Dorset Renewable Energy Assessment

Dorset Council

Final report
Prepared by LUC
September 2025

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Land Use Consultants Limited
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Introduction

1.1 LUC was commissioned by Dorset Council in 2025 to prepare a renewable and low carbon study to assist with the preparation of the new Local Plan. This study identifies the technical potential for onshore wind, ground mounted solar and stand-alone battery storage within Dorset **[See reference 1]**.

1.2 This report provides a robust evidence base to underpin planning policies that both support renewable and low carbon energy generation and storage and low carbon development but also protect the valued environment of Dorset. It identifies the potential for onshore wind, ground mounted solar and battery storage at varying scales within Dorset.

Key Terms

Renewable and low carbon energy refers to sources of energy that are not depleted when used, for example, wind and solar and which have significantly reduced greenhouse gas emissions compared to fossil fuels.

Decentralised energy generally refers to energy that is generated closer to where it will be used, rather than the more conventional very large scale 'centralised' energy plant that typically serve much wider areas.

1.3 The evidence base and the recommended policies meet the requirements of the existing National Planning Policy Framework (NPPF) and Planning Policy Guidance (PPG) and take into account the guidance and considerations set out in relevant national policy statements.

1.4 The evidence base and recommended policies will also help contribute to ensuring that the Local Plan suitably considers (a) the considerable changes underway within the national energy system to respond to the trends of increased decentralisation and major forecast electricity demand growth; and (b) the considerable opportunities to increase our energy security and independence, and realise the economic, social and environmental opportunities of clean energy. This could help towards achieving the Council's carbon neutral target by 2045.

Study objectives

1.5 The key objectives of the study were to:

- Identify the 'technical' potential for onshore wind, ground mounted solar and battery storage of varying scales within Dorset and the factors that may affect the extent to which the technologies can be deployed – i.e. grid connection, planning, finance etc; and
- Provide recommendations or appropriate policy options to include in the Local Plan regarding renewable and low carbon energy.

1.6 This study provides strategic analysis and should not be interpreted as prescribing land uses or as guaranteeing the suitability of individual sites for siting energy technologies. More detailed site assessments, landowner and other local land stakeholder engagement would be required to fully determine if specific sites are suitable.

Report structure

1.7 The remainder of this report is structured as follows:

- Chapter 2 provides a review of the policy context in relation to renewable and low carbon energy.
- Chapter 3 outlines the existing renewable and low carbon energy generation in Dorset.
- Chapter 4 summarises the findings of the assessment of 'technical' potential for onshore wind, ground mounted solar and battery storage.
- Chapter 5 outlines the potential planning policy options for the Local Plan.
- Chapter 6 summarises the study conclusions.

Chapter 2
Renewable and Low Carbon Policy Context

2.1 The following chapter provides a summary of the national and local legislative and policy context for the development of renewables and low carbon energy within Dorset.

National Climate Change and Renewable Energy Legislation and Policy

2.2 The current profile of climate change on the world's stage has never been higher. The risks of failing to limit a global average temperature increase to 1.5°C are clearly set out in the IPCC Special Report 'Global Warming of 1.5°C' **[See reference 2]** and have been reiterated in COP26 and recently in COP29. Furthermore, the IPCC AR6 report (2023) states that global greenhouse gas emissions in 2030 implied by national determined contributions announced by October 2021 make it likely that warming will exceed 1.5°C during the 21st century and make it harder to limit warming below 2°C **[See reference 3]**. In 2020, the UK's Committee on Climate Change (CCC) in its Sixth Carbon Budget recommended a new emissions target for the UK: reduction by 78% by 2035 relative to 1990 and net zero greenhouse gases by 2050. In February 2025, the CCC prepared its Seventh Carbon Budget which states that electrification and low-carbon electricity supply are key to delivering a large share of emissions reductions. **[See reference 4]**.

Climate Change Act 2008

2.3 The UK's legally binding emission reduction targets were first set by the Climate Change Act 2008 and included a reduction of at least 80% by 2050 against the 1990 baseline **[See reference 5]**. However, on 1st May 2019, Parliament declared a formal climate and environment emergency, and on 12th June 2019, the government amended the Climate Change Act to target full net carbon neutrality (a 100% reduction of greenhouse gas emissions) in the UK by 2050 **[See reference 6]**.

2.4 In response to its obligations to prepare policies to meet climate targets, the UK Government has also produced various sector-specific policies and strategies. These include Powering Up Britain (2023), British Energy Security Strategy (2022), Net Zero Strategy (2021), Ten Point Plan for a Green Industrial Revolution (2020), UK National Energy & Climate Plan (2019), the Clean Growth Strategy (2017) and the Industrial Strategy White Paper (2017) (further details below). In addition, in December 2020,

the former Department for Business Energy and Industrial Strategy (BEIS) published the Energy White Paper, which sets out how the UK will clean up its energy system and reach net zero emissions by 2050. BEIS was subsequently split into three departments, with the Department for Energy Security and Net Zero (DESNZ) now responsible for energy security and climate change.

Clean Growth Strategy

2.5 In the context of the UK's legal requirements under the Climate Change Act, the UK's approach to reducing emissions, as set out in the Clean Growth Strategy (2017), has two guiding objectives:

1. To meet domestic commitments at the lowest possible net cost to UK taxpayers, consumers and businesses; and

2. To maximise the social and economic benefits for the UK from this transition.

2.6 The Clean Growth Strategy sets out three possible pathways to decarbonise the UK's economy by 2050:

1. Electric: Including full deployment of electric vehicles (EVs), electric space heating, and industry moves to 'clean fuels'.

2. Hydrogen: Including heating homes and buildings, fuelling many vehicles and the power industry.

3. Emissions removal: Including construction of sustainable biomass power stations with carbon capture and storage technology.

2.7 The Strategy also encourages local authorities to actively pursue a low carbon economy:

> "Local areas are best placed to drive emission reductions through their unique position of managing policy on land, buildings, water, waste and transport. They can embed low carbon measures in strategic plans across areas such as health and social care, transport, and housing." [p118]

2.8 The strategy also announced up to £557 million in further 'Pot 2' (less established renewables) funding for Contracts for Difference (CfD) – a 15-year contract that offers low-carbon electricity generators payments for the electricity they produce. This opened in May 2019. The most recent allocation round (sixth) opened in March 2024 and closed in September 2024. The seventh allocation round will open in 2025.

Green Finance Taskforce and the Green Finance Strategy

2.9 One of the key proposals within the Clean Growth Strategy is to develop world leading Green Finance capabilities by setting up a Green Finance Taskforce, the aim of which is to "provide recommendations for delivery of the public and private investment we need to meet our carbon budgets and maximise the UK's share of the global green finance market".

2.10 Building on the important work of the Green Finance Taskforce, the first Green Finance Strategy was produced in July 2019 and recently updated in 2023. This seeks to reinforce and expand the UK's position as a world leader on green finance and investment, delivering five key objectives:

- UK financial services growth and competitiveness;
- Investment in the green economy;
- Financial stability;
- Incorporation of nature and adaptation; and
- Alignment of global financial flows with climate and nature objectives.

2.11 The Strategy notes the importance of local key players in directing potential investors towards opportunities that meet local priorities and so are more likely to secure local community support.

Energy White Paper – Powering Our Net Zero Future

2.12 This white paper (2020) is based on the Ten Point Plan and sets out the specific energy-related measures that will be implemented in line with the UK's 2050 net zero target. The paper emphasises the UK government's commitment to ensuring that the cost of the transition is fair and affordable for consumers. Key commitments in the paper include:

- Targeting 40GW of offshore wind generation by 2030, including 1GW of floating wind generation. This is alongside the expansion of other renewable technologies;
- Supporting the development of carbon capture, usage and storage (CCUS) in four industrial clusters;
- Consulting on whether to stop gas grid connections to new homes being built from 2025;

- Increasing the installation of electric heat pumps from 30,000 per year to 600,000 per year by 2028; and
- Aim to develop 5GW of low-carbon hydrogen production capacity by 2030.

The Ten Point Plan for a Green Industrial Revolution

2.13 This plan (published in 2020) puts forward the ten main areas where the UK wishes to scale up decarbonisation, mobilising £12 billion of government investment. The outlined areas in the plan will be continually built upon by further legislation and policy, such as the Net Zero Strategy (2021) and Energy White Paper (2020).

Net Zero Strategy

2.14 The Net Zero Strategy (Oct 2021) sets out the UK's policies and proposals to meet its allocated carbon budgets and Nationally Determined Contributions (NDC's) alongside the long-term vision of decarbonising the economy by 2050. The strategy sets out a delivery pathway showing indicative emissions reductions across sectors to meet the UK's targets up to the sixth carbon budget (2033-2037). This builds on the proposals set out in the Ten Point Plan for a Green Industrial Revolution. Key policies in the strategy include:

- By 2035 the UK will be powered entirely by clean electricity, subject to security of supply; and
- 40GW of offshore wind by 2030 and further development of onshore wind and solar projects. Ensuring that new renewable projects incorporate generation and demand in the most efficient way – taking into account the needs of local communities.

2.15 The strategy also outlines key commitments in Local Climate Action, including:

- Setting clearer expectations on how central and local government interact in the delivery of net zero;
- Establishing a Local Net Zero Forum, chaired by BEIS now DESNZ, to bring together national and local government officials to discuss policy and delivery on net zero; and
- Continuing the Local Net Zero Programme to support local areas with their capability and capacity to meet net zero.

Build Back Better: Our Plan for Growth

2.16 One of the key areas for growth in this plan (published in 2021) is achieving net zero. Building off the Ten Point Plan this strategy aims at delivering the Ten Point Plan through producing more offshore wind energy, working with industry to increase low carbon hydrogen production, installing 600,000 heat pumps by 2028 and ending the sale of new petrol and diesel cars and vans in 2030.

British Energy Security Strategy

2.17 In response to the rising costs of oil and gas on the global energy market, the UK government has set out its plan to reduce the UK's dependence on imported oil and gas. A key part of this strategy (2022) is accelerating the UK's transition towards renewable sources. Regarding renewables, the strategy proposes to:

- Aim to cut the process time of development and deployment of offshore wind projects by half through a streamlined planning process, including reducing consent time from up to four years down to one year and establishing a fast track consenting route for priority cases where quality standards are met;
- Consult on developing local partnerships for communities who wish to host new onshore wind infrastructure; and
- Consult on amending planning rules to favour development of solar projects on non-protected land and support projects that are co-located with other functions.

UK Energy Act 2023

2.18 Energy policy in the UK is underpinned by the 2023 Energy Act and aligns with the Climate Change Act 2008. It is a legislative framework for providing secure, affordable, and low carbon energy. The Act will deliver a more efficient energy system in the long-term, helping to keep energy costs low. It will do this by increasing competition in Great Britain's onshore electricity networks, through a new tender process – reducing costs for network operation and development. This new model is expected to save consumers up to £1 billion off their energy bills by 2050. It is set to accelerate development of offshore wind and help deliver the UK's net zero commitments.

2.19 The National Energy System Operator (NESO) has been established through powers under the Energy Act 2023. This sets out the responsibilities of the new public body to maintain the UK's energy supplies, protect energy consumers and plan for an efficient clean energy system that is fit for the future. NESO will help

connect new generation projects with the electricity grid, working alongside Great British Energy to deploy renewable energy **[See reference 7]**.

Clean Power 2030 Action Plan

2.20 This strategy (December 2024) **[See reference 8]** sets out the actions required to accelerate delivery of a clean 2030 power system where clean energy will produce at least as much power as Great Britian consumes in total over the whole year, and at least 95% of Great Britain's generation. To achieve this, the government has set out the following first stems: reform the grid connections process, upgrading the planning system and streamlining delivery through the Planning and Infrastructure Bill, market reform and a sector plan for clean energy industries.

Great British Energy and the Local Power Plan

2.21 The new Labour Government has set up Great British Energy, a publicly owned company headquartered in Scotland to invest in clean, home-grown energy and passed the Great British Energy Act in May 2025. Great British Energy aims to develop up to 8GW of renewable capacity by 2030. It is backed by £8.3 billion of funding to accelerate the delivery of strategic energy projects as well as invest in renewable energy schemes for schools, hospitals and communities. Great British Energy's mission is to drive clean energy deployment to create jobs, boost energy independence, and ensure UK taxpayers, billpayers and communities reap the benefits of clean, secure, home-grown energy. This mission will be delivered through the following 5 functions:

- Project investment and ownership;
- Project development;
- Local Power Plan;
- Supply chain; and
- Great British Nuclear **[See reference 9]**.

2.22 The Great British Energy is partnering with local authorities across England to implement the Local Power Plan, aiming to empower communities to generate their own clean energy and benefit from the savings. This plan involves funding community-led projects, providing expert guidance, and ensuring local communities have a direct stake in local energy ventures. This will also help build capability and capacity to build local energy project pipelines.

Onshore Wind Energy Task Force

2.23 The government is diligently examining how to achieve its ambition of securing an additional 600 MW – 1 GW of onshore wind capacity in England over the next nine years. As such, the Onshore Wind Energy Task Force was established in July 2024 to accelerate the development of onshore wind in England. The taskforce is chaired by Ed Miliband, the UK Secretary of State for Energy Security and Net Zero and Matthieu Hue, the CEO of EDF Renewables UK. The taskforce includes industry experts, regulatory bodies and RenewableUK, the UK's renewable energy trade association. The taskforce meets regularly and aims to issue a policy statement shortly. The statement will outline a roadmap to 2030 and beyond, including the challenges and opportunities of increasing onshore wind capacity in England and the actions needed to achieve this. The taskforce will then become an overarching body to monitor the progress of the agreed actions.

UK Ban of New Petrol and Diesel Cars by 2030

2.24 Step 1 sees the phase-out date for the sale of new petrol and diesel cars set at 2030. Step 2 will see all new cars and vans be fully zero emission, at the tailpipe, with the banning of hybrids from 2035. The zero emission vehicle (ZEV) mandate sets out the percentage of new zero emission cars and vans manufacturers that will be required to produce each year up to 2030. 80% of new cars and 70% of new vans sold in Great Britain must be zero emission by 2030, increasing to 100% by 2035 (prior to 2024, the target was 100% by 2030). This means that the uptake of Battery Electric vehicles (BEV) will likely significantly increase in Dorset and will increase the demand for electricity in the area. If Dorset is to support national targets in the Local Plan, this increase in electricity demand will need to be met by renewable or low carbon energy generation sources **[See reference** 10**]**.

UK Heating System Target

2.25 The UK has a target for all new heating systems installed in UK homes from 2035 to be using low-carbon technologies, such as electric heat pumps. This will also increase the electricity demand in Dorset, increasing the need for renewable electricity generation **[See reference** 11**]**.

National Planning Legislation

Planning Act and National Policy Statements

2.26 The Planning Act (2008) introduced a new planning regime for nationally significant infrastructure projects (NSIPs), including energy generation plants of capacity greater than 50 megawatts (50MW). In 2011, six National Policy Statements (NPSs) for Energy were published and subsequently updated in 2024. The energy NPSs are designed to ensure that major energy planning decisions are transparent and are considered against a clear policy framework. They set out national policy against which proposals for major energy projects will be determined by the National Infrastructure Directorate (NID) (formerly the Infrastructure Planning Commission or IPC).

2.27 The Overarching National Policy Statement for Energy (EN-1) sets out national policy for energy infrastructure and describes the need for new nationally significant energy infrastructure projects. EN-3 (NPS for Renewable Energy Infrastructure) provides the primary basis for decisions by the NID on applications it receives for nationally significant renewable energy infrastructure. It provides guidance on various technologies and their potential for significant effects. In 2016, onshore wind installations above 50MW were removed from the NSIP regime; as such, these applications are now dealt with by local planning authorities, based on the NPPF. The NPSs were consulted on in 2021 and officially updated in January 2024 to:

- Reflect the current regulatory framework and contain new transitional provisions applicable during and following a review;
- Update the government's greenhouse gas emission reductions target from "at least 80%" by 2050 to net zero by 2050, and 78% by 2035 compared to 1990 levels;
- Add flexibility for the applicability of the NPS to new and developing types of energy infrastructure, such as carbon capture and storage and hydrogen infrastructure;
- Confirm future energy generation would come from a range of sources including renewables, nuclear, low carbon hydrogen, with "residual use of unabated natural gas and crude oil fuels" for heat, electricity, transport, and industrial applications; and
- Remove reference to the need for new coal and large-scale oil-fired electricity generation and update references to the need for other infrastructure.

2.28 Furthermore, renewable energy infrastructure is now classified as a Critical National Priority.

2.29 From July 2024 to September 2024 the government consulted on proposed changes to the Nationally Significant Infrastructure Project (NSIP) regime in England. These changes included the reintroduction of onshore wind projects into the NSIP scheme, with a generating capacity of over 100MW and the increase of the threshold at which solar projects are determined as Nationally Significant to 100MW. The Planning and Infrastructure Bill was introduced in March 2025 and once passed it will implement these changes.

2.30 Furthermore, on 24th April 2025, the UK Government published updated draft energy NPSs for consultation, with the consultation period open until 29th May 2025. The revised drafts include EN-1, EN-3 and EN-5 (Electricity Networks Infrastructure) and intend to strengthen the process for delivering major new infrastructure in England and Wales, reinforcing the government's ambition to deliver Clean Power by 2030 and net zero. Notably, the updated NPS documents draw on established policy language and principles from Scotland's National Planning Framework 4 (NPF4) and Wales's Future Wales strategy.

2.31 Key proposed changes to onshore wind include:

- Onshore wind has been brought back into the NSIP regime for projects over 100MW, aligning it with other technologies such as solar and offshore wind. This is intended to create a level playing field and support the government's Clean Power 2030 goals, which project a need for 27 - 29GW of operational onshore wind by 2030.
- A new section within NPS EN-3 has been included to specifically address the impacts, considerations and other matters specific to onshore wind developments.

2.32 The government has also recently published guidance **[See reference** 12**]** about national infrastructure planning which should be read alongside the Planning Act 2008. The focus of this advice is for linear projects such as electric lines (as defined in the Planning Act, section 16), gas transporter and other pipelines (sections 20 and 21), the transfer of water resources (section 28) and for onshore transmission works included as associated development to offshore wind generating stations.

Planning and Infrastructure Bill (2025)

2.33 The Bill aims to speed up and streamline the delivery of new homes and critical infrastructure, including the delivery of the government's Clean Power 2030 target by

ensuring that key clean energy projects are built as quickly as possible. As stated above, once passed the bill will introduce the proposed changes to the NSIP regime in England. The bill is expected to become an Act in 2025. This is likely to strengthen the process for delivering major new energy infrastructure in England, reinforcing the country's national priority of delivering on net zero. The updates are also expected to speed up the planning process so that low-carbon generation can be developed at the right time and place whilst protecting and enhancing the national and historic environments and landscape.

Planning and Energy Act

2.34 The Planning and Energy Act (2008) enables local planning authorities to set requirements for energy use and energy efficiency in local plans, including a proportion of energy used in development to be generated from renewable and low carbon sources in the locality of the development. Such requirements can relate to specific types and scales of development but also broad areas within a local planning authority's area of influence, such as areas with optimal conditions for decentralised heat networks.

2.35 The Act also enables local authorities to require standards for energy efficiency in new buildings beyond those in the Building Regulations. In 2015, the energy efficiency requirements were proposed to be repealed to effectively make the Building Regulations the sole authority regarding energy efficiency standards for residential development and removing the ability for local planning authorities to set their own energy efficiency standards. However, while the power was removed in principle and consultation on new Building Regulation has been undertaken, the government has not yet produced a commencement date for repealing these powers, which therefore remain in place. More details on Part L of the Building Regulations are set out below.

National Planning Policy

National Planning Policy Framework (NPPF)

2.36 The government published an updated and revised NPPF in July 2021 and again in December 2024 (2025 amendments), which sets out the environmental, social and economic planning policies for England. Central to the NPPF policies is a presumption in favour of sustainable development, that development should be planned for positively and individual proposals should be approved wherever possible. One of the overarching objectives that underpins the NPPF is set out in

Paragraph 8: “an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy”

2.37 The revised NPPF supports the contents of the Neighbourhood Planning Act (2017) by making explicit reference to the need for local planning authorities to work with duty to cooperate partners on strategic priorities (paragraph 24) and defined strategic policies that make sufficient provision for climate change mitigation and adaptation (paragraph 20). These amendments provide a clear policy framework for local planning authorities to work collaboratively with partners and neighbours to tackle climate change mitigation and adaptation at a strategic scale and over the longer term.

2.38 Paragraph 162 of the NPPF states:

> “Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating and drought from rising temperatures”.

2.39 Paragraph 165 states that:

> “To help increase the use and supply of renewable and low carbon energy and heat, plans should:
>
> a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);
>
> b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and
>
> c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers”

2.40 The NPPF goes on to state at paragraph 168 that:

"When determining planning applications for all forms of renewable and low carbon energy developments and their associated infrastructure, local planning authorities should:

a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and give significant weight to the benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future;

b) recognise that small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions;

c) in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site.

2.41 The December 2023 version of the NPPF contained the following footnotes to paragraph 163:

Footnote 57: "Wind energy development involving one or more turbines can also be permitted through Local Development Orders, Neighbourhood Development Orders and Community Right to Build Orders. In the case of Local Development Orders, it should be demonstrated that the planning impacts identified by the affected local community have been appropriately addressed and the proposal has community support."

Footnote 58: "Except for applications for the repowering and life-extension of existing wind turbines, a planning application for wind energy development involving one or more turbines should not be considered acceptable unless it is in an area identified as suitable for wind energy development in the development plan or a supplementary planning document; and, following consultation, it can be demonstrated that the planning impacts identified by the affected local community have been appropriately addressed and the proposal has community support."

2.42 These footnotes have been characterised (and earlier, similar versions) as creating a de-facto ban on the development of onshore wind. As such, very few wind energy applications have been submitted for planning approval in England since the policy regime was originally introduced in 2015.

2.43 The current NPPF (December 2024) does not include Footnotes 57 and 58. As such, this means that onshore wind applications will be treated in the same way as other energy development proposals. The December 2024 changes to the NPPF also include wider changes to support locally consented renewable energy development, including:

- Amendments to existing paragraph 163 to direct decision makers to give significant weight to the benefits associated with renewable and low carbon energy generation, and proposals' contribution to meeting a net zero future.
- Further amendments to paragraph 160 to set a stronger expectation that authorities proactively identify sites for renewable and low carbon development when producing plans, where it is likely that in allocating a site, it would help secure development.
- Development of renewables may be proposed in sensitive areas which may include valuable habitats.

2.44 The government has also signalled an intention to empower local communities to participate in decisions on local infrastructure and to benefit from hosting local renewable energy infrastructure and will shortly publish an update to the Community Benefits Protocol for Onshore Wind in England **[See reference** 13**]**.

2.45 A Written Ministerial Statement was published in May 2024 on solar energy, food security and BMV land **[See reference** 14**]**. The statement notes that the revised National Policy Statement states that ""applicants should, where possible, utilise suitable previously developed land, brownfield land, contaminated land and industrial land. Where the proposed use of any agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land avoiding the use of "Best and Most Versatile" agricultural land where possible. The government in Powering Up Britain: Energy Security Plan clarified that while "solar and farming can be complementary" developers must also have "consideration for ongoing food production."

2.46 The UK Government is currently consulting on the forthcoming Land Use Framework **[See reference** 15**]** which will provide guidance on a fair land use transition which will make space for nature recovery, water and emissions reduction, support sustainable and resilient food production, deliver new infrastructure and housing and support sustainable economic growth.

National Planning Practice Guidance (PPG)

2.47 The online National Planning Practice Guidance (PPG) resource, published by the Department for Levelling Up, Housing and Communities (DLUHC) and Ministry of Housing, Communities and Local Government (MHCLG) provides further interpretation of national planning policy for the benefit of local planning authorities and planning practitioners. Although the section on climate change has not been updated following the changes to the Climate Change Act and the UK Climate Emergency Declaration, it strongly asserts the importance of climate change within the planning system and the need for adequate policies if Local Plans are to be found sound **[See reference** 16**]**:

> "Addressing climate change is one of the core land use planning principles which the National Planning Policy Framework expects to underpin both plan-making and decision-taking. To be found sound, local plans will need to reflect this principle and enable the delivery of sustainable development in accordance with the policies in the National Planning Policy Framework. These include the requirements for local authorities to adopt proactive strategies to mitigate and adapt to climate change in line with the provisions and objectives of the Climate Change Act 2008, and co-operate to deliver strategic priorities which include climate change." [Paragraph 001, Reference ID: 6-001-20140306, Revision date: 06 03 2014].

2.48 In respect of the approach to identifying climate mitigation measures for new development, the PPG also states:

> "Every area will have different challenges and opportunities for reducing carbon emissions from new development such as homes, businesses, energy, transport and agricultural related development. Robust evaluation of future emissions will require consideration of different emission sources, likely trends taking into account requirements set in national legislation, and a range of development scenarios." [Paragraph: 007, Reference ID: 6-007-20140306, Revision date: 06 03 2014].

2.49 The PPG also makes it clear with regards to renewable energy that **[See reference** 17**]**:

> "When drawing up a Local Plan local planning authorities should first consider what the local potential is for renewable and low carbon energy generation. In

considering that potential, the matters local planning authorities should think about include:

- The range of technologies that could be accommodated and the policies needed to encourage their development in the right places;
- The costs of many renewable energy technologies are falling, potentially increasing their attractiveness and the number of proposals; and
- Different technologies have different impacts and the impacts can vary by place.
- The UK has legal commitments to cut greenhouse gases and meet increased energy demand from renewable sources. Whilst local authorities should design their policies to maximise renewable and low carbon energy development, there is no quota which the Local Plan has to deliver." [Paragraph: 003, Reference ID: 5-003-20140306, Revision date: 06 03 2014].

2.50 The role community-led renewable energy initiatives have is outlined and states that they:

"are likely to play an increasingly important role and should be encouraged as a way of providing positive local benefit from renewable energy development…Local planning authorities may wish to establish policies which give positive weight to renewable and low carbon energy initiatives which have clear evidence of local community involvement and leadership." [Paragraph: 004, Reference ID: 5-004-20140306, Revision date: 06 03 2014].

2.51 In terms of identifying suitable locations for renewable energy development, such as wind power, the PPG section on 'Renewable and Low Carbon Energy' states:

"There are no hard and fast rules about how suitable areas for renewable energy should be identified, but in considering locations, local planning authorities will need to ensure they take into account the requirements of the technology and, critically, the potential impacts on the local environment, including from cumulative impacts. The views of local communities likely to be affected should be listened to.

When identifying suitable areas it is also important to set out the factors that will be taken into account when considering individual proposals in these areas.

These factors may be dependent on the investigatory work underpinning the identified area.

There is a methodology available from the Department for Energy and Net Zero's website on assessing the capacity for renewable energy development which can be used and there may be existing local assessments. However, the impact of some types of technologies may have changed since assessments were drawn up (e.g. the size of wind turbines has been increasing). In considering impacts, assessments can use tools to identify where impacts are likely to be acceptable. For example, landscape character areas could form the basis for considering which technologies at which scale may be appropriate in different types of location." [Paragraph: 005, Reference ID: 5-005-20150618, Revision date: 18 06 2015].

2.52 It also goes on to state that:

"Local planning authorities should not rule out otherwise acceptable renewable energy developments through inflexible rules on buffer zones or separation distances. Other than when dealing with setback distances for safety, distance of itself does not necessarily determine whether the impact of a proposal is unacceptable." [Paragraph: 008, Reference ID: 5-008-20140306, Revision date: 06 03 2014].

Neighbourhood Development Plans

2.53 Neighbourhood planning offers local communities an opportunity to produce positive and ambitious sustainable energy plans for their local area. The PPG on Renewable and Low Carbon Energy states that:

"Local and neighbourhood plans are the key to delivering development that has the backing of local communities." [Paragraph: 003 Reference ID: 5-003-20140306 Revision date: 06 03 2014]

2.54 Across the country, the large majority of the numerous plans adopted so far, show little evidence of having considered the issue of climate change and energy to the level that is required to have meaningful impact **[See reference** 18**]**.

2.55 However, given the right support, Neighbourhood Plan (NDP) groups can serve to convene and inform local communities and stimulate bottom-up renewable energy

policies and development. A number of adopted neighbourhood plans have incorporated requirements. However, government funding for neighbourhood planning was withdrawn in June 2025, as such it is questionable how many plans will be forthcoming in the future.

Building Regulations – Part L

2.56 National standards for energy use and emissions within new developments are set by Part L1A and Part L2A of the Building Regulations, which concern the conservation of fuel and power in new dwellings and new buildings other than dwellings respectively. The current regulations came into operation in 2010 but were re-issued in 2013 and recently amended in 2023. The regulations apply a cap to a building's emissions through the use of a nominal Target Emissions Rate (TER) measured in $kgCO_2/m^2$/year, which for dwellings must not be exceeded by the Dwelling Emissions Rate (DER) as calculated according to the Standard Assessment Procedure (SAP) methodology.

2.57 In October 2019 the government launched a consultation on the next revision of the Building Regulations and proposed a new 'Future Homes Standard' with the message that "We must ensure that new homes are future-proofed to facilitate the installation of low-carbon heat, avoiding the need to be retrofitted later, and that home builders and supply chains are in a position to build to the Future Homes Standard by 2025".

2.58 The consultation considered two levels of emission reductions for new dwellings from 2020: either 20% or 31% over current 2013 Part L standards, and for the 2025 Future Homes Standard a 75-80% reduction together with low carbon heating systems. These standards aim to reduce or remove the dependency on fossil fuels and encourage the use of heat pumps, heat networks or in some circumstances direct electric heating in the context of a rapidly decarbonising UK electricity supply. The 2020 31% target ('Fabric plus technology') is stated as being the government's preferred option and would most likely comprise energy efficiency measures with onsite low carbon generation, whereas the 20% option ('Future Homes Fabric') would require higher levels of fabric energy efficiency.

2.59 The consultation also proposed that from 2020 the energy efficiency of new dwellings should be assessed in terms of 'primary energy' as the basis for the Part L performance target (alongside emission targets), and that from 2020, homes should be future-proofed for low carbon heating. This is likely to mean that, if not already fitted, homes should have a low temperature heat distribution system so that they will be compatible with heat pumps. Additionally, in order to counteract existing variations in local authority-set performance standards, the consultation also proposed to

remove the powers from local authorities to set their own standards above Part L (as granted under the Planning and Energy Act).

