

Appendix A – Local Need Assessment





Sperberry Hill Solar Array and BESS Project

Local Need Assessment

Prepared for



Brockwell Storage & Solar Limited

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EXECUTIVE SUMMARY

This Local Need Assessment (LNA) supports an application for full planning permission for the construction and operation of the Sperberry Hill photovoltaic solar array, battery storage facility and associated infrastructure on land south of Wymondley substation, to the south-east of St Ippolyts, in North Hertfordshire.

This LNA sets out the urgent need to deliver renewable energy infrastructure within North Hertfordshire (North Herts) district and should be read alongside the Planning Design and Access Statement (PDAS) and Site Selection Exercise that have also been submitted in support of the planning application.

The key findings from this LNA are summarised below:

- i. There was a declaration of climate emergencies by both North Hertfordshire District Council (NHDC) and Hertfordshire County Council (HCC) in 2019.
- ii. As a result of the NHDC climate emergency, an ambitious target was set to achieve a net zero carbon district by 2040, 10 years earlier than the requirements set out nationally in The Climate Change Act 2008 (2050 Target Amendment) Order 2019.
- iii. There is not, by a large order of magnitude, sufficient renewable energy generation capacity within North Herts district to meet current and future energy demands.
- iv. Due to the ongoing electrification of transport and heating fuels, future electricity demand is set to at least double by 2050 in order to meet net zero commitments.
- v. Solar energy is the only realistic option to deliver the significant quantities of new renewable electricity required within North Herts, with other low carbon and renewable technologies not suitable for deployment within the district at the required scale.
- vi. In order to meet NHDC's ambitious net zero carbon target for the district by 2040, it is forecasted the additional renewable power required by 2040 is circa 695 Gigawatt hours (GWh). If this is to be met by solar energy alone, under the most realistic scenario, it requires circa 770 hectares of land to be



developed for solar energy production. This equates to circa 25 - 26 sites with the same power output as the Sperberry Hill scheme.

- vii. Based on the foregoing, it is demonstrably concluded that NHDC must urgently upscale its renewable energy infrastructure if it has any prospect of meeting its ambitious net zero carbon target for the district by 2040. Further, such upscaling must focus on delivering new solar energy capacity.



1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

1.1.1 This Local Need Assessment (LNA) has been prepared in support of a full planning application made by Brockwell Storage and Solar Limited (BSSL) (hereafter referred to as the 'Applicant') to North Hertfordshire District Council (NHDC) for the erection of a solar farm with associated battery storage and ancillary infrastructure (hereafter referred to as the 'Proposed Development').

1.1.2 The Proposed Development is located on land south of Wymondley substation, to the south-east of St Ippolyts, in North Hertfordshire (referred to hereafter as 'the Site').

1.2 Context and Scope

1.2.1 The context for the LNA is NHDC's commitment to achieving a net zero carbon district by 2040 following their declaration of a climate emergency in May 2019.

1.2.2 This LNA should be read alongside the:

- Planning Design and Access Statement (PDAS), which provides further detail on the national need to deploy renewables, the associated policy context and the planning case for the Proposed Development; and
- Site Selection Exercise (SSE), which sets out the key development constraints for solar energy within the district and provides justification for the selection of the application site.

1.2.3 This LNA is divided into three main sections following on from this Introduction. The sections are as follows:

- **Section 2.0** sets out NHDC's policy on climate change and net zero, together with details of North Herts district's current electricity consumption and future (forecasted) electricity demand;
- **Section 3.0** sets out how North Herts district might meet its policy objectives, the associated demand for new renewable electricity generation and the likely land use implications; and



- **Section 4.0** sets out some concise conclusions.



2.0 NHDC NET ZERO POLICY, NORTH HERTS DISTRICT ELECTRICITY CONSUMPTION AND FUTURE DEMAND

2.1 Introduction

2.1.1 This section sets out North Herts position and policy on climate change, electricity demand within the district and how this is forecast to increase over time; and the implications for North Herts becoming a net zero carbon district by 2040.

2.1.2 The local need requirement largely arises from national policy and the national need for future deployment of renewable energy. This national position is set out in detail in the aforementioned PDAS.

