prices were high.

The appeal of longer term fixed PPAs may have recently increased for farmers due to the financial uncertainty surrounding the Environmental Land Management schemes (ELMs) and the subsequent reduction in subsidies. The benefit here is that farmers can secure a price for energy and can therefore more accurately determine revenue for a fixed period – an invaluable advantage in a period of agricultural transition, and which is unavailable when selling to agricultural markets.

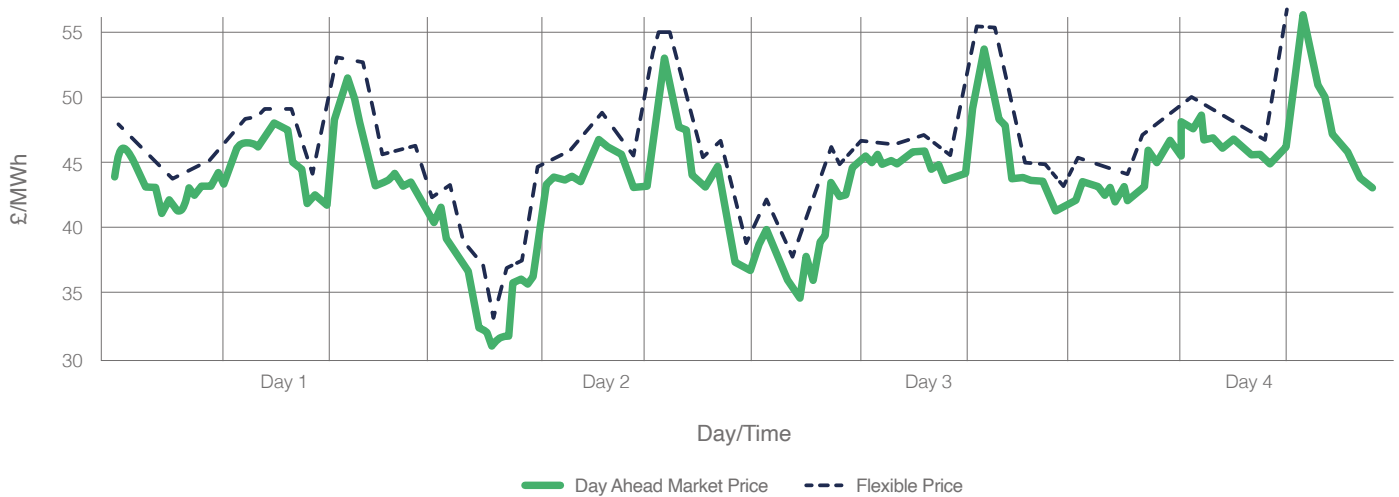
UK Forward Market Price



Flexible PPA

Flexible (or 'flex') PPAs enable renewable generators to receive a market reflective price against the European Power Exchange (EPEX SPOT) Day Ahead Market. Unlike a Fixed PPA, the Flex PPA trades in hourly blocks, meaning generators will get a different price for each hour they generate. This is reflective of the true, live cost of electricity and can see generators do well in times of inflated prices but at an increased risk of volatility, so it is wise to understand your risk appetite.

EPEX - Day Ahead - Power Market

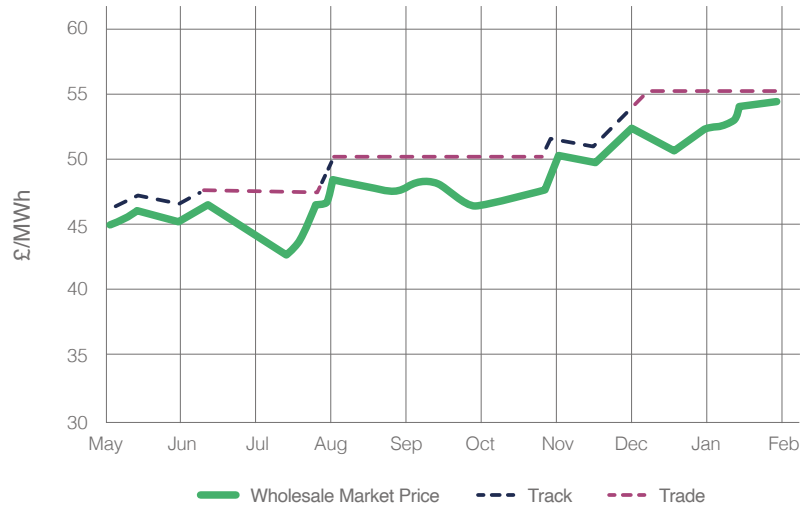


Track and Trade PPA

Track and Trade PPAs puts the control back into the generator's hands; allowing them to track the forward market in real time, providing an increased chance to lock in a better price when the opportunity arises instead of locking in whatever the price may be when their PPA renews.

