Lymm Solar Farm Frequently Asked Questions July 2025

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Electrical Distribution and Transmission Networks - basic explainer

General questions

Why does it need to be here in Lymm?

There are lots of reasons why local electrical generation is important. As the country decarbonises and moves away from using fossil fuels in homes and businesses, there will be a much bigger demand for electricity. There are about 5,300 households in Lymm – over the next 20-30 years, all of them, plus all of the businesses, will have to replace their gas boilers and cookers with electrical alternatives. Obviously, energy efficiency is something that should be done at the same time, which will reduce demand, but even so there will be at least a doubling in electricity demand. On top of that, petrol and diesel cars and vans will be phased out and replaced with electric cars and vans. This will add to the electrical demand.

Locally generated electricity is helpful because it feeds the local distribution system (*to find out more about this, see the box at the end of this document)* so the electricity from local generation would be used directly in this area. Some of this electricity will be generated by solar panels on rooftops, something that is to be encouraged and supported on all properties. But this won't be enough to supply all electricity needs. Lymm and much of our area is already constrained for electrical supply, which means that the electrical grid is nearing capacity. This could significantly damage the ability for local people to decarbonise and make positive choices in the future. For more information on this, see the FAQs below on *'why does UK need more electricity supply?'* and *'why does Lymm need local electricity?'*

How did you come to choose this site rather than others in Lymm?

Back in 2016, UK-based company Good Energy were seeking sites to construct solar farms close to areas that they thought would be 'early adopters' of electric vehicles and other electrical demand. At this time, central Government were supporting installation of this technology with Feed-in-Tariffs and other subsidies, to stimulate the market in the UK for this technology. Good Energy identified Wildersmoor Hall Farm as a good location; it was farmland but it was used for sheep grazing which could carry on even with solar installation on the fields, and it was well located for access to the electrical grid. At that time, a 5MW solar farm was proposed and covered most of the farm fields, much larger than the proposed community scheme.

Community consultation on the Good Energy proposed scheme started in 2017 (Proposed Solar Farm Development at Lymm), but before the planning application could be submitted, the Government's subsidy scheme changed and the proposed scheme wasn't financially viable any more. It wasn't until five years later that continual development in solar technology, together with reducing costs due to the huge increases in manufacturing capacity, made such schemes financially viable subsidy-free.

Following the success of the solar installations on the four primary schools, Lymm Community Energy were encouraged by its Members to find opportunities for further schemes. Feasibility studies were carried out for several other community buildings in the village, plus consideration of the few brownfield sites in Lymm such as small car parks and 'waste' land. Unfortunately, none of these sites or buildings were suitable for solar, due to a range of issues such as overshadowing, sites being earmarked for future developments, problems connecting to the local electricity grid or roofs not being strong enough to support the weight of the panels. With the price of solar panels dropping and the efficiency of the output improving year on year, it was time to reappraise the solar farm

design originally produced for Wildersmoor Hall Farm. A new investigation concluded that a viable project was now feasible and could be developed with genuine community benefit.

Why does it need to be on this particular field?

Solar generation needs to be located near to electricity network infrastructure, as well as being on a relatively flat and unshadowed land area. Ideally, existing trees and hedgerows would already be in place to adequately screen any views of the site. This site meets all of these requirements, being close to the existing electrical substation off Whiteleggs Lane. The landowner has other fields that would also have been suitable for solar installation, but this would have 'divided' his farmed land from the farmhouse and farm buildings, which would make farming the remaining land difficult to manage. The choice of this site maximises the continued operation of the farm business. In addition, this site means that the solar panels and the inverters will fit on one field rather than being divided between different fields. It can also be reached directly by the farm track from Higher Lane.

Why does the site boundary (the 'red line' boundary) extend further than just the solar farm field?

The map that has been submitted in the planning application has to include all of the areas that might be affected by the proposal, whether during construction or afterwards. The tracks that lead to the site, and the construction compound (where the equipment will be stored during construction) are therefore shown, but once constructed there will be minimal or no impact on these areas.

The site is currently used for agricultural purposes. Is it permitted to install solar on such sites?

Government guidance on this matter acknowledges that there is a potential conflict between the Government's desire to preserve land for food production and their ambitious targets to increase solar power generation by 2035. Agricultural land is classified into different 'grades' depending on its agricultural use for food production. Land is classified into five grades - 1 to 5, with grade 3 being divided into 3a and 3b. Grade 1 is the best quality agricultural land. The grade of the land is assessed based on the type of soil, the elevation of the site and also the ability of the land to hold moisture as well as the weather patterns for that particular site.

Government guidance generally guides solar farm development (or indeed, any development) away from 'best and most versatile' agricultural land which is land in grades 1, 2 and 3a. This is to place appropriate importance on the need for UK food production. These restrictions are particularly important when considering a proposal for development that would render the land unusable for food production indefinitely (such as housing or other building development), but they are still relevant for temporary land uses such as solar farm installations.

