

# CARE Suffolk Report for DC/21/04711

Full Planning Application - Change of use from agricultural land to solar farm and construction and operation of a solar photovoltaic ('PV') development with a capacity of up to 49.9MW with associated grid connection cable route, infrastructure and planting (accompanied by an EIA Statement).

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## Overview

**Site Selection:** EDF Renewables propose to build a ground-mounted solar farm and associated infrastructure on a large area of rural countryside in the parish of Bramford in Mid Suffolk. The site chosen is in arable agricultural use, and is Best and Most Versatile land. It is beside Oxen Covert Ancient Woodland (a CWS), and the cable route will run through Millers Wood (another CWS). The site will be within an undulating plateau and valley landscape character area, with little mitigation in terms of screening.



Fig. 1 The site as it is now. Showing undulating plateau and valley landscape character.

Site selection has not followed the suggested procedure, with the applicant securing the grid connection before selecting a site. Other sites have not been considered.

**Cumulative Impact:** The applicant has failed to include the Statkraft development in their application, despite it entering the planning system as an EIA Scoping Request in May 2021, with a decision published in June 2021. EDF Renewables did not submit their application until August 2021. It appears that the Statkraft application was discarded, with no attempt to assess it at all.

Although it may be that with limited information it could be difficult to assess certain topics from a cumulative perspective, enough information was, at the time, publicly available enough to assess some.

Furthermore, the applicant has failed in its duty to carefully consider cumulative impact, only assessing the impact of other developments on an individual basis, when surely the point of assessing cumulative impact is to look at the big picture.

**Landscape:** The site covers an undulating landscape of open valley slopes and high plateaus with attractive panoramic natural views. The Suffolk Landscape Character Assessment describes the site as both Rolling Valley Farmlands and Ancient Plateau Claylands. Both landscape characteristics are of open undulating countryside with sloping valley sides created by small river valleys, with areas of plateau, with "...blocks of ancient woodland being a consistent feature. This woodland frames the valleys and is often present on the upper slopes." These features are very evident in the area.

Screening in the form of hedging would be ineffective and insufficient for valley slopes, and would take around 15 years to grow to a reasonable height to screen the solar panels, which would lose their leaf in the winter months, and would still block the open views of the area which is part of the local landscape character. The large industrial

development would be conspicuous and incongruous with the landscape character of the area, and would cause a degradation of visual amenity throughout the area.

**Land Use and Soil:** The applicant relies on a single sample that appears to have been tested three times. There is no indication that these samples are from different fields, and furthermore all three have the same batch number. The test also refers to a single sample. This test cannot be representative of the soil quality of 85 hectares of land.

Nothing in the applicant's proposal would reduce the ALC grade constraints of droughtiness for part of the site, and in places appears to increase the constraints, therefore providing no evidence that the development would improve the soil. The applicant also fails to recognise the link between the qualities of the soil with the potential for significant flood risk, and the soil compaction that will result from the phases of construction, operation and decommissioning.

**Heritage:** The application identifies 57 listed buildings within 2km of the site; however, there is a disregard for the potential that the development has to cause harm to the buildings and historical landscape surrounding the site. The development would neither protect nor enhance this valued landscape, and the presence of many heritage assets, in their original setting, suggests that the preservation of this historical farmed landscape is of maximum importance.

**Flood and Water Management:** The application is lacking in detail and there are serious concerns that these omissions and issues with the flawed Flood Risk Assessment will lead to significant flooding in the area, resulting in restricted road access to the surrounding villages, and an elevated risk of flooding to the residential properties in the vicinity of the site.

The Flood Risk Assessment makes no attempt to consider the impact of soil compaction on the surface water run off rate, using only desk based hydrological modelling using standard greenfield runoff rates.

**Biodiversity:** Although some useful environmental surveys have been conducted by Turnstone Ecology Ltd., there is little or no additional desk research, causing difficulties in underpinning the baseline in the proposal. The lack of effort to consult expert organisations has led to the omission of many vulnerable species that are breeding in the area of the site.

Virtually no account is taken of the two other proposals for large scale solar installations in the area; if either or both applications are approved, and the applicants, the overall damage would be considerably more than the sum of its parts. Cumulatively some 600 acres of habitat would be destroyed, and further damage caused by the construction process.

**Transport, Public Rights of Way and Security:** The traffic movements during month 2 of the construction process amount to 520 per week, however this excludes constructor's vehicles, minibuses and service vehicles. It is stated that these vehicles will not be allowed on site, so the traffic movement figures have been excluded from calculations; it is stated that they will be collected from strategic points and transported to site. This does not seem to be a very realistic strategy, and there is no indication of where these collection sites will be, or where the minibuses will be.

There is confusion in the application over the route that will be taken by delivery vehicles, confusion over where traffic will enter the A14 and, we are told, the possibility of traffic being diverted to the B113 which is in East London.

Tye Lane is unsuitable for access, and has been designated a Quiet Lane, of which the applicant makes no mention. Currently there are gaps in the hedge that give road users better visibility when driving on Tye Lane, however it is proposed that there will be 8ft high panels and screening so visibility will be lost. Bends on this road may not be sharp, but they are blind if it were not for the gaps in hedging.

PRoW are not mentioned in the CTMP, and a general serious lack of information regarding PRoW in the application.

The deer fencing that is proposed contravenes the Police designing out crime officers' advice.

**Glint and Glare:** The submission for Glint and Glare confirms that practically all roads to the west of Bramford will be affected at least once a day, and most significantly between March and October. Glare is already present when

travelling East in the morning and West in the evening, so this presents a real danger to road users. Proposed mitigation will be insufficient.

The undulating nature of the landscape indicates that this proposed large scale solar installation cannot be properly addressed within this landscape.

**Climate Change:** The carbon footprint of the development is not addressed considering construction, operational phase and decommissioning as requested in the EIA. Similarly, there is no cost benefit type analysis of the proposed development in the context of regional and national targets. A timeframe for the achievement of carbon payback/neutrality is also not provided.

**Decommissioning and Waste Management:** The application contains no decommissioning plan, only that the decommissioning process will be an expedited version of the construction process, taking two months. The language used is vague and non-committal. Waste management is barely addressed, and only referred to in the sense that certain items may/may not be removed from the site if decommissioning is required.

**Major Accidents and Disasters:** Wattisham Flying Station has not been consulted regarding this proposal, making it a real possibility that the effects of glint and glare could be the cause of disruption not just to Wattisham airfield users, but to the large fleet of helicopters and the air ambulance that take off from Wattisham and fly regularly over the proposed site.

The site lies within consultation distance of at least one major accident hazard pipeline. The high pressure gas main in combination with the proposed solar farm poses a significant risk to the visitors to Little Sage Hill camping and caravan site.

**Population and Human Health:** Four linking villages will have their amenity and local walks destroyed by this proposal. The walks that people rely on for physical health and mental wellbeing in open countryside will become enclosed walks in an industrial zone. For generations to come. It is suggested in the application that people should simply find somewhere else to walk, not taking account of the fact that people come from far and wide to enjoy the benefits of the local countryside.

Two other major solar farms have proposed installations in the same vicinity on arable land adjacent to each other. The cumulative effect of all three of these, if allowed, is not considered in the application, and will have a devastating effect on the health and wellbeing of our communities. The other places to walk would no longer exist.

# 1. Site Selection Process

EDF Renewables proposes to build a ground-mounted solar farm and associated infrastructure on a large area of rural countryside in the parish of Bramford in Mid Suffolk. This site and design chosen is:

- currently in arable agricultural use, with the majority graded as BMV land;
- adjacent to one CWS (Oxen Covert Ancient Woodland) and the cable route is through one CWS (MillersWood);
- sited within an undulating plateau and a valley landscape character areas, with limited proposed screening;
- unsuitable for agricultural diversity, such as sheep grazing around the panels;
- surrounds, and follows two key PRoW footpath routes (Flowton to Bramford, and Bramford Tye to Somersham/Little Blakenham).

The operational phase of the development is proposed for 35 years. Though it is noted that the applicant makes several references to the possibility of submitting an additional application towards the end of this period in order to extend the operational life of the development.

The applicant states that the construction of the solar farm would take around 6 months to complete. There was one mention of it taking 3 months, however we have assumed this is a typo as the rest of the assessment uses 6 months as the basis. The decommissioning phase, if it were to happen, would be around the same time frame.

## Which Comes First – Site or Connection?

Based on available information and policy guidance, it would seem that the site selection process would be first decided based upon environmental considerations such as land use, landscape, heritage, and ecology. There is no mention in policy guidance that choosing a grid connection is a primary consideration is site selection.

