Havant Borough Council

RENEWABLE ENERGY CAPACITY STUDY

70115812-R01
AUGUST 2024

CONFIDENTIAL

Havant Borough Council

RENEWABLE ENERGY CAPACITY STUDY

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1 INTRODUCTION

1.1 RENEWABLE ENERGY

1.1.1. The National Planning Policy Framework supports sustainable development while taking heed of potential local adverse effects of specific development proposals.

1.1.2. National net zero targets continue to drive decarbonisation efforts in all sectors of the economy, but crucially in continuing a move towards our energy needs being met predominantly through renewable sources. Actions at national level cascade locally, and it is important to be able to recognise and make best use of local renewable resources to support local energy needs, as well as contributing to wider regional and national system changes in the way we generate and use power and heat.

1.2 LARGE SCALE RENEWABLE GENERATION

1.2.1. Havant is a Borough with a relatively small land area and high development pressure on the areas beyond those that are already built up. The Borough's natural areas and habitats, landscapes and heritage assets are highly valued, and existing designated areas ensure protection from further development.

1.2.2. Beyond formal environmental designations, it is important that biodiversity targets are maintained and that public recreation spaces and natural habitats are retained and enhanced.

1.2.3. Any large-scale renewable energy generation requires land for its development. Assessment of the potential for any such generation in the Borough, does so while prioritising retention of good quality greenspace and public amenity.

1.2.4. Details provided in this report provide a guide as to where potential for renewable generation capacity might best be located, accounting for a raft of practical limitations that include land use and amenity value. No commercial or business case is made for any form of development.

1.3 STRUCTURE OF DOCUMENT

1.3.1. This document is structured to summarise:

- Existing renewable energy generation in the Borough (Section 2)
- National energy policy and how energy supply systems to meet future energy demand is anticipated to evolve (Section 3)
- Constraints to large-scale renewable development in the Borough and a bulk screening of HBC assets that may offer potential for solar PV development (Section 4)
- Implications for Local Plan policy in respect of renewable energy development (Section 4)

2 CURRENT LOCAL CAPACITY

Current Renewable Energy Generation

Existing renewable energy generation capacity in the Borough is dominated by rooftop solar PV. There are no existing large scale anaerobic digestion, onshore wind or district heating networks in operation.

2.1 SNAPSHOT

2.1.1. The latest dataset available[1] suggests that there are approximately 2,300 renewable energy generation installation within Havant Borough Council (HBC)'s operating boundary; the vast majority of these are solar PV (a generating capacity of around 10.5 MW).

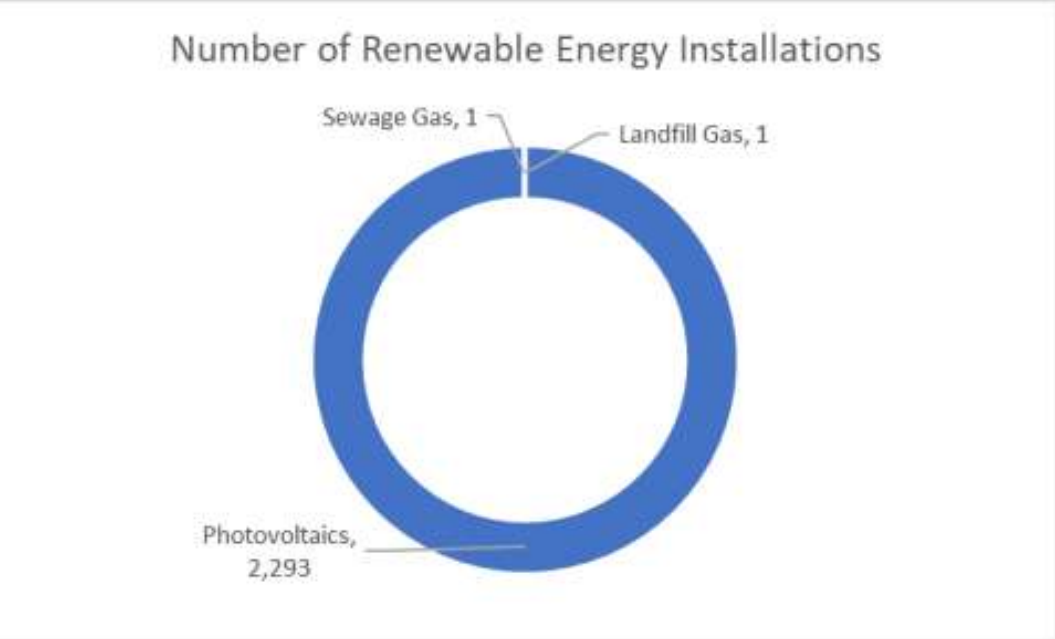

Figure 2-1 - Renewable Energy Generation - Installed Capacity

2.1.2. The vast majority of these installations are rooftop solar PV on domestic properties.

2.1.3. The Renewable Energy Planning Database provides a view of the number of installations that are in the planning system at present within the Borough (either at planning application or in operation)[2]. This lists 2 sites – a solar PV array for Portsmouth Water (0.25 MW) and the Southleigh Landfill site (3.5 MW capacity).