2.2 North Hertfordshire Position and Policy on Climate Change

2.2.1 NHDC declared a climate emergency on 21st May 2019,¹ shortly followed by Hertfordshire County Council (HCC) making a mirror declaration on 16th July 2019.²

2.2.2 An updated NHDC Climate Change Strategy (CSS), discussed further below, was published in 2022³ and reaffirms NHDC's ambitious objective of achieving net zero across the district by 2040. This goes beyond the national Government target of net zero by 2050.⁴

2.2.3 HCC separately published their Sustainable Hertfordshire Strategy 2022 in 2023⁵, which on page 21 states that the phasing out of fossil fuels over the next 30 years is a: "...huge change and a great opportunity."

2.2.4 The CSS sets out on page 2 that: "...achieving the goals set out in this strategy will not be easy but is essential if we are to avoid an even greater impact on the lives of people across North Hertfordshire."

2.2.5 Page 11 of the CSS sets out the district's objectives, including its commitment to achieving a net zero carbon district by 2040.

¹ [Climate change - North Herts Council \(2024\)](#)

² [Minutes from Hertfordshire Full Council Meeting 16 July 2019](#)

³ [North Herts District Council Climate Change Strategy 2022 - 2027](#)

⁴ Set out in The Climate Change Act 2008 (2050 Target Amendment) Order 2019

⁵ [Sustainable Hertfordshire Strategy 2022 \(Revised 2023\)](#)



- 2.2.6 The CSS goes on to say (on page 11) that: “...with clear objectives, this Strategy aims to set priorities and proposed actions...”, including: “...Strategic Priority 2. Enabling Carbon Savings and Strategic Priority 3. Inspiring the Community set out our approach to achieving a net zero carbon district by 2040.” (emphasis added).
- 2.2.7 Under ‘Strategic Priority 2 – Enabling Carbon Saving’ (page 13 of the CSS), NHDC commits to:
- “....seeking to provide leadership and support for both businesses and residents to switch to renewable energy, and to adapt to the impacts of planning projects. The council can play an important role as local planning authority, in reducing carbon emissions and providing further supplementary planning guidance to encourage more sustainable development and work towards carbon neutrality. This is especially important given the strategic amount of growth planned in the district.” (emphasis added).
- 2.2.8 Under ‘Strategic Priority 3 – Inspiring the Community’, NHDC acknowledges (page 14) that the Climate Emergency is a: “...wide-spread cross-cutting issue that requires a concerted and co-ordinated effort”.
- 2.2.9 The CSS also recognises on page 14: “...the value of community-led responses to the climate crisis and know that action from residents, community groups, and businesses, is needed to decarbonise the district and make North Herts net zero by 2040.”
- 2.2.10 In summary, in publishing the CSS, NHDC’s position is that:
- It has made a clear and unambiguous commitment to achieving net zero by 2040;
 - Achieving this net zero commitment will not be easy, but is essential; and
 - As the Local Planning Authority, it must provide leadership and support to delivering net zero.

2.3 Current and Future Electricity Demand

- 2.3.1 The Department for Energy Security and Net Zero (DESNZ) provides data for district level electricity consumption and what proportion of that consumption comes from renewable sources generated within the districts.



- 2.3.2 In addition, documents such as the Sixth Carbon Budget⁶ produced by the Climate Change Committee, provide projections which can help forecast the district's future electricity consumption.
- 2.3.3 Turing first to current consumption, DESNZ data for electricity use within North Herts shows that in 2022 (latest available data)⁷ the district used a total of **451 Gigawatt hours** (GWh) of electricity, based on sales of electricity made to domestic and non-domestic customers.
- 2.3.4 With regard to renewable electricity generation, North Herts generated circa **31 GWh** of electricity from renewable sources, which equated to 6% of its total electricity demand in the same year (2022).⁸
- 2.3.5 The 31 GWh of renewable power identified by DESNZ is produced entirely from solar power. However the DESNZ publication notes that power from anaerobic digestion and landfill gas (both renewable sources of energy) also provide a contribution within the district. However, that energy generation data has been withheld to prevent the output of individual plants being revealed.⁹
- 2.3.6 Based on the above data, and making a 20GWh allowance for anaerobic digestion and landfill generation, North Hert's deficit in renewable electricity generation as of 2022 was **400GWh**.
- 2.3.7 Whilst it is important to decarbonise existing electricity demand through delivering new renewable power generation, there is also a need to accommodate the huge future increase in electricity demand that will arise through the future decarbonisation process.
- 2.3.8 Processes and activities that have predominantly been powered by fossil fuels, notably transport and heat generation, are starting to be electrified. This ongoing process of electrification will clearly lead to an increased demand for electricity