## *Solar Trade Association*

In Appendix 5.1 – Pre-Application Advice Request, EDF Renewables advised MSDC at p.78 that:

“The Solar Trade Association (STA) 10 commitments for best practice design with respect to landscape and land use will be considered throughout the project development.”

The STA 10 Commitments<sup>1</sup> are as follows:

1. We will focus on non-agricultural land or land which is of lower agricultural quality.
2. We will be sensitive to nationally and locally protected landscapes and nature conservation areas, and we welcome opportunities to enhance the ecological value of the land.
3. We will minimise visual impact where possible and maintain appropriate screening throughout the lifetime of the project managed through a Land Management and/or Ecology plan.
4. We will engage with the community in advance of submitting a planning application.
5. We will encourage land diversification by proposing continued agricultural use or incorporating biodiversity measures within our projects.
6. We will do as much buying and employing locally as possible.
7. We will act considerately during construction, and demonstrate ‘solar stewardship’ of the land for the lifetime of the project.
8. We will seek the support of the local community and listen to their views and suggestions.
9. We commit to using the solar farm as an educational opportunity, where appropriate.
10. At the end of the project life we will return the land to its former use.

It would seem from the STA 10 Commitments that the primary requirements for choosing a suitable site are based on environmental conditions and constraints matching the commitments. There is no mention of a suitable grid connection being a primary consideration.

## *Planning Practice Guidance*

The PPG<sup>2</sup> further supports the selection criteria to be based on the environmental considerations and constraints of the site, such as choosing non-agricultural land or lower grade land, avoiding landscape designations and undulating landscapes, and protection of heritage assets.

<sup>1</sup> <https://solarenergyuk.org/resource/solar-farms-10-committments/>

<sup>2</sup> Paragraph: 013 Reference ID: 5-013-20150327

It makes no reference to a nearby grid connection being particular to the planning considerations when choosing a suitable site.

#### *Case Law*

It was noted in the High Court Case of *Pearce v Secretary of State*<sup>3</sup> that choosing a grid connection point was a subsequent decision in the development process, and finding a suitable site was put first and foremost:

*“Chapter 4 of the ES addressed NVL's site selection process. This was summarised in paragraphs 4.4.5 to 4.4.8 of the ExAR. The offshore location was limited to areas within the East Anglia Zone which formed part of the Crown Estate's Round 3 Offshore Wind Farm development process. The developer adopted a strategic approach to Vanguard and Boreas, which included site selection based on the co-location of both projects. An iterative process resulted in the identification of the most suitable locations, having regard to technical constraints and environmental impacts. Following the identification of the offshore areas for Vanguard and Boreas, site selection addressed offshore cable corridor routes and a landfall with the aim of avoiding "high level designations". Three potential landfall sites were identified, from which the one at Happisburgh was selected. Then, National Grid Electricity Transmission plc and NVL worked on the identification of a National Grid connection point. This led to a grid connection offer being made by National Grid plc which NVL accepted in November 2016.”*

#### *Back to Front*

Whilst it seems from planning policy and recent case law that choosing a grid connection is not a primary consideration for site selection, EDF Renewables seem not to have followed this process. Instead, they have chosen a grid connection to be the primary factor, and the other considerations subsequently.

In Chapter 3 – Site Selection and Design it states at p.3.2:

*“The site selection criteria has been derived from the principal needs of a large scale solar farm (as described in paragraph 3.60 on page 44).”*

Paragraph 3.60 states:

*“Subsequent to the primary constraint of available grid connection, environmental constraints were considered to assess the suitability of the area. Considerations included: • adequate contiguous available land area; • proximity to settlements; • designations; and • access.”*

At paragraphs 3.58 and 3.59 it states:

*“(3.58) Within the county of Suffolk where strong solar radiation is established, EDF Renewables secured a 49.9MW grid connection at the Bramford Substation. (3.59) Land within relative proximity of this existing infrastructure was then screened to identify areas with potential to host a solar farm. A strict search radius was not applied, rather a pragmatic review of proximate farmland was considered.”*

EDF Renewables found an area of good solar radiation, secured a grid connection, and only then attempted to look for a suitable site that meets the environmental considerations that planning guidance suggests to be the primary factors.

By working the process in reverse, this has led to a site choice that falls short of its requirement to consider primary environmental constraints first. As per the ES, the development site chosen has significant adverse effects on the environment, some of which cannot be reduced or mitigated against.

#### *Alternatives*

As part of the EIA Regulations, developers are required at a minimum to discuss the reasonable alternatives to the final proposed development.

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Chapter 18 states:

*“(3) An environmental statement is a statement which includes at least—*

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<sup>3</sup> [2021] EWHC 326 [https://www.bailii.org/cgi-bin/format.cgi?doc=/ew/cases/EWHC/Admin/2021/326.html&query=\(vanguard\)](https://www.bailii.org/cgi-bin/format.cgi?doc=/ew/cases/EWHC/Admin/2021/326.html&query=(vanguard))

*(d) a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment;*

Further, Schedule 4 of the same regulations states at p.2:

*“A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”*

A minimum requirement of the ES is to include a description of the alternatives explored by the applicant.

According to Chapter 5 of the application which discusses the EIA requirements:

*“The ES should include a description of the reasonable alternatives for the proposed development that have been studied and an indication of the main reasons for discounting these and selecting the chosen option with regards to the environmental impacts of the alternatives.*

*Examples of the types of alternatives to be considered include:*

- *project design;*
- *technology;*
- *location;*
- *size; and*
- *scale.*

*The choice of technology, the location of the site, its design, size and scale are discussed in detail in **Chapter 2 - Development Rationale** and **Chapter 3 - Site selection and Design.**”*

Neither Chapter 2 nor 3 makes any mention of alternatives that were considered, let alone discusses them. Instead where the applicant writes at p.3.59 *“a strict search radius was not applied, rather a pragmatic review of proximate farmland was considered”* it suggests that the applicant focused on agricultural land, going against the very first STA Commitment to avoid agricultural land and guidance in the PPG.

### Conclusion

Based on the site selection and design process submitted by the applicant it can only be deduced that the applicant has not followed best practice guidance in choosing a suitable site. They have considered a nearby grid connection to be the primary condition, where policy guidance makes no mention of this as a primary consideration. And where policy guidance does give particular constraints to be considered, these have been considered secondary by the applicant.

We do not suggest that the application be refused on this particular failure to follow best practice guidance. We feel the significant adverse effects of the development discussed in other chapters are sufficient for the LPA to refuse the application, so are not discussed further here. However, we do consider that the flawed site selection process has led to the significant adverse effects that are created as a result of the development proposed.

Further, the applicant’s failure to identify and discuss any alternatives, falls short of the minimum requirements of the EIA Regulations.

At a minimum, and in order to follow EIA Regulations, prior to making any decision we ask the LPA to request further information from the applicant which discusses the alternative site locations that were chosen, and to make this information available for re-consultation.

## 2. Cumulative Impact

During the pre-application stage the application claims that EDF Renewables were advised to follow the Scoping Opinion for application DC/20/05895 – a similar solar farm application nearby announced by Enso Energy only a few months prior to the announcement of this EDF proposal.

Within the scoping decision letter it states the following should be included:

### *“5.3.1 Cumulative impacts*

*The assessment of effects should also include consideration of the cumulative impacts of the development together with other operational, permitted, or allocated developments within a spatial and temporal scope to be agreed with Mid Suffolk District Council.”*

We appreciate the considerably better quality of cumulative information provided by the applicant compared to other similar applications in the area. The cumulative impact assessment assesses the relationship between the proposed development and other developments individually in more detail, and in more ways than just landscape and visual impact, such as noise and transport. However, we note that it is incomplete in a very significant way – it is missing a major development announced by Statkraft called the Greybarn Solar Farm.

This development must be included in the cumulative impact assessments prior to any decision being made. Should the applicant fail to supply this information, the application should be refused.

## Discarded from Assessment

The Statkraft proposal was first announced in March 2021, with a site layout plan publicly immediately available on their website.

The Statkraft proposal entered the planning system under reference DC/21/02958 as an EIA Scoping Request in May 2021, and a decision was published in June 2021.

The application by EDF Renewables was not submitted until the end of August 2021.