This PPA is for the more hands-on energy generator who wants to become more engaged with the power market and capitalise on the opportunity to maximise the revenue of their asset further.

UK Forward Market Price



Tools, Tips and Resources

There are numerous offtakers ready to purchase your renewable energy, so choosing one you can trust can be difficult and it's worth taking the time to research for yourself.

Know Your Risk Appetite

The power market, like any other, fluctuates and as such asset owners must acknowledge that when signing a PPA there are going to be different degrees of risk involved.

For example, a Fixed PPA is relatively low risk as there is an agreed fixed price for the energy generated for a fixed amount of time. If opting for a Flex PPA, asset owners may end up with a bad return for energy if the price of energy falls or may benefit from inflated prices.

Don't base your decision only on price

It may be tempting to go for the best price offered but be aware, there are more to PPA contracts than just that. Learn more about what the offtaker has that provides a good customer experience. Is their billing transparent and accurate? Do their methods of forecasting use the most up-to-date technology? Do they have a team of experienced traders? Do they have a good reputation? Do they have strong credit? Do they frequently provide resources for their customers such as market reports or have online resources where customers access necessary information in one place?

Seek independent advice

Many companies offer PPAs, and therefore it may be in your best interests to shop around for the best deal and not necessarily stick with your current supplier, especially if your current deal is set to end within the next three to six months. There are independent and impartial consultants out there that will assist in determining the best supplier for you.





Summary

This report demonstrates that there is a clear opportunity for farmers and landowners to secure good returns from renewable energy assets, at a time when returns from farming are particularly challenging and unpredictable.

The UK energy market landscape is changing, and big, centralised, energy sources are being replaced with more numerous, smaller, geographically dispersed renewable energy generators. A large proportion of these asset-owners are based in the agriculture industry, and the owners of these assets are helping the UK transition to a greener grid and are profiting from an 'electric crop' in the process.

The energy market is volatile, but so are agriculture commodity markets; this isn't a new concept to farmers and shouldn't be a barrier to entry. Instead, understanding the energy market and what impacts this volatility, and how to choose the right type of energy contract to suit your risk appetite are important considerations that are covered in this paper.

Geopolitics, the weather, carbon prices and decarbonisation all influence energy market volatility and pricing. Whilst asset owners cannot impact these global factors, it is important to understand what they are and make sure the energy offtaker you choose is monitoring the market, advising you on the best product to manage your risk appetite and that will deliver the best returns for your asset.

Power Purchase Agreements (PPAs) are the method of trading energy. The seller is typically the owner of the

energy-generating assets, and the buyer (or 'offtaker') provides the seller with access to wholesale power market pricing and purchases the electricity at an agreed price per watt without the seller needing to apply and pay to become a licensed energy supplier. The energy is then sold into the wholesale power market.

PPAs provide both parties with a collaborative approach and greater flexibility for greater mutual benefit; locking in the price for a set period can give the seller the ability to fix their costs in the long-term, shoring up their finances and reducing risk.

Understanding the types of PPA available and choosing an energy offtaker that will work with you to maximise your returns is crucial to getting the most value from your electric crop. There are some key considerations to make when choosing an offtaker:

- Know your risk appetite
- Don't base your decision only on price
- Seek independent advice

Farmers opting to grow an electric crop as a method of diversification are capitalising on key resources inherent to them; the land needed to house renewable assets and the raw materials required, such as maize as feed for anaerobic digestors. With a reduction in Basic Payments, over time, designating an acre of land to the electric crop may become more financially appealing and viable than other more traditional income streams.

About Limejump

Limejump is the UK's leading energy-tech platform, combining human trading expertise with intelligent tech-led optimisation. Through sophisticated and transparent Power Purchase Agreement (PPA) products and an agile 24/7 trading team, the company enables asset owners, such as farmers, to get the best price for renewable energy generation, whilst also supporting the grid with much needed green energy.

At Limejump, we offer a range of PPAs to ensure customers are getting the best product to suit their business and risk appetite. We provide a transparent, personable customer experience to help guide asset owners to the best choice for their business. We pride ourselves on our transparency and are always happy to discuss details of any PPAs you currently have, or are looking to secure, and we share all the data behind your billing.