Solar farms place a structure on the land supported on steel posts, therefore ploughing for crops using tractors or other farm equipment cannot be done on these sites. Many solar farm sites have found that there are other agricultural uses that can comfortably co-exist with a solar farm. Indeed, there is evidence that the presence of a solar farm can be beneficial to sheep farmers for example, protecting the flock from snow, rain and providing shade in the summer (*New Scientist, 1.2.23*). There are also examples of 'agri-voltaics' where some crops can be protected by the solar farm panels, such as raspberries which can easily be damaged by heavy rainfall. The National Farmers' Union agrees that there isn't necessarily a conflict between solar power generation and food production, particularly for sheep grazing (https://www.youtube.com/watch?v=f3kxi7BDl8Q).

An agricultural land survey has been carried out at the proposed site at Wildersmoor Hall Farm. This survey has concluded that the land across the whole field is a combination of grades 3a, 3b and 4

with some woodland not in agricultural use. The grade 3a land is towards the south-east of the site with grade 3b and 4 towards the north west of the site. The solar farm installation has therefore been proposed to focus on the north-west part of the site which is predominantly in grade 3b and grade 4.

The Government's in-depth assessment indicates that there is no UK-wide risk to food security from solar installations, given the potential for multifunctional use of solar sites https://www.rspb.org.uk/whats-happening/news/solar-farms-managed-for-nature-boost-bird-numbers-and-biodiversity. In this case, the field is currently used for sheep grazing and it is proposed that this use would continue without any negative impact on the sheep or their wellbeing. There would be no difference in the potential food production of the field before and after installation.

Renewable community energy and its importance

Why is developing renewable energy sources so important to the UK?

Following the general election in 2024, one of the first things that the new Government did was set out a series of 'missions' that would be their highest priorities in government. One of these was a mission to 'Make Britain a Clean Energy Superpower', based on the realisation that a lack of investment in UK based energy generation has left the UK dangerously exposed to threats to our energy security; the huge increase in energy bills since the invasion of Ukraine has highlighted this vulnerability as UK suppliers have been forced to purchase fossil fuels traded on the international market. The Government's mission plan https://www.gov.uk/missions/clean-energy focusses on the abundant natural resources that exist in the UK for renewable energy generation which could deliver energy security, economic growth, good jobs and lower energy bills.

How will solar power contribute to UK's future energy supply?

In December 2024, Government published a detailed plan of how their clean power mission would be delivered. The Clean Power 2030 Action Plan https://www.gov.uk/government/publications/clean-power-2030-action-plan/clean-power-2030-action-plan-a-new-era-of-clean-electricity-main-report sets out the ambition to achieve 45-47 GW (gigawatts) of solar power, complemented by other renewable technologies, to rapidly reduce the UK's dependence on imported fossil fuel.

Why is Community Energy generation important to the UK Government Clean Energy Mission?

To achieve the level of renewable energy generation that is needed across the UK, both large scale and smaller scale renewable installations will be needed. The Government's detailed Clean Power Action Plan makes it clear that whilst much of their targeted solar power will be generated by large installations, local and community renewable energy will also play a vital role. It will '*deliver significant local benefits...reduce network system losses...contribute significantly to the prosperity of local places...providing energy resilience*'. The Government's recently established Great British Energy is providing specific focus on local and community energy projects, recognising their particular benefits.

How is Government supporting renewable Community Energy projects?

The Government's Clean Energy 2030 Action Plan https://www.gov.uk/government/publications/clean-power-2030-action-plan/clean-power-2030-action-plan-a-new-era-of-clean-electricity-main-report states that Government is taking specific actions to remove barriers to, and further the deployment of, local energy. In the last year,

Government have updated the National Planning Policy Framework to direct decision makers to give significant weight to the benefits associated with renewable and low carbon energy generation. This is because "*clean energy…is the economic justice, energy security and national security fight of our time*" (*Energy UK Conference 2024, Rt Hon Ed Miliband MP*). The aim of these changes is to increase the likelihood of local planning authorities granting permission to renewable energy schemes including solar, helping to achieve the targets for clean energy generation in the UK. The National Planning Policy Framework now acknowledges the need for renewable and low carbon energy development and asks planning authorities to give significant weight to the benefits, recognising that '*small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions*'. Local Plans across the country should now provide a positive strategy for these sources, that maximises the potential for suitable development.

What about local government?

Warrington Borough Council's Climate Emergency Action Plan (2023) indicates that '*there will be a transformation in how Warrington meets its energy needs [over the plan period] with a focus on renewable sources and decentralised networks, benefitting Warrington's existing and future residents and businesses and helping to tackle climate change*'. The Council's adopted Local Plan (Dec 2023) makes this explicit in Policy ENV7 which provides support for '*proposals for development that would produce, store and/or distribute low carbon or renewable energy...will be permitted provided that they...would not result in unacceptable harm to the local environment*'. The same Policy highlights the particular benefits of community-led schemes, whereby '*the Council will give positive weight to initiatives which are community-led or where there are direct benefits to the local community through their involvement'*.

Why does UK need more electricity supply?

The UK, along with other countries across the world, is starting to transition away from burning fossil fuels to generate electricity, towards renewable and clean energy sources. At present, around 30% of electricity is generated by burning gas, but this is continuing to fall year on year as more renewable and clean energy comes online. At the moment, we also use large supplies of gas for heating and industrial purposes, about half of which is imported from Norway, the US and other suppliers. We also use large volumes of refined oil products including petrol and diesel, primarily for transport.