In the application, at paragraph 4.75 it states:

*“During drafting of the Environmental Statement, a proposal for an additional large scale solar scheme within the study area was announced by Statkraft (Greybarn Solar Energy Farm). The proposal has yet to be submitted in to the planning system and so no further cumulative assessment of this scheme has been undertaken.”*

We note that the applicant discussed with MSDC what developments should be included in the cumulative impact assessment, and it was *“agreed with the Council that for EIA assessment purposes it would be appropriate to consider cumulative schemes in planning as of March, 2021.”*

Further we note that paragraph 4.69 states:

*“All existing and proposed solar energy developments known at the time of data gathering as described in Paragraph 4.68, are shown on Figure 11.5 within ES Volume 3.”*

Yet table A.2 of the EDF Renewables application states:

*“A proposal for a large scale solar scheme within the study area was announced by Statkraft (Greybarn Solar Energy Farm). The proposal has yet to be submitted in to the planning system (at the time of writing) and so no further cumulative assessment of this scheme has been undertaken.”*

It would seem from the information available that EDF Renewables simply discarded the proposal, with no attempt to even briefly assess it. Further, no reasons as to why the application could not reasonably be assessed have been given.

## Failure to Assess Current Knowledge

At the time of submitting the application several sources of information relating to the Statkraft site were available:

- When the proposal was announced basic information about the Statkraft development was publicly available on their website, alongside a detailed site layout plan.
- Information was also available when it entered the planning system under reference DC/21/02958 as an EIA Scoping Request in May 2021, and a decision was published in June 2021.

- We also note that the land area in the Statkraft application was part of the early Enso Energy proposal. Some baseline information is therefore available in the EIA Screening Request DC/20/03574 submitted August 2020.

The application by EDF Renewables was not submitted until the end of August 2021.

We appreciate that some topics would be difficult, if not impossible, to fully assess from a cumulative impact perspective with the limited information available on the Statkraft proposal, such as noise and traffic. Noise ratings were not yet publicly available, and Statkraft had yet to make a choice between two different travel routes.

However, it seems there was enough information publicly available to assess some impacts prior to the application being submitted. We believe these to be landscape, visual amenity, BMV land, PRoW, and flooding, as noted within other chapters within this report.

It seems that the EDF Renewables ES was only in a draft phase when the Statkraft application was announced, and it entered the planning system several months before EDF Renewables finalised and submitted their application and ES.

We would like to point out that we are not asking that development that may or may not come forward in the future be considered in the cumulative assessment. This would be unreasonable. This is not a case where there is no way of knowing what development is proposed or is reasonably foreseeable. If it were such a case, it is clear that it would not need to be assessed, thanks to the decision of the High Court in the *Littlewood* case ([2008] EWHC 1812). On the contrary, in our case the main features of the Statkraft proposal are in the public domain and adequate information is available upon which a cumulative assessment could be based.

Regardless of the amount of information available, The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 chapter 18 states:

*“(4) An environmental statement must— (b)include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment;”*

And at Schedule 4 p6:

*“A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.”*

To exclude a proposal from a cumulative impact assessment for EIA purposes based on specific criteria (in the planning system) by a certain date (March 2021) is irrational, considering that: some information was available at the time of creating the ES; and that Schedule 4 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 p 6 allows for “details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved” to be included within the assessment.

From the available information in the application we cannot determine if a lack of information was the reason behind the arbitrary date and status agreement. And in any case, it is irrelevant, as at the time of submitting the application the Statkraft proposal was “current knowledge” and the EIA process allows for “details of difficulties encountered” to be included. No such difficulties have been provided by the applicant as to why they could not assess the Statkraft Greybarn Solar Farm proposal.

## Duty to Properly Consider Cumulative Impact

Due to the amount of information that actually was/is available, deciding to exclude the Statkraft site from any sort of cumulative impact assessment based on a timeline, is not in accordance with the EIA Regulations.

There is sufficient information available about the Statkraft site for the cumulative effects on several topics to be assessed, as we have done in chapters elsewhere in this report.

Disregarding a development in respect of which adequate information is available is inappropriate, and not in accordance with planning law. In February 2021 a High Court Judge quashed the Secretary of State's grant of development consent for the Norfolk Vanguard Windfarm Project in Norfolk ([2021] EWHC 326 (Admin)), stating:

*“The effect of Directive 2011/92/EU, the 2009 Regulations and the case law is that, as a matter of general principle, a decision-maker may not grant development consent without, firstly, being satisfied that he has sufficient information to enable him to evaluate and weigh the likely significant environmental effects of the proposal (having regard to any constraints on what an applicant could reasonably be required to provide) and secondly, making that evaluation...”*

It confirms the duty to properly consider and weigh the cumulative impact.

Within the DC/20/05895 scoping decision letter, precluding the topics to be included, it states:

*“In accordance with the EIA Regulations this Scoping Opinion shall not preclude MSDC from requiring the applicant to submit further information in connection with any application subsequently submitted to the Council.”*

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 states:

*“(9) An authority which has adopted a scoping opinion following a request under paragraph (1) shall not be precluded from requiring of the person who made the request additional information in connection with any statement that may be submitted by that person as an environmental statement in connection with an application for planning permission or a subsequent application for the same development.”*

There is nothing to indicate the applicant re-visited the discussion with MSDC before submitting the application, which is inappropriate and negligent, especially given the change in circumstances. Instead, the applicant continued to press forward and submit what amounts to an out of date application even at the time of sending the documents to the Council. The cumulative impact assessment submitted is therefore inadequate for determining cumulative impacts.

Further, what the Council may or may not have agreed with the applicant cannot diminish its duty to consider all relevant environmental information, from whatever source, as at the date of its determination of the application. It cannot therefore be limited to the state of affairs in March or by its screening opinion.

Considering the large scale of the Statkraft development proposed and its proximity to this application, the significant cumulative impacts should be readily apparent (see Cumulative Impact Appendix A). However, for clarification on those effects we have discussed the cumulative impacts in more detail in the appropriate topic chapter of this report.

It is important to note that the duty to properly consider the cumulative impact applies to both the applicant and the Council. We contend that the applicant has failed in their duty to properly consider the cumulative impact.

On this basis, it would be unlawful for any decision to be made without an assessment of the cumulative impacts of the proposal which INCLUDES the Statkraft Greybarn Solar Farm development.

We ask that the council exercises its right under EIA Regulations to request further information from the applicant for consideration in regards to cumulative impact, which must include the Greybarn Solar Farm, in order not to fail in their duty too.

## Cumulative Impact of EDF Renewables on Existing Environment

Whilst we understand part of the cumulative impact comes from the proposed development with other proposed developments, it is also important to assess how the proposal would impact cumulatively with the existing development in the area.

We note that the applicant has assessed the impact with other developments already in the area on an individual basis. EDF and just the EfW plant. EDF and just the overhead cables. EDF and just the Bramford Substation. And so on...

However, that is not the situation. It would be all of these things and EDF together. The sprawling scale and size of the EDF Renewables proposal is 210 acres in rural countryside. It is incredibly difficult to fit this into an area of undulating landscape and it remain isolated from other development, either by proximate location or visual perception.

There are a lot of isolated existing developments, either in the rural countryside or on the fringe of rural villages, and they are already close to having a significant cumulative impact. It is questionable how much more, if any, development can be accommodated in the area since it is already so close to the threshold of moving into a significant cumulative impact. If the proposed solar farm development were approved they would no longer be isolated. They would be connected up either physically or visually. Thus creating an industrial estate larger than the sum of its parts due to the boundless extent of it. A never ending dot-to-dot of industrial development if it were. The cumulative effect would tip quite sharply into a significant effect.

Further the change of land use means the land would not even be considered as agricultural in planning terms, simultaneously creating an industrial site on paper.

The development plan makes no allowances or proposals for what amounts to a piecemeal industrial estate in the rural countryside in this location, with the effects of the proposed development contrary to several policies in the local development plan, such as E10 and H16 of the Local Plan 1998.

Policy E10 of MSDC Local Plan 1998 states: *“Application for new industrial and commercial development in the countryside will not be permitted unless an overriding need to be located away from towns and villages can be demonstrated. Where such need can be demonstrated applications will be considered on their merits having regard to the following:*

- *The impact of the development on the surrounding countryside, including its landscape and wildlife features;*

- The prospect of pollution including the effect on nearby watercourses and groundwater sources;
- The amount of traffic generated and the likelihood of unacceptable traffic movements, particularly lorries, on non-principal roads;
- The loss of high quality agricultural land;
- The contribution to the rural economy;
- The employment opportunities created for nearby communities.

