

Preliminary Energy Statement

1. Introduction

This Energy Statement has been prepared in support of a planning application for the erection of Erection of 5 detached dwellings including garages, parking, landscaping, bin stores, installation of Air Source Heat Pumps and alterations to existing vehicular access off London Road.

The statement has been prepared with regard to the adopted **North Hertfordshire Local Plan** and the Council's **Sustainability Supplementary Planning Document (September 2024)**. The Council's SPD supports Policy **SP1: Sustainable Development** and Policy **D1: Sustainable Design**, and sets out sustainability expectations for development proposals in the district. For schemes of **one to nine dwellings**, the SPD expects submission of a Sustainability and Energy Statement showing compliance with policy and Building Regulations.

The proposed development comprises:

- **5 no. houses**
- New-build residential construction
- Roof-mounted **solar photovoltaic panels** with battery storage
- **Air source heat pumps** serving as the principal space heating system and domestic hot water source

The dwellings are intended to deliver a high standard of energy efficiency through a **fabric-first approach**, combined with on-site renewable electricity generation and low-carbon heating.

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2. Policy Context

This statement should be read in the context of:

- **North Hertfordshire Local Plan 2011–2031**
- **North Herts Sustainability SPD (September 2024)**
- **Current Building Regulations Part L** requirements for new dwellings

The Sustainability SPD explains that minor residential schemes should demonstrate:

- compliance with policy and Building Regulations;
- energy-efficient design and fabric performance;
- maximisation of solar gain through layout, orientation and design where practical;
- measures to reduce overheating risk; and
- the use of **lower-carbon alternatives to gas boilers**. Strategy

The energy strategy for the proposed houses follows the established hierarchy of:

1. **Reduce energy demand** through efficient building fabric and passive design;
2. **Use efficient systems** with low operational energy demand;
3. **Generate renewable energy on site** through roof-mounted solar PV with battery storage.

3 Fabric-First Design

The proposed dwellings have been designed to minimise energy demand at source. Measures include:

- high levels of thermal insulation to walls, roofs and floors;
- thermally efficient windows and doors;
- careful detailing to reduce thermal bridging;
- a high standard of airtightness;
- efficient building form appropriate to new dwellings;
- low-energy lighting throughout.

These measures will reduce space-heating demand and improve year-round comfort, consistent with the SPD's emphasis on passive design and fabric performance.

The dwellings have been designed to make appropriate use of natural daylight and solar gain where site layout and orientation allow. Window placement and room arrangement have been considered to support good daylight levels while avoiding unnecessary heat loss.

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Roof design has also taken account of the need to provide suitable areas for solar photovoltaic panels. The Council's SPD highlights the importance of roof shape and orientation in maximising solar PV output.

In line with the Sustainability SPD, the proposals incorporate measures to reduce overheating risk, including:

- balanced window design;
- natural ventilation through openable windows;
- appropriate glazing distribution;
- external building form and orientation considered at design stage.

Further detailed design will continue to consider summertime comfort and compliance with the Building Regulations overheating requirements where applicable. The SPD specifically expects minor residential schemes to address overheating as part of their sustainability submission. on Heating

Each house will be heated by an **air source heat pump (ASHP)**, which will serve as the main heating system and provide domestic hot water.

This avoids the use of fossil-fuel gas boilers and accords with the Council's expectation that applicants consider **lower-carbon alternatives to gas boilers**. Air source heat pumps are an established low-carbon heating technology and are well suited to highly insulated new-build homes with low heat demand. HPs will:

- significantly reduce direct on-site carbon emissions compared with gas-fired systems;
- support the transition to low-carbon residential heating;
- work efficiently when combined with strong fabric performance and low-temperature heat emitters.

4. Solar Photovoltaic Panels

The houses will incorporate **roof-mounted solar photovoltaic panels** to provide on-site renewable electricity generation, incorporating battery storage.

The solar PV array(s) will help offset part of the dwellings' electrical demand, including demand associated with the operation of the air source heat pumps. This will reduce reliance on grid electricity and lower operational carbon emissions.

The North Herts Sustainability SPD identifies roof-mounted PV as an appropriate on-site renewable technology and notes the importance of roof orientation and configuration in maximising output. All PV panels are mounted on the best elevation to make use of the sun. The battery storage will store energy during the day and this will be used in the evenings further reducing energy demand on the grid.

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Where final SAP calculations or manufacturer information are available, these figures can be inserted prior to submission.

5. Compliance with Building Regulations

The proposed dwellings will be designed and constructed to meet or exceed the relevant requirements of the **current Building Regulations**, including **Part L** for energy efficiency.

A full SAP assessment and associated as-designed / as-built calculations will be prepared at technical design stage and submitted to Building Control as required. This will confirm the detailed performance of the dwellings, including fabric efficiency, primary energy demand, carbon emissions and dwelling emission rates.

For planning purposes, this statement demonstrates that the development adopts a clear low-energy, low-carbon strategy based on:

- reduced energy demand through fabric-first design;
- fossil-fuel-free space heating and hot water provision via ASHPs; and
- on-site renewable electricity generation via roof-mounted PV.

6. Summary

The proposed 5 houses have been designed to provide an energy-efficient form of development appropriate to the Council's sustainability objectives.

In summary, the scheme will deliver:

- a **fabric-first** approach to minimise heat loss and reduce operational energy demand;
- **air source heat pumps** as the principal heating and hot water system, avoiding gas boilers;
- **roof-mounted solar PV panels** to generate renewable electricity on site;
- consideration of **solar gain, daylight and overheating** as part of the design process;
- compliance with the relevant requirements of the **North Hertfordshire Sustainability SPD** and current **Building Regulations**.

Overall, the proposals represent a sustainable form of residential development that will reduce operational carbon emissions and support the transition to low-carbon homes within North Hertfordshire.

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