2.60 In January 2021 the government launched a consultation on the second stage of the 2-part consultation on proposed changes to Part L (Conservation of fuel and power) and Part F (ventilation) of Building Regulations. It confirmed that the Planning and Energy Act 2008 will not be amended, which means that local authorities will retain powers to set local energy efficiency standards for new homes. It also built on the Future Homes Standard consultation by setting out energy and ventilation standards for non-domestic buildings, existing homes and included proposals to mitigate against overheating in residential buildings.

2.61 This consultation considered two ambitious options to uplift energy efficiency and ventilation standards for new non-domestic buildings including: introduction of overheating standards for new residential buildings in 2021 and a 2021 uplift of energy and ventilation standards (Part L and Part F) for homes. The government responded in December 2021 to the consultation **[See reference** 19**]**, the responses are summarised below:

- Starting from 2025, the Future Building Standard will produce highly efficient new non-domestic buildings;
- A new full technical consultation on the Future Buildings Standard will commence in 2023;
- Employment of the performance metrics set out in the consultation will be undertaken: a new primary energy target, a CO2 emissions target and minimum standards for fabric and fixed building services; and
- The interim uplift will also make sure that construction professionals and supply chains are working to higher specifications in readiness for the introduction of the Future Buildings Standard from 2025.

2.62 Alongside, the publication of the government's response, the 2021 uplift has been implemented, therefore as of 15th June 2022, all new build homes and commercial buildings must reduce their carbon emissions by 31% and 27% respectively, according to the updated Building Regulations. A further, more detailed, consultation began in December 2023 and went until March 2024. The Heat and Buildings Strategy outlines the need to eliminate virtually all emissions arising from heating, cooling and energy use in our buildings. As such, the 2025 Future Homes and Buildings Standards aim to build on the 2021 Part L uplift and set more ambitious requirements for energy efficiency and heating for new homes and non-domestic buildings. These standards are set to be in line with meeting the 2050 net zero target. The main proposals include: performance requirements for new building,

retaining existing metrics, improvements to standards for fixed building services and on-site electricity generation, improved standards for dwellings created through material change of use, expanding cleaner heat networks, changes to the regulations permitting local authorities to relax or dispense the energy efficiency requirements, gathering evidence on two proposed measures to improve building performance in new homes against expected energy use and reviewing approach to setting standards and transitional arrangements.

Local Policy and Guidance

Adopted Development Plan Documents for Dorset

2.63 Work is being progressed on a new local plan for Dorset. Prior to the formation of Dorset Council in 2019, each of the former local planning authorities had commenced a review of their adopted local plans, including:

- West Dorset, Weymouth and Portland Local Plan (2015).
- North Dorset Local Plan Part 1 (2016).
- Christchurch and East Dorset Local Plan Part 1 (2014).
- Swanage Local Plan (2017).

2.64 The review of the Purbeck Local Plan (2018-2034) was taken forward and Dorset Council adopted the Plan in July 2024. However, the local plan reviews for East Dorset, North Dorset, and West Dorset and Weymouth & Portland will no longer be taken forward. The work undertaken on these reviews will feed into the new Dorset Council Local Plan, however, the adopted Development Plan Documents (DPD) will continue to apply to the areas they cover. They will continue to be used for decision-making purposes until they are replaced. The Dorset Local Plan is in the process of being prepared and most recently the Regulation 18 Dorset Local Plan was consulted on between January and March 2021. A number of consultation comments on the Regulation 18 Local Plan noted that more should be done in terms of planning for renewable energy development in Dorset. As such, this report provides a robust evidence base to underpin planning policies that support renewable and low carbon energy generation and storage and low carbon development.

2.65 These adopted Development Plan Documents (DPD) set out policy for protecting and enhancing the natural, built and historic environment.

2.66 The West Dorset, Weymouth and Portland Local Plan (2015) states that the two councils fully support the need to generate more than 15% of all energy demand from renewable energy sources by 2020, in line with the national target. Policy COM11 Renewable Energy Development states that “Proposals for generating heat or electricity from renewable energy sources (other than wind energy) will be allowed wherever possible providing that the benefits of the development, such as the contribution towards renewable energy targets, significantly outweigh any harm.” Policy COM11 relates to all forms of renewable energy development other than wind energy development. Until such time as the Local Plan is reviewed, proposals for wind energy development will be considered against national policy and guidance.

2.67 Policy E3: Renewable energy of the Purbeck Local Plan (2018 – 2034), states that “The Council encourages the use and supply of renewable and low carbon energy provided any adverse impacts can be satisfactorily addressed.” Policy E12: Design also states that “The Council will expect proposals for all development and other works to demonstrate a high quality of design that… minimises energy consumption, including where possible inclusion of renewable energy”.

2.68 Policy 3: Climate Change of the North Dorset Local Plan Part One promotes reducing greenhouse gas emissions through renewable and low carbon energy developments, stating that development proposals within the District should seek to reduce greenhouse gas emissions, including through appropriately sited renewable and low carbon energy developments. Policy 22: Renewable and Low Carbon Energy sets out the Council’s approach to development proposals for or that incorporate renewable or low carbon energy, including assessment of landscape impact in accordance with the Council’s Landscape Sensitivity Assessment.

2.69 Policy ME5 of the East Dorset and Christchurch Local Plan also encourages developing renewable energy sources, stating that the development of renewable energy sources will be encouraged.

Planning for climate change: Interim guidance and position statement (December 2023)

2.70 Dorset Council produced the interim guidance and position statement to guide the consideration of climate change in planning applications. The document highlights the council's approach under existing adopted policy to renewable energy development, emphasising climate change, public benefits, site justification, and protection of valuable land and heritage assets. Dorset Council's position on renewable energy development emphasises the significant weight given to climate change and public benefits in planning decisions. Renewable energy schemes must

demonstrate minimised impacts and substantial benefits, particularly in meeting energy generation targets and reducing greenhouse gas emissions. Developments must justify their location, especially in prime agricultural land, National Landscapes, and the Green Belt, with a focus on exceptional circumstances and public interest. Larger-scale wind energy proposals are currently deemed unacceptable due to the national policy at the time **[See reference** 20**]** and lack of suitable areas in the development plan.

Natural Environment, Climate and Ecology Strategy 2023 to 2025 Refresh

2.71 Dorset Council's current climate strategy **[See reference** 21**]** updates its earlier 2021 strategy and elaborates on the strategic components of its response to the climate declaration the Council made in 2019. Mission 1 of the strategy relates to renewable energy, noting that "All energy used for power, heat and transport will need to come from electricity or hydrogen generated by renewable or low carbon sources like solar, wind, geothermal, hydropower, tidal or sustainable biomass". It also states that "Dorset has made good progress on solar locally but needs faster growth in renewable generation and storage capacity, grid upgrades, and smarter, flexible demand management. Electricity demand is expected to grow by 40-60 per cent due to heat and transport electrification, so if it were to be locally self-sufficient Dorset would need to increase its [then] capacity eightfold…" The strategy thereby sets an objective to "boost deployment of renewable generation and flexibility measures on the Council estate and in wider Dorset", including to "enable wider deployment through planning: encourage deployment of renewables and storage, and their integration in new developments through planning policy, toolkits, and guidance. This will include identifying suitable sites in the new Local Plan, and having regard for landscape, the historic environment, amenity, ecology, and productive farmland impacts and other constraints." Action F18 of the corresponding action plan commits to "undertake research and mapping to enable planning policy in support of this strategy (e.g., on suitable renewables deployment sites, grid constraints, heat mapping, flood and erosion risks etc.)", whilst action F19 commits to "create a new Local Plan that ensures high standards of design, siting and construction of developments and effectively supports this strategy (including identifying renewable deployment sites and integrating with the Local Transport Plan on sustainable travel)."

Chapter 3
Existing renewable and low carbon energy generation

Introduction

3.1 This chapter sets out information on existing onshore wind, ground mounted solar and battery storage within Dorset.

3.2 It is not possible to identify an exact figure for the amount of existing renewable energy generation across Dorset, however, estimates for installed electricity generation capacity and output are set out in Table 3.1. This draws on:

- Dorset Council data on existing renewable installations; and
- Department for Energy Security & Net Zero's (DESNZ) Renewable Energy Planning Database (REPD) **[See reference** 22**]** data which aims to list all renewable electricity projects over 150kW.

3.3 To note existing minor renewable energy developments were not included as, due to their small scale, there is potential for micro-siting new renewable energy developments around these. The minor 500kW single turbine development at Rogershill Farm is however included within the calculations of existing renewable developments in this chapter, Chapter 4, and in Figure 3.4.

3.4 As outlined in Table 3.1, there is currently an estimated 1,241MW of operational and consented renewable electricity generation capacity across Dorset from onshore wind, ground mounted solar and battery storage, providing annual emission savings of 67,549tCO2.

Table 3.1: Existing and consented onshore wind, ground mounted solar and battery storage installations in Dorset

Status	**Technology**	**Estimated Total Capacity (MW)** [See reference **23**]	**Electricity Output (MWh/year)** [See reference **24**]	**Potential CO2 Savings (tonnes/year)** [See reference **25**]
Operational	Onshore wind	10	22,505	2,993
Operational	Ground Solar PV	351	299,677	39,857
Operational	Battery	30	N/A	N/A
Operational	Total	391	322,181	42,850
Consented	Onshore wind	-	-	-
Consented	Ground Solar PV	218	185,709	24,699
Consented	Battery	633	N/A	N/A
Operational and consented	Total	1,241	507,890	67,549

3.5 Figures 3.1 to 3.3 only include projects that were registered as operational and consented at the time of preparing this report. Most of the solar PV and battery installations have permission expiry dates ranging from 2024 to 2027, other than one standalone battery storage application which expires in 2035.

Figure 3.1: Existing operational and consented renewable energy generation: capacity

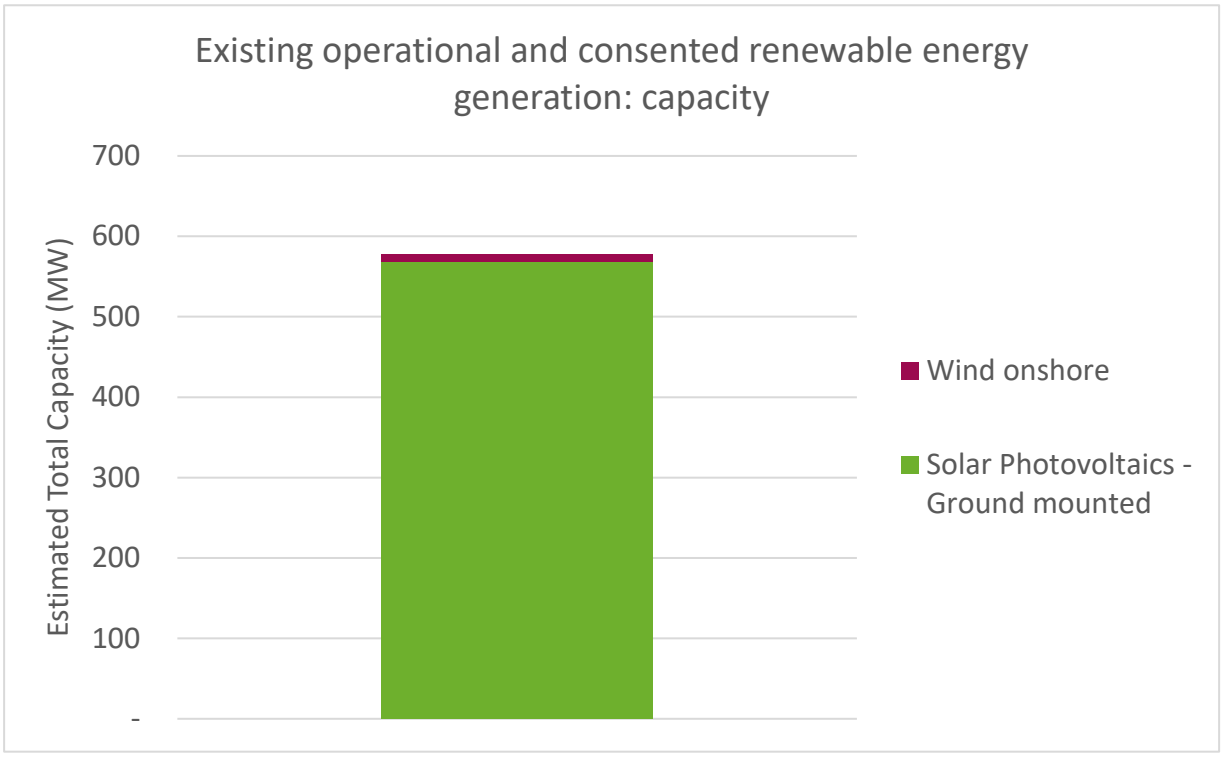


Figure 3.2: Existing operational and consented renewable energy generation: electricity output

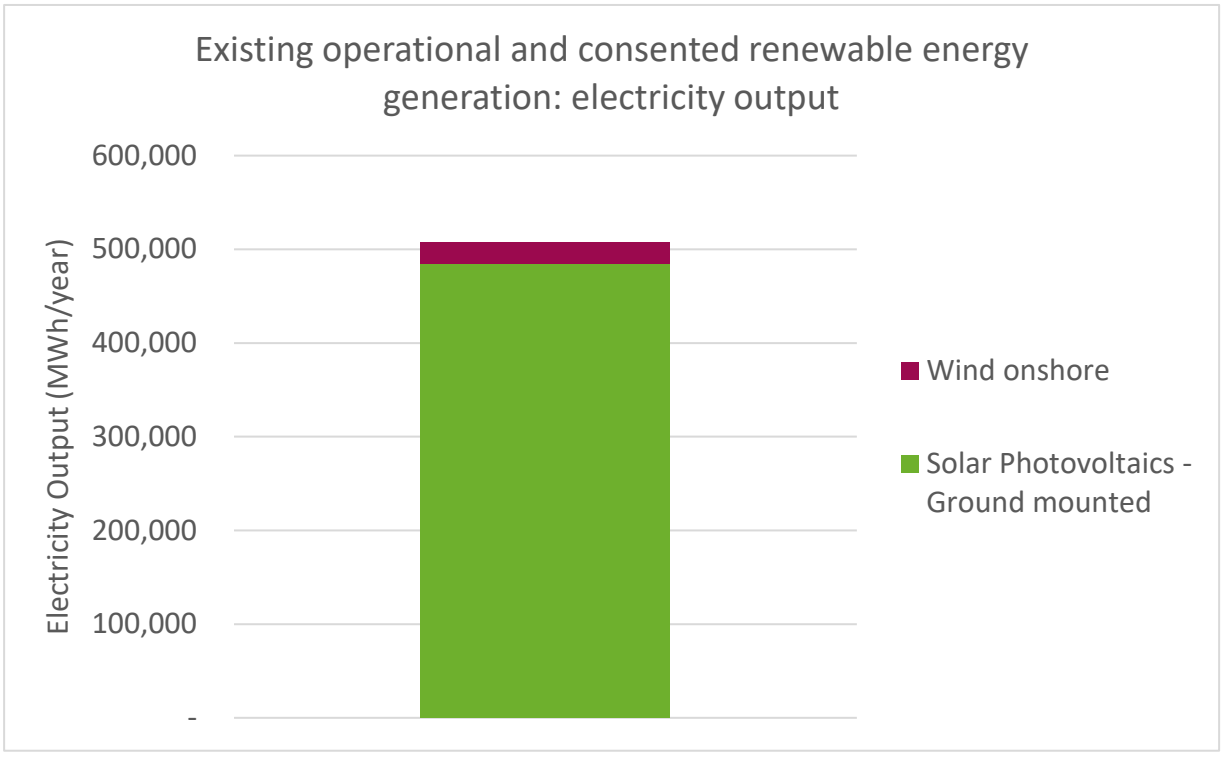
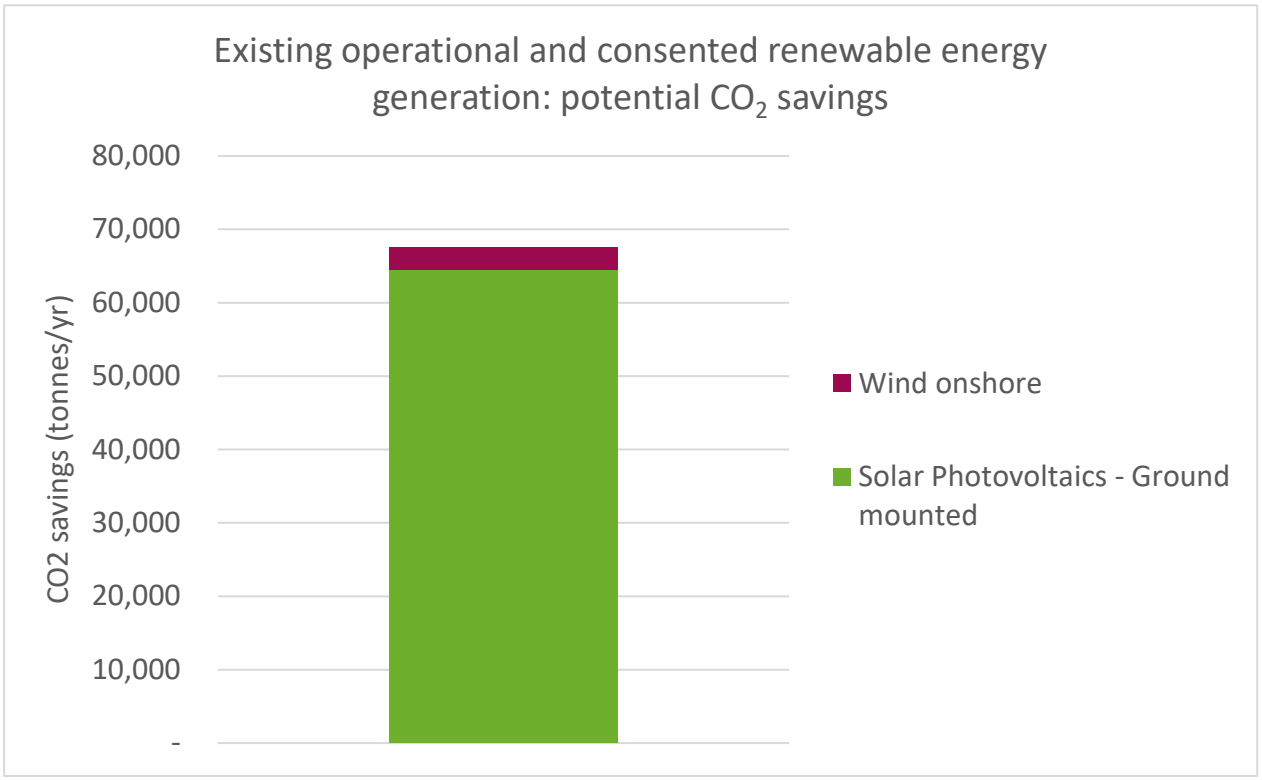


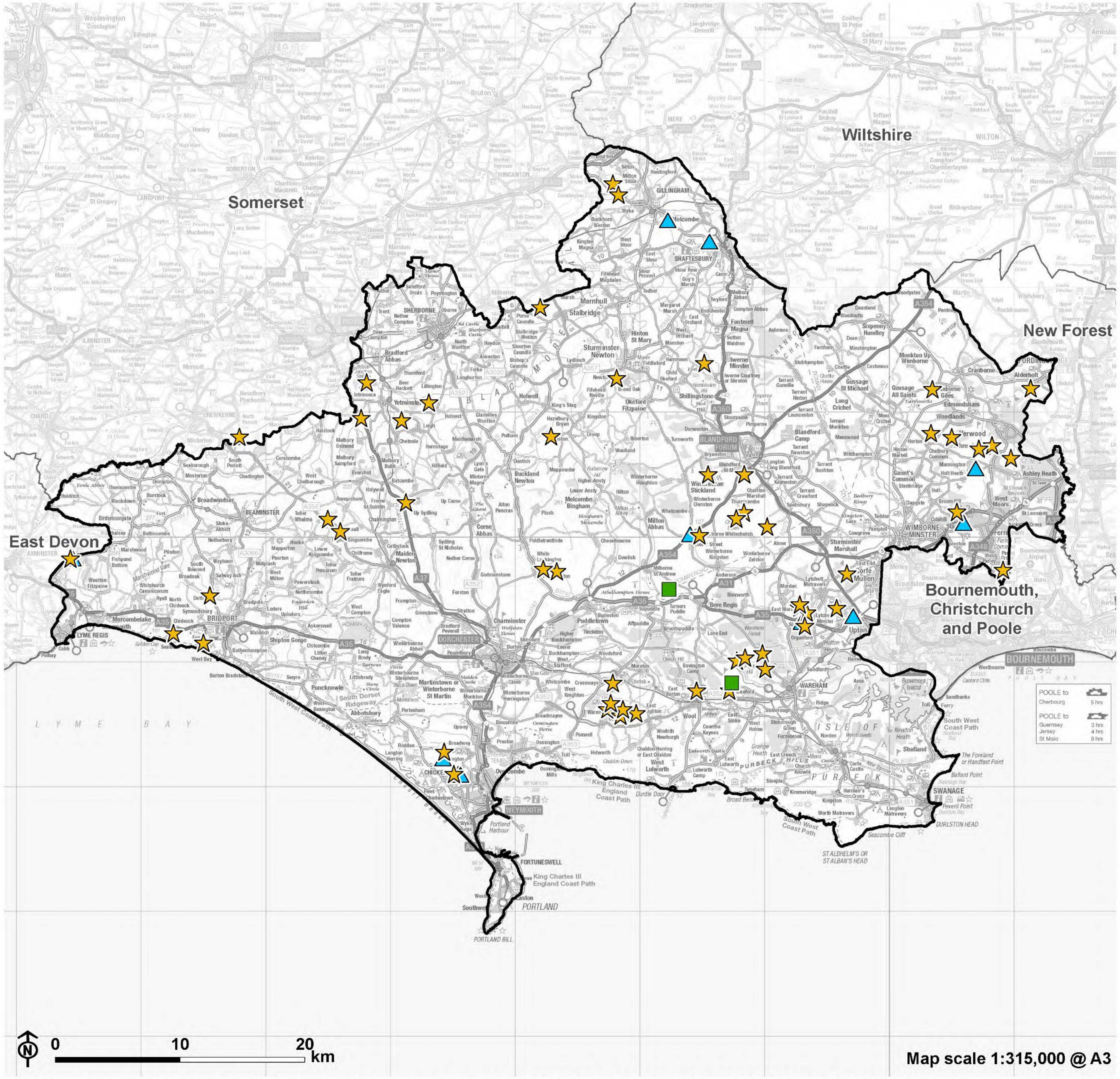
Figure 3.3: Existing operational and consented renewable energy generation: potential CO2 savings



3.6 The locations for existing and consented onshore wind, ground mounted solar and battery storage installations across Dorset, as currently listed in the Renewable Energy Planning Database are shown in Figure 3.4 below.

3.7 Figure 3.4 shows that the renewable energy installations are widely distributed across Dorset, most of these are ground mounted solar photovoltaics.

Figure 3.4: Existing and consented onshore wind, solar PV and battery storage installations in Dorset



Dorset: Resource Assessment for Renewable Energy Development
Dorset Council

Figure 3.4: Existing and consented battery, ground-mounted solar and wind installations within Dorset

- Dorset
- Neighbouring Local Authority

Existing and consented battery, ground-mounted solar and wind installations

- Battery
- Solar
- Wind

Notes:

The data is from two sources: REPD January 2025, and local data received from Dorset Council. Only points within the REPD data that did not intersect the local data were included, to avoid duplication.

Chapter 4
Renewable and Low Carbon Energy Opportunities

4.1 This chapter provides the results of the assessment of the 'technical' potential for onshore wind, ground mounted solar and battery storage within Dorset. The 'technical potential' is the total amount of renewable energy that could be delivered in the area based on a number of assumptions regarding the amount of resource and space.

4.2 The assumptions used to calculate 'technical potential' for each renewable technology are provided within Appendix A. The assessment of technical potential has been applied at a strategic scale across Dorset and more detailed site assessments (i.e. as required for a planning application) would be required to determine if specific sites are suitable in planning terms.

4.3 As outlined above, the assessment of technical potential has considered various assumptions in relation to the amount of resource and space, as such it should be noted that all MOD sites are included in this assessment. The MOD are currently aiming to achieve net zero between 2040 to 2050, so there is potential for the Council to partner with the MOD to consider potential renewable energy proposals.

4.4 This chapter also includes a discussion of the issues that will affect what could be realistically delivered within Dorset – i.e. the 'deployable potential'. This considers factors such as planning, economic viability and grid connection.

4.5 Landscape sensitivity is also a key consideration affecting the deployment of certain technologies such as onshore wind and ground mounted solar. To note, this study has not excluded land within the National Landscapes from the assessment of technical potential. A separate landscape sensitivity assessment for wind and solar technologies has been prepared and includes consideration of these designations. Further site-specific landscape sensitivity and visual impact assessment would be required to consider these designations and assess the potential suitability of sites for onshore wind, ground mounted solar and BESS development within or in proximity to the National Landscapes. Please refer to the separate 'Landscape Sensitivity Assessment of Renewable Energy Report' for further details.

Assessment of technical potential for renewables

4.6 The following section summarises the assessment of technical potential for each form of renewable and low carbon technology. For each resource, where relevant, it includes:

- Description of the technology;
- Summary of existing deployment within Dorset;
- Assumptions used to calculate technical potential;
- Results of assessment of technical potential; and
- Summary of issues affecting deployment.

4.7 The assessment approach is based on the former Department of Energy and Climate Change (DECC) Renewable and Low-Carbon Energy Capacity Methodology: Methodology for the English Regions (2010) **[See reference** 26**]** but this has been updated and refined to take account of local circumstances within Dorset where appropriate.

4.8 In addition, the potential carbon savings as a result of generation via the identified potential from each renewable technology was calculated by considering the "emissions factor" of energy sources. An emissions factor provides the annual average carbon intensity of energy used and is used to calculate the potential carbon savings of replacing national grid-sourced electricity, mains gas and heating oil, with that from renewables, which have negligible carbon emissions. Therefore, to determine the potential CO_2 savings from the potential renewable resources, the identified potential electricity output was multiplied by the current emissions factor of the fuels the renewable energy generation would replace. The emissions factor is the amount of CO_2 (equivalent) that is produced per kWh of electricity used. For grid electricity, which solar and wind generated electricity would replace, this is: 0.133 kgCO2e/kWh. This is sourced from the National Grid (2024) Future Energy Scenarios: FES 2024 Data workbook **[See reference 27]** and provides the annual average carbon intensity of electricity based on a five-year forecast from 2023. This was used as this is the most up to date forecast available, and so the most accurate value to use to calculate the potential carbon savings of using renewable energy in the future.

Wind

Description of technology

4.9 Onshore wind power is an established and proven technology with thousands of installations currently deployed across many countries throughout the world. The UK has the largest wind energy resource in Europe.

4.10 Turbine scales do not fall intrinsically into clear and unchanging size categories. At the largest scale, turbine dimensions and capacities are evolving quite rapidly with the largest turbines in Scotland now reaching 250m to blade tip **[See reference** 28**]**. However, to reflect developer aspirations in England, the maximum turbine tip height is assumed to be 220m for this assessment **[See reference** 29**]**. The deployment of turbines at particular 'typical' scales in the past has also been influenced by changing factors which include the availability of various subsidies. As defined scales need to be applied for the purpose of the resource assessment, the assessment used four size categories based on consideration of current and historically 'typical' turbine models:

- Very large (150-220m tip height);
- Large (100-150 tip height);
- Medium (60-100 tip height); and
- Small (25-60 tip height).

4.11 As this is a strategic scale study, notional turbine sizes, approximately intermediate within each class size, were used to represent each scale of turbine within this assessment, as set out in Table 4.1 below.

4.12 To note, no mapped-based assessment of 'very small' turbines (i.e. under 25m tip height) was undertaken. The type of buffers applied to constraints for the assessment of other turbine size categories in many cases do not reasonably apply to very small turbines. Equally, mapping a strategic - wide 'resource' for very small turbines (which are generally developed individually in association with particular farm or other buildings) is not particularly meaningful. Instead, it is recommended that policy references the entire plan area as being potentially suitable for very small wind in principle (subject to site-specific assessment).

Table 4.1: Notional turbines used for the resource assessment

Scale	Typical Turbine Installed Capacity	Typical Turbine Height (maximum to blade tip)
Very large	4MW	185m
Large	2.5MW	125m
Medium	0.5MW	80m
Small	0.05MW	45m

4.13 Most turbines above the smallest scales have a direct connection into the electricity network. Typically, very small and sometimes small turbines may provide electricity for a single premises via a 'private wire' (e.g. a farm or occasionally a large energy use such as a factory) or be connected to the grid directly for export. Typically, turbines will be developed in larger groups (wind farms) only at the larger scales. The amount of energy that turbines generate will depend primarily on wind speed but will be limited by the maximum output of the individual turbine (expressed as 'installed capacity' in Table 4.1).

4.14 A review of wind turbine applications across the UK found that tip heights range from less than 20m up to around 250m, with larger turbine models particularly in demand from commercial developers following the reduction in financial support from government and driven by the manufacturers and trends from other European markets where turbines of this scale have been developed for some time. The majority of operational and planned turbines range between 80m and 250m, with the majority of new applications in Scotland and Wales currently being at the larger end of the scale. However, within England, the majority of onshore wind applications that have been granted and/or become operational since 2015 have been for less than 10 turbines and all are under 150m other than two **[See reference** 30**]**.

4.15 In 2024, the UK had 16,230 MW of installed onshore wind capacity, providing 35,131 GWh electricity during that time **[See reference** 31**]**. Since the removal of financial support and restrictive policy requirements in the 2015 Written Ministerial Statement and subsequently incorporated in the NPPF, onshore wind development activity moved overwhelmingly away from England towards Scotland and Wales, where it is focusing particularly on sites with high wind speeds and the ability to accommodate large numbers of tall turbines.

Very few onshore wind energy projects have been approved and built within England since 2015. However, this is likely to change since the removal of Footnotes 57 and 58 by the current Government.

Existing Development within Dorset

4.16 According to the most recent DESNZ Renewable Energy Data base **[See reference** 32**]** and Dorset Council data on existing renewable installations there are two operational wind developments at Masters Pit and Rogershill Farm. Masters Pit consists of four turbines (up to 125m high) and an installed capacity of 9.2MW and Rogershill Farm has one turbine with an installed capacity of 0.5MW.