⁶ [Sixth Carbon Budget \(Climate Change Committee 2020\)](#)

⁷ [Regional and local authority electricity consumption statistics \(DESNZ 2024\)](#)

⁸ [Regional Renewable Statistics \(DESNZ 2023\)](#)

⁹ The applicant's understanding is that, in combination, these sources contributed circa 20GWh in 2021. However, with a 20 plus year national policy of diverting biodegradable waste from landfill, landfill gas is not going to represent a significant energy source by 2040/2050.

- through, for example, the increased use of electric vehicles and bolt on renewables such as air source heat pumps.
- 2.3.9 This additional electricity demand is recognised in the Sixth Carbon Budget, which sets out that electricity demand could rise by as much as 50% by 2035 and at least double or even treble by 2050, based on a 2018 baseline.¹⁰
- 2.3.10 Clearly, in the case of north Herts, to achieve net zero by 2040, the ‘at least’ doubling of electricity usage would occur earlier i.e. within 2040. Regardless, even if the district failed to meet it’s 2040 net zero commitment, it would need to achieve net zero by 2050 resulting in a slightly later ‘doubling’ of electricity usage. For the purposes of this LNA, it is assumed electricity demand in NHDC doubles by 2040.
- 2.3.11 Using 2022 DESNZ data for North Herts district (a conservative assumption as electricity usage was lower than the 2018 baseline) and applying the Sixth Carbon Budget multiplier in electricity demand, as set out in the preceding paragraph, North Herts district’s power demand is forecasted to be circa **902 GWh by 2040**.
- 2.3.12 The forecasted renewable power deficit for 2040 is calculated by combining the renewable power deficit as of 2022 (circa 400 GWh) plus the difference between the forecasted electricity demand in 2040 (902 GWh) and the district’s 2022 power demand (451 GWh). This shows North Herts district to have a projected **851 GWh renewable power deficit in 2040**.

¹⁰ Page 25 of the Sixth Carbon Budget 2020

3.0 THE IMPLICATIONS FOR NORTH HERTS DISTRICT TO ACHIEVE NET ZERO

3.1 Introduction

3.1.1 Having established that North Herts will need to generate 902 GWh by 2040 to be a self-sustaining net zero carbon district, this section of the LNA sets out how this can be achieved and the associated land use implications for the district.

3.2 Available Technologies

3.2.1 Firstly, it is relevant to consider the potential low carbon and renewable forms of energy generation that are available. The principle low carbon and renewable technologies are:

- Nuclear;
- Wind power;
- Other technologies based around biogas utilisation; and
- Solar.

Nuclear

3.2.2 The nuclear power contribution to the UK energy grid was 14% to in 2023¹¹ and the new Labour Government is committed to bringing forward new nuclear power stations.¹²

3.2.3 Traditional, large scale nuclear power stations use a lot of water¹³ and are typically located near large water bodies such as coastal areas and lakes, of which there are none in North Herts. As such, it is concluded there is little or no prospect of North Herts district hosting a nuclear power station.

¹¹ [Page 15 of the Future Energy Scenarios: ESO Pathways to Net Zero July 2024 \(National Grid, 2024\)](#)

¹² [Labour Manifesto – Make Britain a clean energy superpower \(Labour 2024\)](#)

¹³ [A new nuclear power station needs a vast supply of water. But where will Sizewell C get it from? \(The Guardian, 2024\)](#)