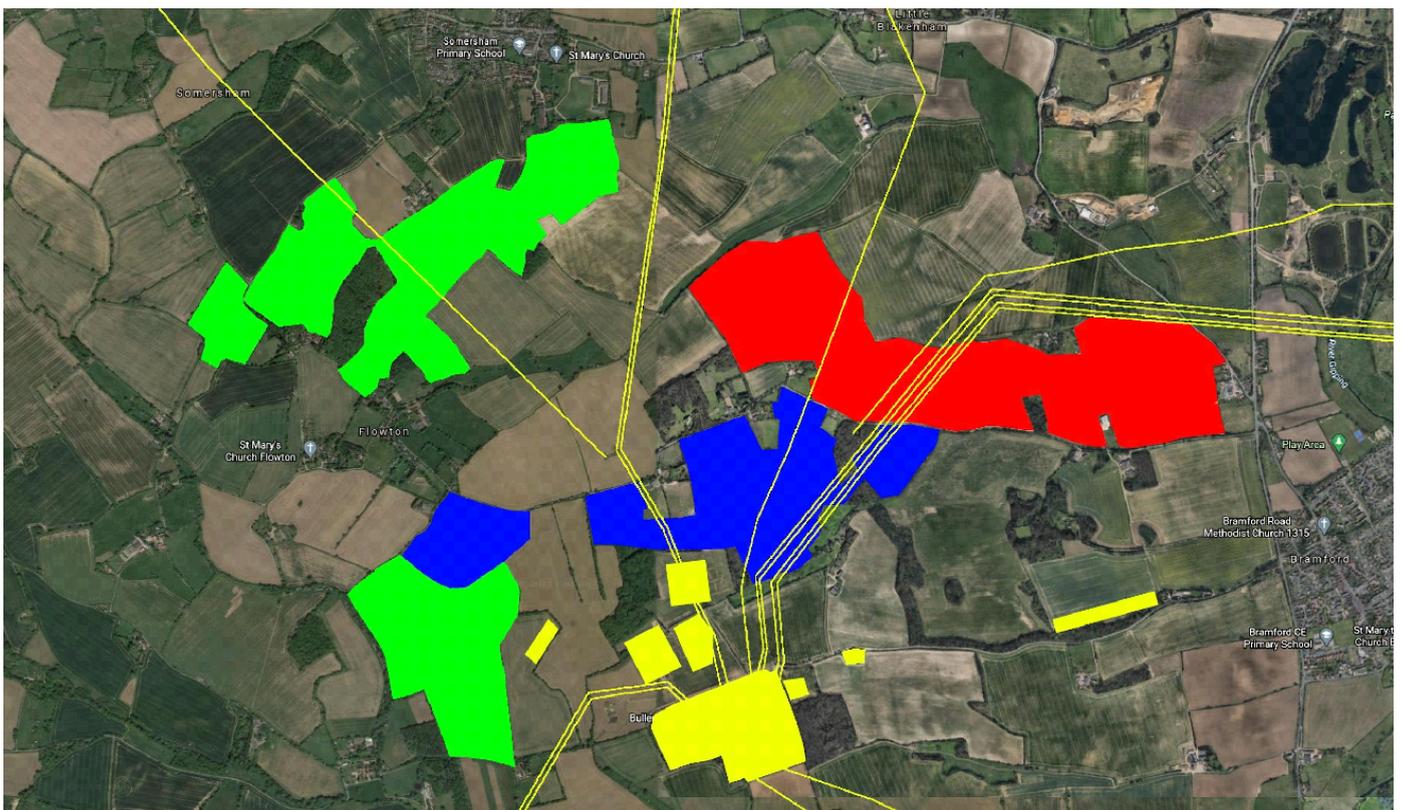
The District Planning Authority will, if considered necessary to protect the amenity and appearance of the surrounding countryside, consider the removal of permitted development rights under the General (Permitted Development) Order 1995.”

Although this supports development in the countryside for large-scale renewable energy, the application fails to meet the conditions attached to them, and so fails to meet the principle of development. This is notwithstanding the conclusion in the Settlement Sensitivity Assessment 2018 which concludes that this exact site (BR1) should not be developed on, and policy H16 which states “The cumulative effect of a series of proposals will be taken into account.” The applicant provides no convincing reason to stray from the development plan in this respect, and thus the application should be refused.

If in light of all the evidence the Council were still minded to approve the application, we ask that they exercise their right under policy E10 of the MSDC Local Plan 1998 to remove permitted development rights.

## Cumulative Impact Appendix A

- Yellow = existing energy infrastructure, either built, or approved but not yet built.
  - Red = EDF Renewables Tye Lane Solar Farm
  - Green = Enso Energy Bramford Solar Farm
  - Blue = Statkraft Greybarn Solar Farm
- All of the red, green, and blue areas are currently agricultural land in arable use.



### 3. Landscape & Visual Impact

#### Proposal

1. The application is for a solar farm of 85ha in the parish council of Bramford in Mid Suffolk District for a duration of 35 years, plus construction and deconstruction, unless the applicant were to apply and be granted for an extension. The proposal would consist of 114,000 solar panels mounted onto a metal framework 2.5m high, along with 20 containerised units up to 3.4m high.
2. Stretches of gravel track would be constructed permanently on the site, though it is uncertain whether hedges would be removed or not due to inconsistencies in the documentation.
3. Cabling between the panels and from the proposal into the Bramford substation would be buried in trenches, some of which goes through the ancient woodland called Miller's Wood (CWS).
4. The applicant states throughout the documentation that a metal security fence of 2m high deer fencing would be erected around the perimeter of the solar panels together with CCTV cameras every 50m on posts up to 3m high. The metal fencing would be further elevated from the ground by 150mm. There are no drawings submitted for the CCTV cameras.
5. The solar arrays would be set back from the fencing by a buffer strip of varying widths. The site would be sown with a grassland mix after construction.
6. Some hedging and trees are proposed near residential properties and along Tye Lane, though it appears there is no screening proposed for PRoWs nor the northern perimeter of the site.

#### Relevant Policy

##### *Local Policy*

7. Developments should be determined in accordance with the local plan, which consists of saved policies from the Mid Suffolk Local Plan 1998, The Mid Suffolk Core Strategy 2008, and the Mid Suffolk Core Strategy Focused Review 2012.
8. The Mid Suffolk Local Plan 1998 policy GP1 states *"Proposals should maintain or enhance the character and appearance of their surroundings, and respect the scale and density of surrounding development;.."*
9. Further it states at p.2.4.3 *"The guiding principle in the countryside is that development should benefit the rural economy and maintain or enhance the environment. New development in rural areas should be sensitively related to existing settlement patterns and respect the historic, wildlife and landscape character of its surroundings."*
10. Policy H16 states *"To protect the existing amenity and character of primarily residential areas, the District Planning Authority will refuse: change to non-residential use where such a change would materially and detrimentally affect the character and amenity of the area by means of appearance, traffic generation, nuisance or safety; the loss of open spaces which contribute to the character or appearance of an area and which are important for recreation or amenity purposes; development that materially reduces the amenity and privacy of adjacent dwellings or erodes the character of the surrounding area. The cumulative effect of a series of proposals will be taken into account."*
11. Further policy E10 states *"Applications for new industrial and commercial development in the countryside will not be permitted unless an overriding need to be located away from towns and villages can be demonstrated. Where such need can be demonstrated applications will be considered on their merits having regard to the following:- ... the impact of the development on the surrounding countryside, including its landscape and wildlife features;..."*
12. The MSDC Local Plan at p2.4.11 states *"Major woodlands, whether ancient or otherwise, are relatively few in the Plan area. The most significant ancient woodlands are identified in Table 3. These woodlands make a significant contribution to the appearance and character of the landscape..."* Miller's Wood is included in this list.
13. MSDC Core Strategy 2008 states its core strategies as:
  - a. *"SO1: To protect, manage, enhance and restore the landscape, biodiversity and geodiversity of the District."*
  - b. *"SO4: To protect, manage, enhance and restore the historic heritage / environment and the unique character and identity of the towns and villages by ensuring that new developments are appropriate in terms of scale and location in the context of settlement form and character."*
  - c. *"SO12: Promote high quality, sustainable tourism."*

