



# SUNNICA ENERGY FARM

## Preliminary Environmental Information Report

Chapter 18: Summary of Environmental Effects

Sunnica Ltd

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## 18. Summary of Environmental Effects

### 18.1 Introduction

- 18.1.1 This chapter of the PEI Report summarises the residual effects of the Scheme. Residual effects are defined as those effects that remain following the implementation of mitigation measures. Residual effects and mitigation measures are discussed in full in the relevant technical chapters of this PEI Report (**Chapters 6 to 16**).
- 18.1.2 Each technical chapter contains detailed consideration of both the beneficial and adverse residual effects identified as likely to arise from the Scheme. The criteria applied to define the significance of residual effects are outlined within **Chapter 5: EIA Methodology** of this PEI Report, with further detail provided within the individual technical chapters.
- 18.1.3 The EIA for the Scheme has been undertaken in parallel with the design process. A number of measures have been implemented within the design of the Scheme to reduce adverse environmental effects, including landscape design to create habitat and screen views of the Scheme.
- 18.1.4 The residual effects listed within the technical chapters of this PEI Report (**Chapters 6 to 16**) are described with reference to the scale of effect (i.e. moderate or major) and whether this is significant or not, and the nature of the effect (i.e. adverse, negligible or beneficial).

### 18.2 Summary of Residual Effects

- 18.2.1 A summary of the identified significant residual effects for each topic are presented in Table 18-1 for the construction phase, Table 18-2 for operation, and Table 18-3 for decommissioning. Negligible and minor effects (adverse and beneficial) are not included in the following tables.
- 18.2.2 The conclusions are based on preliminary information and may be revised in the ES for the DCO application in light of more baseline information or in response to any consultation feedback. In some cases the assessment is necessarily conservative at this stage and may therefore overestimate the impact and identify significant effects where none may occur.

**Table 18-1 Summary of significant residual effects during the construction phase of the Scheme**

| <i>Description of resource / receptor and effect</i>   | <i>Significance of effect prior to additional mitigation (incorporating environmental design and management)</i> | <i>Initial classification of effect and statement of significance</i> | <i>Mitigation</i>   | <i>Residual effect and restatement of significance (incorporating mitigation and monitoring)</i> |
|--|--|---|---|--|
| <b>Climate Change</b>  |  |   |   |  |
| No significant residual effects on climate change are predicted during construction of the Scheme. |  |   |   |  |
| <b>Cultural Heritage</b>   |  |   |   |  |
| MSF10199: Single ring ditch (c. 30m diameter) identified from 1956 aerial photograph               | Moderate   | Adverse, Significant  | To be confirmed through agreed archaeological mitigation strategy | Moderate adverse, Significant  |
| MCB8998: Iron Age and Roman pottery scatter, Snailwell Fen   | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |
| MCB8999: Roman bead, brooch, coins and sherds, Snailwell Fen                                       | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |
| MCB9001: Rectilinear enclosure cropmarks, Snailwell  | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |
| MCB8995: Chippenham Barrow Cemetery Scheduled Monument   | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |
| MCB12268: Furlong boundary, Chippenham   | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |
| MCB12221: Furlong boundaries, Snailwell  | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |
| MCB9547: Prehistoric settlement  | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |

| <i>Description of resource / receptor and effect</i>  | <i>Significance of effect prior to additional mitigation (incorporating environmental design and management)</i> | <i>Initial classification of effect and statement of significance</i> | <i>Mitigation</i>         | <i>Residual effect and restatement of significance (incorporating mitigation and monitoring)</i> |
|---|--|---|---------------------------|--|
| site, Kennett   |  |   |                           |  |
| NHLE 1000615: Chippenham Registered Park and Gardens  | Moderate   | Adverse, Significant  | -                         | Moderate adverse, Significant  |
| NHLE 1126376: Triumphal arches  | Moderate   | Adverse, Significant  | To be confirmed in the ES | Moderate adverse, Significant  |
| NHLE 1015246: Four bowl barrows north of the A11/A14 junction, part of the Chippenham barrow cemetery | Major  | Adverse, Significant  | To be confirmed in the ES | Major adverse, Significant   |

### *Ecology*

No significant residual effects on ecology are predicted during construction of the Scheme.