Assumptions used to calculate technical potential

4.17 The assessment of technical potential for very large, large, medium and small turbines was undertaken using GIS (Geographical information Systems) involving spatial mapping of key constraints and opportunities. The assessment identified areas with suitable wind speeds (applying a reasonable but relatively generous assumption in this respect, bearing in mind that only the highest wind speeds are potentially viable at the present time) and the number of turbines that could theoretically be deployed within these areas. A series of constraints relating to physical features, such as environmental/heritage protection were then removed. The remaining areas have ‘technical potential’ for wind energy development. It should be noted that more detailed site assessments (i.e. as required for a planning application) would be required to determine if specific sites are suitable in planning terms.

4.18 The key constraints considered are set out in detail in Appendix A.

4.19 Areas of land unconstrained by the constraints set out in Appendix A were excluded if they were below a minimum developable size of 40m width and an area that varied per turbine size:

- Very large: 0.8ha
- Large: 0.6ha
- Medium: 0.4ha
- Small: 0.2ha

Results

Technical Potential

4.20 Figure 4.1 and Table 4.2 below provide a summary estimate of the technical potential for wind energy within Dorset. The analysis examined the potential for very large, large, medium and small turbines. Where potential exists for more than one size of turbine, it was assumed that the larger turbines would take precedence as, to ensure viability, developers usually seek to install the largest capacity turbines possible.

4.21 The calculation of potential wind capacity involved applying an assumption concerning development density. In practice, turbines are spaced within developments based on varying multiples of the rotor diameter length. Although turbine separation distances vary, a 5 x 3 rotor diameter oval spacing **[See reference 33]**, with the major axis of the oval oriented towards the prevailing wind direction, taken to be south-west as the 'default' assumption in the UK, was considered a reasonable general assumption to use at the present time in this respect. In practice, site-specific factors such as prevailing wind direction and turbulence are taken into account by developers, in discussion with turbine manufacturers. Bearing in mind the strategic nature of the present study, the density calculation did not take into account the site shape, and a standardised density was used instead as set out below:

- Very large: 4 turbines per km^2
- Large: 8 turbines per km^2
- Medium: 22 turbines per km^2
- Small: 167 turbines per km^2

4.22 The calculation of potential energy yield requires the application of a 'capacity factor' i.e. the average proportion of maximum turbine capacity that would be achieved in practice over a given period. Capacity factors vary in practice in accordance with wind speed, terrain and turbine scale. It was not possible to find suitable local historic data on capacity factors, taking into account these kinds of variations in Dorset for the present study, and so a single capacity factor of 26.5% was used for all turbine scales, based on regional data **[See reference 34]**.

4.23 In addition, the potential carbon savings as a result of generation via the identified wind potential was calculated. This assumed that the electricity generated from the identified wind potential would result in negligible carbon

emissions and would replace that currently provided by the national grid, which has an emission factor of 0.133kgCO2e/kWh **[See reference 35]**.

4.24 The assessment results indicate that there is a technical potential to deliver up to around 9,320MW of wind energy capacity in Dorset, equating to 1,017 turbines powering approximately 8 million homes a year **[See reference 36]**. The associated potential annual CO_2 savings of 2.8 million tonnes are equivalent to planting approximately 111 million trees a year **[See reference 37]**. To note, the above sets out a theoretical number of turbines and is not a realistic indication of deliverable capacity as other considerations would need to be factored in, such as landscape sensitivity. This number of turbines does not consider the findings of the Landscape Sensitivity Assessment.

4.25 The analysis finds that there are opportunities for turbines of all sizes but that there is greater technical potential for small and very large turbines as shown in Figure 4.1 and Table 4.2. This is because smaller turbines can be sited in more locations and very large turbines have a greater energy output for the area of land used and the study assumes that the largest scale of turbine is used where constraints allow.

Figure 4.1: Onshore wind potential capacity and carbon savings within Dorset

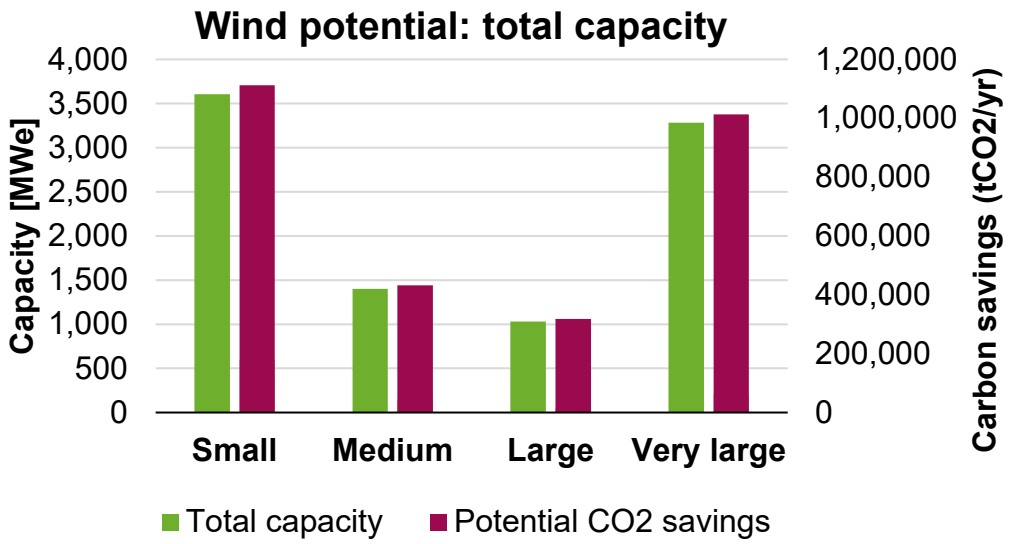


Table 4.2: Potential wind capacity and output

Development Scale	Estimated Total Capacity (MW)	Estimated Output (GWh/year)	Potential CO2 Savings (tonnes/year)	Equivalent turbines
Small	3,605	8,364	1,112,429	599
Medium	1,401	3,250	432,284	149
Large	1,031	2,391	317,999	60
Very large	3,283	7,617	1,013,119	209
Total	**9,320**	**21,623**	**2,875,831**	**1,017**

4.26 The maps included in Appendix B show the areas which have been identified via the GIS analysis to have technical potential for wind development at each considered turbine scale. These figures indicate that the largest areas of potential for wind generation, particularly large-scale generation, are spread from the northeast across to the southwest of Dorset. There is limited potential for onshore wind in areas near to Bournemouth and Poole, around Weymouth,

on Portland and within the Isle of Purbeck area due particularly to ecological constraints.

4.27 In order to illustrate the GIS tool parameters, a series of opportunity and constraints maps were produced. Figure B.1 in Appendix B shows the wind speed within Dorset at 50m above ground level (agl). This shows that the highest wind speeds are located along the coasts as well as pockets within in the western section of Dorset. Other mapped constraints that have influenced the assessment outcomes are included in Appendix B. It is noted that maps depicting the physical constraints are only included for small and very large turbines for illustrative purposes, showing the minimum and maximum buffer distances applied to physical features depending on turbine size.

4.28 An assessment of this nature will necessarily have certain limitations, including:

- Wind data – It is important to note that the macro-scale wind data which was used for this assessment can be inaccurate at the site-specific level and therefore can only be used to give a high-level indication of potential capacity and output within Dorset. Developers will normally require wind speeds to be accurately monitored using anemometers for an extended period (typically at least one to two years) for commercial scale developments.
- National Landscapes - The management plans for the Dorset National Landscape and the Cranborne Chase National Landscape do not restrict renewable developments within the designations. As such, no land was excluded on this basis. It is noted that the associated Landscape Sensitivity Assessment study will include consideration of these designations and that further site-specific landscape sensitivity and visual impact assessment would be required to consider these and assess the potential suitability of sites for wind development within or in proximity to the National Landscapes.
- Cumulative effects – Multiple wind turbine developments can have a variety of cumulative effects. Cumulative landscape and visual effects, in particular, would clearly occur if all the identified areas of wind development potential were to be realised. Cumulative effects, however, cannot be taken into account in a high-level assessment of this nature and must be considered on a site-by-site basis.
- Site-specific features and characteristics – In practice, developments outside protected areas may potentially have an impact on amenity and sensitive ‘receptors’ such as protected species. Furthermore,

developments in Core Sustenance Zones around bat roosts, Greater horseshoe and possible Nathusius Pipistrelle bat migration routes and SSSI Impact Risk Zones would also require further investigation at planning application stage. These impacts can only be assessed via site-specific surveys.

- Aviation – Although operational airports and airfields were considered to be constraints to wind development, airport safeguarding zones were only mapped for information. Aviation interests were not used to restrict potentially suitable areas as these impacts require site by site consideration and mitigation may be available to address any issues.

Issues affecting deployment

4.29 The technical wind development potential within Dorset, as estimated through application of reasonable constraints within a GIS tool, is not the same as the development capacity that may be expected to be deployed in practice.

4.30 Certain limitations of the resource assessment with respect to deployable wind potential have already been noted in the previous section. For example, cumulative impacts can only be considered fully when developments come forward in practice but would generally be expected to reduce the overall deployable capacity. However, there are four key factors that affect the deployable wind potential that merit individual consideration: landscape sensitivity, grid connection, development income and planning issues. These are discussed in turn below.

Landscape Sensitivity

4.31 A separate landscape sensitivity assessment (LSA) has been prepared which sits alongside this report and assesses the sensitivity of the landscapes in Dorset to onshore wind, ground mounted solar and BESS developments. The LSA considered the suitability of different scales of wind turbines, using bandings reflecting the scale of development that is most likely to be put forward by developers. When the findings of the LSA are overlaid with the results of the technical assessment for onshore wind it will enable the Council (and others) to identify which areas have the greatest technical potential and lower landscape sensitivity. This will help guide developments to the most appropriate locations. It should be noted that all applications will still need to be assessed on a case-by-case basis, taking into account site specific circumstances.

Grid Connection

4.32 Historically, it has been possible to connect a variety of wind energy development scales into the distribution network at a wide range of distances from the nearest connection point. This situation has changed dramatically over recent years due to two factors in combination:

- The distribution network, and even the transmission network **[See reference** 38**]**, have become increasingly congested, to the point at which connections in many cases cannot take place without expensive network reinforcement costs (which fall to the developer) being incurred, or generation being curtailed, or both.
- The government's cancelling of subsidies for onshore wind in 2016 has reduced wind development incomes to the point at which previously affordable reinforcement works would now render many developments unviable, particularly those of smaller scale.

4.33 However, recently, to enable sufficient grid infrastructure is in place to meet the significant growth in demand for new connections (for both generation and supply) significant national reforms are underway, including to grid connections processes, as outlined in Government and Ofgem's Transmission Acceleration Action Plan and Connections Action Plan, as well as in the Clean Power 2030 Action Plan. Three aspects merit particular emphasis in this context, these are connections queue, strategic energy planning and connection charges.

4.34 Within Dorset, National Grid Energy Distribution (NGED) and SSEN are the distribution network operators. Discussions with NGED and SSEN were undertaken to inform this study, and a summary of the discussions is incorporated below. SSEN covers the majority of Dorset which is mostly served by the Mannington GSP network. In December 2021, both NGED (formerly Western Power Distribution) and SSEN submitted their RIIO-ED2 Business Plans to Ofgem, which proposed investment across their distribution networks from 1 April 2023 to 31 March 2028 **[See reference** 39**]**. Both Plans have been approved by Ofgem. SSEN has proposed investments that will release capacity in specific areas of their network where constraints have been identified. This release of capacity may be through flexibility service providers offsetting the peak demand or generation, or through conventional reinforcement. For example, the Mannington GSP network has been identified as an area in need of investment. These planned interventions include reinforcements to overhead lines, isolators and breakers, replacement of transformers and implement flexibility solutions. SSEN hosts the Local Energy Net Zero Accelerator (LENZA)

tool which aims to support local authorities and communities to understand the local electricity grid and development plans to decarbonise and reach net zero **[See reference** 40**]**.

4.35 National Grid Energy Distribution covers a fifth of Dorset. One of the aims from NGED's RIIO-ED2 for the South West is to modernise some of the network protection arrangements, where NGED will be replacing legacy fuses with new devices that respond better to certain types of fault reducing the number of customers impacted by power cuts. Currently, National Grid is focusing on reinforcement works for the area, however in the long-term National Grid plans to build a primary substation just north of Dorset to improve grid capacity.

4.36 The National Grid Electricity System Operator (ESO) announced a significant restructuring, and the government has decided to acquire ESO, transitioning it into public ownership. National Energy System Operator (NESO) has assumed the role of overall electricity system operator for the UK, under the Energy Act 2023. A set of offshore and onshore network recommendations have been made within the Beyond 2030 plan **[See reference** 41**]**. For Dorset, it includes upgrading the existing assets within the South West region. For example, NESO has proposed that the route between Hinkley Point and Bridgwater will see a voltage increase meaning that significantly more electricity can flow on the existing route. Capacity upgrades are also going to be made to the wires along the existing circuits running south from the Midlands, across the M4 corridor, and from Somerset to Hinkley Point. Furthermore, NESO is introducing Regional Energy Strategic Plans (RESP) these plans will provide a comprehensive view of regional energy conditions and priorities. RESPs will be developed building on local priorities and plans with input from local authorities, enabling more democratic input into the emerging strategic energy planning system. These will then feed into the overall network planning process to ensure NESO is bringing forward proposals that meet strategic grid investment needs.

4.37 Although investment is being proposed it is likely that grid capacity will remain constrained for the immediate future. The electricity grid could therefore be a significant constraint in the short-medium term in relation to the deployment of wind and all large-scale grid connected renewable energy developments. As the local plan period extends past 2030, policy will have to be flexible to allow for future scenarios, changes in national policy and the grid being upgraded, or better balanced.

4.38 However, the existence of current and forecasted grid constraints should not be interpreted as a necessary barrier to deployment but rather should

prompt greater willingness to ensure the strategic awareness of DNOs of local deployment opportunities and priorities. This will help to facilitate network investment in anticipation of need. The identification of potential opportunity areas, such as in this report, is a means of influencing understanding of future investment needs. Furthermore, battery storage has an important role to play as a flexibility measure enabling more efficient use of network capacity which could mitigate the need for expensive network infrastructure upgrades.

Development Income

4.39 Financial support mechanisms in the form of government subsidies such as the Renewables Obligation (RO) and Feed In Tariff (FiT) previously allowed onshore wind to be developed at a variety of scales and at a variety of wind speeds. The RO closed to all new generating capacity on 31 March 2017 and the Feed In Tariff (FiT) closed to new applicants from 1 April 2019.

4.40 The Contracts for Difference (CfD) scheme is now the government's main mechanism for supporting low-carbon electricity generation **[See reference** 42**]**. The first auction included 'Pot 1' technologies; 'established' technologies, including onshore wind. The successful applicants of Round 1 auctions, as announced in February 2015, included onshore wind developments. Since then, Round 2 and Round 3 of the auctions in September 2017 and September 2019 excluded Pot 1 technologies, including onshore wind developments. As a result of the general decline in financial support for onshore wind, developers are predominantly interested in developing wind turbines in rural locations with high wind speeds, such as Scotland, Wales and northern England, to enable schemes to be financially viable.

4.41 Round 4 of CfD auctions opened in December 2021, Round 5 opened in March 2023, and Round 6 opened in March 2024, all of which now include Pot 1 technologies, such as onshore wind **[See reference** 43**]**. Following the budget uplift announced by the new Labour government in July 2024 **[See reference** 44**]**, Round 6 includes a budget increase compared to previous Rounds, although the majority of the budget is allocated to offshore wind. It remains unclear whether this will make schemes more financially viable for developers in England as much of the country has relatively low wind speeds (higher wind speeds are typically found in Scotland, Wales and in the North of England). Any potentially financially viable developments are likely to require a number of very large turbines to maximise the power output and make the scheme economic. Round 7 of the CfD will be opening in 2025.

4.42 Various initiatives can in theory improve wind development viability beyond the provision of subsidy. These could include, for example, establishment of local supply companies that can 'capture' the uplift from wholesale to retail energy prices. The signing of Power Purchase Agreements (PPA), such as between a developer and the Council, agreeing that the developer will sell the electricity generated to the Council, could make individual turbines viable, for example on an industrial estate.

4.43 Between 2010 and 2022, solar and wind power experienced a large cost deflation. For onshore wind projects specifically, the global weighted-average cost of electricity fell by 69% **[See reference** 45**]**. Over the last decade, turbine prices have fallen globally despite the increase in rotor diameters, hub-heights and nameplate capacities.

4.44 In addition, the Smart Export Guarantee has been introduced since January 2020 **[See reference** 46**]**. This is an obligation set by the government for licensed electricity suppliers to offer a tariff and make payment to small-scale, low-carbon generators for electricity exported to NESO (formerly National Grid), providing certain criteria are met **[See reference** 47**]**. Wind developments of up to 5 MW capacity could benefit from this obligation. However, as mentioned above, the obligation does not provide equal financial benefits to the previous Feed In Tariff (FiT) scheme (which provided funding for smaller scale renewable energy developments), as it only provides payments for electricity export, not generation, and it does not provide a guaranteed price for exported electricity.

4.45 Overall, viability challenges, based on reduced income relative to capital costs, are a systemic challenge for wind development at all scales within southern England at the present time – to the extent that, if this challenge is not addressed by Government, the deployable wind potential within Dorset is likely to remain low.

Planning Issues

4.46 In addition to the lack of financial support mechanisms, until July 2024, the NPPF stated that wind energy development may only be permitted within areas identified suitable for wind energy developments within the development plan or supplementary planning document and where the development has the support of the local community (Footnote 58 in the NPPF). As such, the uptake of wind energy in England was very minimal as it discouraged developers. However, with the removal of the footnote by the new Labour Government, there may be an increase in onshore wind in England in the coming years. The Government's

Onshore Wind Task Force is currently looking at how it going to achieve its ambition of securing 600MW-1GW of additional onshore wind in England over the next 9 years and the policy interventions that are needed to achieve this.

4.47 Securing consent for onshore wind turbines, particularly very large scale wind turbines which are the most economically viable, is likely to remain a challenge especially as Dorset is home to two National Landscapes and a multitude of heritage assets and ecological designations, although setting out positive planning policies within the Local Plan can help with this.

Onshore wind is estimated to have the potential to contribute 19% of Dorset's total technical potential energy output (based on the illustrative total technical potential **[See reference** 48**]**). In light of the recent changes to the NPPF and the government's ambition to deliver onshore wind, there is renewed optimism within the onshore wind energy industry. The economic viability of onshore wind in England does, however, remain a challenge to deployment, despite a more favourable national planning policy. Commercial renewable energy developers may prioritise repowering existing wind farms and schemes in the North of England, where wind speeds are higher. Grid capacity could also be a significant constraint in the short-medium term.

Solar PV (ground-mounted)

Description of technology

4.48 In addition to PV modules integrated on built development, there are a large number of ground-mounted solar PV arrays or solar farms within the UK. These consist of groups of panels (generally arranged in linear rows) mounted on a frame. Due to ground clearance and spacing between rows (and between rows and field boundary features), solar arrays do not cover a whole field and allow vegetation to continue to grow between and even underneath the panels. Solar farms can be located in productive agricultural land without taking it out of production through agrivoltaics systems which allow ruminant livestock to graze. Furthermore, solar farms are typically built with the expectation that they will be operational for a finite period, usually around 30 to 40 years, and then decommissioned.

4.49 Ground-mounted solar project sizes vary greatly across the UK, although developers in a post-subsidy environment are increasingly focusing on large-scale development, with the largest currently consented scheme in England (Longfield Solar Farm in Essex) being up to 500MW **[See reference** 49**]**. Once the Planning and Infrastructure Bill is passed, the new threshold for ground mounted solar will be 100MW under the NSIP regime. There is no one established standard for land take per MW of installed capacity, although land requirements for solar are relatively high compared with wind. For the present assessment, an approximate land requirement of 1.2 hectares per MW has been applied based on past and recent development experience.

4.50 For 2024, the UK had 17,844 MW of installed solar PV capacity, with this providing 14,789 GWh of electricity during the year **[See reference** 50**]**. These figures include all forms of solar PV – although according to the most recent available data, ground-mounted schemes account for 43.1% of overall solar capacity **[See reference** 51**]**. Falling capital costs mean solar PV is increasingly viable in a post-subsidy context, although as outlined above, at present, developers are generally focusing on large developments in order to achieve economies of scale. Grid connection costs can also critically affect viability.

Existing Development within Dorset

4.51 The data from DESNZ **[See reference** 52**]** and Dorset Council data on existing renewable installations identifies there is 569MW of ground-mounted solar PV currently consented or installed in Dorset.

Assumptions used to identify land with technical potential

4.52 A GIS assessment of technically suitable land for solar development was undertaken using a similar approach to that undertaken for wind development. The assessment identified areas with financially viable solar irradiance levels (amount of sunlight) for PV. A series of primary constraints relating to physical features and environmental/heritage protection were then removed. The key constraints considered in the assessment of technical potential are set out in Appendix A. The remaining areas have ‘technical potential’ for ground-mounted solar energy development. It should be noted that more detailed site assessments (i.e. as required for a planning application) would be required to determine if specific sites are suitable in planning terms.

4.53 Solar development is more ‘modular’ than wind (development size is dictated by the number of panels, which themselves do not differ greatly in size)

and constraints are not affected by project scale in the way that they are for wind. Therefore, the identification of available land for ground-mounted solar has not been broken down into discrete project sizes but rather any land technically suitable for development has been identified.

4.54 Agricultural land of grades 1, 2 and 3a land is classed as “the best and more versatile (BMV)” land, having higher value for food production. The NPPF requires planning policies and decisions to contribute to and enhance the natural and local environment by recognising the economic and other benefits of BMV; however, there is no requirement to use it solely for food production. As mentioned above, the key constraints considered are set out in Appendix A and agricultural land grades 1 and 2 were treated as a constraint and excluded from the areas identified as having technical potential for ground-mounted solar PV development. However, it should be noted that the construction and operation of a solar farm will not lead to the long-term degradation or loss of soils. The solar farm could give intensively farmed land the opportunity to recover. Additionally, there may be opportunities to integrate solar PV alongside food production on BMV land without impairing yields, this would need to be assessed on a farm-by-farm basis. Therefore, there could be further potential for ground mounted solar PV on BMV land subject to further site-specific assessment.

4.55 Typically, solar farms are subject to a Landscape and Environmental Management Plan (LEMP) which requires the ground beneath and around the panels to be seeded and managed to promote biodiversity through mowing or grazing, as well as typically avoiding the use of pesticides, herbicides, and fertilizers whilst the solar farm is operational. Grazing by small livestock is often used to keep the grass low and continue an agricultural use during the project lifetime. Solar farms also provide diversification for landowners, by adding a consistent income stream to their business that is not dependent on agriculture. This provides longer-term security against volatility in wholesale food commodity markets and yields, offering support to their wider farming business / operations. The UK Government Food Security Report (December 2021) implies that while there will be the loss of arable production on some higher quality land due to solar farms, this will not impact on the UK’s food security. **[See reference** 53**]**.

Results

Technical Potential

4.56 Figure 4.3, Figure 4.4 and Table 4.3 below provide a summary estimate of the technical potential for ground-mounted solar PV within Dorset. As the full technical potential is very large and not achievable in reality, utilisation of 1%, 3% and 5% of the resource is also quantified. Adopting the 5% development scale would result in a total potential technical capacity from ground-mounted solar PV across Dorset of 5,301MW – this approximately equates to an area of 63.6km^2, equating to powering approximately 1,675,729 homes a year **[See reference** 54**]**, with potential CO_2 savings equating to planting approximately 23 million trees a year **[See reference** 55**]**.

4.57 The calculation of potential energy yield requires the application of a 'capacity factor' i.e. the average proportion of maximum PV capacity that would be achieved in practice over a given period. Capacity factors vary in practice in accordance with solar irradiation, which in turn is affected by location, slope and aspect. It was not possible to find suitable historic data on capacity factors taking into account these kinds of factors within Dorset for the present study, and so a single capacity factor of 9.74% was used, based on regional data for the South West **[See reference** 56**]**.

4.58 The potential carbon savings as a result of generation via the identified ground-mounted solar potential was also calculated. This assumes that the electricity generated from the identified ground-mounted solar potential would result in negligible carbon emissions and would replace that currently provided by the national grid, which has an emission factor of 0.133kgCO2e/kWh **[See reference 57]**.

Figure 4.2: Ground-mounted solar PV potential

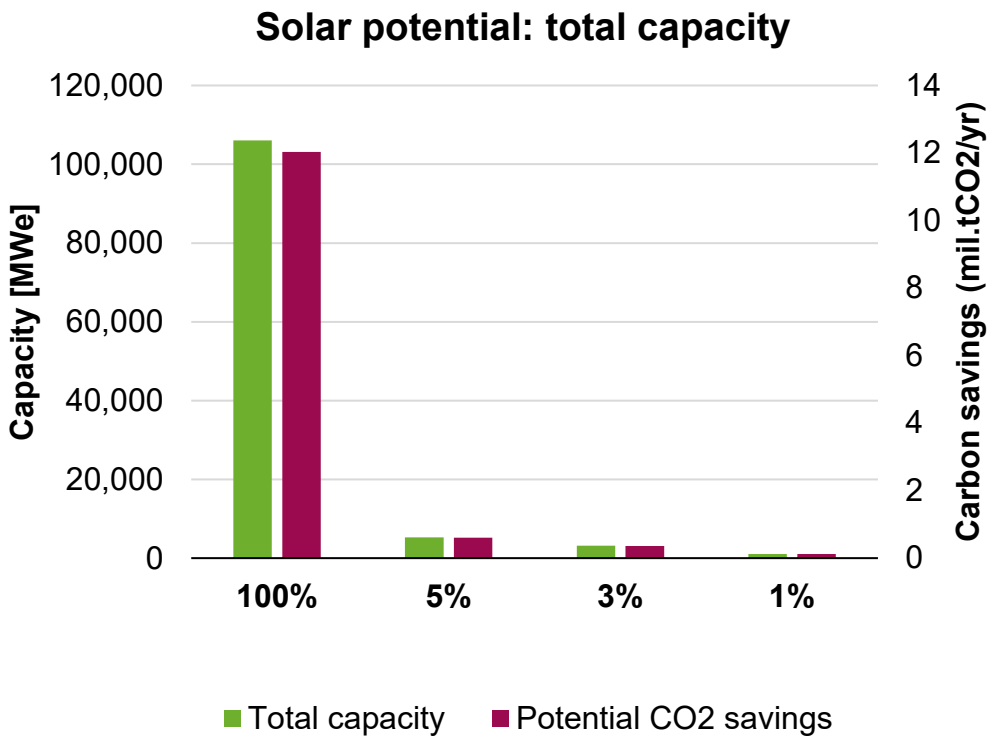


Figure 4.3: Ground-mounted solar PV potential: 1%, 3% and 5% only

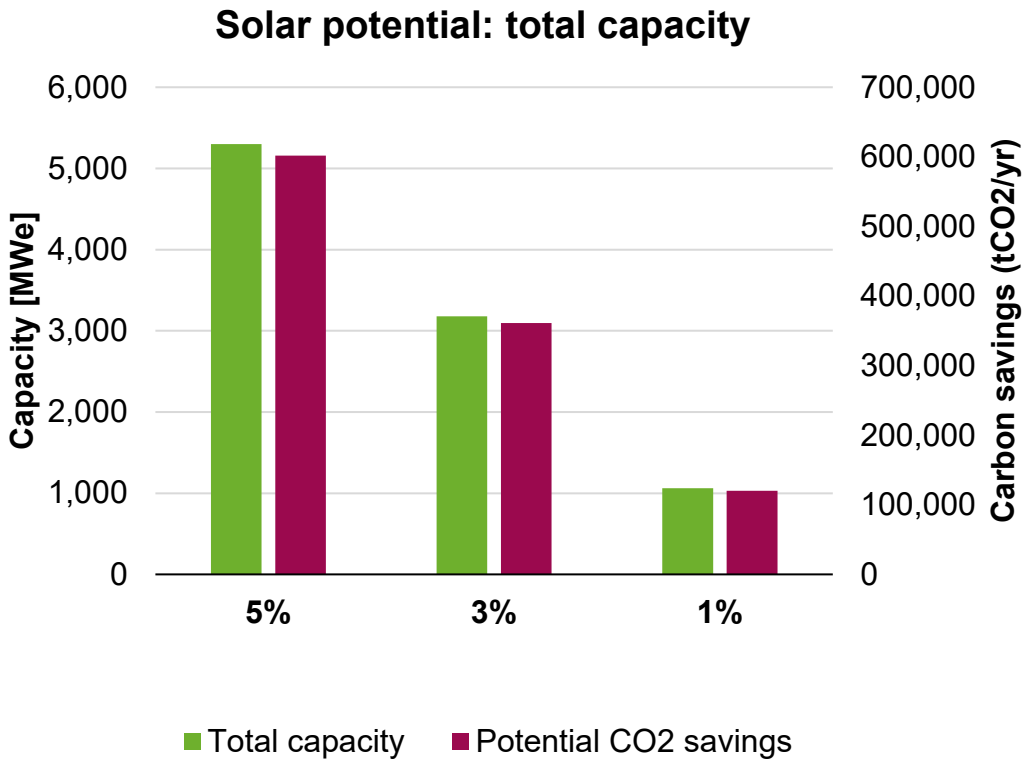


Table 4.3: Potential solar capacity and output

Development Scale	Potential Installed Capacity (MW)	Electricity Output (GWh/year)	Potential CO2 Savings (tonnes/year)
100% of tech. resource	106,014	90,489	12,035,087
5% of tech. resource	5,301	4,524	601,754
3% of tech. resource	3,180	2,715	361,053
1% of tech. resource	1,060	905	120,351

4.59 The maps included in Appendix C show the areas which have been identified via the GIS analysis to have technical potential for ground mounted solar development.

4.60 As with the wind resource assessment, the solar assessment has some key limitations. In particular, cumulative impacts are again a key consideration that the tool cannot take into account but which would affect the suitability of planning applications in practice. Due to the less constrained nature of solar, relative to wind, in terms of the factors that can reasonably be considered within a high-level resource assessment, a large area of land has been identified as technically suitable for ground mounted solar; but in practice development of all or even the majority of this land would clearly not be appropriate.

Issues affecting deployment

4.61 Considerations, other than cumulative impact, that would reduce the deployable potential of ground-mounted solar PV in practice include landscape sensitivity, grid connection and development income. These are discussed in turn below.