14. Further policy CS5 states *“The Council will protect and conserve landscape qualities taking into account the natural environment and the historical dimension of the landscape as a whole rather than concentrating solely on selected areas, protecting the District’s most important components and encourage development that is consistent with conserving its overall character.”*
15. It writes further at p.3.103 for The Rural Economy where it states *“It is a key principle for sustainable development in rural areas that development in the open countryside away from settlements should be strictly controlled with the aim of protecting the countryside for the sake of its intrinsic character and beauty. The diversity of our landscape, heritage and wildlife contributes to the attractiveness of the area as a location to do business and as a source of tourist interest, which can be enjoyed by all.”*
16. The MSDC Core Strategy Focused Review 2012 states in p.3.7 *“The environmental and landscape sensitivity of the district means that large-scale, on-shore renewable energy generation will often be difficult to accommodate in the landscape in an acceptable way. The attractions of the countryside for tourism for the district, an important sector of the local economy, mean that maintaining its environmental qualities while promoting access is essential.”*
17. The emerging Joint Local Plan policy LP19 states *“To protect and enhance landscape character development must: a) Integrate positively with the existing landscape character of the area and reinforce the local distinctiveness and identity of individual settlements; b) Proposals must be sensitive to their landscape and visual amenity impacts (including on dark skies and tranquil areas); subject to siting, design, lighting, use of materials and colour, along with the associated mitigation measures; c) Enhance and protect landscape character and values and heritage assets such as; locally characteristic landscape features, for example by use of materials which complement the local individual landscape character, archaeological and historic patterns of settlement and land use and designations; being demonstrably informed by local guidance, in particular the Council’s Joint Landscape Guidance, the Suffolk Landscape Character Assessment and Settlement Sensitivity Assessment. d) Consider the topographical cumulative impact on landscape sensitivity.”*
18. In 2018 a Settlement Sensitivity Assessment was carried out by MSDC in conjunction with two other district councils. It separates the fringes of Bramford into 3 areas, BR1 being relevant to the proposed development. It states that *“It is valued as a rural landscape setting to the village which reinforces the location of the settlement within the Gipping Valley”* and goes on to summarise that *“This area is sensitive to development where it would appear visually prominent on the valley slopes... Development should not rise onto higher undulations or upper valley slopes which would be uncharacteristic.”*

#### National Policy

19. The NPPF p.130 states *“Planning policies and decisions should ensure that developments: a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development; b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping; c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);... f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users<sup>49</sup>; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience.”*
20. The NPPF p.155 states *“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, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);...”*
21. The NPPF p.158 states *“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 cutting greenhouse gas emissions; and b) approve the application if its impacts are (or can be made) acceptable...”*
22. The NPPF p. 174 states that *“Planning policies and decisions should contribute to and enhance the natural and local environment by: a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and*

*ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;...*

23. It is clear from these policies that, whilst renewable energy development is supported, it is not done so where there would be adverse impacts on the landscape and location it is sited in.
24. This was further reinforced, with a specific mention of large-scale solar development such as this proposal, in the House of Commons oral statement of 29 January 2014 when the Planning Minister, Nick Boles, stated *“The policies in the national planning policy framework are clear that there is no excuse for putting solar farms in the wrong places. The framework is clear that applications for renewable energy development, such as solar farms, should be approved only if the impact, including the impact on the landscape – the visual and the cumulative impact – is or can be made acceptable. That is a very high test.”*
25. Further guidance is given in Planning Policy Guidance at paragraph ID 5-013-20150327 which states *“The deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.”* This is an undulating open landscape, and there is little proposed screening.
26. The UK Solar PV Strategy Part 1 of October 2013 sets out four guiding principles for solar PV, the third of which states, amongst other things, that solar PV should be *“appropriately sited, give proper weight to environmental considerations such as landscape and visual impact.”* Following publication of this strategy, the Minister for Energy and Climate Change, Greg Barker, produced a letter dated 1 November 2013 indicating that *“...inappropriately sited solar PV is something that I take extremely seriously and am determined to crack down on.”*
27. The Solar Trade Association also maintains a list of “10 Commitments” for good solar farm development. These include *“3. We will minimise visual impact where possible and maintain appropriate screening throughout the lifetime of the project managed through a Land Management and/or Ecology plan.”* It further states in the notes that *“Land selected should aim to avoid affecting the visual amenity of landscapes, maintaining their natural beauty, and should be predominantly flat, well screened by hedges, tree lines, etc., and not unduly impact upon nearby domestic properties or roads.”* This is not flat land, it is not well screened, and it is proposed next to residential property and a caravan and camping site.

### Baseline

28. The proposed site sprawls across a plateau of agricultural countryside in the parish of Bramford. The site shares several boundaries with residential property in Bramford Tye, as well as a caravan and camping site which shares an east, south, and west boundary. It is visible from residential and public areas within the parish, and is also visible from the parishes of Flowton and Little Blakenham.
29. Bramford is a core village<sup>4</sup> and in the emerging Joint Local Plan is described as a fringe settlement of Ipswich. The village has been under severe encroachment from the town in recent years and subject to large housing increases, evidenced by the change from core village to fringe settlement and its inclusion in the Settlement Sensitivity Assessment 2018. It includes a number of scattered dwellings under “Bramford Tye” into the rural countryside which has been well preserved from development and is valued for its rural setting to the main village of Bramford.<sup>5</sup>
30. With the exception of the National Grid and UKPN substations to the south west of the parish, the remainder of the parish is rural countryside in agricultural use. The site area is of arable agricultural use, with some field margins for biodiversity benefits.
31. The topography of the area is of a plateau ridge and sloping valley sides, and this allows for extensive panoramic views out across the countryside, especially from the PRowWs that cross the fields. For example, Little Blakenham can be seen from the ridge line to the north of the site, and views of Great Blakenham can be seen from Tye Lane towards the south west of the site.
32. There are 8 PRowW footpaths that will be partially or fully impacted by the proposal.

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<sup>4</sup> Mid Suffolk Local Plan 1988

<sup>5</sup> Settlement Sensitivity Assessment 2018, BR1

33. The Suffolk Landscape Character Assessment describes the site as both Rolling Valley Farmlands and Ancient Plateau Claylands. Both landscape characteristics are of open undulating countryside with sloping valley sides created by small river valleys, with areas of plateau, with “...blocks of ancient woodland being a consistent feature. This woodland frames the valleys and is often present on the upper slopes.” These features are very evident in the area.
34. There are few mentions of development, and of what there is mentioned it is of a “dispersed settlement pattern of loosely clustered villages, hamlets and isolated farmsteads of medieval origin”<sup>6</sup> which was shaped by the “agricultural prosperity”<sup>7</sup> of the area. Further “much of this landscape retains its historic patterns, of both the agricultural and built environment.”<sup>8</sup> The below image shows the dispersed nature of existing settlement patterns in green. To date, all energy infrastructure has been kept away from residential property.

*Below photo shows existing residential, agricultural and business development in green. Built and approved industrial energy infrastructure is in yellow. The yellow lines are overhead pylon lines.*



35. We note that there is additional industrial infrastructure in the area, namely high pressure gas mains and electricity cables for wind farms EA1 and EA3. However, as these are underground and do not impact the landscape we have not shown them on the map.

## Analysis

### *Landscape Character*

36. In terms of development guidance it states in the Rolling Valley Farmlands Guidance Note that “In these valley side landscapes, the visual impact of new vertical elements is increased by the landform. Therefore new buildings are likely to have a significant impact on both the character and visual amenity of valley floor and valley side landscape types. The setting of specific features and elements of these landscapes, such as small-scale enclosure patterns or historic buildings and monuments, can also be significantly damaged. The majority of development will, to some degree, be subject to this problem. Therefore, it is essential to manage this issue effectively, taking every opportunity at the earliest stages of the development of the proposal to modify and improve it or to be clear with the applicant that the impact of the proposal is unacceptable or may be at a high risk of refusal due to landscape impacts.”