### *Water Environment*

No significant residual effects on the water environment or flood risk are predicted during construction of the Scheme.

### *Landscape and Visual*

|  |          |                      |   |                               |
|--|----------|----------------------|---|-------------------------------|
| Sunnica East Site A Site Landscape Character Area    | Major    | Adverse, Significant | No additional mitigation measures are available | Major adverse, Significant    |
| Recreational Users on the River Lark                 | Moderate | Adverse, Significant | As above  | Moderate adverse, Significant |
| Motorists on East Fen Road and Residents in East End | Moderate | Adverse, Significant | As above  | Moderate adverse, Significant |
| Visitors to the Ark Church                           | Moderate | Adverse, Significant | As above  | Moderate adverse, Significant |

| <i>Description of resource / receptor and effect</i> | <i>Significance of effect prior to additional mitigation (incorporating environmental design and management)</i> | <i>Initial classification of effect and statement of significance</i> | <i>Mitigation</i> | <i>Residual effect and restatement of significance (incorporating mitigation and monitoring)</i> |
|--|--|---|-------------------|--|
| Motorists on Beck Road                               | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Residents adjacent to the B1104                      | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Residents in Freckenham                              | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Recreational users of PRoW 257/002/X                 | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| Recreational users of PRoW 257/002/0                 | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| Residents in Beck Road Property                      | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| 12. Residents in Lee Farm                            | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| LLCA 13 Elms Farmland                                | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| Sunnica East Site B                                  | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| Residents adjacent to B1102                          | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Residents at Queens Hill                             | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Recreational users on PRoW (footpath) W-128/002/0    | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Hundred Acre Plantation                              | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| Sunnica West Site A                                  | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |

| <i>Description of resource / receptor and effect</i>                  | <i>Significance of effect prior to additional mitigation (incorporating environmental design and management)</i> | <i>Initial classification of effect and statement of significance</i> | <i>Mitigation</i> | <i>Residual effect and restatement of significance (incorporating mitigation and monitoring)</i> |
|---|--|---|-------------------|--|
| Motorists on La Hogue Road  | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Visitors to La Hogue Farm   | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Residents at La Hogue Farm  | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Residents adjacent to Station Road                                    | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Residents adjacent to Newmarket Road                                  | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Recreational users and users of the training grounds at the Limekilns | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Recreational users PRow (bridleway) 204/5, south-east of Snailwell    | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| Sunnica West Site B   | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| Recreational users on PRow (footpath) 204/1                           | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| LLCA 14 River Kennett   | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Cable Route A   | Major  | Adverse, Significant  | As above          | Major adverse, Significant   |
| Recreational users on PRow (footpath) 49/7                            | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Cable Route B   | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |

| <i>Description of resource / receptor and effect</i> | <i>Significance of effect prior to additional mitigation (incorporating environmental design and management)</i> | <i>Initial classification of effect and statement of significance</i> | <i>Mitigation</i> | <i>Residual effect and restatement of significance (incorporating mitigation and monitoring)</i> |
|--|--|---|-------------------|--|
| Motorists on Chippenham Road                         | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Residents in Snailwell                               | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Recreational users of PROW (footpath) 204/1          | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Residents in Fordham House                           | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| LT Rolling Estate Chalklands                         | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| LCT Lowland Village Chalklands                       | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Burwell Fen  | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |
| Visitors to the Wild Tracks Centre                   | Moderate   | Adverse, Significant  | As above          | Moderate adverse, Significant  |

### *Noise and Vibration*

No significant residual effects on noise and vibration are predicted during construction of the Scheme.

### *Socioeconomics and Land Use*

|   |          |                         |     |                                  |
|---|----------|-------------------------|-----|----------------------------------|
| Cambridge travel to work area's economy | Moderate | Beneficial, Significant | N/A | Moderate beneficial, Significant |
|---|----------|-------------------------|-----|----------------------------------|

### *Transport and Access*

No significant residual effects on transport and access are predicted during construction of the Scheme.