Landscape Sensitivity

4.62 Landscape and visual impacts arising from solar PV development are often a key consenting issue, particularly for larger development scales and particularly where these fall within a National Landscape. As outlined above, a landscape sensitivity assessment (LSA) was undertaken to assess the sensitivity of the landscape in Dorset to ground mounted solar developments. The LSA considered the suitability of different scales of solar PV development, using bandings reflecting the scale of development that is most likely to be put forward by developers. When the findings of the LSA are overlaid with the results of the technical assessment for ground mounted solar PV it will enable the Council (and others) to identify which areas have the greatest technical potential and lower landscape sensitivity. This will help guide developments to the most appropriate locations. It should be noted that all applications will still need to be assessed on a case-by-case basis, taking into account site specific circumstances.

Grid Connection

4.63 As with wind, a key consideration in relation to solar PV development viability is the interaction between development income and grid connection costs. As noted above, at the present time viable solar developments are generally larger scale. It is understood, however, that even larger scale solar developments will only generally be viable at present where a grid connection is available in relatively close proximity to the development site (this distance varies by developer) and does not involve significant network reinforcement costs. Although connections can in principle be made, where capacity allows, either into existing substations or into power lines (a ‘tee in’ connection), proximity requirements could limit the deployable solar PV potential which could hinder development in Dorset.

4.64 Furthermore, ongoing reforms to the grid connections process could impact on costs for developers. The Ofgem reforms have sought to cut reinforcement costs through its Access and Forward-Looking Charges Significant Code Review (SCR) – which has removed the requirement for generation projects to contribute to the cost of wider network enforcement, for most distribution network connections; and a high-cost cap has been established for reinforcement costs. These changes mean that demand customers no longer pay a proportion of upstream reinforcement costs, whilst generation customers (e.g. solar farms) now only pay a proportion of reinforcement costs at the same voltage level as their point of connection, subject to the high-cost cap of £200/kW. Also, where projects can be

strategically identified ahead of need, they might inform more anticipatory investment by network operators through future RIIO-ED business plans, to mitigate the higher risks of reinforcement costs faced under the previously reactive network upgrade regime.

Development Income

4.65 Until recently, the lack of financial support for solar PV has limited the deployable potential, particularly for smaller schemes and schemes at greater distances from potential grid connection points. The present assessment cannot, however, rule out the potential for such schemes, bearing in mind that the financial context for solar is changing – for example solar has been included in the latest round of the Contracts for Difference (CfD) auctions. Renewable generators located in the UK that meet the eligibility requirements can apply for a CfD by submitting what is a form of 'sealed bid'. Round 6 of auctions opened in March 2024, with an increased budget compared to previous rounds, and includes Pot 1 technologies, such as solar PV >5MW and onshore wind >5MW **[See reference** 58**]**. The UK solar industry was awarded 4.5GW, across 93 sites, in Round 6 of the scheme, the highest capacity seen since the CfD scheme started in 2014. Round 7 will be opening in 2025.

4.66 Over recent years solar panel costs also have decreased significantly, and as such subsidy-free solar energy schemes in the right locations are financially viable at larger scales. Solar PV module prices have dropped in price by 89% since 2010. A government report confirmed that solar farms offer the most cost-effective power generation method, with levelized costs projected to decrease significantly by 2040 **[See reference** 59**]**. It is noted however that at present, commercial ground mounted solar PV schemes are predominantly pursued at large scales to ensure viability via economies of scale.

4.67 With regards to smaller scale solar developments, the Smart Export Guarantee has been introduced since January 2020 **[See reference** 60**]**. This is an obligation set by the government for licensed electricity suppliers to offer a tariff and make payment to small-scale low-carbon generators for electricity exported to the National Grid, providing certain criteria are met. This could help to increase the financial viability of solar energy developments of up to 5 MW capacity. However, the obligation does not provide financial benefits equal to the previous Feed in Tariff (FiT) scheme, as it only provides payments for electricity export, not generation, and it does not provide a guaranteed price for exported electricity. In its first year of operation, several new tariffs were launched, up to a peak of 11p/kWh, and the scheme is running smoothly, and enables customers to shop around for the best tariff, incentivising suppliers to

increase their prices to compete **[See reference** 61**]**. However, in April 2021 the Environmental Audit Committee wrote a letter to the Business Secretary raising concern about the lack of clarity from the government on the role of community energy in decarbonising the energy sector and called for the introduction of a floor price above zero for the Smart Export Guarantee to help support such community energy **[See reference** 62**]**. It may therefore be that future changes to the Smart Export Guarantee or introduction of additional schemes may increase the potential developer income on future solar PV developments.

Ground-mounted solar PV has the largest technical potential energy output in Dorset (of the three technologies considered), it is estimated to have the potential to contribute 81% of Dorset's total technical potential energy output (based on the illustrative total technical potential **[See reference** 63**]**). The economic viability of ground mounted solar PV in England is good as the costs have decreased significantly in recent years. Although Dorset has a good amount of technical potential for ground mounted solar, there is uncertainty surrounding the capacity of the grid and the costs of connecting to it.

Battery Energy Storage System (BESS)

Description of technology

4.68 Battery energy storage systems (BESSs) use batteries, for example, lithium-ion batteries, to store electricity at times when supply is higher than demand. This technology provides a key role in the decarbonisation of the electricity system by providing enhanced grid flexibility, providing ancillary services (e.g. frequency response), maximising the usable output from intermittent low carbon generation by deferring or avoiding the need for costly network upgrades and new generation capacity, and by contributing to energy security. The infrastructure required for battery storage includes substations, construction of access roads, drainage and structural foundations for the battery containers, building housing electrical switch gear, office and welfare facilities and cable trenching works. It should be noted that battery storage can be co-located with other renewable energy projects.

4.69 There is no definitive estimate of the number of operational BESS and their total capacity in the UK. Industry estimates range from a total capacity of around 2.4 gigawatt (GW) to 3.5GW in 2023 **[See reference** 64**]**. According to

the government's renewable energy planning database, the total capacity of BESS as of January 2024 was 2GW **[See reference** 65**]**. However, this is likely an underestimate as facilities with a capacity below 1 MW that went through the planning system prior to 2021 were not recorded **[See reference** 66**]**.

4.70 In the UK, approval for the majority of BESS installations takes place through the Local Authority planning process. Fire and Rescue Services (FRSs) may also be engaged throughout the planning process. FrazerNash Consultancy, with input from the government, have also produced specific guidance for grid-scale systems across their development and operational life. The aim of the document "Health and Safety in Grid-Scale Electrical Energy Storage Systems" is to provide comprehensive guidance on health and safety standards for grid-scale battery energy storage systems (BESS) **[See reference** 67**]**. It highlights existing legislation, regulations, and industry standards to ensure that BESS projects are developed and operated safely throughout their lifecycle, from design and planning to decommissioning. The document is intended to help project developers navigate the complex health and safety landscape and integrate best practices into their processes.

Existing Development within Dorset

4.71 The data from DESNZ **[See reference** 68**]** and Dorset Council data on existing renewable installations identifies there is 663MW of battery storage (standalone and co-located) currently consented, installed or under construction in Dorset.

Assumptions used to Calculate Technical Potential

4.72 This assessment considers the potential for standalone battery storage proposals (over 100MW). Typically, the potential for battery storage development, can be suitably micro-sited alongside solar developments, as well as other renewable developments such as wind. The individual units are similar in size and scale to shipping containers. As such, the technical potential for battery storage associated with wind or solar will be covered by the technical potential assessment for these types of developments.

4.73 BESS schemes are often served by co-located substations on site. The type and size of the substation on site will be informed by the energy required for the BESS scheme and the wider transmission network. There is no standard substation size or layout, and site-specific assessments will be required to determine their suitability.

4.74 For BESS schemes, their proximity to an existing or planned transmission substation is a key requirement. For large schemes (over 100MW), developers typically suggest that they need to be within 4km of a transmission substation. As such, a buffer of 4km from transmission substations was used to identify potential opportunity areas for battery storage in this study. There may be potential to build a substation on site if the BESS development is beyond 4km. However, this would require further site-specific studies. The key constraints considered in the assessment of technical potential are set out in Appendix A.

Results

Technical Potential

4.75 Table 4.4 below provides a summary estimate of the technical potential for BESS within Dorset. As the full technical potential is very large, utilisation of 1%, 3% and 5% of the resource is also quantified. Adopting the 5% development scale would result in a total potential technical potential for BESS across Dorset of 211,113MW – this approximately equates to an area of 25km^2.

Table 4.4: Potential BESS capacity

Development Scale	Estimated Total Capacity (MW)
100% of tech. storage	4,222,262
5% of tech. storage	211,113
3% of tech. storage	10,556
1% of tech. storage	528

4.76 The maps included in Appendix D show the areas which have been identified via the GIS analysis to have potential for BESS development. It should be noted that more detailed site assessments (i.e. as required for a planning application) would be required to determine if specific sites are suitable in planning terms.

4.77 As with the wind and solar resource assessments, the BESS assessment has some key limitations. In particular, cumulative impacts are again a key

consideration that the tool cannot take into account, but which would affect the suitability of planning applications in practice. Due to the less constrained nature of BESS, relative to wind, in terms of the factors that can reasonably be considered within a high-level resource assessment, a large area of land has been identified as technically suitable for BESS; but in practice development of even a significant proportion of this land would clearly not be appropriate.

Issues affecting deployment

Landscape sensitivity

4.78 Landscape and visual impacts arising from BESS development are often a key consenting issue. As outlined above, a landscape sensitivity assessment (LSA) was undertaken to assess the sensitivity of the landscape in Dorset to BESS developments. The LSA considered two sizes of standalone battery storage. When the findings of the LSA are overlaid with the results of the technical assessment for BESS development it will enable the Council (and others) to identify which areas have the greatest technical potential and lower landscape sensitivity. This will help guide developments to the most appropriate locations. It should be noted that all applications will still need to be assessed on a case-by-case basis, taking into account site specific circumstances.

Grid connection

4.79 As with wind and solar, a key consideration in relation to BESS development viability is the interaction between development income and grid connection costs. It is understood, however, that BESS developments will only generally be viable at present where a grid connection is available in relatively close proximity to the development site and does not involve significant network reinforcement costs.

4.80 However, as mentioned above, the Ofgem reforms have sought to cut reinforcement costs through its Access and Forward-Looking Charges Significant Code Review (SCR) and since 2023 connection of energy storage (e.g. BESS) is treated as generation for charging purposes. There is also hope for strategic anticipatory investment for longer-term deployment especially given the emphasis on BESS as a flexible technology that has a role in constraint mitigation and more efficient capacity use.

Development income

4.81 As mentioned above, the Contracts for Difference (CfD) scheme is the government's main mechanism for supporting low-carbon electricity generation **[See reference** 69**]**. While BESS projects themselves cannot directly participate in the scheme, they can be co-located with CfD backed renewable energy projects. For example, the renewable energy projects that were awarded contracts under Round 6 could facilitate 1.4GW of co-located BESS which is significantly higher than Round 5. The CfD scheme is currently at Round 7 which will open in 2025. It remains unclear whether this will make BESS projects more financially viable for developers in England as standalone BESS do not fall under the accepted technologies.

There is significant potential for BESS development in Dorset. Adopting a 5% development scale would result in an estimated capacity of 211,113MW. However, there is uncertainty surrounding the capacity of the grid and the costs of connecting to it.

Chapter 5
Policy Recommendations

5.1 In order to have a realistic chance of meeting net zero targets, local planning authorities need to adopt a presumption in favour of renewable energy projects, provided they are not subject to technical, environmental or safety concerns. Increasing the amount of energy produced from renewable and low carbon technologies will help to make sure the UK has a secure energy supply, reduce greenhouse gas emissions to slow down climate change and stimulate investment in new jobs and businesses. Planning has an important role in the delivery of new renewable and low carbon energy infrastructure in locations where the local environmental impact is acceptable **[See reference** 70**]**. Part of the Levelling Up and Regeneration Act 2023 aims to make the role of plans clearer and as such has set out that the government will be introducing national development management policies which will cover many of the 'general' policies found in plans. Therefore, new plans will not need to repeat the national development management policies but rather focus on locally important matters. Consultation on the national development management policies is likely to begin in 2025 and will provide clarity on which policies local plans will not need to include going forward.

5.2 An effective local development plan is key to the delivery of appropriate renewable energy development within Dorset. This section provides an overview of some of the key policy issues the Council may wish to consider as part of the preparation of the new Local Plan and other local planning guidance or documents. The strengths and weaknesses of each policy approach is provided below each option.

5.3 In addition to some of the specific policy examples referred to in this chapter, Section 3 of the TCPA/RTPI Climate Change Planning Guidance (2023) **[See reference** 71**]** provides various model approaches for renewable energy and low carbon policy options that can be referred to as examples for local authority plan making.

5.4 The main policy options for onshore wind, ground mounted solar, and battery storage technologies, proposed for consideration at this stage include:

- Criteria-based policies in relation to renewable and low carbon energy projects that ensure that the adverse impact of renewable and low carbon energy development are addressed appropriately, including cumulative impacts;

- Development of ‘energy opportunity maps’ to identify suitable areas for renewable and low carbon energy sources, and supporting infrastructure;
- Encouraging community renewables by supporting community-led initiatives for renewable and low carbon energy, including developments being taken forward through neighbourhood planning; and
- Decommissioning renewable energy installations involves safely removing or re-using the infrastructure at the end of its operational life.

5.5 A review has been undertaken of the existing DPD policies. The following policies provide a useful starting point for the analysis of options to strengthen future policies: Policy COM11 Renewable Energy Development from the West Dorset, Weymouth and Portland Local Plan (2015), Policy E3: Renewable energy and E12: Design of the Purbeck Local Plan (2018 – 2034), Policy 3: Climate Change and Policy 22: Renewable and Low Carbon Energy of the North Dorset Local Plan Part One, and Policy ME5 of the Christchurch and East Dorset Local Plan Part 1 – Core Strategy (2014).

5.6 A summary of the existing relevant policy and the strengths and weaknesses for all are set out below:

- Policy COM 11: Renewable Energy Development of the West Dorset, Weymouth, and Portland Local Plan (2015) supports renewable energy development and applies to all forms of renewable energy development except wind energy development. Until the Local Plan is reviewed, proposals for wind energy development will be evaluated against national policy and guidance.
- Policy E3: Renewable Energy of the Purbeck Local Plan (2018 – 2034) encourages the use and supply of renewable and low carbon energy provided that any adverse impacts are addressed and Policy E12: Design expects development to be of high-quality design and to minimise energy consumption, including the inclusion of renewable energy where possible.
- Policy 3: Climate Change of North Dorset Local Plan Part One promotes reducing greenhouse gas emissions through renewable and low carbon energy developments, while Policy 22: Renewable and Low Carbon Energy addresses renewable and low carbon energy development, including the incorporation of landscape impact assessments.
- Policy ME5: Sources of Renewable Energy of the East Dorset and Christchurch Local Plan encourages the development of renewable energy sources where adverse social, environmental and visual impacts have been minimised to an acceptable level.

Strengths:

- The identified policies actively encourage the development and use of renewable energies.
- The policies within the DPDs address various aspects of renewable energy development, including design, greenhouse gas emissions reduction, and landscape impact assessment, ensuring a holistic approach.

Weaknesses:

- Policies should consider the use of net zero targets and further detail to give developers a better steer.
- No mention of how unregulated emissions or embodied carbon should be addressed.
- There is no mention of community-led projects or shared benefits other than in Policy 22 of the North Dorset Local Plan, potentially hampering the growth of community energy initiatives or any other form of renewable energy development unless it is linked with a property.

Criteria Based Policies

5.7 The NPPF states that local authorities should design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily. The PPG provides helpful guidance for local authorities on how to develop robust criteria-based policies in relation to renewable and low carbon energy projects. Key points include:

- The criteria should be expressed positively (i.e. that proposals will be accepted where the impact is or can be made acceptable);
- Should consider the criteria in the National Policy Statements as these set out the impacts particular technologies can give rise to and how these should be addressed;
- Cumulative impacts require particular attention, especially the increasing impact that wind turbines and large-scale solar farms can have on landscape and local amenity as the number of turbines and solar arrays in an area increases;

- Local topography is an important factor in assessing whether wind turbines and large-scale solar farms could have a damaging effect on landscape. Recognise that the impact can be as great in predominantly flat landscapes as in hilly areas;
- Care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting; and
- Protecting local and residential amenity is an important consideration which should be given proper weight in planning decisions.

5.8 Drawing on the guidance outlined in the PPG, after expressing positive support in principle for renewable and low carbon energy development, Local Plans should list the criteria that will be taken into account in considering specific applications. This should not be a long negative list of constraints, but it should set out the range of safeguards that seek to protect the environment – including landscape and townscape. Other key considerations may include residential amenity, aviation, heritage, tranquillity, etc **[See reference** 72**]**. For example, the adopted Lancaster Regulation 19 Partial Review Local Plan Part 2 **[See reference** 73**]** Policy DM53: Renewable and Low Carbon Energy Generation is a criteria-based policy that goes further than most policies as it sets out criteria for onshore wind, hydro, solar, other renewable and low carbon technologies, heating and cooling networks and energy storage. Cornwall Climate Emergency DPD Policy RE1: Renewable and Low Carbon Energy builds on this by including criteria for various renewable energy types and states that significant weight will be given to community led energy schemes. This policy option could also support renewable, smart decentralised energy grids and battery storage. The Council should also include text within the policy regarding wider opportunities, such as “The Council will seek to try to maximise wider benefits of the renewable energy development e.g. for biodiversity on solar sites”.

5.9 It is important that the policy does not preclude the development of specific technologies other than in the most exceptional circumstances and does not merely repeat national policy but is relevant to the process of decision-making at the local level, focusing on locally distinctive criteria related to local assets, characteristics, and sensitivities.

5.10 We recommend that any criteria-based policy designed to manage the development of renewable and low carbon technologies should be supported by guidance on the most suitable locations (see appropriate section relating to energy opportunity mapping below), either within the Local Plan or an

accompanying Supplementary Planning Document (SPD) **[See reference** 74**]** on renewables. Guidance could also take the form of the findings of a renewable energy study. For example, Stroud Local Plan Review Pre-Submission Draft Plan (May 2021) Delivery Policy ES2 Renewable or low carbon energy generation is a criteria-based policy that states that ground mounted solar and wind energy developments are more likely to be supported in areas identified as suitable in principle as indicated on the Policies Map. The Policies Map utilises technical potential maps that LUC and CSE produced as part of the Renewable Energy Resources Assessment (2019) to identify areas of suitability for wind and solar energy. The Council could take a similar approach.

5.11 The strengths and weaknesses of adopting criteria-based policies are summarised below:

Strengths:

- Creates greater policy certainty for developers.
- Allows the Council to clearly set out the circumstances in which renewable energy proposals will and will not be permitted.

Weaknesses:

- May be perceived to be overly restrictive by certain stakeholders.

Development of ‘Energy Opportunities Maps’

5.12 The NPPF and PPG encourage local planning authorities to “consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure”. The Council can identify suitable areas for all types of renewable and low carbon energy sources that can be spatially defined, where this would help secure the development of such sources. Clearly identifying and mapping an area’s renewable and low carbon sources of energy represents a positive and proactive way to spatially plan for renewable and low carbon energy generation. With a spatial map illustrating energy opportunities it is easier for local authorities to work with local communities and developers to identify the areas that would be most appropriate for development in strategic terms, accelerating the planning and development processes and avoiding conflict. As noted above, the Council could consider pairing a robust criteria-based policy with energy opportunity maps to plan effectively for renewable energy development within Dorset.

5.13 Energy opportunities maps can provide a spatial summary of the key opportunity areas (in terms of their technical potential) for various forms of renewable energy. These can be used to inform development decisions and discussions and guide development towards the most suitable areas. This has been undertaken for onshore wind, ground-mounted solar PV and BESS, as described elsewhere in this report, and has also been complemented by a Landscape Sensitivity Assessment, which can be used to guide developments away from the most sensitive landscapes and, in the case of solar, away from the 'best and most versatile' agricultural land, in line with PPG.

5.14 At the scale of neighbourhood planning, energy opportunities maps can provide a useful tool for communities and other stakeholders to identify the key opportunities for renewables within their area. It is important to note, however, that it is not possible to identify locations for all types of renewable energy, as many technologies such as building integrated solar, heat pumps, farm-scale anaerobic digestion, and small-scale biomass can be located in nearly all areas. However, the LENZA tool developed by SSEN, aims to support local authorities and communities to understand the local electricity grid which could be used to identify suitable locations for rooftop solar and heat pumps. With guidance from SSEN, the Council could consider how to make better use of the LENZA tool to understand its full geospatial energy planning capabilities.

5.15 The strengths and weaknesses of adopting 'Energy Opportunities Maps' are summarised below:

Strengths:

- Enables planners to have informed discussions with developers and communities about potential opportunities for renewable and low carbon energy technologies – i.e. proactive rather than reactive planning.
- Meets NPPF, PPG requirements that LPAs should consider identifying suitable areas for renewable and low carbon energy sources and supporting infrastructure.
- Can act as a useful tool for neighbourhood planning.

Weaknesses:

- Not possible to identify locations for all types of renewable energy technologies.
- It does not provide a definitive statement on the suitability of a certain location for a particular development – each application must be

assessed on its own merits. It is not a replacement for detailed site studies.

- May identify potential areas for renewable energy development that are unpopular and/or areas that are found to be unsuitable following site-specific assessments.

Encouraging Community Renewables

5.16 There is no definition of community energy within planning law, and planning authorities are unable to assess renewable energy proposals from community energy groups any differently to commercial projects, nor give weight to the substantial co-benefits delivered by these projects **[See reference** 75**]**. However, the NPPF states that local authorities should recognise that small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions. Community-led renewable energy projects are increasingly being seen as an attractive option for local communities wishing to contribute to local/national climate change targets and as a way to generate local revenue to directly benefit the community. For example, the Westmill Wind Farm Co-operative **[See reference** 76**]** in Swindon was the first 100% community owned wind farm to be built in the south of England.

5.17 Community groups can face considerable challenges in the pre-planning stage and there are a number of opportunities for local authorities to provide advice and guidance throughout this stage, including the provision of early advice on planning requirements and lending support to consultation activities within the community. Engaging communities in the earliest stages of plan-making and providing clear information on local issues and the decision-making process can aid the development of community renewable energy projects.

5.18 Examples of plans that include policies to support community renewable energy schemes include the adopted Bath and North East Somerset Local Plan **[See reference** 77**]** and the adopted Cornwall Climate Emergency Development Plan Document **[See reference** 78**]**.

5.19 The Council's new Local Plan could introduce its support for community renewable schemes by stating that the Council would actively support community renewable energy schemes which are led by or meet the needs of local communities. Such developments would normally be conceived by and/or promoted within the community within which the renewable development will be undertaken, delivering economic, social and/or environmental benefits to the

community. Neighbourhood plans provide a particular opportunity to define detailed local site allocation policies for renewable and low carbon technologies. To aid neighbourhood planning committees, the Council could develop a new interactive map for Dorset to support the development of renewable and community energy schemes through neighbourhood plan policies (for example using outputs from this study).

5.20 Currently, the West Dorset, Weymouth & Portland Local Plan 2015 highlights community renewable energy/low carbon infrastructure as key infrastructure needed to support development. However, specific policy that relates to community energy schemes should be emphasised and incorporated within the new Local Plan specifically relating to community-led renewable schemes. It should explicitly state that the Council would actively support community energy schemes which are led by or meet the needs of local communities.

5.21 Specific wording proposed:

Support will be given to renewable and low carbon energy generation developments that are led by, or meet the needs of local communities.

The positive benefits of community energy schemes will be a material consideration in assessing renewable energy development proposals. The preference is for schemes that are led by and directly meet the needs of local communities, in line with the hierarchy and project attributes below:

Community Led Energy:

- Project part or fully owned by a local community group or social enterprise;
- Local community members have a governance stake in the project or organisation e.g. with voting rights.

Justification

5.22 As stated above, community groups can face considerable challenges in the pre-planning stage and there are a number of opportunities for local authorities to provide advice and guidance at this stage. The policy wording above is based on Policy SCR4 which was successfully adopted in the Bath and North Somerset Local Plan.

5.23 The strengths and weaknesses of encouraging community renewable schemes are summarised below:

Strengths:

- Provides support to local communities to develop renewables and low carbon energy.
- Generates local revenue to directly benefit the local community.
- Can secure a broad base of local support for renewable energy schemes.

Weaknesses:

- Care may need to be taken not to prescribe the process of community ownership (i.e. shared ownership etc.) as it is not the role of the planning system to do this. Being prescriptive in the supporting text of a policy may be viable, but if it is included in the text of the policy it will need to be deliverable.

Decommissioning

5.24 Due to the temporary nature of renewable energy infrastructure, such as solar panels and wind turbines which typically have a lifespan in the range of 20 to 30 years, there is a need for renewable energy project stakeholders to plan for project end-of-life obligations. The NPPF states that plans should provide a positive strategy for energy from renewable and low carbon sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately.

5.25 Decommissioning ensures that infrastructure is removed responsibly, minimising its environmental impact whilst allowing for the repurposing of land for other uses, particularly due to the often-significant land space that renewable energy infrastructure occupies. National Policy Statement for Renewable Energy Infrastructure (EN-3) outlines decommissioning plans for different types of technology. Repurposing may also include updating more viable and feasible renewable energy technologies for further renewable energy projects. This is often more economically viable than maintaining outdated infrastructure that may no longer be cost-effective. The recycling and / or

repurposing of materials may also establish economic opportunities whilst promoting sustainable outcomes.

5.26 Examples of plans that include policies to support the decommissioning of renewable energy infrastructure include the adopted Cheshire East Local Plan **[See reference** 79**]**, Salford Local Plan **[See reference** 80**]**, and the Central Lincolnshire Local Plan **[See reference** 81**]**. Requirements for the decommissioning of renewable energy infrastructure are typically captured within the wider scope of a broader renewable and low carbon energy policy rather than an independent policy specifically for decommissioning.

5.27 However, a policy could be included in the new Local Plan to provide guidance for the decommissioning of renewable energy installations to ensure the safe, efficient, and environmentally responsible decommissioning of infrastructure. Like the policy examples provided, this policy could sit within the wider remit of an all-encompassing renewable energy policy.

5.28 The policy could also state that decommissioning activities must minimise adverse environmental impacts, including habitat disruption, pollution, and landscape degradation, must prioritise public safety and mitigate any potential hazards associated with the removal of renewable energy infrastructure, maximise the reuse, recycling, and repurposing of materials to minimise waste generation, consider stakeholder consultation and community engagement and consider opportunities for job creation and sustainable redevelopment of decommissioned sites.

5.29 The Council could also consider utilising the function of planning conditions to ensure that redundant renewable infrastructure is removed when no longer in use and land is restored to an appropriate use.

5.30 The strengths and weaknesses of a policy on decommissioning are summarised below:

Strengths

- Provides clarity for renewable energy developers surrounding the expectations and requirements for infrastructure at the end of its operational life.
- Safeguards the environment and biodiversity by incorporating measures to ensure proper restoration of sites post-decommissioning.

- Front-loaded decommissioning policy can help ensure that developers provide financial guarantees to cover decommissioning costs at an early stage.

Weaknesses

- Difficult to set out detailed decommissioning plans considering the projects may be in place for 30+ years.
- Decommissioning requirements may deter developers from investing, particularly if they perceive the associated costs and obligations as prohibitive.
- Advancements in renewable energy technology may outpace provisions outlined in decommissioning policy, rendering it obsolete.

Monitoring

5.31 Careful monitoring of the success of the policies should also be established to measure Dorset's contribution towards national, regional and local energy targets. The following monitoring indicators could be incorporated within the new Local Plan:

- Number of renewable energy and battery storage applications that have come forward and whether they have been granted planning permission.
- Capacity of renewable energy schemes, how much has been generated from renewables and furthermore how much that contributes to the net zero target.
- If suitable areas for onshore wind, ground mounted solar, and battery storage are identified within the Local Plan, the number of developments that come forward in these areas could be monitored.
- Identifying the key issues arising in determination of applications for different forms of renewables and if there are any significant blockages.
- Number of community led renewable schemes that come forward.

Additional policy options for on-site renewable energy

5.32 Although the policy options set out above focus more on large-scale renewable energy generation, the Council could also provide policy support for the generation of on-site renewable energy, which contribute to the same goals

of reducing emissions and demand on the local grid whilst also supporting residents and businesses to reduce their energy bills. Below sets out some additional policy options for on-site renewable energy the Council may wish to consider in its Local Plan as well as through wider policymaking and Council-led initiatives.

- Loosen or remove planning restrictions to make it easier to install building-mounted renewables. Learning from the London Borough of Camden's guidance on retrofitting within Conservation Areas **[See reference** 82**]**the Council could set out clear guidance on retrofitting existing buildings especially regarding solar PV and how it will be applied within Conservation Areas and Listed Buildings. This could include specific guidance for each Conservation Area, either by updating Conservation Area Management Plans to specifically include the Council's approach to solar PV or through the creation of overarching guidance based on area types throughout Dorset. As for new development, the Council can recommend that all new commercial and residential development to achieve high sustainability standards via accreditation schemes. This will need to be achieved through a significant take-up of on-site renewables in new development (along with high energy efficiency standards). Obstacles for new development to propose building-mounted renewables should therefore be removed to facilitate this.
- Local Development Orders (LDOs) have come to be used for a range of uses, including most recently the provision of low carbon solutions. For example, Swindon Borough Council has prepared low carbon-related LDOs covering non-domestic air source heat pumps and district heating installations, hydrogen and electric car fuelling installations and pre-identified sites for solar arrays and solar farms **[See reference** 83**]**. Dorset could employ a similar approach.
- Dorset Council are currently developing a Design Code and Guide to ensure all new development reflects the local character of the area. This code will apply to the whole of the authority area, which will support the preparation of detailed design codes at a neighbourhood or site-specific level. As the Design Guide is currently being prepared the Council could take this opportunity to include clear requirements for new developments to integrate renewable energy systems. For example, the Cornwall Design Guide (2021) **[See reference** 84**]** includes clear guidance for solar panels and rooftop technology and notes that it should be integrated into the design from the beginning.

Chapter 6
Summary and Conclusions

Summary

6.1 This study has sought to provide Dorset Council with clear evidence of the potential for onshore wind, ground mounted solar and battery storage development within Dorset and the policy options the Council could consider for inclusion within their new Local Plan.