<sup>6</sup> Ancient Plateau Claylands

<sup>7</sup> Rolling Valley Farmlands

<sup>8</sup> Rolling Valley Farmlands

37. In the Ancient Plateau Claylands it states the aim *“To retain, enhance and restore the distinctive landscape and settlement character. In particular strengthening the woodland, parkland and prairie landscape with appropriate planting and safeguarding the dispersed settlement pattern.”*
38. It is clear from both the descriptions of the landscape character and visiting the site that it is deeply rural and tranquil in nature. Despite the existing pylons and overhead lines across the site, and the developments in the distance to the north such as the Energy from Waste incinerator, it is still obviously a rural and agricultural area. These developments are currently isolated from each other, and do not significantly impact the countryside feel, and so the landscape character would be of high sensitivity to large scale uncharacteristic development that would join these developments together, such as a solar farm.
39. The hedging proposed by the applicant would mitigate its impact on the landscape only to the south of the site, as it is not proposed anywhere else. Proposed tree planting to the east seems unlikely given the planting restrictions near underground high pressure gas mains. Thus leaving views of solar panels to the north, east, and west. However, the proposed hedging even to the south would take time to mature and would not completely screen the development, particularly in the winter months. Even when the hedge was in full leaf, there would still be a perception of the development beyond.
40. Hedge screening along the site boundaries would in any case reduce the openness of the area and remove the long distance rolling countryside views which can currently be experienced by receptors in the area and are characteristic of the landscape character.
41. Furthermore, due to the nature of the undulating topography and openness of the surrounding area, views into the site would remain. And where the northern boundary of the site follows the ridge of the plateau, views of the skyline from Little Blakenham would change from that of rural countryside and tree tops, to the back of solar panels.
42. We note that the applicant even describes the fencing, which would surround the site and be the first part of the design that is seen, as intrusive.<sup>9</sup>
43. Whilst the proposal is described as temporary in nature, 35 years is nonetheless a long time. Given that the applicant states that they may apply to extend its duration towards the end of the 35 years, the possibility of it being permanent cannot be ruled out, especially when considered in combination with the change of land use out of agricultural use. And for the duration of this development, there would be conspicuous and incongruous regimented rows of metal and glass over the site which would represent an industrial development in the open countryside. With the development as a whole, the structures would create a significant industrial feeling in the landscape and detract from the landscape character of the site and surrounding areas. This is in conflict with the recommendation of the Settlement Sensitivity Assessment 2018.
44. We agree with the applicant’s conclusion that the adjacent landscape characters, those fully outside the site, would not be adversely impacted, but the same cannot be said of the Ancient Plateau Claylands LCT and Rolling Valley Farmlands LCT that it does sit in. Even the applicant concludes at 11.130 that after mitigation there would remain significant adverse impacts in regards to landscape and visual amenity for numerous receptors.
45. With respect to noise, the current landscape is very tranquil in nature and this contributes to the landscape character. The evidence suggests that the development would generate low levels of noise beyond the site boundary, with the potential for significant adverse effects along important PRoW footpath created from the containerised inverters/transformer units. This would have a significantly eroding impact on the tranquillity of the area, and therefore the landscape character.
46. The development does not demonstrate that it would maintain or enhance the qualities of the landscape character, as required by local and national policy, but have a significant adverse effect even with mitigation.
47. The development therefore fails to meet planning policy relating to landscape impacts, including the conditions related to policies on renewable energy generation.

#### *Visual Amenity*

48. Views of the site would be available from a significant number of public places, in particular the 8 PRoW footpaths that run through or next to the site. Many of these PRoWs are well used as they provide several circular walking routes, or important connecting routes between villages. They are also well used by tourists staying at Little Sage Hill Caravan and Camping site, particularly when visiting pubs in the neighbouring villages of Somersham and Bramford.

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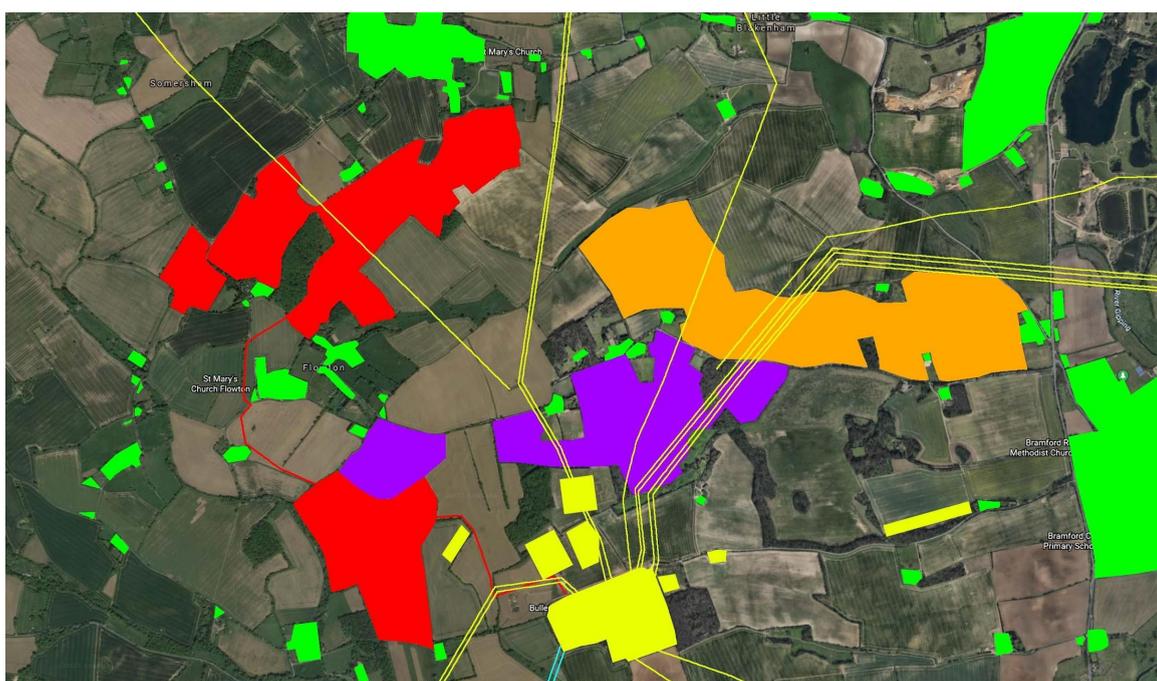
<sup>9</sup> Appendix 5.1 p 83

49. Tye Lane is also part of the Sustrans Regional Cycle Route 48, and is designated under the Quiet Lane Scheme.
50. Viewpoints along the footpaths 6, 7, 8, 8A, and 11 would be of high sensitivity. The views are currently very open and rural in nature, which would change to an enclosed corridor of either hedgerows or solar panels since not all PRoW are proposed to have screening. This would result in a major change, and significant adverse impact.
51. We understand that guidance points towards reinforcing the historic patterns of boundary lines. These boundaries appear to be clear already by way of single hedging and/or grass field margins.
52. For these reasons and those given above under “landscape character”, we are not persuaded that the scale of impact from these viewpoints could be reduced to an acceptable level, even if more extensive hedges were proposed along the PRoWs.
53. Moving further away from the site, the scale of visual impacts would generally be considerably less and would not be extensive, though views into the site would ultimately remain due to the topography, and the skyline for the village of Little Blakenham would be significantly changed.
54. We believe that there would be a significant adverse impact on amenity of the surrounding villages and vital walking routes would be compromised. This is not supported in planning policy.

*Cumulative Impact*

55. A recent High Court judgement<sup>10</sup> on 18<sup>th</sup> February 2021 reaffirmed that the cumulative impact of energy developments must be taken into account during the decision-making process.
56. The area here is already under significant energy development pressure due to the location of the Bramford Substation, which in itself is 45.8 acres. The East Anglia One and East Anglia Three Substations are also in the area, as well as several smaller energy projects already approved.
57. It was recently announced that, due to significant expected offshore and nuclear development, National Grid have proposed up to three new transmission connections in/out of Bramford Substation to support offshore wind and nuclear development: one with Twinstead Tee, Essex (shown in light blue on the below map); one with Norwich; and one with the Thames Estuary area. The latter two recently renamed the East Anglia Green Project and the exact routes have yet to be announced.
58. In addition to the EDF Renewables proposal, two additional large scale solar farms have been proposed: Bramford Solar Farm by Bramford Green Ltd on behalf of Enso Energy (red on the below map); and Greybarn Solar Farm by Statkraft (purple on the below map). Together these three proposals would: cover 595 acres of productive arable farmland and open countryside views; they would join the villages of Bramford, Flowton, Somersham, and Burstall together.

*Below image shows extent of proposed development, with EDF Renewables in orange.*



<sup>10</sup> R (Pearce) v Secretary of State for Business, Energy and Industrial Strategy [2021] EWHC 326 (Admin)

59. It is of note that EDF Renewables rejects Greybarn Solar Farm in their cumulative impact assessment. They give no reason other than it was not in the planning system as of March 2021<sup>11</sup>. However, it was submitted for Scoping Decision in May 2021, with a decision published in June 2021. Well before EDF Renewables submitted their application in August 2021. This arbitrary date and status is contrary to EIA Regulations, which states all current knowledge must be used to form the ES<sup>12</sup>. Greybarn Solar Farm was announced in March 2021, with a full site plan available to the public. It was and therefore is current knowledge, and must be assessed.
60. The existing landscape already accommodates major energy infrastructure, however these are largely isolated across the landscape, and away from the public. Incorporating a large scale solar farm (or any combination of the three proposed) would further connect the existing energy infrastructure together to create an industrial park more than double the size of any other industrial park in Suffolk.<sup>13</sup> We do not believe that any individual proposal on this scale in the countryside would see the light of day, and so this salami sliced version should not be any different.
61. There are several views where the EDF site would be seen in conjunction with either of the other two proposals. And we are aware of one location – Tye View Grange – which would have a view of all three proposals. And due to the distance the proposals cover, there would be significant sequential views. These would negatively impact the perspective visitors have of the surrounding villages, particularly those visiting the Little Sage Hill caravan and camp site.
62. Further, the three solar proposals for the area are all of different designs. This mish mash of large scale design across the landscape would add even more detriment to whatever beaten shred of landscape quality might remain.
63. Regardless of what combination of these solar farms gets approved, even in isolation the development of just this one project would contribute significantly to the industrialisation of a rural agricultural area. The development (either alone or in combination with the other developments) would dominate the landscape and it would be disproportionate to the villages it would be forced upon.