Limejump PPA options



Fixed PPA - allows the seller to lock in a price for energy generation at the time of the contract signing for a fixed period, usually for 12 months (although this can be flexible). This reduces exposure to fluctuating markets and can help customers secure a good price, allowing them to budget.



Flexible PPA - enables renewable generators to receive a market reflective price against the European Power Exchange (EPEX SPOT) Day Ahead market. This market trades in hourly blocks, so customers will get a different price for each hour they generate. This is reflective of the true, live cost of electricity but this can be very volatile between high and low demand periods.



Track and Trade PPA - gives renewable generators the ability to track the energy market in real time and, therefore, the opportunity to achieve a better price for their energy. This is facilitated through Limejump's award-winning portal that customers have access to. In addition, Limejump alerts customers when the energy price spikes and deviates from their agreed floor or ceiling levels (the maximum and minimum amount the energy sold can be charged at), helping them achieve greater optimisation of their energy asset.

With the financial backing of Shell, Limejump aims to maximise energy returns for existing renewable asset owners through PPAs and help farmers who may be considering an investment in renewables.

Limejump's platform gives farmers more control and the opportunity to secure a good price for the energy they generate, providing another source of valuable income – whether they have a single turbine, a small solar farm, or an anaerobic digestion plant. The platform offers transparent prices and simplifies the process of selling energy, helping farmers engage more easily with the energy market.

By capturing the green energy farmers generate, Limejump will create a network of renewable assets that power the UK courtesy of the farming community.



Our PPA offering is truly market leading



Intelligence-led forecasting

Using machine learning to forecast customers' generation enables us to offer market leading prices for generation as we are less exposed to variances between forecasts and actuals.



Full access to an award-winning portal

Customers gain access to our purpose-built and award-winning customer portal which intelligently shares generation, pricing and billing data in one location.



A 24/7 trading team

Our 24/7 trading team shares market insights with customers through market reports delivered straight to their inbox. Enabling customers to know the most opportune time to lock in their power price.



Full billing transparency

Limejump provides full billing transparency via the customer portal. Transparency is important to us, therefore, we send all of our backing data to our customers.



Creditworthy

Limejump is a wholly owned subsidiary of Shell with access to one of the most experienced power trading desks in the world.



Renewable diversification makes financial sense on Welsh hill farm

Rhys Anwyl is a third-generation farmer at Garreghyllidren Farm in Gwynedd, North Wales. The family, consisting of Rhys' wife Carys, their children Lowri and Cai, and Rhys' parents Lewys and Ellen, farm 70 cattle and 450 Welsh Mountain Sheep on a thousand acres of mountainous land.

Rhys made the decision in 2014 to diversify his farm by swapping one acre of grazing land for an 'electric crop', comprising of solar panels. "With the impending changes to UK agriculture, diversifying our income seemed like a sensible option to strengthen us financially and build business resilience," comments Rhys.

After Rhys invested in a 200kW solar farm, which was installed in 2015, his next step was to ensure he got the best price for his energy, so he went to market. On the recommendation of a family friend, who was in part responsible for facilitating PPAs for the National Trust, Rhys got in touch with Limejump.

"I didn't know a great deal about PPAs until I contacted Limejump. After talking through potential options, Limejump recommended I secured a 12-month fixed PPA to take advantage of the high power prices at the time," explains Rhys. In early

2021, tight market conditions and cold spells in Europe and Asia were reducing Liquefied Natural Gas (LNG) supply to the continent, causing higher prices.

"We were very happy to facilitate the opportunity for Rhys to capitalise on the rising market prices," explains Hamish Conway, Business Development Manager at Limejump. "The fixed price PPA guaranteed budget certainty and helped reduce Rhys' exposure to market fluctuations, which proved effective as energy markets grew increasingly volatile towards the end of 2021," he adds.

"Rhys was so impressed by our hassle-free PPA process that he recommended us to his uncle, Rheinallt. We then worked with Rheinallt and his local community to build a large energy portfolio from four turbines, for which we secured a lucrative 12-month fixed PPA due to the market uncertainty caused by the blocked Suez Canal," comments Hamish.

"Our 12-month PPA contract is coming to an end soon, and because of our excellent experience of working with Limejump, we look forward to discussing our best options with them, knowing they will deliver a good deal for us," concludes Rhys.

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