[1] https://www.gov.uk/government/statistics/regional-renewable-statistics (Accessed September 2023)
[2] Renewable Energy Planning Database | DESNZ & Barbour ABI (barbour-abi.com) (Accessed September 2023)

2.1.4. In terms of district heat networks, Havant Borough Council was successful in securing Heat Networks Delivery Unit (HNDU) funding in Round 5 of the programme. The feasibility study focussed on a potential network within Havant, centred on the Leisure Centre and connection to other Civic buildings. No active development is noted within any further details of project or procurement pipelines published by HNDU.

2.1.5. There is no large-scale anaerobic digestion capacity using local food waste to produce biomethane.

3 NATIONAL ENERGY POLICY

3.1 OVERVIEW

National Energy Policy

- Reducing final energy demand by industry and buildings by 15% before 2030 is a target supported by a number of specific measures. These include further strengthening of Building Regulations through introduction of the Future Homes Standard and Future Buildings Standard.
- Government ambition is for a net zero national electricity grid by 2035. This is underpinned by a continued push to extend offshore wind capacity (targeting up to 50 GW of capacity by 2030), and growth in solar generation (potential for up to 70 GW of roof and ground mounted capacity by 2035; from 15 GW today)
- Low carbon electricity is the backbone of wider net zero targets; a reduction in use of fossil fuels, including natural gas, is implicit in these.

3.1.1. The current UK Government position is set out in a number of documents[3]. These are re-asserted in the recent Powering Up Britain: Energy Security Plan[4]. Key elements of national policy can be summarised as:

- Ongoing work to secure sufficient natural gas supplies recognising the significant (though ultimately reducing) role of natural gas in power generation and space heating
- Establishment of the Future Systems Operator (FSO) to manage security and resilience of both electricity and gas networks (see 3.2.2)
- Target of a 15% reduction in final energy demand by industry and buildings before 2030. In pursuit of this target, it will implement a number of measures:
  - Introduction of the Future Homes Standard and Future Buildings Standard (to be implemented in 2025)
  - Use of Home Upgrade Grants and Social Housing Decarbonisation Fund to support energy efficiency works
  - Phase out all new and replacement natural gas boilers by 2035 at the latest
  - Extending the Boiler Upgrade Scheme to 2028, providing households with funding to support a switch to heat pumps
  - Supporting growth of heat networks via the Green Heat Network Fund and the Heat Network Efficiency Scheme

[3] See, for example, https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution (Accessed March 2024), https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future (Accessed March 2024) and https://www.gov.uk/government/publications/net-zero-strategy (Accessed March 2024)

[4] https://www.gov.uk/government/publications/powering-up-britain/powering-up-britain-energy-security-plan (Accessed March 2024)

- Launch of an Energy Efficiency Taskforce to drive greater private sector action on resource and energy efficiency. Extension to the Industrial Energy Transformation Fund (IETF) and existing Climate Change Agreements to encourage industrial energy efficiency

- Commitment to achieving fully decarbonised electricity by 2035, subject to security of supply. Clean electricity is central to the achievement of net zero targets and deployment of low cost renewables is central to this achievement. It also notes the role of nuclear in supporting this, as well as transition linked with unabated gas-fired power stations.
- Hydrogen is recognised as another fuel to be used in this mix. The target ambition is to achieve 10 GW of hydrogen production by 2030 at least 50% of which should be via electrolysis
- Carbon Capture Use and Storage (CCS) is seen a key enabling technology, supporting low-carbon hydrogen production and flexible low-carbon electricity generation to complement renewables

3.1.2. National Policy Statements (NPS) are recognised by UK Government as key to the system. They set out the national need for infrastructure and give guidance on planning considerations for individual projects. Four revised NPS have been published covering Renewables, Oil and Gas Pipelines, Electricity Networks and Gas Generation. The revised draft Renewables NPS introduces the concept of 'critical national priority' for offshore wind and supporting transmission infrastructure, and the revised draft electricity Networks NPS is strengthened by reference to strategic network plans that ensure our connecting infrastructure is developed in a joined-up way to reduce impacts.

3.1.3. Nuclear energy support is seen as a key element of a net zero future. This includes looking beyond existing development of new capacity at Hinckley C and Sizewell C and considering the potential of small modular reactor (SMR) technologies.

3.1.4. From a planning perspective, reforms will be introduced targeting a reduction in determination times for Nationally Significant Infrastructure Projects and offshore wind development.

3.1.5. In respect of solar power development, the Government will publish a roadmap considering how to drive up large-scale solar capacity with a target of up to 70 GW by 2030. A taskforce will also look at how to increase ground mounted and roof mounted capacity. A consultation on new permitted development rights for solar canopies on non-domestic car parks will be undertaken.

3.1.6. Biomass targets are set out in the separate UK Biomass Strategy (see Section 4.4).

3.1.7. Maintaining electricity grid flexibility means finding a transition pathway away from unabated gas powered generation. This is to be achieved via a number of measures:

- driving the deployment of power Carbon Capture Usage and Storage (CCUS) in the 2020s and beyond
- consulting on the need and potential design options for hydrogen-fired electricity generation 'hydrogen to power' market intervention
- facilitating the deployment of electricity storage
- developing enablers for clear decarbonisation pathways for unabated generation
- unlocking demand side flexibility and digitalisation at scale
- updating and reforming electricity market arrangements and governance to support flexibility

3.1.8. Electricity storage – Storage planning is looked at via Ofgem's 'Smart Systems and Flexibility Plan'. The Government will be seeking investment in large scale long duration electricity storage (LLES), with the goal of deploying sufficient storage capacity to balance the overall system.