In the future, these energy needs will be replaced by electricity, a transition that is already under way in industrial processes and increasingly, in transportation (22% of new car sales in May 2025 were pure electric, 47% including hybrid vehicles). The UK needs to account for this growth in demand for electricity whilst protecting consumers from shortages and volatile international energy prices, by generating energy here in the UK. This will mean investment in electricity generation but also investment in electricity infrastructure to move the electricity around the country and distribute it to people's homes, through the transmission (high voltage) network and the distribution network of lower-voltage substations and cables - for more information on this, see the box at the end of this document.

Why does Lymm need local electricity?

The change in lifestyles and technology is affecting all parts of the UK and Lymm is no exception. Most homes now use a huge range of electrical appliances, from laptops to wifi servers to electric ovens, and they all require a ready, reliable supply of electricity. In addition, many people in Lymm are starting to move towards electric vehicles rather than petrol or diesel cars, a trend that is likely

to accelerate over the next few years. Most homes in Lymm are fortunate to have driveways where they could charge an electric vehicle and therefore we should anticipate a great demand for electric vehicle (EV) charger installation in the next decade. This rapid change means that local distribution networks (the local, lower-voltage electrical supply to homes) has come under pressure, with network capacity not keeping pace with demand (for more information on the distribution network, see the box at the end of this document). In fact, the two local substations in Lymm (including Whiteleggs Lane Substation) are rated 'red' by Scottish Power Energy Networks, our local network operator, meaning that they are 'close to their operational limit', as shown on the network map pictured below.

Effectively this means that considerable growth in electricity demand would cause problems for the network and extensive reinforcement works would be needed to increase the supply locally, to enable people who wished to install rapid EV chargers or heat pumps to replace gas heating, to do so.

The proposed solar installation allows budget for a considerable investment in the Whiteleggs Lane electricity substation, boosting the network and allowing solar power to supply the local distribution network, easing the supply capacity and helping with Lymm's transition to a future powered by electricity.

Without this investment there is a risk that people who are ready and willing to make the transition will be unable to do so at a time convenient for them, and will have to wait until there is network capacity improvement at some point in the future.

Lymm Community Energy and future running of the Lymm Solar Farm

Who is Lymm Community Energy? Is this a trusted organisation?

Lymm Community Energy is a volunteer group of Lymm residents. Spun off from Low Carbon Lymm (now Lymm LEAF), the group began investigating renewable energy and energy efficiency in Lymm in the early 2000s. In 2015 and 2016, the group raised community share funding to install solar panels on the roofs of the four primary schools in Lymm. This involved taking a lease on the roof and setting

up share issues and associated share benefit distribution schemes. The four primary school installations have been running successfully since that time, returning a modest level of interest to investors and saving the schools thousands in energy costs. Lymm Community Energy has a website with all the details of Directors and further information about the work undertaken, to find out more visit www.lymmcommunityenergy.org.uk.

Why doesn't Lymm Community Energy put solar panels on buildings instead of a solar farm?

Lymm Community Energy have already put solar panels on the four primary schools in Lymm (find out more at www.lymmcommunityenergy.org.uk). Investigations have also been carried out on a number of other buildings to see if they would be suitable for further installations. Unfortunately, most of the buildings considered were either too shadowed, not large enough, in the conservation area, or the building roof was structurally unsuitable. Therefore, to produce more locally generated renewable energy, attention turned to the possibility of a solar farm. This doesn't preclude LCE considering investment in roof mounted solar systems in the future.

Who will make sure the solar farm is maintained and looked after in the long term?

Lymm Community Energy will remain the owner and operator of the solar installation and will ensure that it is operated for the benefit of the community. A remote monitoring system will be installed as with the school projects. Professional maintenance and management personnel will be contracted to carry out the essential tasks but the voluntary directors (in conjunction with the Members of the Community Benefit Society) will ensure proper operation.

What happens if someone wants to build homes or other buildings on this site?

Lymm Community Energy will be taking a lease of up to 40 years on the site. During this time, it will not be possible to put the site to any other use (other than uses suitable for co-location with the solar installation, such as sheep grazing). After the lease ends, all of the solar installation equipment will be removed in totality, and the site restored. At this point, the landowner would be at liberty to use the site in any way they choose, subject to planning permission of course.

What happens if the farm it's located on is sold in the future?

If the farm is sold during the period of the 40-year lease, the land would be sold with an outstanding lease. This means that the terms of the lease would have to be upheld by the new owner and could not be changed. The solar installation and access arrangements will remain as agreed in the lease and could not be altered unless any changes were agreed by both parties.

Who will be able to buy the electricity generated by the solar farm?

At present, a set of complicated regulations governs electrical supply and sales. It's not possible to sell electricity directly to customers from a renewable energy source unless it's connected directly to your building (as the Lymm Community Energy school solar installations are connected into the school energy meters). This means that at present, Lymm Community Energy would be unable to sell energy directly to customers. However, there are some opportunities to utilise innovative mechanisms such as 'virtual power purchase agreements' and licence exemptions to sell electricity directly to local consumers which Lymm Community Energy are currently investigating. In particular, Lymm Community Energy has entered into discussions with Lymm High School to provide competitively priced electricity through this type of agreement, benefitting the school with cheaper energy prices and supporting their educational objectives.