Wind Power

- 3.2.4 As set out in the Overarching National Policy Statement for Energy (EN-1) (2024)¹⁴, wind, alongside solar, is seen as critical to delivering the UK's future renewable energy.
- 3.2.5 The location of wind farms is important to their function, with the Renewable Energy Hub UK¹⁵ citing that wind turbines require an average wind speed of at least 5m/s (circa 11 mph) and areas to be free from turbulence caused by natural and built environment.
- 3.2.6 Onshore wind turbines are also acknowledged as generally having significant landscape and visual impacts and have long been considered by many as a controversial form of power generation. This is evidenced by the existence of what is effectively an English moratorium for the consenting of onshore wind turbines which had been in place since 2015. This has only recently been lifted by the new Labour Government.¹⁶
- 3.2.7 Wind turbines also typically need a circa 1km buffer from residential buildings in order to mitigate against unacceptable noise effects. In this regard, it is noted that several sizeable settlements are located within or adjacent to North Herts district, including Hitchin, Stevenage, Luton and Letchworth. Further, the district has a relatively high rural population density in terms of villages, hamlets and isolated dwellings. In short, it has no large wilderness or uninhabited areas.
- 3.2.8 In summary:
- North Herts does not have sufficient average wind speeds to support onshore wind;
 - The scale of onshore wind development is such that it would be likely to be far more challenging to consent than solar development; and

¹⁴ [Overarching National Policy Statement for energy \(DESNZ, 2024\)](#)

¹⁵ [Is my Site Suitable for a Wind Turbine? UK Guide 2024 \(The Renewable Energy Hub 2024\)](#)

¹⁶ [Policy statement on onshore wind \(MCHLG, DESNZ, Treasury, 2024\)](#)

- Based upon population density alone, there are likely to be very limited prospects of developing any significant scale onshore wind farms in the district.

Other Technologies

- 3.2.9 Alongside solar, the other renewable technologies in operation in North Herts are anaerobic digestion (conversion of agricultural and food waste into energy) and the utilisation of landfill gas. In both cases, power generation is based around the combustion of a biogas (biomethane) in a conventional gas engine. This generation process produces CO₂, which is emitted to atmosphere. Thus, whilst an accepted form of renewable energy, power from these sources does not have the same climate change benefits as solar or wind power.
- 3.2.10 As referenced previously, the power generation data for anaerobic digestion and landfill gas has been withheld from the DESNZ statistics, but is understood to have totalled circa 20 GWh in 2021 within North Herts district.
- 3.2.11 In terms of landfill, the UK has, since 2000, pursued a national policy of diversion of biodegradable waste from landfill. This has been successful to the extent that, in line with repeated Committee on Climate Change recommendations, England is highly likely to implement a ban on the disposal of biodegradable waste to landfill within the next 3 years. By way of context, a ban is already a firm commitment in Scotland commencing on 31st December 2025.
- 3.2.12 On the basis landfill gas generation from landfills reduces over time (typically over 25 years), it is concluded that power generation from this source will not make a material contribution to renewables generation in 2040 and beyond.
- 3.2.13 In terms of anaerobic digestion, the Applicant understands that North Herts generated circa 14 GWh of electricity from this technology in 2021. Anaerobic digestion is a mature technology and feedstock is finite. Thus, whilst there may be some future expansion of the technology, it will be fairly limited. For the purposes of this study, it is assumed electricity generation from anaerobic digestion increases to 25 GWh per annum in 2040.

Solar

- 3.2.14 As nuclear, wind energy and other biogas technologies are not going to be brought forward either at all or at a large scale within North Herts district, the only current



technology suitable to address the large renewable power deficit within North Herts district is through solar power.

3.2.15 This is evidenced by the fact the majority of the district's existing renewables generation is from solar, and the predominant form of renewable energy passing through the NHDC's planning system in recent years is also solar.

3.2.16 With regards to large scale solar energy projects within the district, there have been four planning applications determined in recent years. These are the:

- 49.99 MW scheme at Wandon End (North Hertfordshire District Council Reference: 22/03231/FP) refused planning permission in July 2024;
- 40 MW solar scheme at Bygrave (North Herts ref: 22/00741/FP) (hereafter referred to as 'Bygrave') granted planning permission in June 2024;
- 49.99 MW scheme to the east of Great Wymondley (North Herts ref: 21/03380/FP) (hereafter referred to as 'Great Wymondley') granted planning permission in March 2024 by the Secretary of State following a call in inquiry; and
- The original Sperberry Hill 25 MW scheme which was located on the same site as that now proposed in this planning application (North Herts ref: 22/00709/FP and referred to as the '2023 Scheme' in the PDAS), which was refused planning permission in November 2023.