3.1.9. The Electric Vehicle Smart Charging Action Plan sets out initial commitments to 2026 that will enable use of EV batteries as part of a flexible grid system.

3.1.10. The 'Hydrogen Sector Development Action Plan', sets out actions that the government and industry are taking to maximise the economic opportunities that hydrogen presents for the UK. One element of this will be a strategic policy decision on whether to seek to enable the blending of hydrogen in the existing gas distribution network.

3.1.11. Of immediate relevance to the Borough are:

- Ambition for a net zero national electricity grid by 2035. This is underpinned by a continued push to extend offshore wind capacity (targeting up to 50 GW of capacity by 2030), ambition to continue to grow solar generation (potential for up to 70 GW of roof and ground mounted capacity by 2035; from 15 GW today)
- Reform of National Planning Policy Framework with respect to how onshore wind development should be considered. This opens up the possibility of Local Development Orders and Community Right to Build Orders as delivery mechanisms for increased capacity.
- Potential extension of permitted development rights in respect of non-domestic solar PV and solar canopies on non-domestic car parks
- Use of Future Homes Standard and Future Building Standard to drive energy efficient buildings. This will also promote uptake of rooftop solar PV and heat pumps as integral means of providing heat and power for both domestic and non-domestic buildings.

3.2 EVOLVING SUPPLY MIX

UK Electricity Generation Mix

- The newly formed National Energy System Operator (NESO), will take a 'whole system' approach to delivering net zero targets, while maintaining energy supply resilience and security of supply
- The trajectory of power generation is anticipated to be dominated by renewable sources, though balancing generation (through a combination of gas, nuclear and a small amount of biomass) will be required to manage balance of supply. In terms of carbon intensity of power supplied by the grid this is anticipated to continue to fall, with net zero operation by 2035 at the latest.
- Generation from offshore wind is anticipated to form the backbone of the future electricity grid.

3.2.1. In 2023 the UK's electricity was generated from a number of sources, as summarised here.

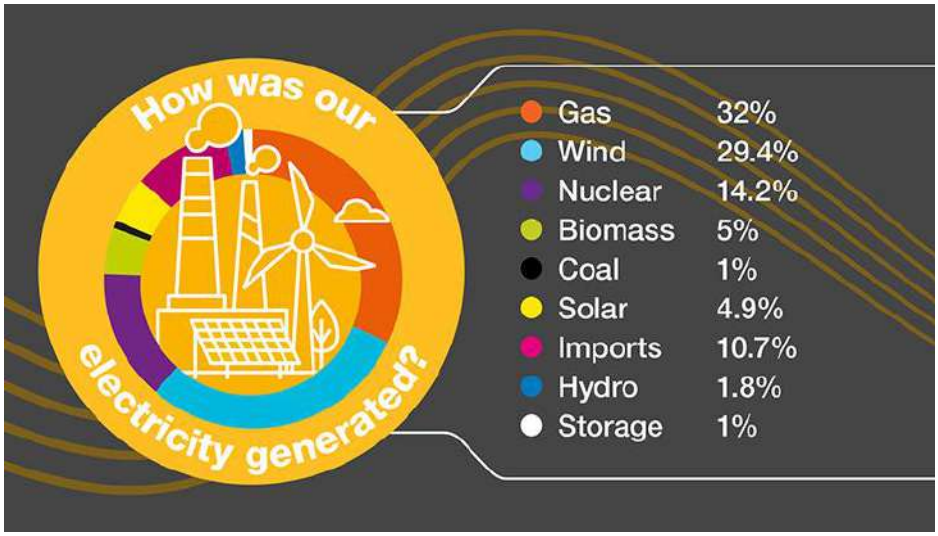

Figure 3-1 - UK Electricity Generation Mix (2023)[5]

3.2.2. The UK Government is committed to achieving a net zero national electricity grid by 2035[6]. In support of this, the Energy Act 2023 included provision for a Future System Operator. This Government-owned entity, to be renamed as the National Energy System Operator (NESO), will launch during 2024. Its remit will be to take a 'whole system' approach to delivering net zero targets, while maintaining energy supply resilience and security of supply.

3.2.3. The Climate Change Committee, as advisors to the UK Government, set out pathways by which the UK can achieve its national targets for GHG emission reduction[7]. These pathways align with the national carbon budgets as set out in law. They also guide progress in terms of national commitments within National Determined Contributions (NDCs).

3.2.4. Energy demand is an important factor in assessing how swiftly the national electricity grid can decarbonise. There is likely to be significant increases in demand for electricity for use in buildings (as fossil fuel systems are phased out) and in transport.

3.2.5. Generation from offshore wind is anticipated to form the backbone of the future electricity grid. An interim target of 40 GW of offshore capacity in 2030 could see capacity rise to around 95 GW in 2050.

3.2.6. At the same time, it is anticipated that onshore wind capacity will be maintained and large scale solar PV capacity extended to 85 GW by 2050.

3.2.7. New nuclear generation is anticipated to replace existing sites that are due to be decommissioned in the next decade. Projected contribution from nuclear power is therefore around 10 GW.