6.2 The findings show that there is significant technical potential for onshore wind and ground mounted solar development within Dorset. If all of this electricity potential could be realised, it would have a total illustrative capacity of 115,334MW, outputting 112,112,164MWh of energy per year, equating to powering 43.1 million homes with electricity. This would save 14,910,918tCO2 emissions annually, equating to planting approximately 597 million trees a year. However, the deployable potential will be much lower, due to the many issues affecting deployment described in this study and the need to provide for the multi-land uses **[See reference** 85**]**. BESS development also has a total illustrative capacity of 4,222,262MW which could help to store energy for later and mitigate capacity constraints, which could then be used as an alternative to fossil fuels.

6.3 The greatest technical potential lies in the opportunity to use the power of the sun in the form of ground-mounted solar PV. Onshore wind also has significant technical potential, particularly if economic viability improves.

6.4 One of the difficulties for local authorities in setting council-wide carbon targets is the co-dependency on national policy measures, such as those which will contribute to decarbonising both the electricity grid and heat supplies. Such measures are likely to be achieved through a mix of technologies, including some which most local authorities have little or no influence over such as offshore wind power and the development of hydrogen infrastructure. The rate at which grid decarbonisation occurs will be dependent on national policies and local authorities will in turn be largely dependent on a decarbonised grid to fulfil their own policy commitments.

Conclusions

6.5 Achieving net zero is hugely challenging considering the radical changes that are needed to enact the necessary innovative transformative action across all sectors. However, in their 'Net Zero' report, the Committee on Climate Change view the UK-wide target as being "achievable with known technologies, alongside improvements in people's lives… However, this is only possible if clear, stable and well-designed policies to reduce emissions further are introduced across the economy without delay" **[See reference** 86**]**.

6.6 As such, this study focusses primarily on the potential interventions through local planning for net zero carbon development and renewable energy. With Dorset Council in the process of preparing its new Local Plan, there is a clear window of opportunity to ensure that the Local Plan sets out a step change in the support given to the development of renewable and local carbon energy projects.

6.7 To support the deployment of renewable energy in Dorset, it is recommended that stronger polices should be put in place supporting:

- Onsite renewable and low carbon energy generation via supportive and positively worded criteria based policies;
- Stand-alone renewable and low carbon energy schemes, including specific policies on solar PV and wind energy identifying areas of suitability for these technologies and recognising that some landscape change will be required; and
- Community-led renewable and low carbon energy schemes.

6.8 Careful monitoring of the success of the policies should also be established to measure Dorset's progress towards its ultimate goal of becoming carbon neutral target by 2045.

6.9 The delivery of renewable and low carbon projects will also require changes not just to planning policy but also to the implementation of policy. It will be imperative that due weight and consideration is given to the importance of addressing climate change in development management decisions. This should include providing appropriate training and checklists for development management officers and planning committees to ensure that the policies are implemented as intended and that due weight is given to Climate Change issues in all planning decisions.

Appendix A

Key Assumptions to be Applied in the Assessment of Renewable and Low Carbon Energy Resource

Dorset Council

Dorset Renewable Energy Assessment

Appendix A: Key Assumptions to be Applied in the Assessment of Renewable and Low Carbon Energy Resource

Final report
Prepared by LUC
September 2025

Dorset Council

Dorset Renewable Energy Assessment
Appendix A: Key Assumptions to be Applied in the Assessment of Renewable and Low Carbon Energy Resource

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landuse.co.uk

Land Use Consultants Ltd
Registered in England
Registered number 2549296
Registered office:
250 Waterloo Road
London SE1 8RD

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Contents

Appendix A

Appendix A

Key Assumptions to be Applied in the Assessment of Renewable and Low Carbon Energy Resource

Introduction

A.1 This note sets out the key assumptions that were used within the assessments of technical potential for the different types of renewable energy technology including:

- Wind;
- Ground-mounted solar; and
- Battery storage.

Emission Factors

A.2 Renewable electricity generation produces negligible CO_2 emissions. Therefore, to determine the potential CO_2 savings from the potential renewable resources, the identified potential electricity output was multiplied by the current emissions factor of the fuels the renewable energy generation would replace. The emissions factor is the amount of CO_2 (equivalent) that is produced per kWh of electricity used. For grid electricity, which solar and wind generated electricity would replace, this is 0.133 $kgCO_2e/kWh$[1].

Wind Resource Assessment Parameters

A.3 The potential wind development resource within Dorset was assessed using a Geographical Information Systems (GIS) approach. This involved mapping a variety of technical and environmental parameters (see below) to identify parts of the area which are constrained with respect to wind development at various scales. The remaining land was then identified as

[1] National Grid (2024) Future Energy Scenarios: FES 2024 Data workbook – Key Stats; Annual average carbon intensity of electricity (five year forecast from 2023). Available at: https://www.nationalgrideso.com/future-energy/future-energy-scenarios-fes.

having 'technical potential'[2] (which would be subject to further site-specific assessment at the planning application stage). The parameters of the GIS tool are set out in **Table A-1.**

A.4 It is noted that this is a strategic-level study. Further site-specific study may identify suitable sites for developments within the identified constraints.

A.5 The maximum theoretical wind generation capacity of the areas of technical potential was estimated using:

- Standardised turbine densities and assumed turbine maximum generation capacities (the latter expressed in Megawatts (MW));
- One or more assumed capacity factors based on historic data broken down at least to regional level (using data from the Department for Business, Energy and Industrial Strategy (DESNZ) relating to Feed in Tariff (FiT) installations)[3]; and
- The assumption that, where land has technical potential for multiple turbine scales, the largest scale will be developed in preference to smaller scales.

Table A - 1: Proposed assumptions to be used for assessment of technical potential for onshore wind – Constraints

Parameter	Assumption	Data Source	Justification and Notes
Wind Turbine Size	Four turbine sizes were considered: ■ Very large (150-220m tip height) ■ Large (100-150m tip height) ■ Medium (60-100m tip height) ■ Small (25-60m tip height) Assessment was based on notional turbine sizes, approximately intermediate within each class size i.e.: ■ Very large: 185m tip height, 4MW capacity	■ LUC ■ Research into turbine manufacturers ■ DESNZ renewable energy planning database and other databases containing information on wind turbine applications.	There are no standard categories for wind turbine sizes. The categories are based on current and historically 'typical' turbine models at various different scales. At the largest scale, turbine dimensions and capacities are evolving quite rapidly with the largest onshore turbines in Scotland now reaching approximately 250m to blade tip[4]. However, to reflect developer aspirations in England, the maximum turbine tip height is assumed to be 220m for this assessment[5]. Due to the structure of the financial support system in the past, smaller turbines (those in the medium to small categories) have tended to be deployed as 1-2 turbine developments.

[2] The area of unconstrained land is treated as a single block of land which may not be the case in reality. This singular block is created from merging many polygons, which are not simple shapes of equal width. This means some slivers, or areas smaller than the required width, may be present in the results adjoining to suitably sized areas of land.

[3] An energy generator's 'capacity factor' can be defined as the actual energy yield produced over a period of time expressed as a proportion of the energy yield that would have been produced if the generator had operated at its full generation capacity continuously over the same period. This was averaged at 26.5% for the South West over the past 13 years. DESNZ (2024) Quarterly and annual load factors. Available at: https://www.gov.uk/government/publications/quarterly-and-annual-load-factors.

[4] RenewableUK (2024) EnergyPulse Database [online]. Available at: https://www.renewableuk.com/energypulse/database/projects/

[5] LUC review in February 2024.

Parameter	Assumption	Data Source	Justification and Notes
	■ Large: 125m tip height, 2.5MW capacity ■ Medium: 80m tip height, 0.5MW capacity ■ Small: 45m tip height, 0.05MW capacity		As this is a strategic scale study, notional turbine sizes, approximately intermediate within each class size, were used to represent each scale of turbine within this assessment. No mapped-based assessment of 'very small' turbines (i.e. under 25m tip height) was undertaken. The type of buffers applied to constraints for the assessment of other turbine size categories in many cases do not reasonably apply to very small turbines. Equally, mapping a strategic -wide 'resource' for very small turbines (which are generally developed individually in association with particular farm or other buildings) is not particularly meaningful. Instead, it is recommended that policy references the entire plan area as being potentially suitable for very small wind in principle (subject to site-specific assessment).
Wind Speed	Exclude: ■ All areas with mean annual average wind speed <5m/s at 50m above ground level (agl).	■ Global Wind Atlas/Vortex ■ Industry practice	Wind speed requirements change with turbine scale and model. Some turbine manufacturers produce models that may operate at lower wind speeds and the configuration of certain turbine models can be altered to improve yield in lower wind speed environments. Future changes in government policy, such as the reintroduction of greater financial support for wind projects, and turbine technology could allow developments to be deliverable at lower wind speeds than are currently viable. A 5m/s threshold was applied to take account of such changes that could potentially occur over the lifetime of a Local Plan. There are no areas within Dorset with a mean annual average wind speed of less than 5m/s.
Roads	Exclude: ■ Roads (excl. restricted access tracks) with a buffer of the height of the turbine (to blade tip height) +10%.	■ Ordnance Survey OpenRoads	These buffers were applied as a safety consideration. The proposed buffer distance is based on standard safety distances used by wind turbine developers and in accordance with the DECC Renewable and Low-carbon Energy Capacity Methodology[6]. Restricted access tracks were excluded from consideration as these predominantly comprise of forestry and other tracks that could be more easily diverted than standards roads.

[6] DECC (2010) Renewable and Low-carbon Energy Capacity Methodology. Available at: https://www.gov.uk/government/news/decc-publishes-methodology-for-renewable-and-low-carbon-capacity-assessment

Parameter	Assumption	Data Source	Justification and Notes
Railways	Exclude: ■ Railways with a buffer of the height of the turbine (to blade tip height) +10%.	■ Ordnance Survey OpenMap Local	This buffer was applied as a safety consideration, based on the same principles as used for roads.
Gas pipelines	Exclude: ■ Gas pipelines with a 1.5x hub height buffer.	■ National Grid	This buffer was applied as a safety consideration. It is derived from guidance by the United Kingdom Onshore Pipeline Operators' Association (UKOPA/GP/013 Edition 1). It is noted that only National Grid open data was available for use within this study. Further site-specific study would be required to consider any other buried pipelines not contained within this dataset.
Electricity Lines	Exclude: ■ Major transmission lines (132kV minimum) with a buffer of the height of the turbine (to blade tip height) +10%.	■ Ordnance Survey OpenMap Local ■ National Grid	This buffer was applied as a safety consideration. It is derived from guidance by the Energy Networks Association (Engineering Recommendation L44) and National Grid (Technical Advice Note 287). It is noted that this guidance also states that a buffer of 3x the rotor diameter should be applied to account for turbine wake downwind of a turbine affecting the weathering of electricity lines. However, this also states that this impact is variable depending on factors including turbine positioning. This would require site-level study and consultation with the relevant DNO. As such, this buffer distance was not applied as a constraint. Further study would be required to take account of transmission lines operated by the local DNO National Grid (Formerly Western Power Distribution).
Airports and Airfields	Exclude: ■ Operational airports and airfields.	■ Ordnance Survey OpenMap Local Functional Site layer with the theme 'Air Transport'	OS OpenMap Local Functional Site data with the theme Air Transport was used in the assessment. It is noted that land within consultation zones surrounding airports and airfields may also be unsuitable for wind turbine development, and further consultation between potential developers and airport and airfields would be required to determine if there is any impact from a proposed development.
Noise	Exclude:	■ OS Addressbase ■ OS OpenMap Local	Wind turbines generate sound during their operation, and noise impacts on nearby properties must be limited to appropriate levels, defined by the 'ETSU' Guidance – The Assessment and Rating of Noise from Wind Farms (1995) (as supplemented by the Institute of Acoustics). The relationship between turbine size and the separation

Parameter	Assumption	Data Source	Justification and Notes
	■ Sensitive[7] and non-sensitive receptor[8] buffer zones based on turbine size: – Very large scale: 500m for residential/other sensitive receptors, 250m for non-residential. – Large scale: 480m for residential/other sensitive receptors, 230m for non-residential. – Medium scale: 400m for residential/other sensitive receptors, 180m for non-residential. – Small scale: 180m for residential/other sensitive receptors, 80m for non-residential. For properties outside (but close to) the authority boundary, indicative buffers were applied to the available property/buildings data from OS OpenMap. As this data does not distinguish commercial and residential properties, and it was not possible to verify uses by other means, non-residential buffers were used throughout.		distance from properties at which acceptable noise levels will be achieved is in practice quite complex and variable. However, the present assessment has applied specialist acoustic advice to define minimum distances below which it is highly unlikely that the required noise levels under ETSU-R-97 will be achievable. The buffer for a noise level of 35dB LA90 for small-medium turbines and 38dB LA90 for large-very large turbines was used as the minimum limit applied to sensitive receptors in a typical rural location. The approach taken involved applying various assumptions, including: ■ An assumed single turbine development in all cases (rather than multiple turbines, in order to identify the potential minimum buffer zone); and ■ The assumption that no properties will be 'financially involved' in the wind development or are located in an existing nosier area (financial involvement and existing elevated baseline noise levels may allow higher noise levels to be accepted in individual cases). The limitations associated with such assumptions are considered preferable to avoiding the use of noise-related separation distances for the assessment, bearing in mind that noise is a key factor that influences the acceptable siting of turbines in practice. The assessment defines the minimum distances below which adherence to the Industry standard (ETSU-R-97) noise guidance would not be possible and it should not be inferred that the proposed distances represent acceptance of any given proposal within the areas of identified suitable potential. Site based noise monitoring and assessments would still be required. Note: Due to lack of sufficient data, buildings outside of the Authority were assumed to be of non-sensitive use. This was to ensure that land was not unnecessarily ruled as being constrained to wind development, as a result of non-sensitive buildings being mistakenly assessed as being sensitive. It is noted further site-specific study would be required to determine the necessary buffer distance between specific buildings and proposed turbines.

[7] Sensitive receptors include residential properties, schools, hospitals and care homes. These were identified via the LLPG data.
[8] Non-relevant addresses that have no applicable noise receptors were excluded, identified via the LLPG data, including: ancillary buildings, car parking, garages, non-buildings.

Parameter	Assumption	Data Source	Justification and Notes
Buildings	Exclude: ■ Buildings with a buffer of the height of the turbine (to blade tip height) +10%.	■ OS OpenMap Local	National Planning Practice Guidance notes that the topple distance + 10% is a safe separation distance between turbines and buildings.
Future Developments, Safeguarded Land and Employment Sites	Exclude: ■ Existing Employment Sites ■ Employment Allocations ■ Local Plan Allocations ■ Neighbourhood Allocations ■ Major Residential Permissions	■ Dorset Council	Generally unsuitable for wind turbine development, unless allocations contain relatively large undeveloped areas of land. Identification of suitable land for wind within specific allocation boundaries would require a separate site-specific study. It is assumed that opportunities for renewables within such sites will potentially be considered as part of their design. It is noted that developers would need to consider other emerging allocations as part of further site feasibility study. It is noted that there may be some opportunities for individual renewable developments within settlement boundaries and town centres. However, this is not explored within this strategic study and would require further site-specific study.
Existing Renewable Energy Developments	Exclude: ■ Land boundaries of consented and operational renewable energy installations.	■ Dorset Council ■ DESNZ ■ Aerial imagery	The quarterly DESNZ Renewable Energy Planning Database (January 2025 version, published March 2025), Dorset Council data and the LUC internal windfarm database was used to determine the locations of operational and consented renewable energy installations. To approximate the site boundary, land was excluded based on Dorset Council boundary data in combination with assessment of surrounding recent aerial imagery. For existing wind developments, it was assumed these were of notional medium scale tip height and occupied a 5 x 3 rotor diameter oval spacing[9], with the major axis of the oval oriented towards the prevailing wind direction, taken to be south-west (see turbine spacing below). Existing roof-mounded solar PV developments and indoor biomass developments are building-integrated and therefore were excluded via the consideration of existing built development as a constraint. Existing battery developments were not included as, due to their small scale, their exact location within a site was difficult to identify. Moreover, there is potential for battery and turbine developments to also be co-located.

[9] To mitigate impacts on the productivity of wind turbines located close to one another caused by wind turbulence, it is standard practice for developers to maintain an oval of separation between turbines that is equal to 5 times the turbine rotor diameter (the cross sectional dimension of the circle swept by the rotating blades) on the long axis, and 3 times the rotor diameter on the short axis.

Parameter	Assumption	Data Source	Justification and Notes
			Existing minor renewable energy developments were not included as, due to their small scale, there is potential for micro-siting new renewable energy developments around these. The minor 500kW single turbine development at Rogershill Farm is however included within the calculations of existing renewable developments in Chapters 3 and 4, and in Figure 3.4: Existing and consented battery, ground-mounted solar and wind installations within Dorset In addition, it is noted that the Council's data on smaller scale may not be fully comprehensive, as these scales of sites are not generally monitored to the same extent as for larger schemes. Further site-specific study would be required to make full consideration of these developments.
Terrain	Exclude: ■ Slopes greater than 15%.	■ OS Terrain 50	This is a development/operational constraint. Developers have indicated that this is the maximum slope they would generally consider feasible for development. Although it is theoretically possible to develop on areas exceeding 15% slopes, turbine manufacturers are considered unlikely to allow turbine component delivery to sites where this is exceeded.
Water Environment	Exclude: ■ Watercourses and waterbodies with a 50m buffer.	■ Ordnance Survey OpenMap Local	A 50m buffer was applied around all rivers and waterbodies to take account of good practice such as that relating to pollution control during construction. Ordnance Survey OpenMap Local surface water area data was intersected with OS Open Rivers data, so only the larger surface waterways/waterbodies within this dataset were treated as constraints. This was to exclude smaller field drains from consideration, which are particularly densely situated in the south of the authority between Wareham and Dorchester. It would be unduly conservative to place a 50m buffer constraint along all these minor drains that are included within this data. It is noted that therefore not all smaller waterways/waterbodies are included as a constraint, and developers will need to consider potential impacts on all waterways/waterbodies as part of any further detailed site analysis, including land drains. This would be necessary to minimise any potential effects associated with pollution and sedimentation during construction, as well as the use of these linear features for bat foraging corridors. In addition, OpenMap Local surface water line data is line data, and so a 1m buffer was applied to approximate a footprint of smaller waterways contained within this dataset.

Parameter	Assumption	Data Source	Justification and Notes
Woodland	Exclude: ■ Ancient Woodland Inventory with a 50m buffer; and ■ Assumed woodland, broadleaved woodland and mixed mainly broadleaved woodland as shown on the National Forest Inventory with a 50m buffer.	■ Forestry Commission ■ Natural England	Where possible, the loss of woodland should be avoided. Woodland designated within the Ancient Woodland Inventory is protected by the NPPF. Moreover, assumed woodland, broadleaved woodland and mixed mainly broadleaved woodland within the National Forest Inventory are likely to form permanent woodland, unlikely to be forestry operations or commercial stands. As such these woodland types were treated as constraints to wind turbine development. It may be possible to develop wind turbines within other woodland types within the National Forest Inventory, such as within coniferous woodland. This is because these categories are more likely to be forestry operations or commercial stands, which due to their nature will be on a felling cycle. As such, it may be feasible to develop wind turbines within these locations, including key-holing turbines within existing woodland. Further site-specific study would be required however to determine if such woodlands are additionally protected, and as such would constrain turbine development. In addition, ancient woodland and assumed woodland, broadleaved woodland and mixed mainly broadleaved woodland within the National Forest Inventory were excluded with a +50m buffer to reduce the risk of impact on bats. It is noted that hedgerows with a +50m buffer would additionally form a constraint to wind turbine developments, to reduce the risk of impact on bats. However, this level of detail of constraint mapping is beyond the scope of this assessment and would require further site-specific consideration.
Geological designations	Exclude: ■ Regionally and Locally Important Geological Sites	■ Dorset Council	As protected by: ■ Town and Country Planning Act 1990 ■ Local planning authority adopted plans
Biodiversity (International Designations)	Exclude international designations: ■ Special Protection Areas (SPA);	■ Natural England ■ Dorset Council	As protected by: ■ Conservation of Habitats and Species Regulations 2017 (as amended)

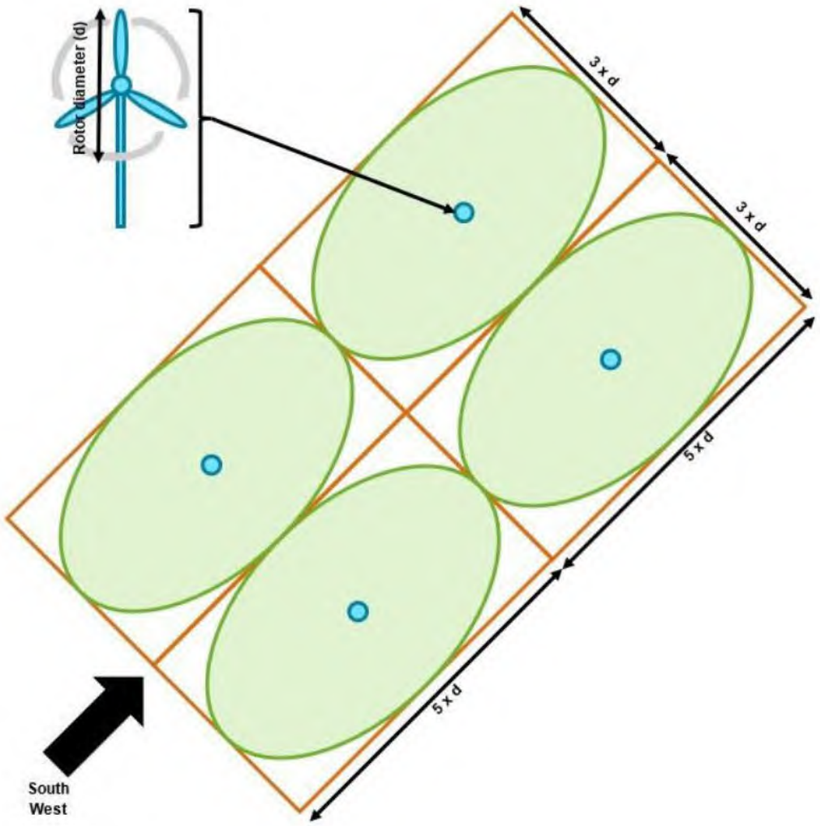
Parameter	Assumption	Data Source	Justification and Notes
	■ Special Areas of Conservation (SAC); and ■ Ramsar sites.		
Biodiversity (National Designations)	Exclude national designations: ■ Sites of Special Scientific Interest (SSSI); and National Nature Reserves (NNR).	■ Natural England	As protected by: ■ Wildlife and Countryside Act 1981 ■ Conservation of Habitats and Species Regulations 2017 (as amended)
Biodiversity (Regional and Local Designations)	Exclude other designations: ■ Wildlife Trust Reserves ■ Local Nature Reserves ■ Dorset Environmental Record Centre local wildlife sites ■ Bat and bird roosts and migration areas - Annex 2 bat (ANB) roosts 200m combined buffers - Bracket's Coppice SAC 3km buffer - Bryanston SSSI 4km buffer - Creech Grange SSSI 4km buffer - Long Distance Bird Migration Routes	■ Natural England ■ Dorset Environmental Record Centre ■ The Wildlife Trusts	Generally, would not be suitable for renewables development based on law/policy/guidance including: ■ NPPF ■ Natural Environment and Rural Communities Act 2006 ■ Local planning authority adopted plans It is noted that further site-specific study would be required to consider non-designated features. For each of the bat and bird roosts and migration areas: ■ Annex 2 bat (ANB) roosts 200m combined buffers – contains 200m buffers around Annex 2 bat roosts (maternity and hibernacula) as requested by Natural England. ■ Bracket's Coppice SAC 3km buffer – a bat SAC with the Core Sustenance Zone applied, at the recommendation of DC Natural Environment Team. ■ Bryanston SSSI 4km buffer – a bat SSSI with the Core Sustenance Zone applied, at the recommendation of DC Natural Environment Team. ■ Creech Grange SSSI 4km buffer - a bat SSSI with the Core Sustenance Zone applied, at the recommendation of DC Natural Environment Team. ■ Long Distance Bird Migration Routes - High Risk Area region - requested by Natural England and DC Natural Environment Team.

Parameter	Assumption	Data Source	Justification and Notes
Cultural Heritage	Exclude: ■ World Heritage Sites; ■ Registered Parks and Gardens; ■ Scheduled Monuments; ■ Listed Buildings and ■ Conservation Areas.	■ Historic England ■ Dorset Council	As protected by: ■ NPPF ■ National Heritage Act 1983 ■ Ancient Monuments and Archaeological Areas Act of 1979 ■ Planning (Listed Buildings and Conservation Areas) Act 1990 ■ Local planning authority adopted plans Registered Battlefields and World Heritage Sites (core sites) would also be considered constraints to wind development, however there are none located within the authority. It is noted that further site-specific study would be required to determine if any unexpected archaeological remains or non-designated but nationally or locally significant features are present that would require consideration, as well as the setting of historic features. Locally listed buildings would also be considered constraints, but this data was unavailable. Note: Listed building point data was buffered 5m to estimate building footprints.
Minimum Development Size	Unconstrained areas of land were excluded if they were below a minimum developable size of 40m width and an area that varied per turbine size: ■ Very large: 0.8ha ■ Large: 0.6ha ■ Medium: 0.4ha ■ Small: 0.2ha	■ N/A	The minimum development size was based on developer knowledge of recent wind turbine developments, and accounts for the estimated land take requirements for a single turbine base, the adjacent laydown area and other immediate infrastructure requirements adjacent to the turbine itself. However, further site-specific study would be required in order to determine the land take requirements of individual turbines depending on factors such as their model and location.
Turbine Spacing	The following standardised turbine densities were considered when determining the overall potential for turbine development across Dorset:	■ N/A	The calculation of potential wind capacity involved applying an assumption concerning development density. In practice, turbines are spaced within developments based on varying multiples of the rotor diameter length. Although

Parameter	Assumption	Data Source	Justification and Notes
	■ Very large: 4 per km^2 (assuming a rotor diameter of 130m) ■ Large: 8 per km^2 (assuming a rotor diameter of 90m) ■ Medium: 22 per km^2 (assuming a rotor diameter of 55m) ■ Small: 167 per km^2 (assuming a rotor diameter of 20m)		turbine separation distances vary, a 5 x 3 rotor diameter oval spacing[10], with the major axis of the oval oriented towards the prevailing wind direction, taken to be south-west as the 'default' assumption in the UK, was considered a reasonable general assumption at the present time in this respect. This is based on industry knowledge of recent developer applications. In practice, site-specific factors such as prevailing wind direction, turbine model and varying rotor diameters, and turbulence are taken into account by developers, in discussion with turbine manufacturers. Bearing in mind the strategic nature of the present study, the density calculation did not take into account the site shape, and a standardised rectangular grid density based on a 5 x 3 rotor diameter was used instead (see image below).

[10] To mitigate impacts on the productivity of wind turbines located close to one another caused by wind turbulence, it is standard practice for developers to maintain an oval of separation between turbines that is equal to 5 times the turbine rotor diameter (the cross sectional dimension of the circle swept by the rotating blades) on the long axis, and 3 times the rotor diameter on the short axis.

Figure A - 1: Wind turbine spacing



A.6 The parameters below have not been used to exclude land for the purposes of this study. This does not mean that these constraints are not present or do not require consideration on a specific site.

Table A - 2: Proposed assumptions to be used for assessment of technical potential for onshore wind – Constraints considered but not used

Parameter	Assumption	Data Source	Justification and Notes
Biodiversity	No land excluded on this basis other than as outlined above in Table A - 1.	■ Natural England ■ RSPB	The following potential designations would also be considered constraints however none are present within the study area: ■ Possible SAC ■ Potential SPA ■ Proposed Ramsar sites RSPB reserve and Important Bird Area data was not available to use for this project. Further site-specific study would be required to consider these sites. Impact Risk Zones (for SSSIs), Core Sustenance Zones, Greater Horseshoe Bat migration routes and Nathusius Pipistrelle migration areas were not treated as a constraint for this study, as development may be feasible within these. Further site-specific study would be required to consider these designations.
National Landscapes (formerly AONBs)	No land excluded on this basis.	■ Natural England	The management plans for the Dorset National Landscape and the Cranborne Chase National Landscape do not restrict renewable developments within the designations. As such, no land was excluded on this basis. It is noted that the associated Landscape Sensitivity Assessment study will include consideration of these designations and that further site-specific landscape sensitivity and visual impact assessment would be required to consider these and assess the potential suitability of sites for wind development within or in proximity to the National Landscapes.
Electricity Grid	No land excluded on this basis.	■ National Grid (Formerly Western Power Distribution) ■ SSEN	General commentary is provided in the report on the current state of grid capacity within Dorset. However, as grid capacity is so variable with little certainty in advance of where there could be capacity for additional electricity generation to be connected, no land was excluded on this basis for the technical assessment. We have engaged with SSEN

Parameter	Assumption	Data Source	Justification and Notes
			and National Grid (formerly Western Power Distribution) to understand the grid constraints and potential opportunities. Moreover, for larger wind turbine schemes, developers commonly deliver substations and additional grid infrastructure as required to support the additional generation capacity requirements of the development, limiting concerns regarding connecting to constrained parts of the existing grid.
NATS Safeguarding Areas	Guidance includes reference to the following safeguarding areas: ■ 30km for aerodromes with a surveillance radar facility; ■ 17km for non-radar equipped aerodromes with a runway of 1,100m or more, or 5km for those with a shorter runway; ■ 4km for non-radar equipped unlicensed aerodrome with a runway of more than 800m or 3km with a shorter runway; ■ 10km for the air-ground-air communication stations and navigation aids; and ■ 15 nautical miles (nm) for secondary surveillance radar. These are indicative of potential constraints to wind development but cannot be used to definitely exclude land as unsuitable. They are generally presented as separate figures alongside the main assessment of technical potential.	■ NATS	Further consultation between potential developers and NATS would be required at the planning application stage to determine if there is any impact from a proposed development. NATS safeguarding areas were therefore not excluded.