3.2.17 Neither of the approved solar farm projects (Bygrave¹⁷ and Great Wymondley) have been developed.

3.3 Delivery Scenarios

3.3.1 This section considers two scenarios for the potential delivery of a net zero carbon district by 2040.

¹⁷ Somewhat unusually the Bygrave solar scheme planning application did not include the grid connection and was approved on the basis that UKPN would deliver the circa 5km grid connection through permitted development rights. In the case of Bygrave, a connection of this distance including going through an urban area, undertaken by a statutory undertaker (despite being contestable works) would be extremely expensive to the point that BSSL believes the Bygrave scheme is highly unlikely to be economically viable.

- 3.3.2 To ensure consistency, all power output from the various forms of renewables development has been converted to Gigawatt hours (GWh)
- 3.3.3 With regard to converting solar farm export capacity to total electricity generation, it should be noted the actual quantum of electricity generated varies from site to site and is largely dependent on solar panel efficiency and the amount of solar radiation in the specific location. Despite these variables, the solar industry adopts a typical / average generation factor of 1,083.
- 3.3.4 This means that the power generated by a solar farm in any given year equates to it operating at its export capacity for 1,083 hours per annum i.e. a 1 MW solar farm would generate 1,083 MWh per annum which equates to 1.083 GWh of electricity per annum.

Scenario 1

- 3.3.5 The first assumption is that the two consented solar farms, Bygrave and Great Wymondley, are built and operational, notwithstanding the potential viability issues of the former. In addition, there is assumed to be 25 GWh of anaerobic digestion generation capacity¹⁸. It is assumed that landfill gas generation no longer contributes power in 2040.
- 3.3.6 Further, for the purposes of this scenario, every household in North Herts district is assumed to have solar panels on their roof.
- 3.3.7 Finally, 100% of the brownfield land within the district is also developed with solar panels.
- 3.3.8 Based on Census 2021 data¹⁹, there are 56,700 households in North Hertfordshire. Based on each household having a 4 kWp roof solar system, with an average output of 1100 KW per kWp installed, roof solar would produce circa 270 GWh power output²⁰.

¹⁸ For the purposes of both Scenario 1 and 2, the 25 GWh anaerobic digestion generation capacity is an 11 GWh increase to the existing 14 GWh contribution from this source, the latter of which is the Applicant's understanding of its current generation capacity.

¹⁹ [Profile Preview – North Hertfordshire\) Office for National Statistics](#)

²⁰ Based on 249 MW export capacity x 1.083 to get GWh



- 3.3.9 With regards to brownfield land, NHDC's 2023 Brownfield Register sets out there is approximately 14.5 ha, divided over 12 sites. Whilst these sites would be nowhere near sufficiently large to accommodate a viable solar scheme, this scenario assumes that they do.
- 3.3.10 In terms of calculating the potential power yield from the brownfield land, National Policy Statement for Renewable Energy Infrastructure (EN-3)²¹ states that a solar farm requires between 0.8 – 1.6 ha (circa 2 to 4 acres) for each MW of output. For the purposes of calculating the land requirement, a midpoint figure of 1.2 ha (circa 3 acres) has been used i.e. 1.2 ha of brownfield land can deliver 1 MW of solar generated export capacity.
- 3.3.11 Therefore, the 14.5 ha of brownfield land could accommodate circa 12 MW of solar generation capacity. Factoring in conversion to GWh, the power generated from brownfield land is expected to be circa 13 GWh.²²
- 3.3.12 Factoring in all household rooftops (270 GWh), brownfield land (13 GWh), both the Bygrave and Great Wymondley solar schemes coming forward (97 GWh),²³ the additional anaerobic digestion capacity (11 GWh) and minus the current landfill gas contribution (6 GWh)²⁴, **Scenario 1 would provide circa 386 GWh of renewable power.**
- 3.3.13 The 386 GWh generated through Scenario 1 would only offset circa 45% of the circa 851 GWh renewable power deficit²⁵ that needs to be met to provide the 902 GWh power demand required to meet NHDC's 2040 net zero carbon commitment.
- 3.3.14 This means, **under Scenario 1 there would be a circa 465 GWh renewable power deficit** in 2040 (i.e. 851GWh minus 386GWh).
- 3.3.15 On the basis the Proposed Development would produce 27 GWh of electricity per annum, under Scenario 1, there would need to be 17 - 18 sites with the same power