In addition, there are moves within central Government and the energy regulator to allow more flexibility in the regulations and therefore it's very possible in future that energy could be sold to nearby households or businesses at a very competitive rate.

Who will get the profits from the solar farm?

When Lymm Community Energy raised community funding for the four school solar projects, all of the £184,000 was raised by local share purchase by community members who are paid modest rates of interest on their shareholdings. The solar farm installation is a much bigger investment and therefore it's likely that commercial or social investors nationwide would be needed to raise sufficient funds. Nevertheless, as a Community Benefit Society, the primary priority of Lymm Community Energy is to return benefits to the community, so priority will be given to local investors and community members. Any other investors would need to show that they share the values of Lymm Community Energy in order to be considered as a partner.

Would any other benefits be seen in Lymm as a result of this project?

Yes, Lymm Community Energy is committed to supporting local environmentally beneficial projects through its Community Benefit Fund which is based on the distribution of surpluses including share interest. In recent years, community groups including Maple Lodge, Lymm Youth and Community Association, LEAF and Friends of Spud Wood have benefitted from funding grants to purchase equipment and make their facilities more energy efficient. Since the four school solar projects were completed, a total of £9,254 (over 5% of the total project cost) has already been donated to local groups such as these. In addition, the four Lymm primary schools have saved thousands of pounds in energy costs by benefitting from cheaper electricity supply by the solar panels. If Lymm Solar Farm goes ahead, there will be a huge increase in the community benefit funds which will directly benefit local groups and the local community. For comparison, the current school installations total 125kW whereas the proposed Lymm Solar Farm is 2,500kW, therefore the scope for community benefit will be an order of magnitude greater.

If I want to invest in the solar farm, will I be able to do that? When?

Yes, Lymm Community Energy intend to offer shares for purchase preferentially to local community members. It was existing members of Lymm Community Energy (those who had purchased shares in the school projects) who requested Directors seek additional opportunities to develop renewable energy projects, because they wished to re-invest. There is evidently a considerable appetite for investment in a suitable project. If planning consent is obtained, it will take some time for the administration associated with the scheme to be put in place, so please keep in touch with Lymm Community Energy to keep abreast of developments.

Would I be able to invest on someone else's behalf (like my grandchildren, for example)?

Yes, that is possible. When a community share issue was made for the four school solar projects, many Lymm residents purchased shares for their children or grandchildren. Any share interest is paid into the child's bank account, with the purchaser able to vote at AGMs on the child's behalf until they are 18 when they can become full shareholders themselves.

I'd like to get involved with Lymm Community Energy, can I?

Yes, you can! Lymm Community Energy is a friendly group of local resident volunteers – you don't need any special skills or indeed any particular knowledge of energy matters, because all skills are very much valued! Whether you would like to become a Director, or whether you would just like to

volunteer your help and contribute some time, your input would be very much appreciated. Please get in touch with Lymm Community Energy on info@lymmcommunityenergy.org.uk

Understanding the solar installation

Is solar power worth doing, aren't there cheaper ways of generating electricity?

As the UK transitions to a fully decarbonised electrical grid, it will be necessary to have many different generation sources. Some are more expensive than others, but it's necessary to look at a combination of cost of raw materials and manufactured components and the cost of construction as well as maintenance costs over time. Government regularly checks average prices so that they can make sure that the UK is procuring the most cost-effective forms of power. Over the past few years, it has consistently been the case that ground-mounted solar is one of the cheapest forms of electricity generation to build and operate https://assets.publishing.service.gov.uk/media/6556027d046ed400148b99fe/electricity-generation-costs-2023.pdf Year on year, the price of the components is reducing as more solar is manufactured and the economies of scale get better and better. Costs have fallen by around 50% since 2016, making it one of the cheapest possible ways to generate power. Similarly, the efficiency of the panels is improving exponentially, meaning that you can generate more power per panel for the same cost.

In the winter, of course, solar power isn't particularly productive, but this is where a balanced generation grid comes in. In the winter the UK tends to have higher wind speeds and therefore the offshore wind turbines (and a few onshore wind turbines also) come into their own and pick up the slack, underpinned by a baseload of nuclear generation and some gas-powered generation at present.

This seems like a very small site, compared to others constructed elsewhere in the UK. How much electricity will it actually generate?

It is quite a small site as it's only 2.5MW compared to the large commercial solar farms across the UK. However, it will still generate around 3,480MWh per year (in year 1), equivalent to the electricity use of 1,200 average homes. Lymm has around 5,300 households therefore the solar farm would supply the equivalent of around 20% of the houses in Lymm. The saving in carbon terms is 1,550t CO2e in year 1 so it's still an important contribution to decarbonisation in Lymm.

Is this just the start? Will the fields nearby also be developed for solar?

In order to install any type of electricity generation it is generally necessary to connect into the nearby electrical grid. To do this needs a connection to be made into the local distribution network operated in Lymm by Scottish Power Energy Networks (SPEN). An application to connect has to be made to SPEN and they will confirm how much power it is possible to connect into the nearby distribution grid. There is always an upper limit on the amount it's possible to connect due to limitations such as reverse power constraints (see the box at the end of this document for more details). At an early stage in considering this project an outline application was made to SPEN who confirmed that the maximum that could be connected to the distribution network at this time is 2.5MW. The proposed solar farm is at this limit of 2.5MW. Therefore, it will not be possible for more solar electricity generation to be installed on this site or those nearby.