### *Air Quality*



| <i>Description of resource / receptor and effect</i>  | <i>Significance of effect prior to additional mitigation (incorporating environmental design and management)</i> | <i>Initial classification of effect and statement of significance</i> | <i>Mitigation</i> | <i>Residual effect and restatement of significance (incorporating mitigation and monitoring)</i> |
|---|--|---|-------------------|--|
| <hr/>   |  |   |                   |  |
| No significant residual effects on air quality are predicted during construction of the Scheme.   |  |   |                   |  |
| <b><i>Glint and Glare</i></b>   |  |   |                   |  |
| No significant residual effects of glint and glare are predicted during construction of the Scheme.   |  |   |                   |  |
| <b><i>Ground Conditions</i></b>   |  |   |                   |  |
| No significant residual effects on ground conditions are predicted during construction of the Scheme.                                       |  |   |                   |  |
| <b><i>Human Health</i></b>  |  |   |                   |  |
| No significant residual effects on human health and wellbeing are predicted during construction of the Scheme.                              |  |   |                   |  |
| <b><i>Major Accidents and Disasters</i></b>   |  |   |                   |  |
| No significant residual effects on major accidents and disasters are predicted during construction of the Scheme.                           |  |   |                   |  |
| <b><i>Telecommunications, Television Reception, and Utilities</i></b>   |  |   |                   |  |
| No significant residual effects on telecommunications, television reception, and utilities are predicted during construction of the Scheme. |  |   |                   |  |
| <b><i>Waste</i></b>   |  |   |                   |  |
| No significant residual effects on waste are predicted during construction of the Scheme.   |  |   |                   |  |
| <hr/>   |  |   |                   |  |

**Table 18-2 Summary of significant residual effects during operation of the Scheme**

| <i>Description of resource / receptor and effect</i>  | <i>Magnitude of impact (incorporating environmental design and management)</i> | <i>Initial classification of effect and statement of significance</i> | <i>Mitigation and monitoring</i> | <i>Residual effect and restatement of significance (incorporating mitigation and monitoring)</i> |
|---|--|---|----------------------------------|--|
| <b>Climate Change</b>   |  |   |                                  |  |
| Global Climate (reductions in greenhouse gas emissions as a result of the renewable nature of the Scheme) | Major  | Beneficial, Significant   | N/A                              | Major beneficial, significant  |
| <b>Cultural Heritage</b>  |  |   |                                  |  |
| NHLE 1000615 Chippenham Registered Park and Gardens   | Moderate   | Adverse, Significant  | -                                | Moderate adverse, significant  |
| NHLE 1126376 Triumphal arches   | Moderate   | Adverse, Significant  | -                                | Moderate adverse, significant  |
| NHLE 1015246: Four bowl barrows north of the A11/A14 junction, part of the Chippenham barrow cemetery     | Major  | Adverse, Significant  | To be confirmed in the ES        | Major adverse, significant   |
| <b>Ecology</b>  |  |   |                                  |  |
| No significant residual effects on ecology are predicted during operation of the Scheme.                  |  |   |                                  |  |
| <b>Water Environment</b>  |  |   |                                  |  |
| No significant residual effects on the water environment are predicted during operation of the Scheme.    |  |   |                                  |  |
| <b>Landscape and Visual</b>   |  |   |                                  |  |

|   |          |                      |   |                               |
|---|----------|----------------------|---|-------------------------------|
| Sunnica East Site A Site Landscape Character Area                     | Major    | Adverse, Significant | No additional mitigation measures are available | Major adverse, Significant    |
| LLCA 13 Elms Farmland   | Moderate | Adverse, Significant | No additional mitigation measures are available | Moderate adverse, Significant |
| Sunnica East Site B   | Moderate | Adverse, Significant | No additional mitigation measures are available | Moderate adverse, Significant |
| Hundred Acre Plantation   | Moderate | Adverse, Significant | No additional mitigation measures are available | Moderate Adverse, Significant |
| Sunnica West Site A   | Moderate | Adverse, Significant | No additional mitigation measures are available | Moderate adverse, Significant |
| Recreational users and users of the training grounds at the Limekilns | Moderate | Adverse, Significant | No additional mitigation measures are available | Moderate adverse, Significant |

### *Noise and Vibration*

No significant residual effects on noise and vibration are predicted during operation of the Scheme.