²¹ [National Policy Statement for Renewable Energy Infrastructure \(EN-3\) \(DESNZ, 2024\)](#)

²² 14.5 hectares ÷ 1.2 ha average per 1 MW generated x 1,083

²³ Bygrave providing 43.32 GWh (40MW x 1.083) and Great Wymondley providing 54.13 GWh (49.99 MW x 1.083)

²⁴ This is factoring in a 0 GWh contribution from landfill gas

generation as the Sperberry Hill scheme in order to bridge the renewable power deficit.

- 3.3.16 In order to understand the corresponding solar export capacity figure equivalent to the 465 GWh deficit, it is necessary to first convert this figure to MWh i.e. 465,000MWh. This is then divided by 1,083 to give the solar export capacity figure. This calculates as an export capacity requirement of 429 MW.
- 3.3.17 In summary, under Scenario 1, in order for North Herts district to become net zero in 2040, it has been calculated that **465 GWh** of new renewable power would need to be generated. This equates to the delivery of **429 MW** of new solar export capacity.

Limitations with Scenario 1

- 3.3.18 While the number of households is expected to increase by 2050, the uptake for roof solar is not expected to be anywhere near 100%, largely due to the direction the houses face, individual circumstances and other restrictions such conservation areas that would restrict their installation.
- 3.3.19 Although statistics do not breakdown the difference between installed ground and roof mounted solar, DESNZ statistics²⁶ indicate there are circa 1.39 million households that had solar panel infrastructure in the UK. With an estimated 28.4 million households in the UK in 2023²⁷, this is only a 5% uptake for solar power.
- 3.3.20 With regards to brownfield land, the 14.5 ha as identified previously is divided over 12 sites. Thus, each site is far too small to accommodate anything like a viable solar farm. Notwithstanding this, the Government's priority for brownfield land is for the delivery of housing.²⁸
- 3.3.21 To conclude, it is extremely unlikely that any brownfield would be available for solar energy and the deployment of solar on domestic properties is expected to be far lower. Therefore Scenario 1 has significant limitations and no practical prospect of ever coming to fruition.

²⁶ [Solar photovoltaics deployment \(DESNZ, 2024\)](#)

²⁷ [Families and households in the UK: 2023 \(ONS, 2024\)](#)

²⁸ [Housing targets increased to get Britain building again \(July 2023\)](#)

Scenario 2

- 3.3.22 Factoring in the above limitations, Scenario 2 forecasts a more realistic uptake of roof-mounted PV panels at 20%, with no brownfield land being utilised, alongside the two consented solar farms (Bygrave and Great Wymondley) being delivered, together with the additional 11 GWh of anaerobic digestion generation capacity.
- 3.3.23 Using the same output for rooftop solar for Scenario 1 (4 kWp roof solar system with an average output of 1,100 KW per kWp installed), to be installed on 20% of the households in North Herts (11,340), this would generate circa 54 GWh of electricity per annum.
- 3.3.24 Combined with both Bygrave and Great Wymondley schemes coming forward (97 GWh) and forecasted anaerobic digestion capacity (11 GWh), minus the 6 GWh contribution from landfill gas, **Scenario 2 would generate circa 156 GWh of renewable power.**
- 3.3.25 The 156 GWh generated through Scenario 2 which would only meet 18% of the overall circa 851 GWh renewable power deficit. This means, **under Scenario 2 there would be a circa 695 GWh renewable power deficit** in 2040.
- 3.3.26 On the basis that the Proposed Development would produce 27 GWh per annum, there would need to be 25 – 26 sites with the same power generation as the Sperberry Hill scheme to bridge the 695 GWh renewable power deficit.
- 3.3.27 In order to understand the corresponding solar export capacity figure equivalent to the 695 GWh deficit, the 695 GWh would need to be multiplied by 1,000 to get the MWh i.e. 695,000 MWh, then divided by 1,083 to give the solar export capacity figure, which would be 642 MW.
- 3.3.28 In summary, under Scenario 2, in order for North Herts district to become net zero in 2040, it has been calculated that **695 GWh** of new renewable power would need to be generated. This equates to the delivery of **642 MW** of new solar export capacity.