What is the underground cabling for?

Cabling is needed from the solar panels themselves, to the inverters within the field and then up to the substation. All of the cabling will be underground so it won't be seen.

Why do you need a substation next to Whiteleggs Lane?

The substation is needed to receive the electricity from the solar installation and feed it into the local distribution network. This location is the closest point to the interconnector into the electricity network, which is located on the other side of Whiteleggs Lane.

What will the substation look like?

Electrical substations have to be constructed from specific materials to a design provided by the electrical network operator, so there is limited opportunity to vary the design. Substations are generally built of brick with a flat roof. In size, the substation will be around the length of a single car garage, but a bit wider.

What is a construction compound, will that be there permanently?

A construction compound is a place where materials and equipment can be stored safely before being used on the construction site. The compound is also big enough to include cabins and parking space for the site workers without causing obstructions elsewhere nearby, minimising impacts on nearby roads and buildings. The construction compound is proposed to be around 2000$m^{2.}$ It won't be permanent, once the construction is completed it will be removed and the site restored to its original condition.

Will there be any new buildings constructed as part of the solar farm?

The only building necessary will be the new substation on land just off Whiteleggs Lane. This will be built of brick with a flat roof, containing the electrical switchgear and equipment to direct the electricity generated at the solar installation into the local electrical grid. There are two 'inverters' shown on the site plans within the same field as the solar panels. These are containerised equipment and won't be a building as such.

How high will the solar panels be?

The top of the solar panels will be 2.4m from ground level in total.

Will they be safe in high wind?

Yes, the solar panels will be firmly fixed to a steel structure, which will be embedded securely into the ground beneath. This will ensure that they won't move even in the event of high wind. The fixings and their stability will be regularly checked as part of routine maintenance, just in case.

Why do you need a fence? Is it to keep people out or animals?

There is a 'deer fence' proposed to run around the solar farm field itself. The fence is proposed to be 2m high with a small gap at the base. The fence is multi-purpose – according to the ecological survey, there haven't been any records of deer near the site, but there have been deer spotted in South Warrington and on the other side of the M56 which isn't too far away. There are numerous grazing fields nearby the site, and if any larger animals escaped from their field, it's possible that they could damage the solar panels or themselves if the site was unfenced. In addition, it helps to ensure the security of the site to have a robust fence that will prevent any unauthorised access.

How will you make sure the materials they are constructed from are low-carbon?

Like all manufactured products, solar panels have an embodied carbon impact. Extracting the materials to manufacture them, the manufacturing process and the shipping method all have an impact that needs to be taken into account. The cumulative impact of all of these factors is called the 'life cycle impact'. On the other side of the equation, it is necessary to compare this impact against the alternative ways of generating electricity, such as gas fired power stations. The World Resources Institute concludes that "while the manufacture of solar panels requirements substantial amounts of energy, studies have found that they offset the energy consumed in production within about two years of operation". Compared to alternative electricity generation systems, solar power is very low impact and is improving all the time as lifetimes of solar panels in practice are proving longer than anticipated.

How long do the panels last? How will the panels be disposed of at the end of their life?

Solar panels are warrantied for at least 20 years however now that the technology has been used for some decades, it's evident that the panels are producing high levels of energy for much longer than anticipated without any degradation. Useful operation of 30-40 years without need for replacement is now anticipated. Even at that point, whilst operation in the northern hemisphere may be less useful, the panels can still be used in higher sunlight levels and produce very useful power output. One option therefore, is to donate panels at the end of their lifespan to a school or other community project in a developing country. In the event that no suitable donor project can be found, recycling of the raw materials is possible.

Solar PV panels have only been in production for a relatively short period of time. The facilities for extracting, recycling and repurposing the raw materials are not yet available at scale as there are relatively few panels reaching the end of their life. However, such facilities are already under construction around the world, in preparation for harvesting the materials contained within solar PV panels. For the Lymm Solar Farm project, by the time the panels come to the end of their lives in some decades, it would be expected that such facilities will be fully available and the materials can be recycled at a suitable facility if the panels cannot be reused for other projects.

The frames on which the solar panels are installed are manufactured from steel which is very readily recycled in several facilities in the UK; indeed, most steel comprises a high proportion of recycled material already and this is expected to increase in future years.

Duration, operation and maintenance

How long will the solar farm be there for?

Planning permission has been requested for a period of up to 40 years, after which all of the equipment would be removed and the site reinstated back to its original state. Because the solar panels are mounted on metal frames, all of the equipment associated with the solar installation, including the foundation posts, can be fully removed.

What happens after it's built, how will it be maintained?

Solar installations need very little maintenance, with most management of the electrical generation taking place remotely. It is always a good idea to plan to inspect the site on a relatively regular basis however, to check for damage to fences and to make sure that there are no issues arising that need maintenance. It is anticipated that a maintenance visit will be made to the site once a month. The existing and new wildlife habitats, such as hedgerows, trees and meadow areas will need trimming

and inspecting at the right time of the year. It's expected that this will be done by the farmer who maintains the site habitats at present.