[5] https://www.nationalgrideso.com/news/britains-electricity-explained-2023-review (Accessed March 2024)
[6] https://www.gov.uk/government/news/plans-unveiled-to-decarbonise-uk-power-system-by-2035 (Accessed March 2024)
[7] See, for example, https://www.theccc.org.uk/publication/sixth-carbon-budget/#sector-summaries (Accessed March 2024)

3.2.8. Existing gas-fired power plants will be retrofitted or replaced with new facilities capable of carbon capture and storage. The current UK Government commitment is to phase out unabated gas plants by 2035. This will enable up to 15 GW of power output to be generated by this technology by 2050.

3.2.9. In summary, the trajectory of power generation is anticipated to be dominated by renewable sources, though balancing generation (through a combination of gas, nuclear and a small amount of biomass) will be required to manage balance of supply. In terms of carbon intensity of power supplied by the grid this is anticipated to continue to fall, with net zero operation by 2035 at the latest.

3.3 NATIONAL PLANNING POLICY

3.3.1. The National Planning Policy Framework[8] is clear that, as stated in Paragraph 157:

The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.

3.3.2. In supporting the use and supply of renewable and low carbon energy and heat, plans should:

- provide a positive strategy for energy from these sources
- consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure
- 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

3.3.3. When determining planning applications for renewable and low carbon development, local planning authorities should:

- a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to significant cutting greenhouse gas emissions;
- b) approve the application if its impacts are (or can be made) acceptable. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas; and
- 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, and approve the proposal if its impacts are or can be made acceptable.

[8] https://assets.publishing.service.gov.uk/media/65a11af7e8f5ec000f1f8c46/NPPF_December_2023.pdf (Accessed March 2024)

4 RENEWABLE ENERGY IN THE BOROUGH

4.1 OVERVIEW OF DEVELOPMENT CONSTRAINTS

Potential large-scale renewable development

- There are significant environmental constraints to large-scale generation from wind or ground-mounted solar PV across the Borough
- The extent of high-grade agricultural land in areas outside of specific habitat designations further reduce potential land areas

4.1.1. Planning consent for any large-scale renewable energy generation needs to consider a number of factors. These can be summarised as:

- Availability of renewable resource (wind, solar, water, biomass)
- Avoidance of environmental impacts on protected habitats or species and all environmentally designated areas
- Due consideration of landscape and visual impacts associated with generating infrastructure
- Capability to transport and use outputs (ability to connect to local electricity grid or otherwise distribute power or heat to end users)
- Sufficient land area to accommodate generation and related infrastructure

4.1.2. In determining an initial constraints map for the Borough, these multiple factors have been accounted for as summarised here.

Table 4-1 – Summary of constraints on large-scale renewable development

Criteria	Wind	Solar
Environmental designations	✓	✓
Infrastructure	✓	✓
Existing water courses	✓	✓
Aviation constraints	✓	✓
Noise buffers	✓	×
Best and most versatile agricultural land	✓	✓
Landscape and visual considerations	✓	✓

4.1.3. Environmental Designations – Proposed development should avoid designated environmental sites or other sensitive natural heritage sites.

4.1.4. Infrastructure – Proposed development should take due account of existing transport infrastructure (roads and rail) recognising the benefit of access to sites (where appropriate). Due account of the location of electrical transmission lines and microwave links should also be in place to avoid costly modifications.

4.1.5. Existing water courses – Any proposed development will minimise development costs by avoiding areas close to water courses. Minimising flood risk reduces associated design requirements regarding the scale and height of electrical assets. Siting turbines in areas of flood risk would require expensive foundations and make access for maintenance more costly

4.1.6. Aviation – A safeguarding area of 15 km around civil airports needs to be factored into any proposed wind development. An advisory area of 30 km means early consultation with any such CAA site needs to be carried out at an early stage of any proposals for wind in particular. Turbines need to be at a distance from MOD sites that avoids any compromising of MOD activities. This is also true of RAF bases. Ground mounted solar arrays may be subject to 'glint and glare' concerns if sited close to airfields

4.1.7. Noise - Wind turbines must be sited at sufficient distance from existing buildings to ensure noise levels meet national requirements. The noise requirements for non-domestic buildings are less onerous, reflecting the higher ambient noise levels in employment areas.

4.1.8. Best and most versatile agricultural land –Development of wind and solar should, in the first instance, seek to develop on lower grade agricultural land or urban land areas.

4.1.9. Green belt –Site specific circumstances need to be considered when bringing forward any wind or solar development. In the case of Havant, this constraint is not relevant.

4.1.10. Landscape and visual – All developments need to account for local landscape and visual impacts as well as any cumulative impacts associated with existing renewable energy generation.

4.1.11. A summary of key environmental constraints is shown in Figure 4-1.

4.1.12. In considering the potential for large-scale wind or solar development, agricultural land classification is an important factor within the environmental constraints. In line with NPPF guidance, high grade agricultural land should not be prioritised for energy generation ahead of crop production.

4.1.13. Land classification details for the Borough, including Grade 1 and 2 agricultural land, are shown in Figure 4-2.

4.1.14. In practice, the extent of environmental designations in the south of the Borough limits the extent of large-scale renewable generation opportunities for onshore wind or ground-mounted solar PV. What land areas there are outside of designated sites (or urban areas) is predominantly high grade agricultural land.

4.1.15. Urban development in the northern areas of the Borough further restricts potential sites for large-scale renewables. There are some areas of lower grade or non-agricultural land, though significant amounts of this land supports woodland or copse that would be retained in preference to felling to accommodate renewable generation.

