## Illustration of Non-Residential Electrical Demand and Solar PV Requirements

## On Behalf of the University of Reading

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### 1. Purpose of Note

This note provides a high-level assessment of electrical demand and solar PV potential for an example of around 100,000 m² research and development floorspace, to support planning and infrastructure considerations.

This is a high level initial assessment, in advance of detailed design and modelling. It does not consider other options for addressing the electrical demand.

### 2. Electrical Demand Estimate

Typical electricity consumption for mixed R&D space is assumed at ~300 kWh/m²/year. For reference the UKNZCBS benchmark for newbuild Science & Tech building is 297 kWh/m²/year (2026). Therefore, this is already taking into account energy & cooling hierarchies for a reduced EUI.

Total annual demand is therefore estimated at approximately 30 GWh/year.

Peak electrical load is estimated at 15–20 MW, equivalent to approximately 18–22 MVA.

### 3. Solar PV Generation Potential

To offset this demand, approximately 30 MWp of solar PV would be required in UK conditions.

### 4. Ground-Mounted Solar Land Requirement

Land requirements are estimated at approximately 50–60 hectares for a solar installation of this scale.

### 5. Rooftop Solar PV Potential

Rooftop PV could provide approximately 3–7 MWp, generating 3–7 GWh/year (10–25% of demand).

### 6. Summary

- Estimated demand: ~30 GWh/year
- Peak load: ~18–22 MVA
- PV required: ~30 MWp
- Land required: ~50–60 ha
- Rooftop PV: ~3–7 MWp

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