How much traffic will it generate once it's built?

The site will generate hardly any traffic at all after it is constructed. Solar installations need very little maintenance, with most checking of the system operation done entirely remotely. Maintenance is very low impact, with no large vehicles or equipment needed, simply hand-held equipment in a small van (similar size to a post-van or a transit-van) for a short visit. It's expected that one monthly visit will be sufficient to check the site. Maintenance visits will not be allowed to the site outside of normal working hours unless in an emergency.

How will maintenance vehicles get to the site once it's built?

At present, the site is accessed by tractor along the farmer's track that runs from Higher Lane directly south to the field where there is a farm gate access. This track will continue to be used to access the site for maintenance although it won't be used for the main construction works.

Can the site still be used for agriculture?

Whilst the solar panels are in place, the site wouldn't be able to be ploughed for crops. Other agricultural uses are very compatible with solar installations however. The site is currently used for grazing sheep and this use is expected to continue unaffected by the panels. In fact, sheep benefit from solar panels which provide shade in the summer and shelter in winter. There are other crops that can benefit sharing a solar site, such as soft fruit (raspberries for example) which are protected from scorching and rain damage when grown under solar shelter. There is no reason why the site cannot continue to benefit the local food chain and this will be encouraged. The posts on which the solar panels are mounted will take up less than 1% of the site and can be completely removed with no detriment to the soil or wider site. Once the lifetime of the solar farm is completed, the site can easily be returned to agricultural use.

Habitats and Ecology

Will there be any trees planted or other natural habitats?

The field already has fairly substantial boundaries, mostly natural hedge. However, there are a couple of gaps surrounding the site and these will be filled in with native hedge trees. All of the hedges surrounding the site will be managed to reach a height of approximately 3.5m. In addition, the site will be sown with wildflower meadow and managed to achieve species-rich grassland providing a considerable net gain in biodiversity. A recent study, from RSPB and University of Cambridge found that, hectare for hectare, solar farms in East Anglia contained nearly 3 times as many birds compared to surrounding arable land, showing the potential for ecological benefits as well as energy benefit (https://www.rspb.org.uk/whats-happening/news/solar-farms-managed-for-nature-boost-bird-numbers-and-biodiversity)

Will habitats be damaged?

Solar installations 'sit lightly' on the site and cause minimal disturbance to the ground. To ensure that impacts on ecology and habitats are minimised, a specialist ecologist has surveyed the site and made an assessment of any impact as well as proposals for improvement. The solar panel layout has been designed specifically to retain existing vegetation within the site and no notable trees or landscape features will be removed. It might be necessary to prune a few low-hanging tree branches

and some minor removal to ensure they aren't damaged during construction, replacing with new habitat wherever necessary. The habitats will be enhanced by the addition of infill planting to the existing hedges, creating a linear route for wildlife. In addition, existing planting will be strengthened and enhanced to add to the habitats already on the site, including wildflower grassland that will be managed to maximise benefits for pollinators. There will be a net gain in biodiversity as a result of the project.

Views and other impacts

Can it be seen from the road?

Consultants have assessed the visual impact of the solar installation during construction, at Year 1 of operation (before the new planting has time to mature) and at Year 15 (when the trees and hedge will have grown up). The hedges that border the field will be managed to grow up to approximately 3.5m over this time.

The assessment has concluded that users of nearby roads and lanes Higher Lane, Whiteleggs Lane, Kay Lane and Crouchley Lane are unlikely to have their view impinged due to existing residential boundary walls, mature roadside vegetation and the existing well-established mature vegetation bordering the site itself. There are also two public rights of way (PROW) routes near to the site, one along Whiteleggs Lane which is unlikely to be impinged for the same reason. The second public right of way runs from Tower Lane to Crouchley Lane; here the assessment found that users of this route may be able to see distant views of the site in winter when trees are not in leaf.

Can it be seen from nearby houses?

Consultants have assessed the visual impact of the solar installation during construction, at Year 1 of operation (before the new planting has time to mature) and at Year 15 (when the trees and hedge will have grown up). The hedges that border the field will be managed to grow up to approximately 3.5m over this time and there will also be trees added to strengthen the existing woodland areas. The panels will be placed on a steel structure and their total height is expected to be 2.4m to the top of the panel.

The closest houses to the site (apart from the farmer's own property) are located on Higher Lane, around 0.25km from the site. At present, the residents of these houses can view the site through gaps in the hedgerow from their upstairs windows. The assessment undertaken by the consultants showed that in the early years, before the planting has matured, it will be possible for some of the homes to see the top rear of the panels from their upstairs windows. Once the planting matures, the impact on the view will significantly reduce although glimpses will still be possible particularly in winter when the hedgerows and trees are not in leaf.

There are a few other houses which, whilst further away at around 0.5km, currently have a clearer view of the site across the fields to the south. The assessment shows that some of these residents will be able to see the dark colour of the panels within the field from their upstairs windows, particularly in the early years before the hedgerows grow up and the new planting matures.