4.1.16. Further details are available in Appendix A.

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115000 110000 105000 100000 95000

N

Figure 4-1 - Renewable Energy Development - Environmental Constraints

Key

- Havant Borough Council Boundary
- Local Nature Reserves
- National Nature Reserves
- Biosphere Reserves
- International Bird Areas
- Ramsar England
- RSPB Reserve
- Sites of Special Scientific Interest
- Special Areas of Conservation
- Special Protection Areas

0 4,000 m

Scale at A3: 1:75,000

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Figure 4-1 - Renewable Energy Development - Environmental Constraints

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Key

Agricultural Land Classification

- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Non Agricultural
- Urban
- Havant Borough Council Boundary

0 4,000 m

Scale at A3: 1:75,000

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Havant Borough Council
Renewable Energy Capacity Study

Figure 4-2 - Agricultural Land Classification

May 2024

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4.2 BULK SCREENING OF PRIVATE LAND

Private land renewable opportunities

- An initial screening of private land holdings suggests limited potential opportunities for some solar PV ground arrays. However, these are evaluated as relatively small in number and likely to be limited in practice by landscape and visual considerations and existing land use practices.
- The screening makes no commentary on the commercial viability of any such schemes being taken forward.

4.2.1. An initial screening of non-Council owned land across the Borough has been completed in order to assess the potential for large-scale solar PV generation.

4.2.2. The assessment makes no commentary on the commercial viability of any such scheme, nor any presumption in respect of the success or otherwise of any relate planning application.

4.2.3. The initial overview, is simply to evaluate the scale of opportunity that may exist for the purposes of characterising the Borough. Land areas of 1.5 Ha or above assessed to be of low agricultural land classification (or non-agricultural) and not subject to existing environmental classifications were identified. In practice this would offer development potential of 1 MW installed capacity and greater. This threshold is used, given the current permitted development potential of 1 MW roof-mounted solar PV on non-domestic premises.

4.2.4. The summary screening is shown in Figure 4-3. This amounts to a total land area of around 300 Ha.

4.2.5. In practice a large amount of this land sits in a corridor alongside the A3(M) running south to north through the Borough. ‘In-fill’ sites of a smaller scale adjacent to the A27 have some potential, though there would need to be ‘glint and glare’ assessment to determine any detrimental impacts for motorists. The impact of this is a reduction in potential developable area to around 90 Ha. This would translate in generating capacity as around 60 MW; with annual energy yield of around 60 GWh per year. To place in context, this would be six times greater than the current renewable energy generating assets in the entire Borough.

4.3 BULK SCREENING OF COUNCIL ASSETS

HBC asset renewable generation potential

- The potential for small scale solar PV development is most likely on buildings or as solar canopies within car park areas.
- While there are large amounts of land, these are predominantly multi-use open ground or public recreation space. Given existing use it is unlikely that major scale development would be taken forward in such areas.

4.3.1. Large-scale renewable generation opportunities within the Borough are limited by the extent of environmental and cultural heritage designations as well as existing urban centres.

4.3.2. As a further piece of analysis, a bulk screening of HBC owned assets has been carried out. This provides a guide as to those sites which have greatest potential for location of renewable energy. The most likely development would be for either roof or ground mounted solar PV in the majority of cases.

4.3.3. This analysis considers technical feasibility and initial high-level constraints; it does not consider economic feasibility or net benefits to specific HBC properties.

4.3.4. An initial list of HBC owned assets was provided, amounting to over 1,000 individual sites. These include buildings, public amenities, brownfield and public parks. Their spatial extent is shown in Appendix A.

4.3.5. An initial screening process has reduced the initial list by consideration of the combination of:

- Location within or in close proximity to environmental or cultural heritage designations
- Areas of public highway or within close proximity of highways
- Areas adjacent to coastlines or beaches
- Size and viability of access

4.3.6. The initial list has therefore been reduced to around 180 sites.

4.3.7. Roof-mounted opportunities would be subject to permitted development rights. These offer direct opportunities to meet local energy supply.

4.3.8. Ground-mounted opportunities are typically associated with areas of public land (recreation space and adjacent to property). These would require planning consent given any development would be of an area greater than 9 m^2. Development of these sites would need to consider a balance of amenity and value of energy generation. Security is also a consideration in protecting solar panels and inverters from damage or risk of theft.

4.3.9. While there are significant land areas owned by HBC, much of this is multi-use open space or recreational areas. Any development of renewables in these areas would need to be sympathetic to community use of the space and, in practical terms, would need secure fencing around inverters and control systems. Such fencing could be fairly intrusive and counter-productive, in drawing attention to assets giving the impression of higher net asset worth.

4.3.10. Higher potential opportunities would be in roof-mounted solar capacity and introduction of solar canopies in car park areas. These are estimated to be a cumulative area of around 10 Ha with a generation capacity of up to 10 MW, which would be capable of generating around 11 GWh per year.

4.3.11. Any proposed development would require initial site surveys to determine the capacity of building roofs or car park areas to accommodate structural load associated with solar PV generation. No initial surveys have been caried out, so there is no guarantee that any such development would be possible. The findings of this report therefore provide no more than an indicative guide as to the scale of development that might be possible.