## Conclusion

The development fails to meet local and national policy previously listed. Whilst renewable energy is supported by planning policy, development must respect the landscape, and applications should only be approved if the impact is (or can be made) acceptable. We do not believe that the applicant has made those impacts acceptable, nor do we believe that they can be made acceptable. The applicant themselves concluded that even with mitigation the development would have significant adverse impact on the landscape for the duration of it. The application should therefore be refused because it fails to meet the principle of development. The applicant fails to include Greybarn Solar Farm into the cumulative impact assessment, which as per policy H16 and recent case law must be considered. Without this information the council cannot fulfil its duty to adequately assess the significance of any impact, which is already great.

We note that the applicant has provided a range of visualisations and they are of significantly better quality than another recent solar farm application. However, we note that there are no visualisations from along Tye Lane.

Lastly, it is worth noting that the cabling for the EA1 offshore windfarm project, which runs through the middle of the proposed site from north to south, was fully undergrounded. The mitigation on the landscape was a key factor for this decision by Scottish Power. It would be a shame for all that effort to protect the landscape to now be discarded.

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<sup>11</sup> Paragraph 4.68

<sup>12</sup> Chapter 18, p. 4b

<sup>13</sup> Ransomes Industrial Estate is the largest in Suffolk at around 300 acres in size.

## 4. Land Use and Soil

### Use of BMV Land

The MSDC Local Plan 1998 policy CL11 both seek to resist the loss of Best and Most Versatile (BMV) land, meaning grades 1, 2 and 3a as defined in the NPPF Glossary and the MAFF 1988 guidance for grading the quality of agricultural land.

Further policy E10 states that applications in the countryside will need to have particular regard for “the loss of high quality agricultural land.”

The NPPF at paragraph 174 states “Planning policies and decisions should contribute to and enhance the natural and local environment by: a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;...”

It continues at paragraph 175 which states “Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework[58]; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.”

Note 58 states: “Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.”

Paragraph 013 of the Planning Practice Guidance makes reference to a speech by the then Minister for Energy and Climate Change in April 2013 in which they state that: “Where solar farms are not on brownfield land, you must be looking at low grade agricultural land which works with farmers to allow grazing in parallel with generation...”

Paragraph 013 also references a written ministerial statement of 25th March 2015 which states: “In light of these concerns we want it to be clear that any proposal for a solar farm involving the best and most versatile agricultural land would need to be justified by the most compelling evidence.”

It is clear that BMV land should be avoided for development, especially where significant development is proposed, such as for solar farms which use a lot of land.

According to the Natural England ALC Map for East Anglia, the site is entirely grade 2 land. Grade 2 is BMV land.

The ALC gradings according to the applicant are 52.5% grade 3a (BMV land), 47.1% grade 3b, and 0.7% non-agricultural.

Planning Practice Guidance suggests maintaining agricultural use during the operational phase of the development, such as through sheep grazing, but EDF proposes no such thing.

At paragraph 4.43 the applicant claims “When considering a solar PV development proposal, the conservation of the agricultural land resource and its quality is of greater importance than the maintenance of continuous arable production.” but provides no justification for this. Instead, it would seem contrary to the need to protect the quality of agricultural land if it were not going to be used for agricultural production.

At paragraph 4.58 the applicant states “Following decommissioning of the solar farm (discussed further in Chapter 7 - Construction, Operation and Decommissioning) the land will continue to be available for agricultural use, subject to the benefits conveyed as described above from Paragraph 4.40 on page 58.” but no benefits are to be found here as it talks about how building foundations (like those proposed for the welfare, store, and 17 inverter cabins) and rail tracks (similar to access tracks proposed) can sterilise the soil and BMV qualities can be lost permanently.

### **Current and proposed business model**

The land proposed to be used for Solar PV is productive agricultural land producing chiefly grain for human and animal consumption. The application notes at paragraph 4.7: *“The proposed solar farm site and grid connection route (excepting where it passes under the highway) is arable, with the solar farm site currently sown with winter wheat.”*

In the EIA, the applicant is asked to :

*“Provide a description of the current status of the environment in and around the area in which the development in order to provide a description of the status and trends of environmental factors against which significant effects can be compared and evaluated.”* Including:

*“Socio-economic: demography, infrastructure facilities, economic activities (e.g. fisheries), recreational users of the area, etc.;”*

We are concerned that there is a distinct lack of information regarding socio economic activity and would like to see more detail particularly outlining the impact on the local economy of taking such a significant amount of land out of food production.

Farming businesses play a vital role in the rural economy, particularly supporting the agricultural supply chain to include feed merchants, machinery sales, maintenance and repair businesses, local builders, delivery drivers and professional services, to name but a few.

Removing crop production and replacing it with PV panels will eliminate the work done by farm contractors resulting in a net employment loss to the area.

Similarly, as referred to above, trade with merchants, suppliers, machinery sales and maintenance used by the contractor will also be lost further, reducing expenditure in the agricultural industry.

The NPPF seeks to conserve the national resource of the best and most versatile agricultural land and to conserve future options for exploitation. Agricultural land and the soil associated with it is, for all practical intents and purposes, a non-renewable resource. With solar panels all over it the versatility of the land is lost, as it can be used for nothing else for the duration.

There are no guarantees about what could benefit agriculture income in the next 35 years so the future potential is unknown. What we do know is the Mid Suffolk Local Plan 1998 policy states at p.2.4.3 *“The guiding principle in the countryside is that development should benefit the rural economy and maintain or enhance the environment.”*

Aside from the possibility of some local employment during the 6 month construction phase, which is not guaranteed, there are no long term gains to local employment as the applicant claims the site will be visited by a man in a van once or twice per month. There is nothing to suggest this man or van is local.

### **Current Land Use Enhancements**

The ‘enhancements’ proposed by the applicant are already in place and the other proposals for wild areas in field corners and cover crops etc. are also already established. These areas are commensurate with the current use as productive farmland producing food for the population. The DEFRA Stewardship schemes are about to be replaced by the Environmental Land Management Scheme ELMS.

This new scheme will replace general farm subsidies with a payment system which will require farmers to manage their production in accordance with best practice to pay particular regard to soil health, biodiversity and habitat, water quality, public engagement and the wider concerns of climate change.

Note also that the biggest land reservoir of carbon is the land itself. Therefore, the proposed new ELMS scheme will be an enhancement of DEFRA Countryside Stewardship. Every farmer will be required to enrol in ELMS to maximise income. Furthermore, since the Medium Tier Stewardship terms are more onerous (and are checked for compliance before payment, so are adhered to) and cover a wider range than the proposal’s mitigation, the ELMS scheme will be more prescriptive and demanding. Therefore, adoption of the applicant’s proposed LEMP will be retrograde. The ELMS scheme will also allow food production to continue.

## Soil Structure, Soil Organic matter, Soil Organic Carbon and Soil Health

### Soil Report

Examining the report carried out by Daniel Baird Soil Consultancy Ltd, it appears that only one sample, “sample SOIL503884” was tested. Furthermore, the report states “*the sample submitted was of adequate size to complete all analysis requested*”. We note the singular in this statement, and question how a single sample can accurately reflect results of 85 hectares of land. We would like to know more.

For example, one soil pit to assess soil physical properties over a site of such size with undulating profile and variable ground conditions is totally inadequate. The presence of ponds in the area indicates impermeable subsoil close to the surface and the variability of natural drainage.

### Conversion of Arable Land to Grassland vs Grassland Under PV Panels

The conversion of arable land to grassland can indeed improve soil health, such as increasing soil organic matter (SOM), and hence soil organic carbon (SOC), increasing soil biodiversity, and improving soil structure. This is consistent with aims and objectives for improving soil health in the Government’s 25 Year Plan for the Environment.

However, this is not what is proposed. The applicant proposes to oversail the grassland with solar PV panels, which creates a different effect on the soil.

The below is an extract (the conclusion) from [www.nature.com/scientificreports](http://www.nature.com/scientificreports) (2021)11:2907.