Every effort has been made to avoid these visual impacts by concentrating the solar installation in the north-west part of the site, but the southernmost part of the solar installation may still be visible from upper north-facing windows of the properties across the fields south of Crouchley Lane, near Kay Lane, until the proposed new planting starts to mature.

Will the solar installation make a noise once it's operating?

Solar panels themselves make no noise at all when they are generating energy, but when electricity is being gathered at the transformers, this does have a very low noise level. An assessment has been undertaken by a specialist noise consultant who has investigated the potential for noise disturbance, particularly at residential properties. The conclusion was that the noise levels, even at peak generation, would be below all limits, so shouldn't cause any disturbance to people or wildlife.

Will there be any light pollution?

There won't be a need for any significant lighting on the site after construction is completed, so this shouldn't be a concern. There will be some security lighting around the small electrical substation off Whiteleggs Lane, but this will be very close to the substation and downward facing, so it won't impact surrounding properties or the night sky. The site itself has CCTV, so to make sure that it works properly, infrared lighting will be included. Infrared lighting doesn't cause any light pollution and wouldn't be visible beyond the site.

Will the sun 'glint' off the panels?

Solar panels are designed to absorb sunlight to generate power, therefore they are not highly reflective. The panels will also have an anti-reflective coating to minimise any reflectance. They will still have a flat uniform surface which has some reflective properties, similar to water or a farm shed roof, but less than steel barns or glasshouses, for example.

To investigate this possibility, a special 'glint and glare' assessment was undertaken by consultants, considering all residential buildings, roads and other potential receptors within a kilometre of the site. The potential was assessed using an accurate sun position model considering the sun position at one-minute intervals through a whole year and the proposed solar installation positions, using a 'worst case scenario' set of assumptions. Having narrowed down the areas that might be subject to glint and glare, a more detailed assessment was undertaken allowing for existing vegetation and intervening buildings or structures.

The assessment concluded that most of the potential receptors, including residential buildings and roads, would have no 'glint' impact. At low sun angles, there was a chance of a 'low' impact glint through gaps in the vegetation surrounding the site at two residential receptors. 'Low' means that solar reflections may impact between 0 and 20 hours per year, or between 0 and 20 minutes per day. It is proposed to increase the height of the surrounding hedges and fill any gaps to further screen any remaining visual impact, to reduce the potential impact during low sun situations.

The glint and glare assessment concluded that the detailed analysis shows that there are predicted to be no significant impacts from the proposed solar farm. Nevertheless, the increased height of the hedges and the landscape and biodiverse planting that is proposed will mitigate any possible risk.

Will there be increased drainage from the site as a result of the solar farm? Where will any drained water go to?

There is a small watercourse (Kaylane Brook) running to the south of the site and two underground drains are present, one on the eastern boundary of the site and one on the western boundary. At the moment, most of the rainwater falling onto the site will soak into the pastureland. If rainfall is exceptionally heavy or the soil is saturated, then rainwater can potentially run off the site to the south. To overcome this potential issue, a below-ground sustainable drainage system will be installed to store rainwater in the event of exceptionally heavy rain, and slow down any runoff to avoid impacts on surrounding fields, drainage ditches or watercourses. There are a few small solid structures to be added, including the inverters and the small substation. These won't have any

formal drainage but will have filter strips added around their margins, so that any rainfall running off their roofs is stored and absorbed on site. Where access tracks are being added, they will be unpaved and without formal drainage, with any runoff running to swales or ditches at the side of these tracks where water can slowly filter into the ground over time.

If the site floods, will the solar panels and electrical installations be damaged?

The site is located in Flood Zone 1, meaning that it has a low probability of flooding. The flood risk assessment demonstrates that this site is at very low risk, with the main risk being to the south of the area in the event of very heavy rain. In this eventuality, the solar panels will still be above the water level because they are raised off the ground on a steel frame. In addition, a sustainable drainage system will be constructed below ground in this part of the site, that will store and slow down the release of any rainwater over time.

Construction details

Are you resurfacing the tracks and lanes that lead to the site so that you can access them?

There won't be any need to resurface the existing tracks and lanes, including Whiteleggs Lane or the farm track that leads from Higher Lane to the field site. There will be a track laid within the farmer's field from Whiteleggs Lane to the field proposed for the solar farm, but this would be entirely within the farmer's landholding, other than the junction with Whiteleggs Lane. A track will also be laid inside the site to allow access for the small vans that will be used to maintain the site.

Who will manage the construction process?

A main contractor will be appointed to carry out the construction. A full-time site manager will be appointed and in charge of all activities on the site including all personnel. The site manager will be responsible for making sure that the construction management plan is followed and any planning conditions relating to construction are fully complied with.

How will the construction vehicles get to the site to build it?

There won't be a large number of construction vehicles because there isn't any concrete or bricks requiring lots of deliveries. The proposal is to bring materials and equipment to the site a short distance (200m) down Whiteleggs Lane to the temporary construction compound shown on the site plan. Most of their journey will therefore be on large major roads such as the motorway network and A roads.

How much construction traffic will there be?

In total the construction period is estimated to be approximately 6 months. In total, 92 delivery vehicles are expected to access the site compound over the 6 months – that's less than 4 a week on average. However, most of the traffic will be generated by bringing the solar panels, fencing supplies and other materials to the site compound, ready for installation. This means that most of the construction traffic will happen towards the beginning of construction. At this time, there could be up to 15 deliveries per day for a few weeks as the materials are brought and stored.