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Key

Solar unconstrained areas

Havant Borough Council Boundary

0
4,000 m

Scale at A3: 1:75,000

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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Figure 4-3 - Non-HBC Land Bulk Screening
- Unconstrained Areas

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May 2024

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4.4 LOCAL PLAN IMPLICATIONS

Large scale renewable energy generation

- In practice, the combination of environmental designations and existing urban development/infrastructure mean that there are not anticipated to be significant numbers of large scale developments coming forward within the Borough.

Medium/small scale renewable energy generation

- The majority of future smaller scale renewable generation opportunities are likely to come from roof-mounted solar PV. Few of these are likely to be sized outside generation limits that currently sit within permitted development rights.
- A small number of ground-mounted arrays may also come forward.

WIND

4.4.1. Despite a revision to policy regarding onshore wind this is not likely to see a substantial change in large scale development being brought forward. In England as a whole in 2023 there were seven onshore wind applications the majority of which were re-powering (request to replace existing turbines with more efficient new ones) of existing sites.

4.4.2. Successful onshore development requires 'significant community support' (this wording revised from the previous 'backing') and must 'satisfactorily address' community issues raised in respect of planning aspects.

4.4.3. As noted in commentary on the national position a significant effort is being invested in development of offshore wind capacity. This is focussing attention of developers and turbine suppliers away from onshore development. Sea bed development areas are leased by the Crown Estate. There have been five leasing rounds to date and none of these has included areas within the Havant Brough coastal area. It is not anticipated that this position will change in subsequent leasing rounds.

4.4.4. There are a number of constraints to offshore wind development, which are shown in Figure 4-4.

4.4.5. The pale blue area shows the extent of the area covered by the South Inshore and South Offshore Marine Plan[9], which is the responsibility of the Marine Management Organisation. The Plan provides a framework that shapes and informs decisions over how the areas' waters are developed, protected and improved.

4.4.6. There are no designations within the Plan relating to renewable energy development, whether offshore wind or any other form of generation. This reinforces the earlier point regarding the expectation of any offshore wind generation being brought forward in development.

[9] https://assets.publishing.service.gov.uk/media/5b4f39fbed915d43776f3fd9/South_Marine_Plan_2018.pdf (Accessed May 2024)

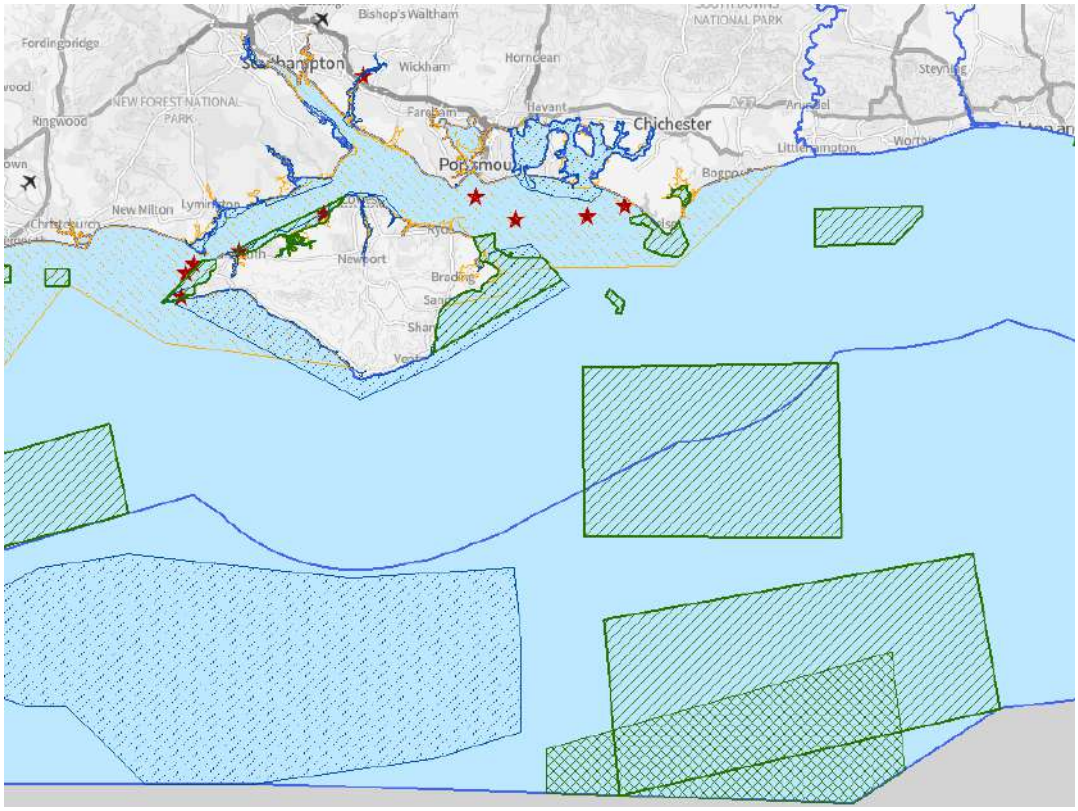

Figure 4-4 - Marine development constraints[10]

Key

- Marine Conservation Zone
- Highly Protected Marine Area
- Designated Special Area of Conservation
- Classified Special Protection Area
- Protected Wreck Sites

[10] Details from https://magic.defra.gov.uk/MagicMap.aspx (Accessed May 2024)

SOLAR

4.4.7. As noted in Section 1 there is 1 large scale solar array with existing planning consent in the Borough (a 0.25 MW scheme proposed by Portsmouth Water).