### *Socioeconomics and Land Use*

No significant residual effects on socioeconomics and land use are predicted during operation of the Scheme.

### *Transport and Access*

No significant residual effects on transport and access are predicted during operation of the Scheme.

### *Air Quality*

No significant residual effects on air quality are predicted during operation of the Scheme.

### *Glint and Glare*

No significant residual effects from glint and glare are predicted during operation of the Scheme.

### *Ground Conditions*

No significant residual effects on ground conditions are predicted during operation of the Scheme.

### *Human Health*

No significant residual effects on human health and wellbeing are predicted during operation of the Scheme.

### *Major Accidents and Disasters*

No significant residual effects on major accidents and disasters are predicted during operation of the Scheme.

### *Telecommunications, Television Reception, and Utilities*

No significant residual effects on telecommunications, television reception, and utilities are predicted during operation of the Scheme.

### *Waste*

No significant residual effects on waste are predicted during operation of the Scheme.

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**Table 18-3 Summary of significant residual effects during decommissioning of the Scheme**

| <i>Description of resource / receptor and effect</i>   | <i>Magnitude of impact (incorporating environmental design and management)</i> | <i>Initial classification of effect and statement of significance</i> | <i>Mitigation and monitoring</i>                | <i>Residual effect and restatement of significance (incorporating mitigation and monitoring)</i> |
|--|--|---|---|--|
| <b>Climate Change</b>  |  |   |   |  |
| No significant residual effects on climate change are predicted during decommissioning of the Scheme.        |  |   |   |  |
| <b>Cultural Heritage</b>   |  |   |   |  |
| No significant residual effects on cultural heritage are predicted during decommissioning of the Scheme.     |  |   |   |  |
| <b>Ecology</b>   |  |   |   |  |
| No significant residual effects on ecology are predicted during decommissioning of the Scheme.               |  |   |   |  |
| <b>Water Environment</b>   |  |   |   |  |
| No significant residual effects on the water environment are predicted during decommissioning of the Scheme. |  |   |   |  |
| <b>Landscape and Visual</b>  |  |   |   |  |
| Sunnica East Site A Site Landscape Character Area  | Moderate   | Adverse, Significant  | No additional mitigation measures are available | Moderate adverse, Significant  |
| LLCA 13 Elms Farmland  | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |
| Sunnica East Site B  | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |
| Hundred Acre Plantation  | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |
| Sunnica West Site A  | Moderate   | Adverse, Significant  | As above  | Moderate adverse, Significant  |

|                                      |          |                      |          |                               |
|--------------------------------------|----------|----------------------|----------|-------------------------------|
| Sunnica West Site B                  | Moderate | Adverse, Significant | As above | Moderate adverse, Significant |
| LCT Lowland Village Chalklands       | Moderate | Adverse, Significant | As above | Moderate adverse, Significant |
| LT Rolling Estate Chalklands         | Moderate | Adverse, Significant | As above | Moderate adverse, Significant |
| View north from The Limekilns        | Moderate | Adverse, Significant | As above | Moderate adverse, Significant |
| Recreational users of PRoW 257/002/0 | Moderate | Adverse, Significant | As above | Moderate adverse, Significant |
| Residents in Lee Farm                | Moderate | Adverse, Significant | As above | Moderate adverse, Significant |

#### *Noise and Vibration*

No significant residual effects on noise and vibration are predicted during decommissioning of the Scheme.

#### *Socioeconomics and Land Use*

|   |          |                         |     |                                  |
|---|----------|-------------------------|-----|----------------------------------|
| Cambridge travel to work area's economy | Moderate | Beneficial, Significant | N/A | Moderate beneficial, Significant |
|---|----------|-------------------------|-----|----------------------------------|

#### *Transport and Access*

No significant residual effects on transport and access are predicted during decommissioning of the Scheme.