Will construction vehicles 'queue up' to access the site when they are bringing materials to the site? Will this cause traffic jams on Higher Lane?

The process of managing access to the site will be agreed with the construction contractor, who hasn't been appointed yet. When a contractor is procured, their determination to avoid any

inconvenient impacts on the highway and to surrounding residences will be a key part of choosing a contractor. There are many ways in which contractors can minimise impact – for example, delivery vehicles can be required to park up some distance away (such as in a convenient layby) and phone ahead to ensure that the site is ready to receive the delivery and have a clear route available. Traffic jams, (particularly at busy times during term time, for example) and inconvenience to residents along Whiteleggs Lane will be avoided wherever possible with careful management.

How will you make sure that construction vehicles accessing the construction compound do so safely?

The process of managing access to the site will be agreed with the construction contractor, who hasn't been appointed yet. The turn into and out of Whiteleggs Lane is wide enough to accommodate the size of vehicles envisaged at this stage, but this will need to be discussed in detail with the contractor at the right time. In addition, Whiteleggs Lane is a public right of way and this will be maintained during construction. There are various ways in which this can be managed successfully by a considerate contractor, such as the use of a 'banksman' to walk alongside any vehicle and guide them into and out of the site at all times. This will be the subject of discussion with the appointed contractor to ensure that they understand the vital importance of this consideration.

What will happen if there is any damage to roads (potholes etc) caused by the construction?

The roads, including Higher Lane and Whiteleggs Lane will be inspected before construction starts and afterwards. If any damage has been caused, then this will be rectified by the contractors.

Will construction vehicles cause mud on the road in winter or dust in summer?

There will be a 'wheel wash' facility located within the temporary compound, so that all delivery vehicles, tools and equipment are washed clean before they enter onto Whiteleggs Lane. This will ensure no transmission of mud or dust from vehicle wheels onto the Lane or the highway.

Will you close any of the Public Rights of Way or footpaths?

No, there is no proposal to close any of the existing Public Rights of Way or footpaths near to the site, either during construction or afterwards.

Will it be noisy during construction works?

Construction of this type has a relatively minimal noise level as much of the assembly is done off site. The solar panels sit on a steel frame which needs posts to be driven into the ground, and of course, there will also be vehicle movements to get the materials and equipment to the installation site. Careful choice of construction vehicles and machinery will be made to minimise the noise wherever possible and there will be strict limits of times when equipment can be used, to make sure that there is minimal noise disturbance.

Will you need to dig up Higher Lane?

No, there will be no need to excavate any part of Higher Lane.

How long will it take to build?

As no contractor has been appointed due to the early stage of this proposal, it's difficult to be completely certain, however it's expected to be less than 6 months in total. Every effort will be made to carry out construction tasks concurrently to minimise the overall length of the construction work.

When will construction happen?

That depends on several things, including the outcome of the planning application and the procurement of a contractor, as well as the securing of the necessary investment funds. At the earliest, it's anticipated that construction will start in mid-2025.

Electrical Distribution and Transmission Networks - basic explainer

Most people don't know that there are two types of electrical 'grid' in the UK. The Transmission Network is responsible for transporting electricity longer distances at extra-high or high voltages (400kV down to 132kV). This is the type of network that is carried on cables by pylon at high level, to keep it safe and free of obstructions. This high voltage network takes electricity from large power generation sources, such as offshore wind, nuclear and gas power stations, and distributes it around the country. This voltage is too high to supply homes and businesses, so the high voltage electricity is supplied to a network of transformers where it is 'transformed' into lower voltage electricity and fed into the local Distribution Network.

The Distribution Network is the network that supplies every house and business in the country. It runs from a grid substation where the high voltage electricity is supplied, through a network of smaller substations and from there, through cables into everyone's meter. In urban areas such as the centre of Lymm, these cables are buried underground and run under the streets and pavements. In more rural parts of Lymm, such as the area around Crouchley Lane and Whiteleggs Lane, these cables are carried overground on 'telegraph poles' through the fields. Looking north towards the proposed solar site from the southern part of Crouchley Lane, you can see the poles and cables crossing the fields from the existing primary substation on the corner of Whiteleggs Lane and Higher Lane.

Small scale renewable energy, such as solar panels on roofs (or small solar farms) is generally used on site or if there is insufficient demand, it runs through the low voltage cabling straight into the local distribution network. If someone else is drawing energy from the local distribution network at that time, then the energy will go directly to them. If not, it will return to the local substation and ultimately could be fed back into the transmission network.

Managing this type of 'reverse power' is very complicated, partly because the distribution system was never designed to take electricity flowing the other way! Overcoming these issues is partly why more suppliers are encouraging people to use energy at different times of the day, to manage demand on the network better and help to balance the power flows.

Locally generated power that feeds directly into the distribution network is also much more efficient than larger, remote power stations because the losses of electricity as it travels long distances down cables is reduced. These losses are called network system losses and amount to about 6% of electrical power supplied in the UK. Locally generated energy avoids these losses and is therefore a much more efficient way to power the electrical transformation of our energy systems.