4.4.8. While permitted development rights apply in the case of roof-mounted installations on both domestic and commercial premises, this is not the case for ground-mounted arrays that are larger than 9 m^2 in size. In practice, this means that planning consent will be required in all cases where a ground-mounted array is proposed.

4.4.9. Given the extent of environmental designations and existing development it is unlikely that there will be a large number of future applications.

4.4.10. From a planning perspective, policy consistent with NPPF and related national policy will be sufficient to address any such applications.

BIOMASS

4.4.11. Biomass energy-related schemes include:

- Commercial premises with boilers that use wood chips/pellets as a primary fuel source
- Medium or large scale combustion plants for power/heat generation that use biomass as a primary fuel source
- Operation of landfill gas engines to generate power from methane arising from biodegradable landfill waste

4.4.12. The UK Biomass Strategy[11] does not actively promote growth of crops for fuel production. It sets out a priority use assessment for biomass, recognising it is a limited resource that will require targeted uses to achieve the best outcomes. There are four areas of assessment:

- Sustainability – meeting current and emerging sustainability criteria (to be set out in a common sustainability framework)
- Air Quality – meeting regulatory and statutory air quality limits and minimising public health impacts by being located away from populations
- Net Zero – demonstrating lifecycle GHG emissions benefits higher than alternative technologies
- Circular economy – compliant with waste hierarchy principles

4.4.13. In practice, the combination of sustainability criteria and air quality requirements are likely to mean that medium/large scale combustion plants are unlikely to be located within the Borough. Wider policy drivers in the energy sector are likely to mean that any such proposed new plant would also need to be capable of carbon capture storage. This adds to the land area required to host the combustion plant and ancillary services and requires the physical means of transporting and storing captured CO_2 emissions permanently.

[11] https://www.gov.uk/government/publications/biomass-strategy (Accessed March 2024)

4.4.14. Waste management policy means that it is unlikely that additional landfill sites will be brought forward in future. On this basis landfill gas related energy generation will be restricted to the existing operating site.

4.4.15. Existing planning policy, consistent with national policy, is likely to be sufficient to deal with applications for use of biomass boilers in domestic and commercial premises.

COMBINED HEAT AND POWER (CHP)

4.4.16. The recent update to Building Regulations, revised the base heat source used in demonstrating compliance under Part L. This makes the use of natural gas CHP less favourable as a source of space heating for buildings.

4.4.17. With increasing thermal efficiency requirements for new build brings a reduction in overall energy demand. A reduction in thermal demand means a lower ratio of overall demand between heat and power. This makes use of CHP more challenging in terms of the overall efficiency of the system.

4.4.18. Given the 'fabric' first' approach to design now more clearly outlined in Building Regulations any new heat networks are designed with lower flow/return temperatures and are increasingly using heat pumps and related sources of medium temperature heat (via heat recovery) in preference to gas CHP.

4.4.19. Any larger-scale proposed CHP plant would need to be capable of carbon capture and storage. This would be the case both for a natural gas fired plant or one fuelled by biomass. In the case of biomass this would add to the land take required due to fuel storage capacity.

4.4.20. It is therefore considered unlikely that there would be any application for CHP plant during the lifetime of the revised Local Plan.

4.4.21. Existing planning policy, consistent with national policy, is likely to be sufficient to deal with any applications that do arise.

BATTERY STORAGE

4.4.22. Large-scale battery storage (1 MW capacity and above) will typically be co-located with power generation and/or grid and bulk supply points on the electricity network.

4.4.23. In terms of spatial location, therefore, it is unlikely that any such system would be proposed within either residential areas or environmentally sensitive areas.

4.4.24. These battery storage systems are typically open to air, not enclosed within a building. The majority of batteries used at present are lithium-ion batteries.

4.4.25. Any such installation is likely to be dealt with via local planning, unless linked to wider electrical generation and/or transmission/distribution upgrades of a scale that would be deemed subject to a Section 14 application.

4.4.26. Guidance has been published by the National Fire Chiefs Council[12], providing developers with a checklist of considerations. In developing these guidelines, the hazards and risks from lithium-ion batteries, identified in National Operational Guidance, has been considered.

4.4.27. Any application for battery storage is therefore subject to requirements as set out in Planning Policy Guidance. They are also strongly encouraged to consult local fire and rescue service to confirm safety aspects in design.

HYDROGEN

4.4.28. Hydrogen production can be achieved via a number of production routes. The most common of these are described as blue hydrogen and green hydrogen.

4.4.29. Blue hydrogen production involves the use of natural gas as the input, which is then subject to steam reforming to produce hydrogen. A further by-product of the process is carbon dioxide. Any proposed blue hydrogen production plant would be required to implement carbon capture storage.

4.4.30. Green hydrogen involves electrolysis of water to produce hydrogen and oxygen. Electrolysers are sized to scale using a modular design. Each module is approximately the size of an ISO freight container. Input water is deionised and fed into the electrolyser; further water is also used in cooling circuits to maintain the electrolysers' operating temperatures. There are no direct GHG emissions from the process.

4.4.31. The use of hydrogen is of interest to gas operating companies, as they explore the potential to either increase the amount of hydrogen blended into the national gas network or carry out a wholesale switch to a full hydrogen network in future. Hydrogen is also a potential alternative to use of natural gas in energy intensive industries, which operate high temperature processes.