Parameter	Assumption	Data Source	Justification and Notes
Shadow Flicker	No land excluded on this basis.	■ N/A	Wind turbines may in some circumstances cause 'shadow flicker' within nearby properties. However, shadow flicker effects can be mitigated, and it was not considered as a constraint for the purposes of this study.
Residential Amenity	No land excluded on this basis.	■ N/A	It is noted that it may be inappropriate to develop wind turbines in proximity to residential properties, due to impacts upon residential amenity. However, due to the potential for micro-siting, property aspect and potential for mitigation, it would require a site specific residential and visual amenity assessment (RVAA).to determine whether wind turbines would be suitable in proximity to residential properties.
Open space	No land excluded on this basis	■ Dorset Council	Open space is not considered a constraint to wind as, unlike solar, the land take requirements of wind are much smaller, and it could therefore be possible to include turbines on designated open space.
Open gaps	No land excluded on this basis	■ Dorset Council	Open gaps are local designations and therefore were not excluded as they do not wholly prohibit renewable development. Open gaps will be reviewed through the preparation of the new Local Plan. Further site-specific study would be required to make consideration of these designations.
Public Rights of Way and Cycle Paths	No land excluded on this basis.	■ Dorset Council ■ Sustrans	Public Rights of Way and cycle paths can be diverted if necessary to ensure they are a safe distance from wind turbines. Public Rights of Way and cycle paths were therefore not excluded.
Blade oversail of biodiversity and cultural heritage designations	No land excluded on this basis.	■ N/A	Depending on individual designated site characteristics, it may not be suitable for the blades of adjacent wind turbines to oversail the site. However, this is site dependent and would require further studies. As such, a blade oversail buffer was not excluded.
MOD Land	No land excluded on this basis.	■ OpenStreetMap	Not excluded but these areas are present within Dorset.

Parameter	Assumption	Data Source	Justification and Notes
			MOD land could be considered unsuitable, as this land is already in use for MOD activities. Further consultation with the MOD would be required to determine if there is any potential for wind turbine development to be delivered on this land. Due to the sensitive nature of this data, these sites are not individually mapped.

Ground-Mounted Solar Resource Assessment Parameters

A.7 Dorset's technical potential for ground mounted solar PV development was assessed in a similar way to the potential for wind[11]. The key GIS tool parameters are set out in **Table A - 3** below.

A.8 The maximum solar PV capacity of the area of technical potential was estimated using an assumed development density expressed as Megawatts (MW) per hectare; and regional capacity factor[12] (again, derived from historic data broken down to at least regional level).

A.9 As solar PV is essentially modular, the land with technical potential was not differentiated by project scale.

Table A - 3: Proposed assumptions to be used for assessment of technical potential for commercial/large scale ground-mounted solar – Constraints

Parameter	Assumption	Data Source	Justification and Notes
Development Size Categories	None.	■ N/A	Solar development is more 'modular' than wind (development size is dictated by the number of panels, which themselves do not differ greatly in size) and constraints are not affected by project scale in the way that they are for wind. Therefore, the identification of available land for ground-mounted solar has not been broken down into discrete project sizes but rather any land technically suitable for development has been identified.
Roads	Exclude: ■ Roads.	■ Ordnance Survey OpenRoads	Physical features preventing the development of ground-mounted solar PV were excluded. There is no requirement for safety buffers in relation to these with respect to ground-mounted solar PV. Restricted access tracks were excluded from consideration as these predominantly comprise of forestry and other tracks which could be more easily diverted than standards roads. Note: Only line data for roads was available and in order to create a footprint from the road centre, it was assumed that single carriageways are 10m in width, dual carriageways 20m and motorways 30m. This based it on professional judgment of what is the typical width of these roads.

[11] The area of unconstrained land is treated as a single block of land which may not be the case in reality. This singular block is created from merging many polygons, which are not simple shapes of equal width. This means some slivers, or areas smaller than the required width, may be present in the results adjoining to suitably sized areas of land.

[12] An energy generator's 'capacity factor' can be defined as the actual energy yield produced over a period of time expressed as a proportion of the energy yield that would have been produced if the generator had operated at its full generation capacity continuously over the same period. This was averaged at 9.74% for the South West over the past 13 years. DESNZ (2024) Quarterly and annual load factors. Available at: https://www.gov.uk/government/publications/quarterly-and-annual-load-factors.

Parameter	Assumption	Data Source	Justification and Notes
Railways	Exclude: ■ Railways.	■ Ordnance Survey OpenMap Local	Physical features preventing the development of ground-mounted solar PV were excluded. There is no requirement for safety buffers in relation to these with respect to ground-mounted solar PV. Note: In order to create a footprint from the railway centrelines data, it was assumed that railways were 15m in width. This based it on professional judgment of what is the typical width of railways.
Planning/Land Use Other	Exclude: ■ Registered Common Land; ■ Open Access Land; and ■ Country Parks ■ Local public green/open space, including: – North Dorset, Open Space and Recreation – East Dorset, Open Space Policy – Purbeck Open Space Policy	■ Natural England ■ Dorset Council	Due to land take requirements, these land uses/types were considered generally to constrain ground-mounted solar development, particularly at larger scales, although in some circumstances they may offer opportunities for smaller scale development collocated with their other facilities. They were excluded from the resource assessment but may be subject to bespoke policies with the Local Plan allowing development to take place in principle subject to defined criteria being satisfied. It is noted that further site-specific study would be required to determine if any additional open spaces are present that would require consideration.
Buildings	Exclude: ■ All buildings with a 10m buffer.	■ OS OpenMap Local	Buildings were buffered by 10m to account for shading and impacts on solar output. It is noted that further site-specific study considering building heights and orientation in relation to the site would be required to determine the exact buffers required to account for shading.
Future Developments, Safeguarded Land and Employment Sites	Exclude: ■ Existing Employment Sites ■ Employment Allocations ■ Local Plan Allocations ■ Neighbourhood Allocations	■ Dorset Council	Generally, these will be unsuitable for ground-mounted solar, although there may be some potential for installations on undeveloped land/open space within these areas. Identification of this potential would require a separate, site-specific study. In addition, it is assumed that opportunities for renewables within such sites may potentially be considered as part of the master planning activities for the allocations. It is noted that developers would need to consider other emerging allocations as part of further site feasibility study.

Parameter	Assumption	Data Source	Justification and Notes
	■ Major Residential Permissions		It is noted that there may be some opportunities for individual renewable developments within settlements boundaries and town centres. However, this is not explored within this strategic study and would require further site-specific study.
Existing Renewable Energy Developments	Exclude: ■ Land boundaries of consented and operational renewable energy installations.	■ Dorset Council ■ DESNZ ■ Aerial imagery ■ LUC windfarm database	The quarterly DESNZ Renewable Energy Planning Database (January 2025 version, published March 2025), Dorset Council data and the LUC internal windfarm database was used to determine the locations of operational and consented renewable energy installations. To approximate the site boundary, land was excluded based on Dorset Council boundary data in combination with assessment of surrounding recent aerial imagery. For existing wind developments, it was assumed these were of notional medium scale tip height and occupied a 5 x 3 rotor diameter oval spacing[13], with the major axis of the oval oriented towards the prevailing wind direction, taken to be south-west (see turbine spacing below). Existing roof-mounded solar PV developments and indoor biomass developments are building-integrated and therefore were excluded via the consideration of existing built development as a constraint. Existing battery developments were not included as, due to their small scale, their exact location within a site was difficult to identify. Moreover, there is potential for battery and solar developments to also be co-located. Existing minor renewable energy developments were not included as, due to their small scale, there is potential for micro-siting new renewable energy developments around these. The minor 500kW single turbine development at Rogershill Farm is however included within the calculations of existing renewable developments in Chapters 3 and 4, and in Figure 3.4: Existing and consented battery, ground-mounted solar and wind installations within Dorset In addition, it is noted that the Council's data on smaller scale renewables may not be fully comprehensive, as these scales of sites are not generally monitored to the same extent as for larger schemes. Further site-specific study would be required to make full consideration of these developments.

[13] To mitigate impacts on the productivity of wind turbines located close to one another caused by wind turbulence, it is standard practice for developers to maintain an oval of separation between turbines that is equal to 5 times the turbine rotor diameter (the cross sectional dimension of the circle swept by the rotating blades) on the long axis, and 3 times the rotor diameter on the short axis.

Parameter	Assumption	Data Source	Justification and Notes
Minerals Sites with a 250m buffer	Exclude: ■ All operational minerals sites with a 250m buffer ■ Allocated minerals sites with a 250m buffer	■ Dorset Council	The IAQM 2016 Guidance on the Assessment of Mineral Dust Impacts for Planning indicates that adverse dust impacts from sand and gravel sites are uncommon beyond 250m and beyond 400m from hard rock quarries measured from the nearest dust generating activities.
All operational waste Sites	Exclude: ■ All operational waste sites ■ Allocated waste sites	■ Dorset Council	Waste sites will frequently be quite highly constrained with respect to ground-mounted solar development (e.g. areas of active landfill) but equally may present opportunities in some circumstances, particularly when they are to be decommissioned/restored during a plan period. Waste sites were therefore excluded from the identified ground-mounted solar resource but potentially subject to bespoke policy wording in the local plan.
Terrain	Exclude: ■ Areas with north-east to north-west aspect and inclinations greater than 7 degrees; and ■ All areas with inclinations greater than 15 degrees.	■ OS Terrain 50	Although it is possible to develop Ground-mounted solar PV installations on slopes facing north-east to north-west, it would generally not be economically viable to do so. However, slopes that are north-east to north-west facing and below 7°, as well as all other land with inclinations less than 15°, are considered potentially suitable[14], as generation output will not be significantly affected.
Agricultural Land Use	Exclude: ■ Agricultural land use classifications grades 1 and 2.	■ Natural England ■ Dorset Council	Agricultural Land Use is a consideration, with grades 1, 2 and 3a land being classed as *"the best and more versatile (BMV)"* land and having higher value for food production. Further investigation would be required of grade 3 land to determine whether it is grade 3a or b, as available data does not distinguish these. Ground-mounted Solar PV projects, over 50kWp, should ideally utilise previously developed land, brownfield land, contaminated land, industrial land or agricultural land preferably of classification 3b, 4, and 5. However, solar developments can be built on BMV land, if they have been deemed to pass the sequential test, whereby sites on lower grade or non-agricultural land are prioritised over BNM land. Within Dorset, the majority of land is Grade 3 agricultural land.

[14] Based on current standard developer practice.

Parameter	Assumption	Data Source	Justification and Notes
			As such, Grade 1 (excellent quality) and Grade 2 (very good quality) agricultural land were treated as a constraint to solar development, and further site-specific study would be required to determine if sites on lower grade BMV would be suitable based on the sequential text. Grade 3 land was also mapped for information to indicate where developers would need to consider this land and determine whether this is Grade 3a or Grade 3b.
Water Environment	Exclude: ■ Watercourses and waterbodies with a 50m buffer.	■ Ordnance Survey OpenMap Local	A 50m buffer was applied around all rivers and waterbodies to take account of good practice such as that relating to pollution control during construction. Ordnance Survey OpenMap Local surface water area data was intersected with OS OpenRivers data, so only the larger surface waterways/waterbodies within this dataset were treated as constraints. This was to exclude smaller field drains from consideration, which are particularly densely situated in the south of the authority between Wareham and Dorchester. It would be unduly conservative to place a 50m buffer constraint along all these minor drains that are included within this data. It is noted that therefore not all smaller waterways/waterbodies are included as a constraint, and developers will need to consider potential impacts on all waterways/waterbodies as part of any further detailed site analysis, including land drains. This would be necessary to minimise any potential effects associated with pollution and sedimentation during construction, as well as the use of these linear features for bat foraging corridors. In addition, OpenMap Local surface water line data is line data, and so a 1m buffer was applied to approximate a footprint of smaller waterways contained within this dataset.
Woodland	Exclude: ■ Ancient Woodland Inventory with a 20m buffer; and ■ Woodland as shown on the National Forest Inventory with a 20m buffer.	■ Forestry Commission ■ Natural England	Forested areas were buffered by 20m to account for shading and impacts on solar output. It is noted that further site-specific study considering woodland heights and orientation in relation to the site would be required to determine the exact buffers required to account for shading.
Geological designations	Exclude: ■ Regionally and Locally Important Geological Sites	■ Dorset Council	As protected by: ■ Town and Country Planning Act 1990 ■ Local planning authority adopted plans

Parameter	Assumption	Data Source	Justification and Notes
Biodiversity (International Designations)	Exclude international designations: ■ Special Protection Areas (SPA); ■ Special Areas of Conservation (SAC); and ■ Ramsar sites.	■ Natural England	As protected by: ■ Conservation of Habitats and Species Regulations 2017 (as amended)
Biodiversity (National Designations)	Exclude national designations: ■ Sites of Special Scientific Interest (SSSI); and ■ National Nature Reserves (NNR).	■ Natural England	As protected by: ■ Wildlife and Countryside Act 1981 ■ Conservation of Habitats and Species Regulations 2017 (as amended)
Biodiversity (Regional and Local Designations)	Exclude other designations: ■ Wildlife Trust Reserves ■ Local Nature Reserves ■ Dorset Environmental Record Centre local wildlife sites	■ Natural England ■ Dorset Environmental Record Centre ■ The Wildlife Trusts	Generally, would not be suitable for renewables development based on law/policy/guidance including: ■ NPPF ■ Natural Environment and Rural Communities Act 2006 ■ Local planning authority adopted plans It is noted that further site-specific study would be required to consider non-designated features.
Cultural Heritage	Exclude: ■ World Heritage Sites; ■ Registered Parks and Gardens; ■ Scheduled Monuments; ■ Listed Buildings and ■ Conservation Areas.	■ Historic England ■ Dorset Council	As protected by: ■ NPPF ■ National Heritage Act 1983 ■ Ancient Monuments and Archaeological Areas Act of 1979 ■ Planning (Listed Buildings and Conservation Areas) Act 1990 ■ Local planning authority adopted plans Registered Battlefields would also be considered constraints to solar development, however there are none located within the authority.

Parameter	Assumption	Data Source	Justification and Notes
			It is noted that further site-specific study would be required to determine if any unexpected archaeological remains or non-designated but nationally or locally significant features as well as the setting of historic features. Locally listed buildings would also be considered constraints, but this data was unavailable. Note: Listed building point data was buffered 5m to estimate building footprints.
Minimum Development Size	Unconstrained areas of land were excluded if they were below a minimum developable size of 0.6ha.	■ N/A	A minimum development size of 0.6ha (0.5MW) was set in agreement with Dorset Council.
Development Density	1.2 hectares per MW.	■ N/A	The Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) states that, along with associated infrastructure, generally a solar farm requires between 2 to 4 acres for each MW of output. This equates to 0.8-1.6ha per MW. For this study, the average of 1.2ha per MW was used. It its noted that on sites where solar farms are co-located with wind turbines, the value of MW per ha may increase as infrastructure may be able to be shared between the technologies.

A.10 The parameters below have not been used for the purposes of this study. This does not mean that these constraints are not present or do not require consideration on a specific site.

Table A - 4: Proposed assumptions to be used for assessment of technical potential for commercial/large scale ground-mounted solar – Constraints considered but not used

Parameter	Assumption	Data Source	Justification and Notes
Biodiversity	No land excluded on this basis other than as outlined above in Table B - 1.	■ Natural England ■ RSPB	The following designations would also be considered constraints however none are present within the study area: ■ Possible SAC ■ Potential SPA ■ Proposed Ramsar sites

Parameter	Assumption	Data Source	Justification and Notes
			RSPB reserve and Important Bird Area data was not available to use for this project. Further site-specific study would be required to consider these sites. Impact Risk Zones (for SSSIs), Core Sustenance Zones, Greater Horseshoe Bat migration routes and Nathusius Pipistrelle migration areas were not treated as a constraint for this study, as development may be feasible within these. Further site-specific study would be required to make consideration of these designations.
Bird and bat areas	No land excluded on this basis.	■ Dorset Environmental Records Centre	Bird and bat areas are unlikely to be affected significantly by solar development. Sensitive areas of biodiversity will have been accounted for by other designations.
National Landscapes (formerly AONBs)	No land excluded on this basis.	■ Natural England	The management plans for the Dorset National Landscape and the Cranborne Chase National Landscape do not restrict renewable developments within the designations. As such, no land was excluded on this basis. It is noted that the associated Landscape Sensitivity Assessment study will include consideration of these designations and that further site-specific landscape sensitivity and visual impact assessment would be required to consider these and assess the potential suitability of sites for solar PV development within or in proximity to the National Landscapes.
Solar Irradiance	No land excluded on this basis.	■ Global Solar Atlas	Using modern solar panel technology, the vast majority of land within England is deemed suitable for solar panel development in terms of solar irradiance. Any land unsuitable due to slope and aspect which limit the total hours of direct daily sunlight within a location, were excluded from consideration as based on the above constraints table. Therefore, no land was excluded from this assessment based on this, and solar irradiance levels they were mapped for information only to indicate where the more productive sites may be located.
Electricity Grid	No land excluded on this basis.	■ National Grid (Formerly Western Power Distribution) ■ SSEN	Grid connection is a key consideration for solar developments, as additional grid connections costs, such as long cable distances and additional substation requirements, can significantly hinder the economic viability of this technology. General commentary was provided on the current state of grid capacity within Dorset to inform the assessment of deployment potential.

Parameter	Assumption	Data Source	Justification and Notes
			However, as grid capacity is so variable with little certainty in advance of where there could be capacity for additional electricity generation to be connected, no land was excluded on this basis for the technical assessment. We have engaged with SSEN and National Grid (Formerly Western Power Distribution) to understand the grid constraints and potential opportunities.
Gas pipelines	No land excluded on this basis.	■ National Grid	Although the presence of buried pipelines could impact the suitability of overlaying above-ground solar panels, mitigation and panel layout design can be applied to limit impacts. It is noted that only National Grid open data was available for use within this study. Further site-specific study would be required to consider any other buried pipelines not contained within this dataset.
Electricity lines	No land excluded on this basis.	■ Ordnance Survey OpenMap ■ National Grid ■ National Grid (Formerly Western Power Distribution) ■ SSEN	Although overhead lines have the potential to cause some limited shading of solar panels, and thereby impact on potential PV generation potential, panel layout design can limit impacts. Further site-specific study would be required to consider this parameter. As such, no land was excluded on this basis.
Residential Amenity	No land excluded on this basis.	■ N/A	It is noted that it may be inappropriate to develop solar farms in proximity to residential properties, due to impacts upon residential amenity. However, due to the potential for micro siting, property aspect and potential for mitigation, it would require further site-specific study to determine whether solar developments would be suitable in proximity to residential properties. Therefore, no land was excluded on this basis from the technical assessment.
Public Rights of Way/Cycle Paths	No land excluded on this basis.	■ Dorset Council ■ DEFRA ■ Sustrans	Public Rights of Way and cycle paths can be diverted if necessary around or safely through ground mounted solar developments, and these impacts are considered as part of the assumed development density. Public Rights of Way and cycle paths were therefore not excluded.

Parameter	Assumption	Data Source	Justification and Notes
Open gaps	No land excluded on this basis	■ Dorset Council	Open gaps are local designations and therefore were not excluded as they do not wholly prohibit renewable development. Open gaps will be reviewed through the preparation of the new Local Plan. Further site-specific study would be required to consider these designations.
Airports and Airfields	No land excluded on this basis.	■ Ordnance Survey OpenMap Local Functional Site layer with the theme 'Air Transport' ■ Aerial imagery	Glint and glare caused by solar panels is a consideration for aviation safety. However, this is site dependent and scheme design can enable solar developments to be situated within airports and airfields themselves. As such, only the airport and airfield buildings and hardstanding should treated as constraints to solar development. Although airport buildings were treated as constraints to solar development, considered under *"Buildings"*, no spatial data was available to map runways and in-use airport hardstanding. Therefore, further site-specific study would be required to consider these.
MOD Land	No land excluded on this basis.	■ OpenStreetMap	Not excluded but these areas are present within Dorset. MOD land could be considered unsuitable, as this land is already in use for MOD activities. Further consultation with the MOD would be required to determine if there is any potential for solar PV development to be delivered on this land. Due to the sensitive nature of this data, these sites are not individually mapped.

Battery Energy Storage Schemes (BESS)

A.11 This assessment also considers the potential for stand-alone battery storage proposals (over 100MW).

A.12 Typically, the potential for battery storage development, can be suitably micro-sited alongside solar developments, as well as other renewable developments such as wind. The units are similar in size and scale to shipping containers. As such, the technical potential for battery storage associated with wind or solar will be covered by the technical potential assessment for these types of developments.

A.13 BESS schemes are often served by co-located substations on site. The type and size of the substation on site will be informed by the energy required for the BESS scheme and the wider transmission network. There is no standard substation size or layout, and site-specific assessments will be required to determine their suitability.

A.14 Other key environmental constraints will also need to be considered as for solar and wind. It is likely that a strategic scale assessment of constraints could only be undertaken for large scale battery storage developments as smaller BESS sites can be accommodated within sites of 1ha and potentially located in industrial or areas with existing energy infrastructure. This makes the areas of potential suitability for smaller BESS sites very expansive.

A.15 Dorset's technical potential for BESS development was assessed in a similar way to the potential for ground mounted solar. The key GIS tool parameters are set out in Table A - 7 below.

Table A - 7: Proposed assumptions to be used for assessment of technical potential for large scale battery storage – Constraints

Parameter	Assumption	Data Source	Justification and Notes
Substations	Exclude: ■ All areas further than 4km from a transmission substation	■ National Grid ■ UKCEH	For BESS schemes, their proximity to an existing or planned transmission substation is a key requirement. For large schemes (over 100MW), developers typically suggest that they need to be within 4km of a transmission substation. There may be potential to build a substation on site if the BESS development is beyond 4km. However, this would require further site-specific studies.
Development Size Categories	None.	■ N/A	BESS developments comprise of battery storage units and supporting infrastructure including substations. Battery storage units are more 'modular' than wind (development size is dictated by the number of units, which currently themselves do not differ greatly in size). Development size will be dependent on whether a co-located substation is required on site. Therefore, the identification of available land for BESS has not been broken down into discrete project sizes but rather any land technically suitable for development has been identified.

Parameter	Assumption	Data Source	Justification and Notes
Roads	Exclude: ■ Roads.	■ Ordnance Survey OpenRoads	Physical features preventing the development of BESS were excluded. There is no requirement for safety buffers in relation to these with respect to BESS. Restricted access tracks were excluded from consideration as these predominantly comprise of forestry and other tracks which could be more easily diverted than standards roads. Note: Only line data for roads was available and in order to create a footprint from the road centre, it was assumed that single carriageways are 10m in width, dual carriageways 20m and motorways 30m. This based it on professional judgment of what is the typical width of these roads.
Railways	Exclude: ■ Railways.	■ Ordnance Survey OpenMap Local	Railway lines are physical features that prevent the development of BESS. Note: In order to create a footprint from the railway centrelines data, it was assumed that railways were 15m in width. This based it on professional judgment of what is the typical width of railways.
Planning/Land Use Other	Exclude: ■ Registered Common Land; ■ Open Access Land; and ■ Country Parks ■ Local public green/open space, including: – North Dorset, Open Space and Recreation – East Dorset, Open Space Policy – Purbeck Open Space Policy	■ Natural England ■ Dorset Council	Due to land take requirements, these land uses/types were considered generally to constrain BESS development, although in some circumstances they may offer opportunities for smaller scale development collocated with their other facilities. They were excluded from the resource assessment but may be subject to bespoke policies within the Local Plan allowing development to take place in principle subject to defined criteria being satisfied. It is noted that further site-specific study would be required to determine if any planning and land uses are present that would require consideration.

Parameter	Assumption	Data Source	Justification and Notes
Buildings	Exclude: ■ All buildings with a 25m buffer.	■ OS OpenMap Local	Buildings were buffered by 25m for fire safety purposes, in line with guidance from the National Fire Chiefs Council[15]. It is noted that further site-specific study would be required to determine the exact buffers required to account for impacts created by proposed development.
Future Developments, Safeguarded Land and Employment Sites	Exclude: ■ Existing Employment Sites ■ Employment Allocations ■ Local Plan Allocations ■ Neighbourhood Allocations ■ Major Residential Permissions	■ Dorset Council	Generally, these will be unsuitable for BESS, although there may be some potential for installations on undeveloped land/open space/industrial sites within these areas. Identification of this potential would require a separate, site-specific study. In addition, it is assumed that opportunities for renewables within such sites may potentially be considered as part of the master planning activities for the allocations. It is noted that developers would need to consider other emerging allocations as part of further site feasibility study. It is noted that there may be some opportunities for individual renewable developments within settlements boundaries and town centres. However, this is not explored within this strategic study and would require further site-specific study.
Existing Renewable Energy Developments	Exclude: ■ Land boundaries of consented and operational renewable energy installations.	■ Dorset Council ■ DESNZ ■ Aerial imagery ■ LUC windfarm database	The quarterly DESNZ Renewable Energy Planning Database (January 2025 version, published March 2025), Dorset Council data and the LUC internal windfarm database was used to determine the locations of operational and consented renewable energy installations. To approximate the site boundary, land was excluded based on Dorset Council boundary data in combination with assessment of surrounding recent aerial imagery. For existing wind developments, it was assumed these were of notional medium scale tip height and occupied a 5 x 3 rotor diameter oval spacing[16], with the major axis of the oval oriented towards the prevailing wind direction, taken to be south-west (see turbine spacing above). Existing roof-mounded solar PV developments and indoor biomass developments are building-integrated and therefore were excluded via the consideration of existing built development as a constraint.

[15] National Fire Chiefs Council (2022) Grid Scale Battery Energy Storage System planning – Guidance for FRS. Available at: https://nfcc.org.uk/wp-content/uploads/2023/10/Grid-Scale-Battery-Energy-Storage-System-planning-Guidance-for-FRS.pdf.
[16] To mitigate impacts on the productivity of wind turbines located close to one another caused by wind turbulence, it is standard practice for developers to maintain an oval of separation between turbines that is equal to 5 times the turbine rotor diameter (the cross sectional dimension of the circle swept by the rotating blades) on the long axis, and 3 times the rotor diameter on the short axis.

Parameter	Assumption	Data Source	Justification and Notes
			Existing battery developments were not included as, due to their small scale, their exact location within a site was difficult to identify. Moreover, there is potential for battery and solar and/or wind developments to also be co-located. Existing minor renewable energy developments were not included as, due to their small scale, there is potential for micro-siting new renewable energy developments around these. The minor 500kW single turbine development at Rogershill Farm is however included within the calculations of existing renewable developments in Chapters 3 and 4, and in Figure 3.4: Existing and consented battery, ground-mounted solar and wind installations within Dorset In addition, it is noted that the Council's data on smaller scale renewables may not be fully comprehensive, as these scales of sites are not generally monitored to the same extent as for larger schemes. Further site-specific study would be required to make full consideration of these developments.
Minerals Sites with a 250m buffer	Exclude: ■ All operational minerals sites with a 250m buffer ■ Allocated minerals sites with a 250m buffer	■ Dorset Council	The IAQM 2016 Guidance on the Assessment of Mineral Dust Impacts for Planning indicates that adverse dust impacts from sand and gravel sites are uncommon beyond 250m and beyond 400m from hard rock quarries measured from the nearest dust generating activities. There is potential in some circumstances to develop BESS on former mine sites, but this will be need further site-specific studies.
All operational waste Sites	Exclude: ■ All operational waste sites ■ Allocated waste sites	■ Dorset Council	Waste sites will frequently be quite highly constrained with respect to BESS development (e.g. areas of active landfill) but landfill sites equally may present opportunities in some circumstances, particularly when they are to be decommissioned/restored during a plan period. Waste sites would therefore be excluded from the identified BESS resource but potentially subject to bespoke policy wording in the local plan.

Parameter	Assumption	Data Source	Justification and Notes
Terrain	Exclude: ■ All areas with a slope greater than 8%.	■ OS Terrain 50	BESS developments should be developed on relatively flat land. As such, land with a slope of less than 8%, are considered potentially suitable[17], as generation output will not be significantly affected.
Agricultural Land Use	Exclude: ■ Agricultural land use classifications grades 1 and 2.	■ Natural England ■ Dorset Council	Agricultural Land Use is a consideration, with grades 1, 2 and 3a land being classed as *"the best and more versatile (BMV)"* land and having higher value for food production. Further investigation would be required of grade 3 land to determine whether it is grade 3a or b, as available data does not distinguish these. BESS projects should ideally utilise previously developed land, brownfield land, contaminated land, industrial land or agricultural land preferably of classification 3b, 4, and 5. However, BESS developments can be built on BMV land, if they have been deemed to pass the sequential test, whereby sites on lower grade or non-agricultural land are prioritised over BMV land. Within Dorset, the majority of land is grades 3 agricultural land. As such, Grade 1 (excellent quality) and Grade 2 (very good quality) agricultural land were treated as a constraint to BESS development, and further site-specific study would be required to determine if sites on lower grade BMV would be suitable based on the sequential text. Grade 3 land was also mapped for information to indicate where developers would need to make further consideration of this land and determine whether this is Grade 3a or Grade 3b.
Water Environment	Exclude: ■ Watercourses and waterbodies with a 50m buffer.	■ Ordnance Survey OpenMap Local	A 50m buffer was applied around all rivers and waterbodies to take account of good practice such as that relating to pollution control during construction. Ordnance Survey OpenMap Local surface water area data was intersected with OS OpenRivers data, so only the larger surface waterways/waterbodies within this dataset were treated as constraints. This was to exclude smaller field drains from consideration, which are particularly densely situated in the south of the authority between Wareham and Dorchester. It would be unduly conservative to place a 50m buffer constraint along all these minor drains that are included within this data. It is noted that therefore not all smaller waterways/waterbodies are included as a

[17] Based on current standard developer practice.