3.4 Land Use Implications of Delivering Net Zero in North Herts

- 3.4.1 This section sets out the land requirements to meet the new renewable energy capacity power requirements calculated through both Scenarios 1 and 2. For the



reasons set out previously, the renewable power deficit in order to make the district renewable energy self-sufficient will need to be ostensibly met through solar power.

- 3.4.2 The land requirement is calculated taking the MW export capacity for each scenario multiplied by 1.2²⁹ to give the land requirement in hectares.
- 3.4.3 On this basis for Scenario 1, the 429 MW new solar export capacity would be multiplied by 1.2 to give **516 ha of land** that is required for solar development to bridge the renewable power deficit.
- 3.4.4 With the same calculations applied for Scenario 2, the 642 MW new solar export capacity would require **770 ha of land** required for solar development to bridge the renewable power deficit.
- 3.4.5 Regardless of which scenario is adopted, the land required for solar development to address the renewable power deficit within North Herts district is substantial.

²⁹ 1.2 ha land required per 1 MW export capacity

4.0 CONCLUSION

- 4.1.1 NHDC declared a climate emergency in 2019 and set an ambitious target of a net zero carbon district by 2040.
- 4.1.2 Many processes that would have traditionally been powered by fossil fuels, such as transport and heating, will need to be powered by electricity to meet this net zero commitment.
- 4.1.3 The Sixth Carbon Budget forecasts electricity demand to at least double from 2018 levels to meet the national net zero commitment by 2050. On this basis, North Herts district's electricity demand is assumed to double by 2040 (902 GWh) to meet its own net zero commitment.
- 4.1.4 North Herts district already has a significant shortfall in renewable energy production compared to its overall consumption, with just 6% of its power output generated from renewable energy in 2022 based on DESNZ statistics.
- 4.1.5 For the purposes of calculating the renewable energy requirement by 2040, the total renewable power shortfall by 2040 (i.e. the amount of renewable power that needs to be generated per annum by 2040 to meet the net zero commitment) is expected to be circa 851 GWh.
- 4.1.6 With nuclear and wind ruled out due their lack of suitability, the contribution from landfill gas expected to diminish to zero and anaerobic digestion unable to be increased at sufficient scale; solar power is the only technology that can be installed at a large scale within North Herts district to bridge the renewable power deficit, in order that it can meet the 2040 net zero carbon commitment.
- 4.1.7 This LNA considers two delivery scenarios to address the overall renewable power deficit of 851 GWh. While both options make optimistic assumptions on future renewable energy delivery, Scenario 2 is the more realistic of the two and is used to calculate the additional renewable energy need below.
- 4.1.8 Scenario 2 factors in rooftop solar generating 54 GWh, with both the Bygrave and Great Wymondley solar schemes developed and operational generating 97 GWh; and a total of 25GWh of generation from anaerobic digestion. Under this scenario, there is circa 156 GWh of power generated from renewable sources.



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- 4.1.9 Deducting the forecasted power contribution from Scenario 2 (156 GWh) from the overall renewable power deficit (851 GWh), North Herts district will still need to provide an additional circa 695 GWh of renewable power to meet its net zero carbon commitments.
- 4.1.10 As NHDC already acknowledge, the road to net zero will not be easy, but essential. The 695 GWh renewable power shortfall would require a circa 1,263% increase on current installed renewable power capacity within the district (circa 51 GWh).
- 4.1.11 There would need require 25 - 26 sites with the same power generation as the Proposed Development (27 GWh) to meet the circa 695 GWh renewable power need by 2040. In terms of land required, this would require circa 770 ha of land which be 21 – 22 sites the same size as the Proposed Development.
- 4.1.12 For the reasons set out above, there is a demonstrable need to immediately increase renewable power generation within the district so that North Herts district can meet its ambitious commitment of a net zero district by 2040.