4.4.32. The UK identifies a number of key areas, Industrial Clusters[13], where hydrogen may offer an important role in decarbonisation. The nearest of these to Havant is Southampton, linked with refinery operations.

4.4.33. Green hydrogen production relies on the use of renewable energy generation to provide the power for its operation. It is therefore most likely that any hydrogen production is co-located with renewable energy generation. As noted above, it will also need to consider adequate supplies of water (and capacity to re-use water rejected from the electrolyser as part of the deionisation process).

4.4.34. Given the limited number of large-scale renewable generation opportunities in the Borough this is likely to mean limited appetite for development of hydrogen production facilities.

[12] https://nfcc.org.uk/wp-content/uploads/2023/10/Grid-Scale-Battery-Energy-Storage-System-planning-Guidance-for-FRS.pdf (Accessed March 2024)
[13] https://www.zerocarbonhubs.co.uk/industrial-clusters.html (Accessed March 2024)

Appendix A

SUPPORTING INFORMATION

460000 465000 470000 475000 480000

115000 110000 105000 100000 95000

N

Key

Havant Borough Council Boundary

Listed Building

Grade

I

II

II*

Ancient Woodland

Areas of Outstanding Natural Beauty

Conservation Areas

Registered Parks and Gardens

Scheduled Monuments

0 4,000 m

Scale at A3: 1:75,000

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Client

Havant BOROUGH COUNCIL

Havant Borough Council
Renewable Energy Capacity Study

Figure A-1 - Landscape and Cultural Constraints

March 2024

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460000
465000
470000
475000
480000
115000
110000
105000
100000
95000
N

Key

EA hydro assessment locations

Havant Borough Council property assets

Havant Borough Council Boundary

0
4,000 m
Scale at A3: 1:75,000
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Client

Havant BOROUGH COUNCIL

Havant Borough Council
Renewable Energy Capacity Study

Figure A-2 - Indicative hydro-power site opportunities

March 2024

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Havant BC hydro assessment locations

460000 465000 470000 475000 480000

115000 110000 105000 100000 95000

N

Key

Havant Borough Council property assets

Havant Borough Council Boundary

0 4,000 m

Scale at A3: 1:75,000

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Client

Havant BOROUGH COUNCIL

Havant Borough Council
Renewable Energy Capacity Study

Figure A-3 - HBC Owned Assets

March 2024

wsp

Havant BC property assets

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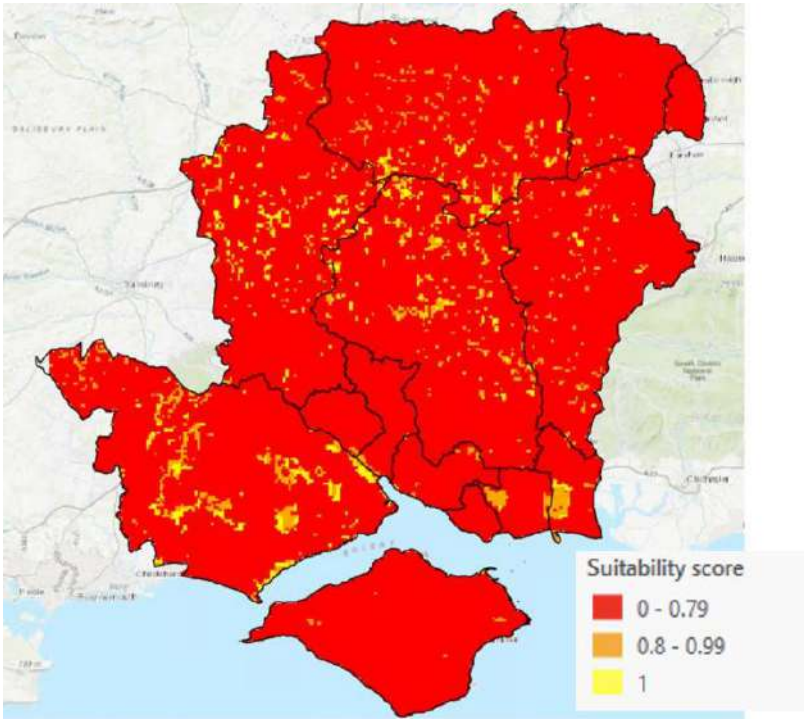

Figure A-4 - Assessment of onshore wind development potential

Details here are reproduced from a study carried out for Hampshire County Council.[14]

A multi-criteria decision analysis (MCDA) determined a suitability score for onshore wind development. A score of 0 represents no development potential; a score of 1 represents the greatest development potential.

The analysis notes that areas of water in Southampton, Havant and Portsmouth were not filtered out as they were deemed 'suitable' even if implementation may be impractical.

In practice this means that the area of higher suitability score 'within' Havant is within water (rather than on land). There are no significant opportunities for onshore wind development identified on terrestrial sites within the Borough.

[14] Ridett, E., and Anderson, B. (2023) An updated assessment of the technical and economic potential for renewable electricity generation in the pan-Hampshire area (v2.0). Establishing a Robust Evidence for a Pan-Hampshire 2025-2050 Energy Strategy project report. Southampton: University of Southampton. Available at https://documents.hants.gov.uk/climate-change/UoS-HCC-2023-WP1-Updated-Renewable-Electricity-Potential-Hampshire.pdf

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