Parameter	Assumption	Data Source	Justification and Notes
			constraint, and developers will need to consider potential impacts on all waterways/waterbodies as part of any further detailed site analysis, including land drains. This would be necessary to minimise any potential effects associated with pollution and sedimentation during construction, as well as the use of these linear features for bat foraging corridors. In addition, OpenMap Local surface water line data is line data, and so a 1m buffer was applied to approximate a footprint of smaller waterways contained within this dataset.
Woodland	Exclude: ■ Ancient Woodland Inventory with a 15m buffer; and ■ Woodland as shown on the National Forest Inventory with a 15m buffer.	■ Forestry Commission ■ Natural England	Forested areas were buffered by 15m based on Natural England guidance[18]. It is noted that further site-specific study considering woodland heights and orientation in relation to the site would be required to determine the exact buffers required to account for shading.
Geological designations	Exclude: ■ Regionally and Locally Important Geological Sites	■ Dorset Council	As protected by: ■ Town and Country Planning Act 1990 ■ Local planning authority adopted plans
Biodiversity (International Designations)	Exclude international designations: ■ Special Protection Areas (SPA); ■ Special Areas of Conservation (SAC); and ■ Ramsar sites.	■ Natural England	As protected by: ■ Conservation of Habitats and Species Regulations 2017 (as amended)
Biodiversity (National Designations)	Exclude national designations:	■ Natural England	As protected by: ■ Wildlife and Countryside Act 1981

[18] Natural England and Forestry Commission (2022) Ancient Woodland, ancient trees and veteran trees: advice for making planning decisions [online] Available at: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions

Parameter	Assumption	Data Source	Justification and Notes
	■ Sites of Special Scientific Interest (SSSI); and ■ National Nature Reserves (NNR).		■ Conservation of Habitats and Species Regulations 2017 (as amended)
Biodiversity (Regional and Local Designations)	Exclude other designations: ■ Wildlife Trust Reserves ■ Local Nature Reserves ■ Dorset Environmental Record Centre local wildlife sites	■ Natural England ■ Dorset Council ■ The Wildlife Trusts	Generally, would not be suitable for renewables development based on law/policy/guidance including: ■ NPPF ■ Natural Environment and Rural Communities Act 2006 ■ Local planning authority adopted plans It is noted that further site-specific study would be required to consider non-designated features.
Cultural Heritage	Exclude: ■ World Heritage Sites; ■ Registered Parks and Gardens; ■ Scheduled Monuments; ■ Listed Buildings and ■ Conservation Areas.	■ Historic England ■ Dorset Council	As protected by: ■ NPPF ■ National Heritage Act 1983 ■ Ancient Monuments and Archaeological Areas Act of 1979 ■ Planning (Listed Buildings and Conservation Areas) Act 1990 ■ Local planning authority adopted plans Registered Battlefields would also be considered constraints to BESS development, however there are none located within the authority. It is noted that further site-specific study would be required to determine if any unexpected archaeological remains or non-designated but nationally or locally significant features are present that would require consideration, as well as the setting of historic features. Locally listed buildings would also be considered constraints, but this data was unavailable. Note: Listed building point data was buffered 5m to estimate building footprints.

Parameter	Assumption	Data Source	Justification and Notes
Minimum Development Size	Unconstrained areas of land were excluded if they were below a minimum developable size of 1.2 hectares.	■ N/A	A minimum development size of 1.2 hectares (100MW) was set in agreement with Dorset Council.[19]

A.16 The parameters below have not been used for the purposes of this study. This does not mean that these constraints are not present or do not require consideration on a specific site.

Table A.8: Proposed assumptions to be used for assessment of technical potential for large scale BESS – Constraints considered but not used

Parameter	Assumption	Data Source	Justification and Notes
Biodiversity	No land excluded on this basis other than as outlined above in Table C - 1.	■ Natural England ■ RSPB	The following designations would also be considered constraints however none are present within the study area: ■ Possible SAC ■ Potential SPA ■ Proposed Ramsar sites RSPB reserve and Important Bird Area data was not available to use for this project. Further site-specific study would be required to consider these sites. Impact Risk Zones (for SSSIs), Core Sustenance Zones, Greater Horseshoe Bat migration routes and Nathusius Pipistrelle migration areas were not treated as a constraint for this study, as development may be feasible within these. Further site-specific study would be required to make consideration of these designations.
Bird and bat areas	No land excluded on this basis.	■ Dorset Environmental Records Centre	Bird and bat areas are unlikely to be affected significantly by BESS development. Sensitive areas of biodiversity will have been accounted for by other designations.

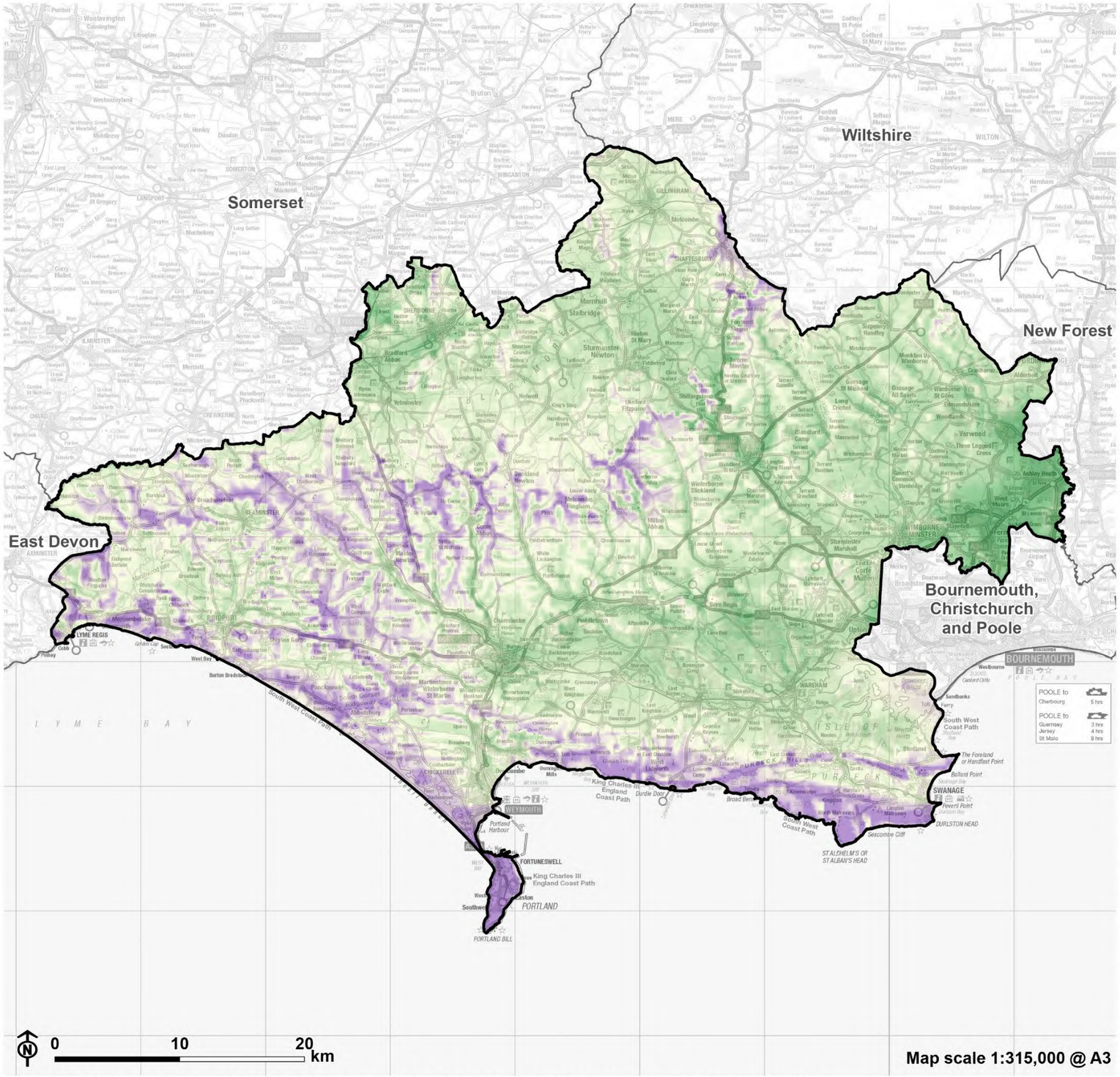
[19] Based on current standard developer practice.

Parameter	Assumption	Data Source	Justification and Notes
National Landscapes (formerly AONBs)	No land excluded on this basis.	■ Natural England	The management plans for the Dorset National Landscape and the Cranborne Chase National Landscape do not restrict renewable developments within the designations. As such, no land was excluded on this basis. It is noted that the associated Landscape Sensitivity Assessment study will include consideration of these designations and that further site-specific landscape sensitivity and visual impact assessment would be required to consider these and assess the potential suitability of sites for BESS development within or in proximity to the National Landscapes.
Electricity Grid Capacity	No land excluded on this basis.	■ National Grid (Formerly Western Power Distribution) ■ SSEN	Grid connection is a key consideration for BESS developments, as additional grid connections costs, such as long cable distances and additional substation requirements, can significantly hinder the economic viability of this technology. General commentary was provided on the current state of grid capacity within Dorset. However, as grid capacity is so variable with little certainty in advance of where there could be capacity for additional electricity generation to be connected, no land was excluded on this basis for the technical assessment. We have engaged with SSEN and National Grid (Formerly Western Power Distribution) to understand the grid constraints and potential opportunities.
Gas pipelines	No land excluded on this basis.	■ National Grid	Although the presence of buried pipelines could impact the suitability of BESS development, mitigation and layout design can be applied to limit impacts. It is noted that only National Grid open data was available for use within this study. Further site-specific study would be required to consider any other buried pipelines not contained within this dataset.
Electricity lines	No land excluded on this basis.	■ Ordnance Survey OpenMap ■ National Grid ■ National Grid (Formerly Western Power Distribution)	This buffer was applied as a safety consideration. It is derived from guidance by the National Grid (Technical Advice Note 287). Further site-specific study would be required to consider this parameter. As such, no land was excluded on this basis.

Parameter	Assumption	Data Source	Justification and Notes
		■ SSEN	
Residential Amenity	No land excluded on this basis.	■ N/A	It is noted that it may be inappropriate to develop BESS in proximity to residential properties, due to impacts upon residential amenity. However, due to the potential for micro siting, property aspect and potential for mitigation, it would require further site-specific study to determine whether BESS developments would be suitable in proximity to residential properties. Therefore, no land was excluded on this basis from the technical assessment.
Public Rights of Way/Cycle Paths	No land excluded on this basis.	■ Dorset Council ■ DEFRA ■ Sustrans	Public Rights of Way and cycle paths can be diverted if necessary to ensure they are safely distanced from BESS development. Public Rights of Way and cycle paths were therefore not excluded.
Open gaps	No land excluded on this basis	■ Dorset Council	Open gaps are local designations and therefore were not excluded as they do not wholly prohibit renewable development. Open gaps will be reviewed through the preparation of the new Local Plan. Further site-specific study would be required to make consideration of these designations.
Airports and Airfields	No land excluded on this basis.	■ Ordnance Survey OpenMap Local Functional Site layer with the theme 'Air Transport' ■ Aerial imagery	Fire safety is a consideration for aviation safety; however, this is dependent on the scheme design which can enable BESS developments to be situated within airports and airfields. Only the airport and airfield buildings and hardstanding should be treated as constraints to BESS development. Although airport buildings were treated as constraints to BESS development, considered under *"Buildings"*, no spatial data was available to map runways and in-use airport hardstanding. Therefore, further site-specific study would be required to consider these.
MOD Land	No land excluded on this basis.	■ OpenStreetMap	Not excluded but these areas are present within Dorset. MOD land could be considered unsuitable, as this land is already in use for MOD activities. Further consultation with the MOD would be required to determine if there is any potential for BESS development to be delivered on this land. Due to the sensitive nature of this data, these sites are not individually mapped.

Appendix B
Wind Maps

Figure B.1: Wind constraints - wind speed at 50m above ground level



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Dorset Council

Figure B1: Wind Constraints - Wind speed at 50m above ground level

Dorset
Neighbouring Local Authority

Wind speed at 50m above ground level

10.5 m/s

5.25 m/s

Notes:

Neil N. Davis, Jake Badger, Andrea N. Hahmann, Brian O. Hansen, Niels G. Mortensen, Mark Kelly, Xiaoli G. Larsén, Bjarke T. Olsen, Rogier Floors, Gil Lizcano, Pau Casso, Oriol Lacave, Albert Bosch, Ides Bauwens, Oliver James Knight, Albertine Potter van Loon, Rachel Fox, Tigran Parvanyan, Søren Bo Krohn Hansen, Duncan Heathfield, Marko Onninen, Ray Drummond; The Global Wind Atlas: A high-resolution dataset of climatologies and associated web-based application; Bulletin of the American Meteorological Society, Volume 104: Issue 8, Pages E1507-E1525, August 2023, DOI: https://doi.org/10.1175/BAMS-D-21-0075.1

Mean wind speed at 50m above ground level obtained from the Global Wind Atlas version 3.3, a free, web-based application developed, owned and operated by the Technical University of Denmark (DTU). The Global Wind Atlas version 3.3 is released in partnership with the World Bank Group, utilizing data provided by Vortex, using funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalwindatlas.info

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

Figure B.2: Wind constraints - natural heritage constraints

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LUC

Figure B2: Wind constraints - Natural heritage constraints

- Dorset
- Neighbouring Local Authority
- RAMSAR
- Special Protection Area
- Special Area of Conservation
- Sites of Special Scientific Interest
- National Nature Reserve
- Local Nature Reserve
- Local wildlife site
- Ancient woodland
- Bat roosts and bird migration areas (with appropriate buffers)
- Regional Important Geological Site
- Locally Important Geological Site

Notes:

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

0 10 20 km

Map scale 1:315,000 @ A3

Figure B.3: wind constraints - cultural heritage constraints

Dorset: Resource Assessment for Renewable Energy Development
Dorset Council

Figure B3: Wind constraints - Cultural heritage constraints

- Dorset
- Neighbouring Local Authority
- World Heritage Site
- Registered Parks and Gardens
- Listed building
- Conservation area
- Scheduled Monument

Somerset
Wiltshire
New Forest
East Devon
Bournemouth, Christchurch and Poole
LYME BAY
ISLE OF PURBECK
PORTLAND
POOLE to Cherbourg 5 hrs
POOLE to Guernsey, Jersey, St Malo 3 hrs, 4 hrs, 8 hrs
South West Coast Path
King Charles III England Coast Path

0 10 20 km

Map scale 1:315,000 @ A3

Notes:

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

Figure B.4: Wind constraints - Physical constraints

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Dorset Council

Figure B4: Wind constraints - Physical constraints

- Dorset
- Neighbouring Local Authority
- Roads and railways
- Electricity line
- Gas pipeline
- Building
- Airports and airfields
- Watercourses and water bodies
- Existing renewable development
- Slope above 15%
- Woodland
- Future developments, safeguarded land and employment sites

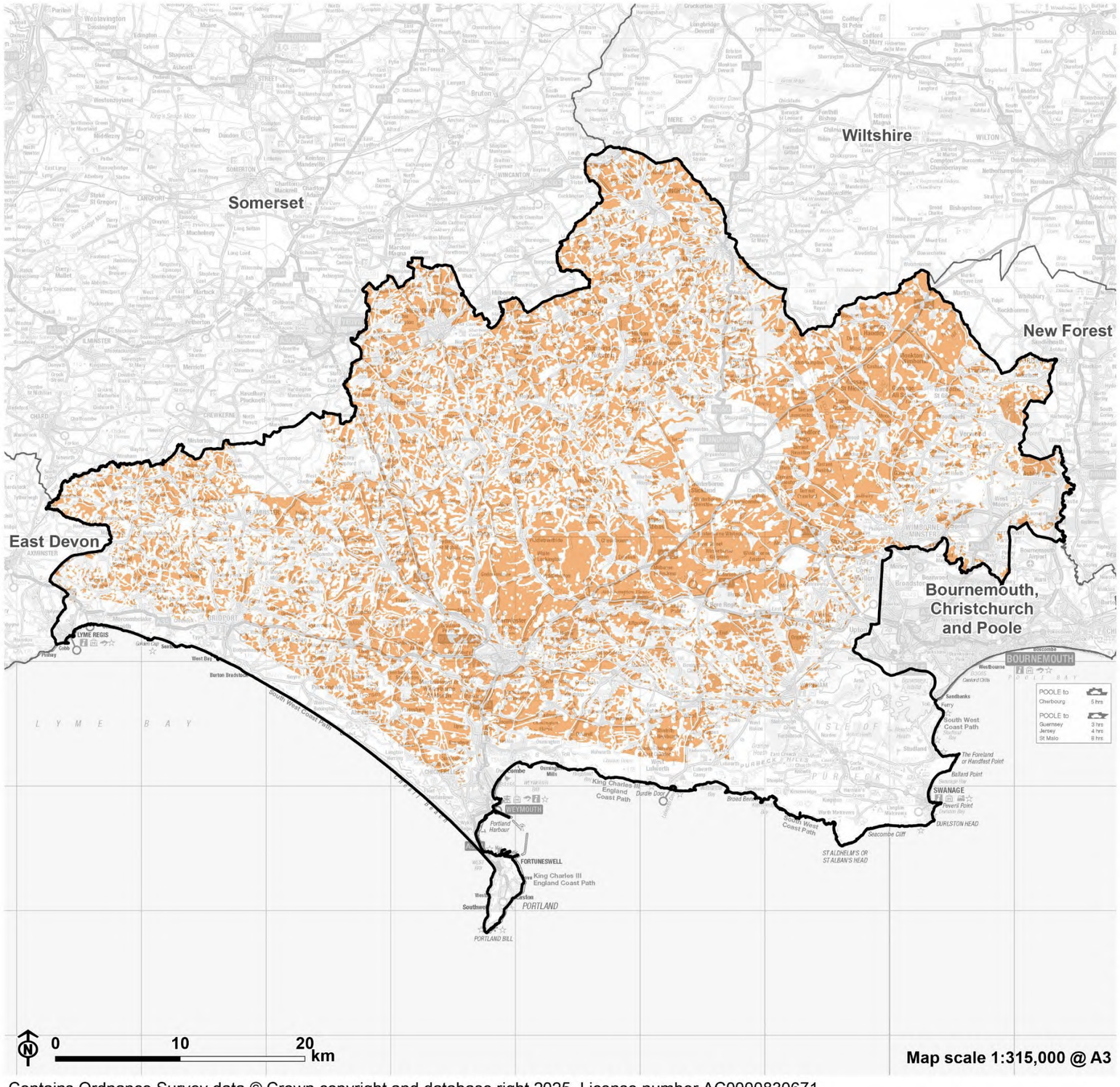
Notes:

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

0 10 20 km

Map scale 1:315,000 @ A3

Figure B.5: Opportunities and constraints: small scale (25-60m tip height) wind development



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Dorset Council

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Figure B5: Opportunities and constraints: Small scale (25-60m tip height) wind development

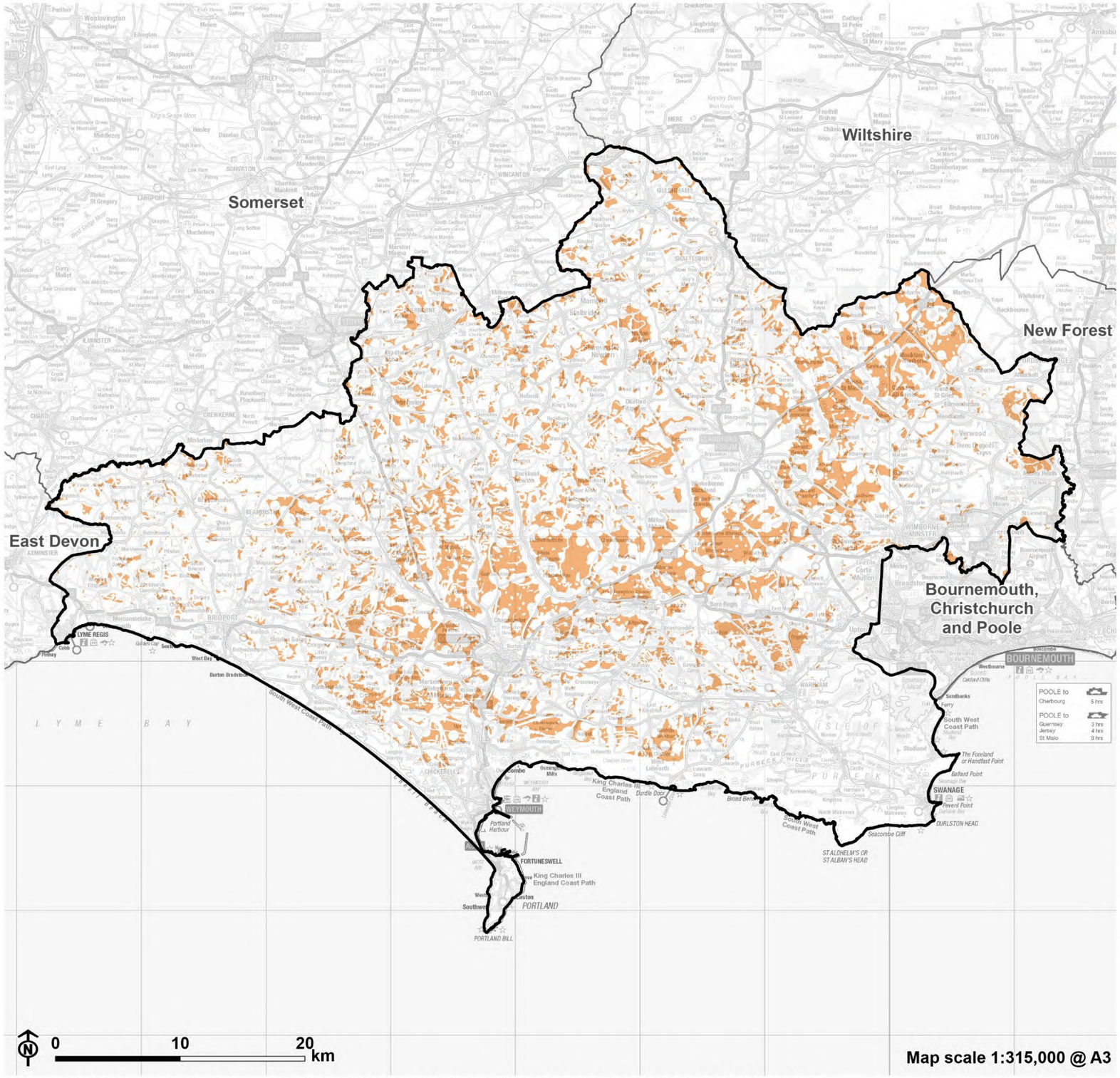
- Dorset
- Neighbouring Local Authority
- Technical potential for small wind
- Constrained area for small wind: no technical potential

Notes:

This map shows technical potential based on the assumptions set out in Appendix A. The areas shown are not an indication of acceptability - any proposal would need further assessment and full consideration as part of a planning application in accordance with relevant policies.

Map scale 1:315,000 @ A3

Figure B.6: Opportunities and constraints: medium scale (60-100m tip height) wind development



Dorset: Resource Assessment for Renewable Energy Development
Dorset Council

Figure B6: Opportunities and constraints: Medium scale (60-100m tip height) wind development

- Dorset
- Neighbouring Local Authority
- Technical potential for medium wind
- Constrained area for medium wind: no technical potential

Notes:

This map shows technical potential based on the assumptions set out in Appendix A. The areas shown are not an indication of acceptability - any proposal would need further assessment and full consideration as part of a planning application in accordance with relevant policies.

Map scale 1:315,000 @ A3

Figure B.7: Opportunities and constraints: large scale (100-150m tip height) wind development

Dorset: Resource Assessment for Renewable Energy Development
Dorset Council

LUC

Figure B7: Opportunities and constraints: Large scale (100-150m tip height) wind development

- Dorset
- Neighbouring Local Authority
- Technical potential for large wind
- Constrained area for large wind: no technical potential

Notes:

This map shows technical potential based on the assumptions set out in Appendix A. The areas shown are not an indication of acceptability - any proposal would need further assessment and full consideration as part of a planning application in accordance with relevant policies.

0 10 20 km

Map scale 1:315,000 @ A3

Figure B.8: opportunities and constraints: very large scale (150-220m tip height) wind development

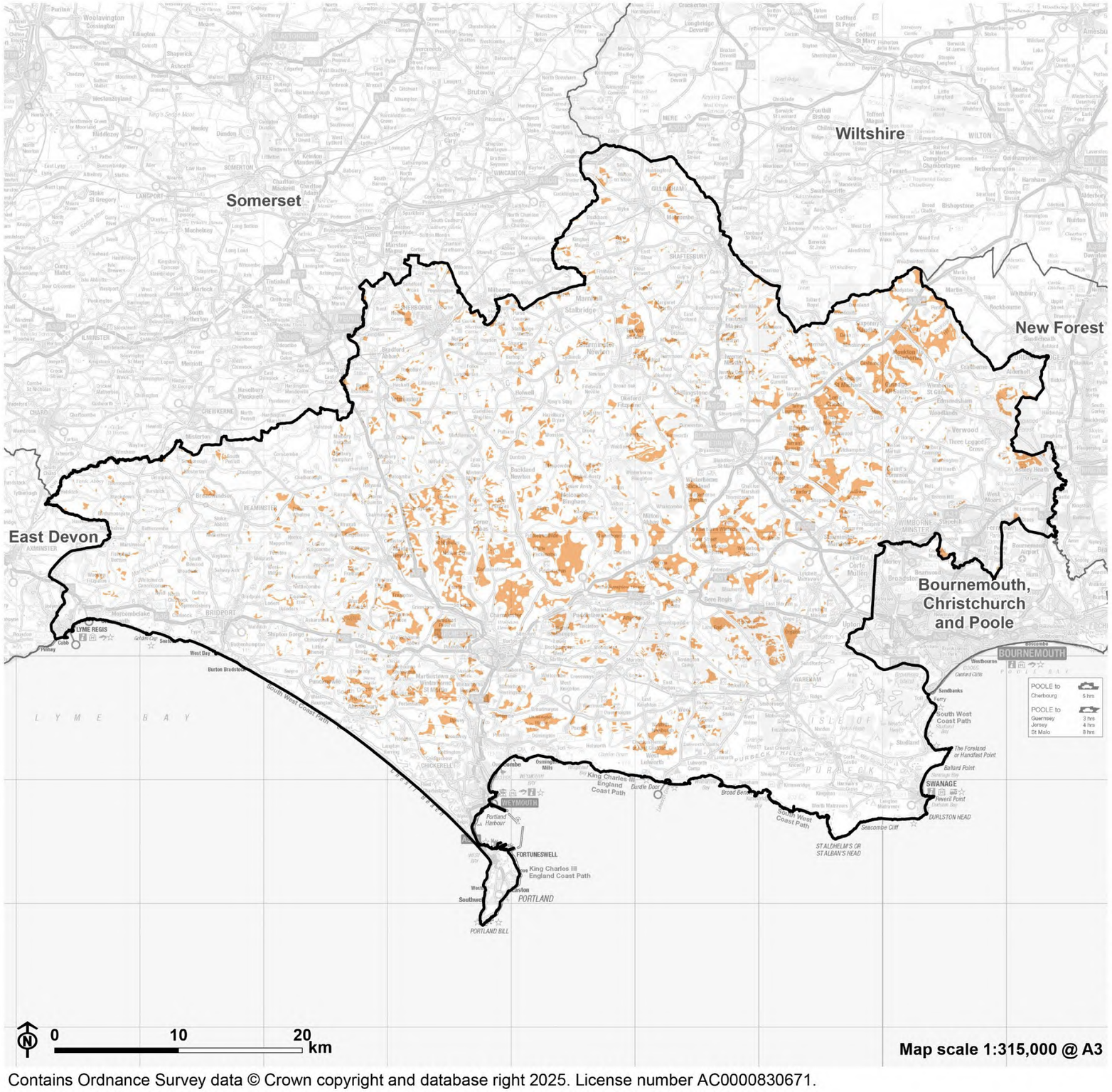


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Figure B8: Opportunities and constraints: Very large scale (150-220m tip height) wind development

- Dorset
- Neighbouring Local Authority
- Technical potential for very large wind
- Constrained area for very large wind: no technical potential

Notes:

This map shows technical potential based on the assumptions set out in Appendix A. The areas shown are not an indication of acceptability - any proposal would need further assessment and full consideration as part of a planning application in accordance with relevant policies.

Figure B.9: opportunities and constraints: All scales

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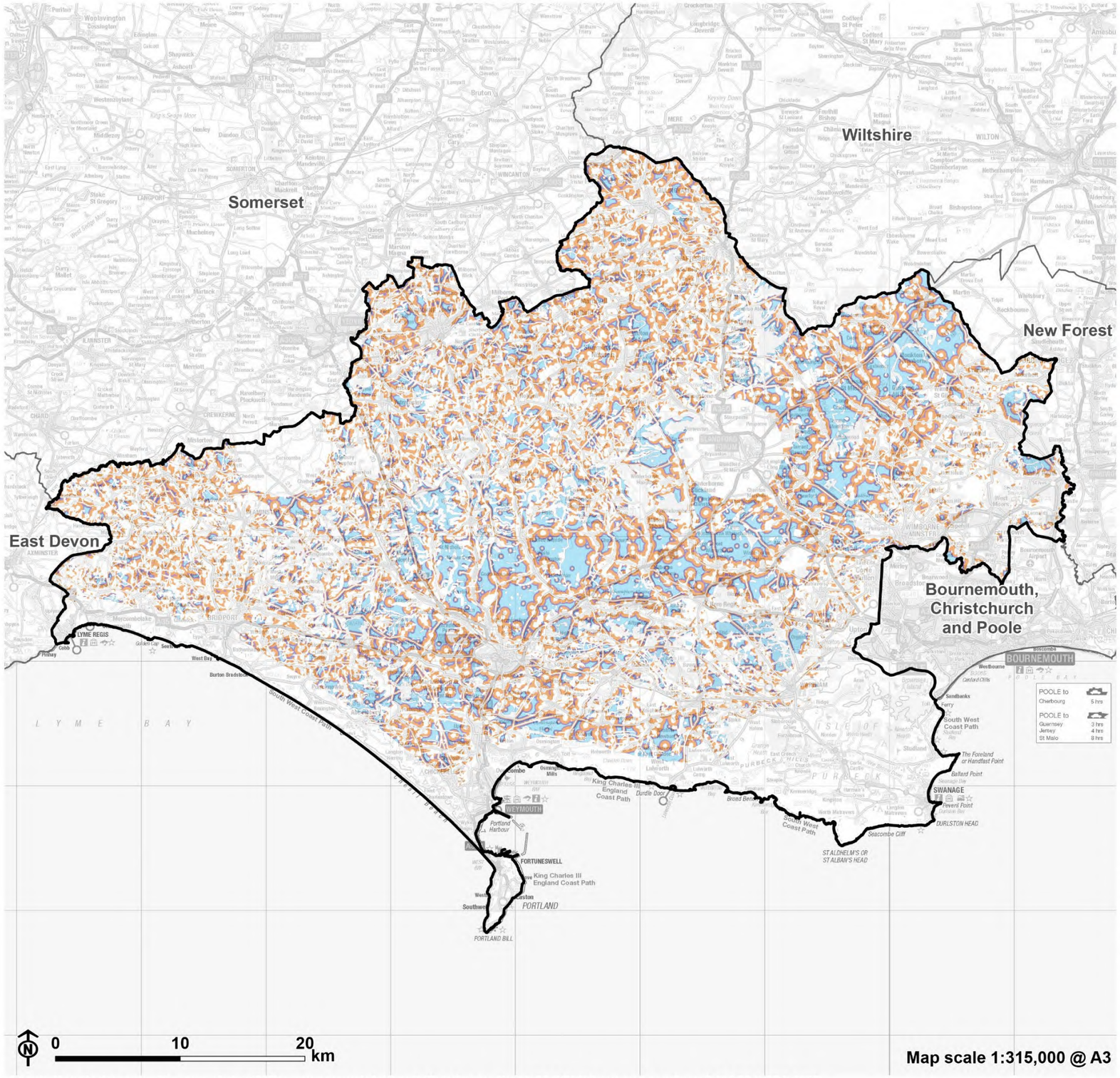
Figure B9: Opportunities and constraints: All scales



Dorset
Neighbouring Local Authority
Suitable area for all turbine scales (25-220m tip height)
Suitable area for small to large turbines only (25-150m tip height)
Suitable area for small to medium turbines only (25-100m tip height)
Suitable area for small turbines only (25-60m tip height)
No technical potential

Notes:

This map shows technical potential based on the assumptions set out in Appendix A. The areas shown are not an indication of acceptability - any proposal would need further assessment and full consideration as part of a planning application in accordance with relevant policies.