#### *Air Quality*

No significant residual effects on air quality are predicted during decommissioning of the Scheme.

#### *Glint and Glare*

No significant residual effects of glint and glare are predicted during decommissioning of the Scheme.

### *Ground Conditions*

No significant residual effects on ground conditions are predicted during decommissioning of the Scheme.

### *Human Health*

No significant residual effects on human health and wellbeing are predicted during decommissioning of the Scheme.

### *Major Accidents and Disasters*

No significant residual effects on major accidents and disasters are predicted during decommissioning of the Scheme.

### *Telecommunications, Television Reception, and Utilities*

No significant residual effects on telecommunications, television reception and utilities are predicted during decommissioning of the Scheme.

### *Waste*

No significant residual effects on waste are predicted during decommissioning of the Scheme.

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## 18.3 Likely Significant Residual Environmental Effects

18.3.1 The residual effects (i.e. those that remain following implementation of mitigation measures), which are categorised as moderate or major and therefore considered to be 'likely significant environmental effects' of the Scheme, are summarised below.

### **Construction Phase**

18.3.2 Throughout the construction of the Scheme, several significant adverse residual effects have been identified to a number of cultural heritage receptors and landscape and visual receptors. The majority of adverse effects identified during the construction phase will be temporary, due to the transient nature of the construction works. A number of environmental management and mitigation measures to be implemented by the Principal Contractor during construction have been included within the Framework CEMP (refer to **PEI Report Volume 2: Appendix 16C**). This includes commitments and mitigation measures proposed throughout the PEI Report across all topic areas, as set out in **Chapters 6 to 16**.

18.3.3 The Scheme is likely to have a significant residual effect on a number of buried archaeology receptors in the developable area during construction. A significant adverse effect on Chippenham Registered Park and Garden has been identified. The Registered Park and Garden will experience adverse effects as a result of the development of the Sunnica West Site A, and combined effects from Sunnica West Site B. Significant effects have also been identified for non-designated assets within Sunnica East A, Sunnica East B and Sunnica West A.

18.3.4 The Scheme is likely to have significant landscape and visual amenity impacts on a number of residential and recreational receptors as well as landscape character during construction. The construction phase residual effects are due to the changes in surface landform, landcover, presence of construction machinery and the associated activity which is required to implement the Scheme.

18.3.5 The construction of the Scheme is anticipated to result in a significant beneficial effect on Cambridge's 'travel to work' economy, as it will generate substantial employment during this phase of the Scheme.

### **Complete and Operational Scheme (year 15)**

18.3.6 The Scheme is likely to have significant adverse landscape and visual amenity impacts on a number of residential and recreational receptors as well as landscape character during operation. Additionally, the setting of a number of heritage assets will be adversely impacted as a result of the presence of the solar infrastructure in the landscape.

18.3.7 The year 15 post-opening phase residual adverse effects reflects the continued, long-term but reversible presence of the solar panels and associated structures. The reduction in the number of significant adverse effects (compared with operational year 1), particularly to visual receptors, is due to the establishment of the proposed Green Infrastructure.



18.3.8 The operation of the Scheme will also create a significant beneficial effect on the global climate, due to the nature of the Scheme (renewable energy) displacing the need for other forms of conventional energy generation that would emit greenhouse gas emissions.

### ***Decommissioning Phase***

18.3.9 Similar to the construction phase, the presence of construction plant and machinery during the decommissioning phase will have significant adverse effects on a number of landscape and visual receptors.

18.3.10 It is important to note that, following the decommissioning phase, beneficial effects on landscape and visual amenity receptors and landscape character would occur. This is due to the long term establishment of the Green Infrastructure, which would remain following the removal of the solar panels and associated structures.

18.3.11 The decommissioning of the Scheme is also expected to result in a significant beneficial effect on Cambridge's 'travel to work' economy, as it will generate a similar level of employment as expected during the construction phase.