Appendix C
Solar Maps

Figure C.1:Annual solar irradiance

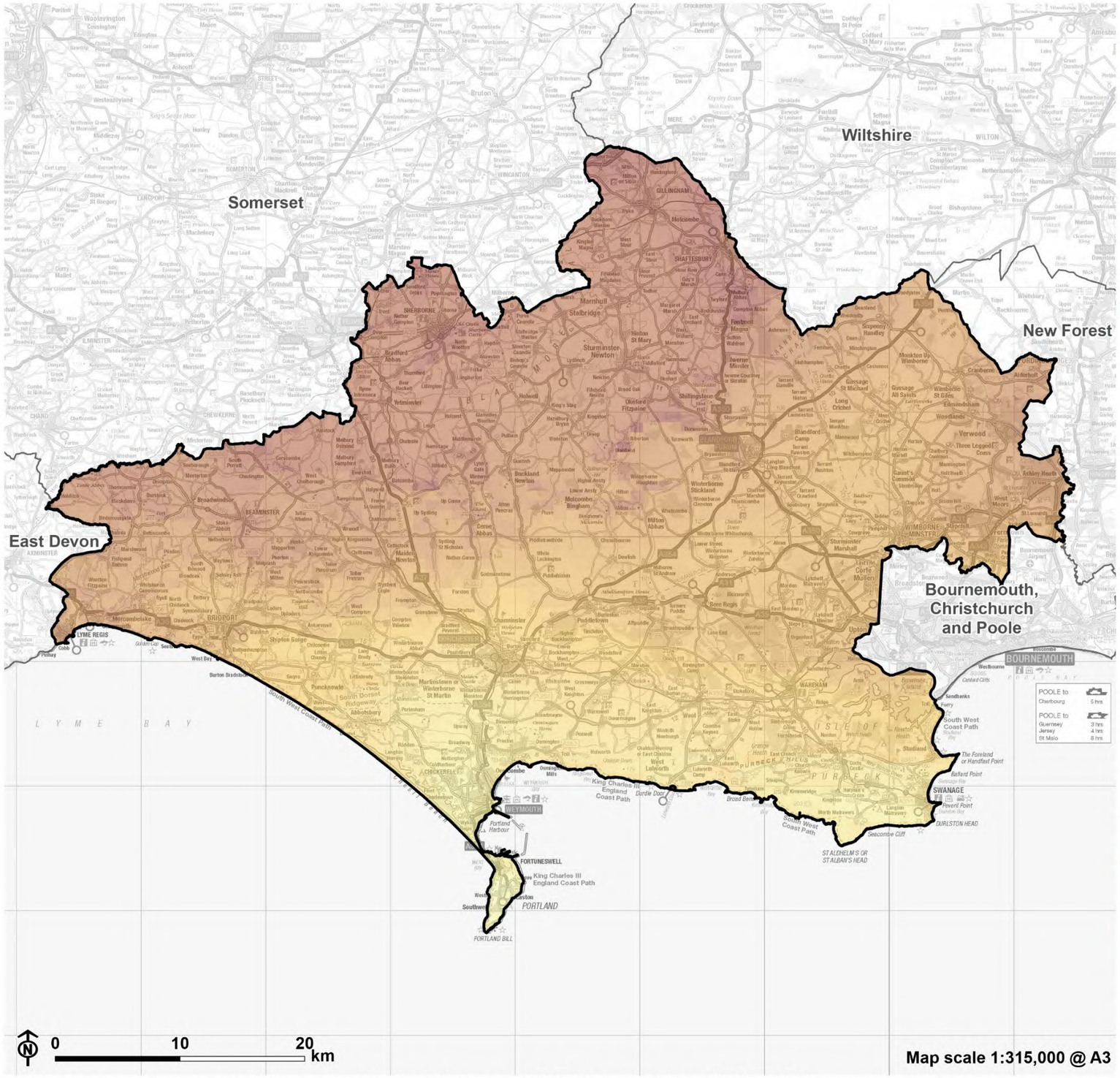


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Figure C1: Annual solar irradiance

Dorset
Neighbouring Local Authority

Annual solar irradiance

1157 kWh/kWp

1018 kWh/kWp

Notes:

GIS yearly monthly totals, obtained from the Global Solar Atlas 2.0, a free, web-based application is developed and operated by the company Solargis s.r.o. on behalf of the World Bank Group, utilizing Solargis data, with funding provided by the Energy Sector Management Assistance Program (ESMAP). For additional information: https://globalsolaratlas.info

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

Figure C.2: Solar constraints - Natural heritage

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Figure C2: Solar constraints - Natural heritage

- Dorset
- Neighbouring Local Authority
- RAMSAR
- Special Protection Area
- Special Area of Conservation
- Sites of Special Scientific Interest
- National Nature Reserve
- Local Nature Reserve
- Local wildlife site
- Ancient woodland
- Regional Important Geological Site
- Locally Important Geological Site

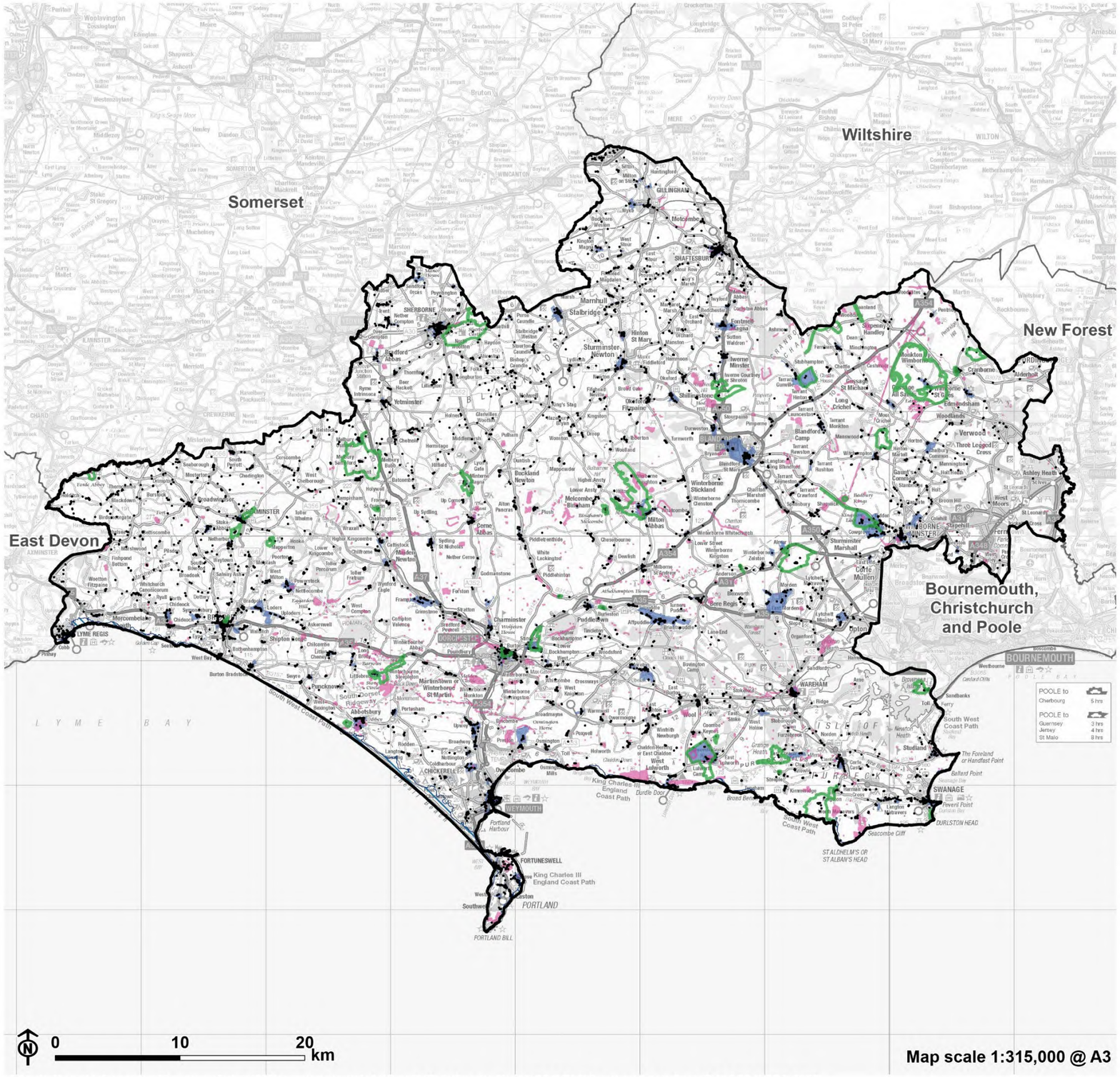
Notes:

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

0 10 20 km

Map scale 1:315,000 @ A3

Figure C.3: Solar constraints - cultural heritage



Dorset: Resource Assessment for Renewable Energy Development
Dorset Council

Figure C3: Solar constraints - Cultural heritage

- Dorset
- Neighbouring Local Authority
- World Heritage Site
- Registered Parks and Gardens
- Listed building
- Conservation area
- Scheduled Monument

Notes:

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

Figure C.4: Solar constraints - physical, land use and infrastructure

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Figure C4: Solar constraints - Physical, land use and infrastructure

- Dorset
- Neighbouring Local Authority
- Roads and railways
- Building
- Watercourses and water bodies
- Existing renewable development
- Slope above 15° or slope above 7° and north-east to north-west aspect
- Designated open space
- Woodland
- Future developments, safeguarded land and employment sites
- Mineral and waste site
- Grade 1 and 2 agricultural land

Notes:

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

0 10 20 km

Map scale 1:315,000 @ A3

Figure C.5: Opportunities and constraints - solar development

Dorset: Resource Assessment for Renewable Energy Development
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Figure C5: Opportunities and constraints: Solar development

Dorset
Neighbouring Local Authority
Area with potential for solar development
Constrained area for solar development: no technical potential

Somerset
Wiltshire
New Forest
East Devon
Bournemouth, Christchurch and Poole
LYME BAY
PORTLAND
ISLE OF PURBECK
0 10 20 km
Map scale 1:315,000 @ A3

Notes:

This map shows technical potential based on the assumptions set out in Appendix A. The areas shown are not an indication of acceptability - any proposal would need further assessment and full consideration as part of a planning application in accordance with relevant policies.

Appendix D
BESS Maps

Figure D.1: BESS constraints - Natural heritage

Dorset: Resource Assessment for Renewable Energy Development
Dorset Council

Figure D1: BESS constraints - Natural heritage

- Dorset
- Neighbouring Local Authority
- RAMSAR
- Special Protection Area
- Special Area of Conservation
- Sites of Special Scientific Interest
- National Nature Reserve
- Local Nature Reserve
- Local wildlife site
- Ancient woodland
- Regional Important Geological Site
- Locally Important Geological Site

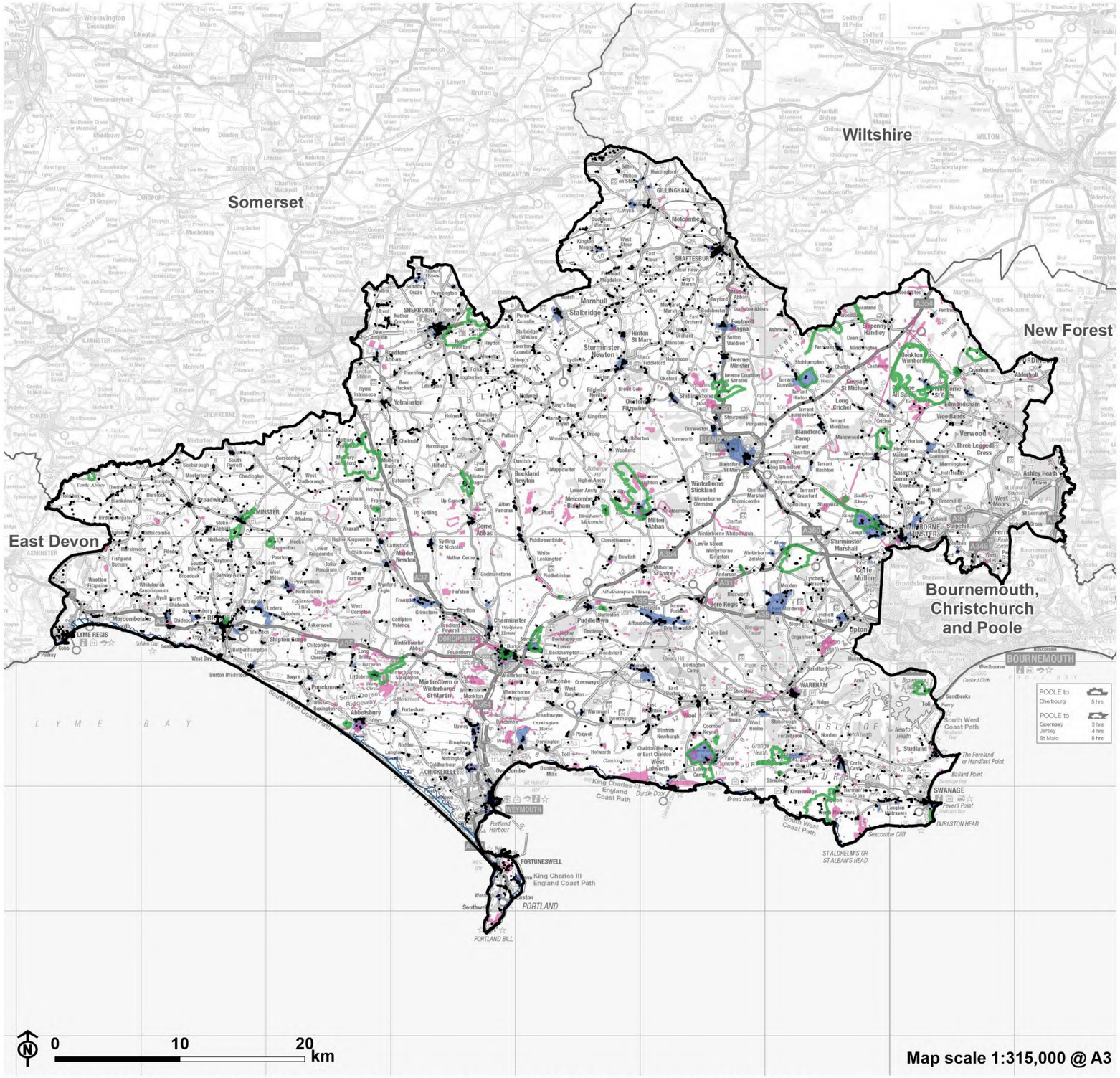
Notes:

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

0 10 20 km

Map scale 1:315,000 @ A3

Figure D.2: BESS constraints - Cultural heritage



Dorset: Resource Assessment for Renewable Energy Development
Dorset Council

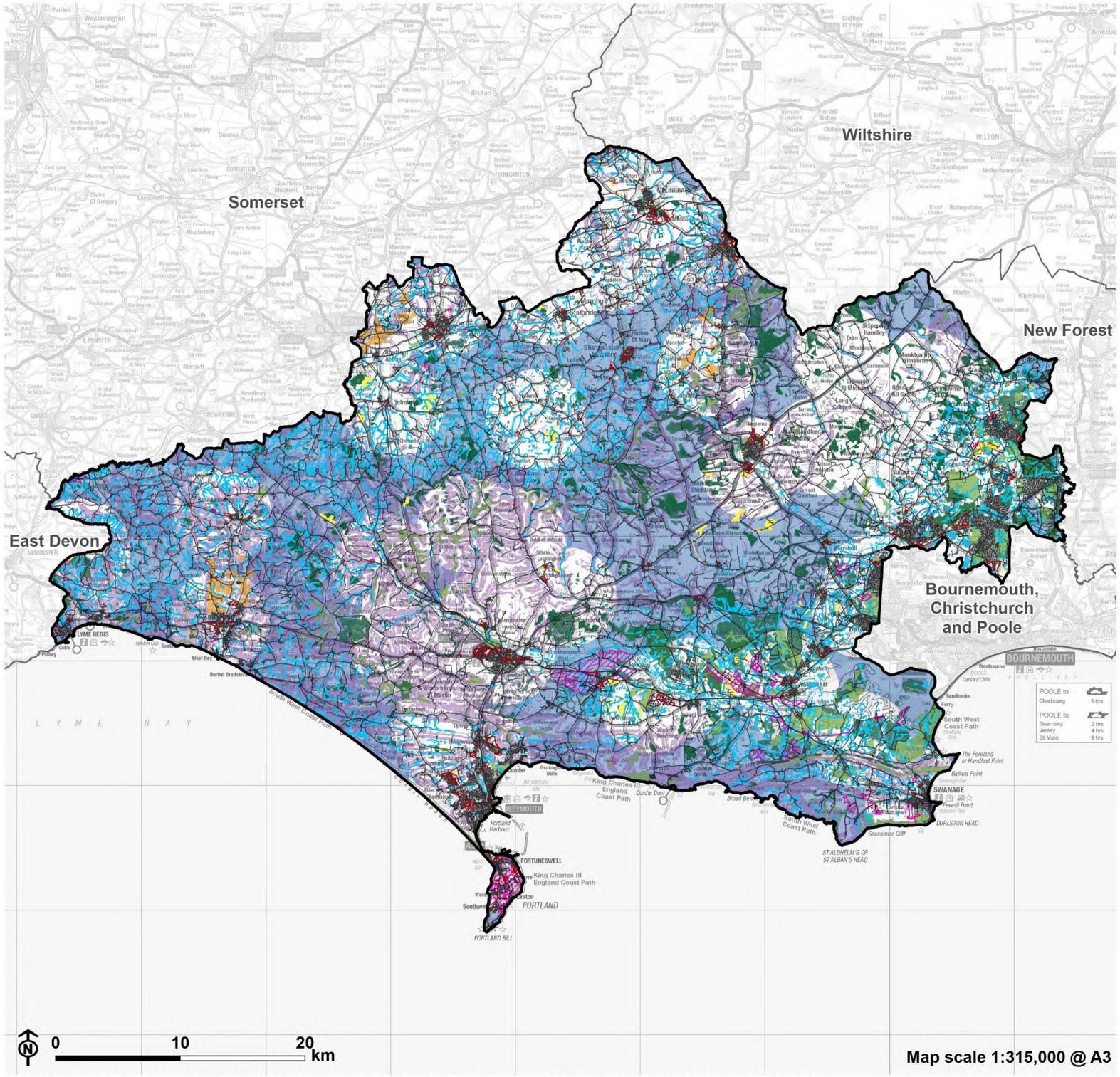
Figure D2: BESS constraints - Cultural heritage

- Dorset
- Neighbouring Local Authority
- World Heritage Site
- Registered Parks and Gardens
- Listed building
- Conservation area
- Scheduled Monument

Notes:

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

Figure D.3: BESS constraints - Physical, land use and infrastructure



Dorset: Resource Assessment for Renewable Energy Development
Dorset Council

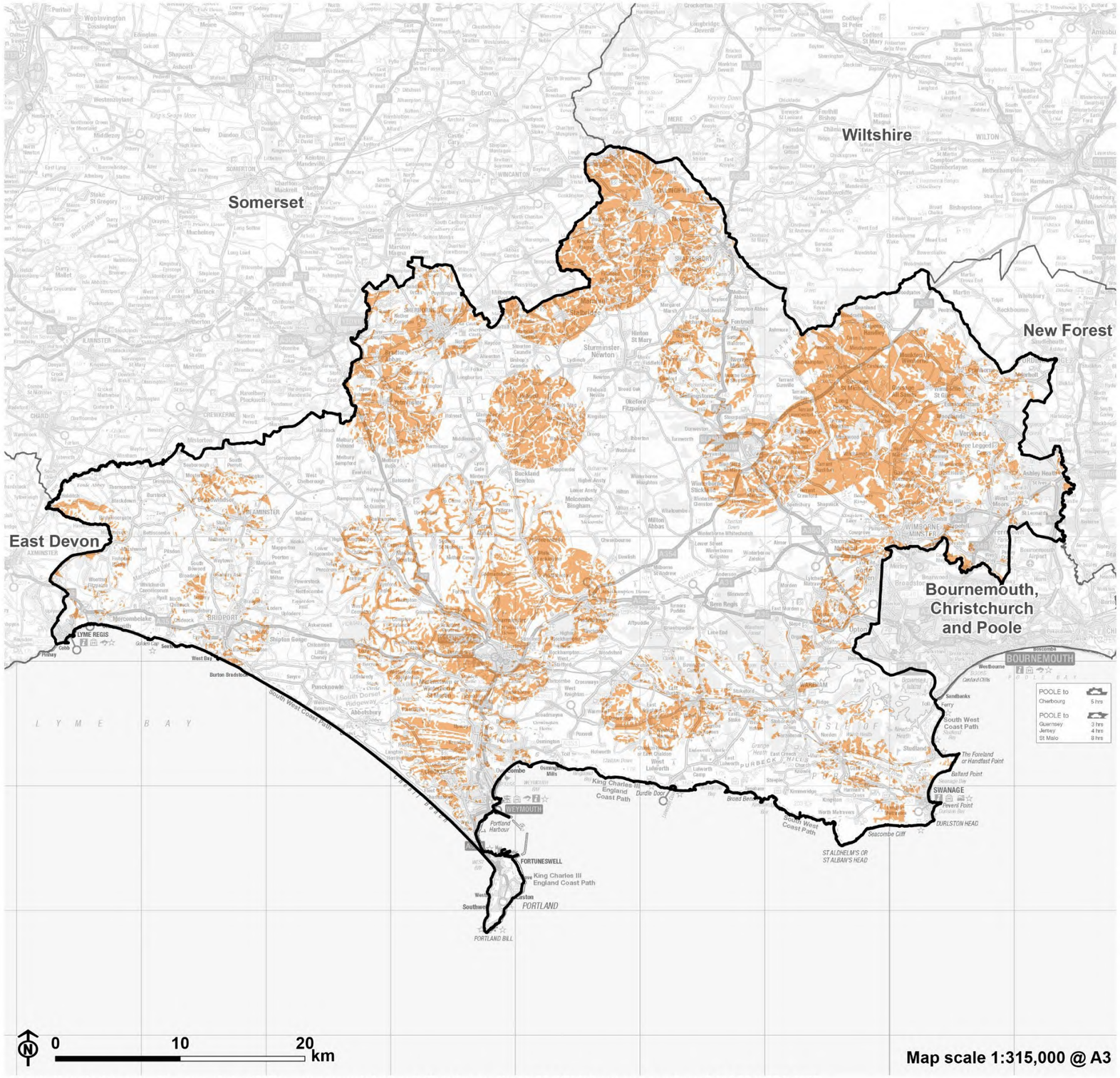
Figure D3: BESS constraints - Physical, land use and infrastructure

- Dorset
- Neighbouring Local Authority
- Roads and railways
- Building
- Watercourses and water bodies
- Existing renewable development
- Slope above 8°
- Designated open space
- Woodland
- Future developments, safeguarded land and employment sites
- Mineral and waste site
- Grade 1 and 2 agricultural land
- Areas outside substation 4km buffer

Notes:

Please refer to this map in conjunction with the assessment assumptions detailed in Appendix A.

Figure D.4: Opportunities and constraints - BESS development



Dorset: Resource Assessment for Renewable Energy Development
Dorset Council

Figure D4: Oppurtunities and constraints: BESS development

- Dorset
- Neighbouring Local Authority
- Area with potential for BESS development
- Constrained area for BESS development: no technical potential

Notes:

This map shows technical potential based on the assumptions set out in Appendix A. The areas shown are not an indication of acceptability - any proposal would need further assessment and full consideration as part of a planning application in accordance with relevant policies.

References

1 To note the study area is the Dorset Council administrative area which does not include Bournemouth, Christchurch and Poole area.

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3 IPCC (2023) AR6 Synthesis Report: Climate Change 2023 [online]

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13 Department for Energy Security and Net Zero (2024) Policy statement on onshore wind [online]

14 UK Parliament (May 2024) Solar and protecting our Food Security and Best and Most Versatile (BMV) Land

15 HM Government (2025) Land Use Consultation [online]

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20 The current NPPF (December 2024) does not include Footnotes 57 and 58, which created a de-facto ban on onshore wind in England. As such, this means that onshore wind applications will be treated in the same way as other energy development proposals.

21 Dorset Council (2025) Natural Environment, Climate and Ecology Strategy 2023 to 25 Refresh

22 Department for Energy Security and Net Zero (2025) Renewable Energy Planning Database: January 2025 [online]

23 The estimated total capacity is the estimated maximum amount of electrical power that could be installed for each technology. This is measured in Megawatts (MW).

24 The estimated total electricity output is the estimated amount of electricity that could be generated by each technology. This is measured in Megawatt-hours per year (MWh/year). This is calculated by considering the capacity of an energy development, in MW, and a 'capacity factor', based on historic data. An energy generator's 'capacity factor' can be defined as the actual energy yield produced over a period of time, expressed as a proportion of the energy yield that would have been produced if the generator had operated at its full generation capacity continuously over the same period, i.e. the estimated percentage of time that an energy development operates at its full generation capacity over a year. This is not calculated for BESS as it only stores electricity and does not produce additional electricity.

25 The estimated total CO2 savings is the amount of CO2 that could be saved, by sourcing electricity from the potential renewable technologies,

assumed to produce negligible CO2 emissions, in comparison to sourcing electricity from the electricity grid, which is sourced in part by CO2 emitting fossil fuels. Therefore, to determine the potential CO2 savings from the potential renewable resources, the identified potential electricity output (in MWh/year) was multiplied by the current emissions factor of the grid electricity that the renewable developments would replace. The emissions factor is the amount of CO2 (equivalent) that is produced per kWh (kilowatt-hour, 0.001 MWh) of electricity used. For grid electricity, which solar and wind generated electricity would replace, this is 0.133 kgCO2e/kWh. This is not calculated for BESS as it only stores electricity and does not produce additional electricity.

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33 To mitigate impacts on the productivity of wind turbines located close to one another caused by wind turbulence, it is standard practice for developers to maintain an oval of separation between turbines that is equal to 5 times the turbine rotor diameter (the cross sectional dimension of the circle swept by the rotating blades) on the long axis, and 3 times the rotor diameter on the short axis.

34 An energy generator's 'capacity factor' can be defined as the actual energy yield produced over a period of time expressed as a proportion of the energy yield that would have been produced if the generator had operated at its full generation capacity continuously over the same period. This was averaged at 26.5% for the South West over the past 13 years. DESNZ (2024) Quarterly and annual load factors. Available at:

https://www.gov.uk/government/publications/quarterly-and-annual-load-factors.

35 National Grid (2024) Future Energy Scenarios: FES 2024 Data workbook – Key Stats; Annual average carbon intensity of electricity (five year forecast from 2023).

36 Ofgem (2024) Average gas and electricity usage. Assuming an average home uses 2,700kWh per electricity year. However, it should be noted that average household electricity use is expected to significantly increase in the next 25 years.

37 Encon (2024) Calculation of CO2 offsetting. Assuming one tonne of CO2 can be offset by 31 to 46 trees. The median of 38.5 trees per tonne of CO2 was used.

38 The transmission network refers to the highest voltage electricity network in the UK – the 'motorway network' of the energy world - it transmits large quantities of electricity over long distances via wires carried on a system of mainly metal towers (pylons) and large substations. The lower voltage, more local, parts of the system are called the distribution network.

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41 ESO (2024) Beyond 2030: A national blueprint for a decarbonised electricity system in Great Britain

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45 IRENA (2023) Renewable Power Generation Costs in 2022 [online]

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47 There are five eligible low-carbon technology types for SEG: solar PV, wind, micro combined heat and power (micro-CHP), hydro and anaerobic digestion. These installations must be located in Great Britain and have a total installed capacity of no more than 5MW, or no more than 50kW for

Micro-CHP. Anaerobic Digestion installations will need to meet further sustainability criteria.

48 This assumes: 100% wind potential and 100% GM solar potential. This is not realistic as technologies will require the same land-take in places to be delivered, and so deployable will likely be much lower.

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56 An energy generator's 'capacity factor' can be defined as the actual energy yield produced over a period of time expressed as a proportion of the energy yield that would have been produced if the generator had operated at its full generation capacity continuously over the same period. This was averaged at 9.74% for the South West over the past 13 years. DESNZ (2024) Quarterly and annual load factors. Available at: https://www.gov.uk/government/publications/quarterly-and-annual-load-factors.

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71 Town and Country Planning Association and Royal Town Planning Institute (2023) The Climate Crisis: A Guide for Local Authorities on Planning for Climate Change

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Chapel at Cambridge University, https://www.bbc.co.uk/news/uk-england-cambridgeshire-64567952

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Report produced by LUC

Bristol
12th Floor, Beacon Tower, Colston Street, Bristol BS1 4XE
0117 389 0700
bristol@landuse.co.uk

Cardiff
Room 1.04, 1st Floor, Brunel House, 2 Fitzalan Rd, Cardiff CF24 0EB
0292 254 0920
cardiff@landuse.co.uk

Edinburgh
Atholl Exchange, 6 Canning Street, Edinburgh EH3 8EG
0131 326 0900
edinburgh@landuse.co.uk

Glasgow
37 Otago Street, Glasgow G12 8JJ
0141 403 0900
glasgow@landuse.co.uk

London
250 Waterloo Road, London SE1 8RD
020 7199 5801
london@landuse.co.uk

Manchester
4th Floor, 57 Hilton Street, Manchester M1 2EJ
0161 802 2800
manchester@landuse.co.uk

Sheffield
32 Eyre Street, Sheffield, S1 4QZ
0114 392 2366
sheffield@landuse.co.uk

landuse.co.uk