## **OPEN** The potential land requirements and related land use change emissions of solar energy

Dirk-Jan van de Ven<sup>1,2</sup>, Iñigo Capellan-Peréz<sup>2</sup>, Iñaki Arto<sup>1</sup>, Ignacio Cazcarro<sup>1,3</sup>, Carlos de Castro<sup>2</sup>, Pralit Patel<sup>4</sup> & Mikel Gonzalez-Eguino<sup>1,5</sup>

Although the transition to renewable energies will intensify the global competition for land, the potential impacts driven by solar energy remain unexplored. In this work, the potential solar land requirements and related land use change emissions are computed for the EU, India, Japan and South Korea. A novel method is developed within an integrated assessment model which links socioeconomic, energy, land and climate systems. At 25–80% penetration in the electricity mix of those regions by 2050, we find that solar energy may occupy 0.5–5% of total land. The resulting land cover changes, including indirect effects, will likely cause a net release of carbon ranging from 0 to 50 gCO<sub>2</sub>/kWh, depending on the region, scale of expansion, solar technology efficiency and land management practices in solar parks. Hence, a coordinated planning and regulation of new solar energy infrastructures should be enforced to avoid a significant increase in their life cycle emissions through terrestrial carbon losses.

The study was worldwide and relevant to the UK. The paper states that under solar panels there is a reduction of plant growth. This is caused by a loss of sunlight due to shading from the panels, and the concentration of rainfall because of the roof effect of the panels. So some areas are kept dry and some areas are oversaturated. Further, the microclimate effect under the panels is cooler, which reduces the metabolism of small insects and microorganisms in breaking down any organic matter to be stored as carbon in the soil. It confirms that, by not maintaining the carbon cycle (by not maintaining a sequence of planting, harvest, cultivation and planting again) the carbon cycle cannot be maintained. The ability of soil to sequester carbon is severely reduced by panels compared to modern farming where the plant residues are incorporated into an area where the next crop will be seeking nutrients.

The calculation of CO<sub>2</sub> potentially lost to soil sequestration, and instead released into the atmosphere is up to 50gCO<sub>2</sub>/kWh of generation. EDF quote 67,500kWh per year, for 35 years.

Not only does this loss in the soil cycle and that of the microorganisms in the soil have a negative impact on the soil quality, but the PV arrays have a continuous negative effect on Carbon Footprint (in addition to the initial Carbon Footprint costs of construction).

Developers’ claims that soils require a rest so will benefit from a period under panels are a fallacy. The soil will be there after the panels have gone but in a very much worse state than if they had been farmed properly.

### Soil Health

Aims and objectives for safeguarding and, where possible, improving soil health are set out in the Government's 'Safeguarding our soils: A strategy for England'. The Soil Strategy for England, which builds on Defra's 'Soil Action Plan for England (2004-2006)', sets out an ambitious vision to protect and improve soil to meet an increased global demand for food and to help combat the adverse effects of climate change.

The Soil strategy for England states that '...soil is a fundamental and essentially non-renewable natural resource, providing the essential link between the components that make up our environment. Soils vary hugely from region to region and even from field to field. They all perform a number of valuable functions or ecosystem services for society including:

- nutrient cycling;
- water regulation;
- carbon storage;
- support for biodiversity and wildlife;
- providing a platform for food and fibre production and infrastructure'

The maintenance, and improvement, of soil health is therefore a material consideration when deciding if a development is appropriate on agricultural land. Soil health can be defined as a soil's ability to function and sustain plants, animals and humans as part of the ecosystem.

### Soil Natural Drainage

*4.34 "Two basic soil profiles are found within the site. These are a well drained sandy loam textured soil and a soil with a clay subsoil that impedes drainage. The dominant limiting factor for both soils is droughtiness. The dry and warm climate for this site elevates the drought limitation and reduces the soil wetness limitation sufficiently that soil wetness is not the dominant limiting factor as would normally be expected for soils of this type"*

'Grade according to climate' on page 6 of the ALC Guidelines, the quality of agricultural land at the Site is not limited by overall climate, meaning that agricultural land at the Site could be graded as high as Grade 1, in the absence of any other limiting factor.

Gradient is not a limiting factor to agricultural land quality at this Site (re Table 1 of the ALC Guidelines). Likewise, micro-relief, i.e. complex changes in slope angle and direction over short distances, is not limiting to agricultural land quality at the Site.

All the soils have slowly permeable subsoils which cause waterlogging for much of the winter (Wetness Class III and IV). Because of this they have a limited winter rainfall acceptance potential and most surplus water is shed laterally as surface run-off. From the above it is clear that the soil would be classifiable as generally ALC Class 1 ( the highest grade ) but for the lack of permeability for water. This 'weakness' results in an effective downgrading because of surface run-off.

### Post-1988 ALC Information

From the MAGIC website, it has been determined that no post-1988 ALC survey has been undertaken by MAFF at the Site. This is because better, more detailed mapping was produced by the Soil Survey of England and Wales. This classifies soils into 27 classes instead of 4/5 by the ALC. Although ALC is regarded as a guide for planners, its usefulness when assessing Agricultural matters is outdated.

ALC is 1988 and precision in agriculture has moved forward due to research and the old data is now lacking. Land Agents, farmers and agronomists now use the more current information available from Soil Survey, now part of Cranfield University.

Soil Survey Mapping 15 - Soil Survey data divides the land into two classes for this site proposed.

Soil Survey Class 9. Basic loamy and clayey soils with impeded drainage/ Fertility: High/ Carbon: Low/ Drains to: Stream Network/ Water Protection: Surface capping can trigger sheet erosion of fine sediment to stream network/ General cropping: Timeliness with field work important to avoid structural damage esp in spring.

Soil Survey Class 18. Slowly permeable, seasonally wet clayey soils/ Drainage: impeded/ Fertility: moderate/ Carbon: Low/ Drain to: Stream Network/ Water protection: Main risks are overland flow from compacted fields. Fine sediment moves in suspension with overland flow and drain water/ General Cropping: Timeliness of fieldwork is

important and wet ground conditions should be avoided to prevent damage to soil structure. Periodic moling and subsoiling will correct drainage.<sup>14</sup>

Field Drainage is critical to the management of these soils. The clay and silt (the finest grains) compact under load to an impermeable layer which prevents the passage of water downwards by percolation. Consequently any significant rainfall leaves the land for the ditches by surface run-off when compaction occurs. In normal farming practice, once a crop is drilled, which for winter wheat would be in October or November, any vehicles would be confined to a pair of tramlines 24 metres apart. No traffic would be on the soil from then until harvest the following August. Compaction is absolutely minimised.

The construction period is proposed to last 6 months. The soil is at field capacity for 126 days or about 4 months. Therefore, for a minimum of two months the construction will take place when the soil is too wet to work on and will add compaction to the soil. The result will be a morass of mud. The soil damage, because of naturally impeded drainage characteristics obtained from the Soil Survey data, will prevent percolation. Rainfall will take the run-off route and flow immediately to streams and flood to both the Channel watercourses.

### Soil Structure

The Game and Wildlife Conservation Trust's Allerton Project (Game and Wildlife Conservation Trust, 2020) has been involved in investigating the sustainable intensification of agriculture through different experiments. Some research has focused on moving away from conventional agricultural practice, with greater emphasis on no-tillage ('no-till'). One of the fields at the Allerton Project has not been ploughed for the last 14 years and the soil structure is visibly different compared to other soils on the farm. No-till systems can help improve soil fertility, create changes to the structure and properties of the soil due to the stability of the environment, and enhance soil biology. Over time the no-till field has had the highest yields compared to the conventional field equivalent on the farm.

We are told by the applicant:

*"4.45 However, the presence of the solar PV confers agricultural benefits to arable land through an extended fallow period. The organic matter content of UK arable soils is in long term decline. Cultivation promotes rapid breakdown of organic matter, the soil organic matter content declining to a lower equilibrium. A change of management with no cultivation under the solar PV will enable a return towards a higher equilibrium of soil organic matter. Benefits of this change will be land that is more fertile, easier to cultivate and permits more rapid infiltration of rainfall."*

This paragraph is misleading. There is no indication of where this information is from, or the type of soil this statement is referring to. We would welcome more specific information in relation to this statement.

In the 1960's and 70's ICI ran many experiments using a direct drilling technique where crops were drilled by a special drill which cut a slot in cereal stubble enabling seed to be drilled without other cultivation, using another disc to cover the seed. This worked tolerably well for a number of years on some soil types. At the time stubble burning was allowed so there was minimal surface trash. Now equipment has developed and much more powerful tractors are available so it is possible to produce a shallow tilth, drill the seed (especially cereals) into a slot, cover the seed and firm the soil all in one pass.

On some soils this works and is effectively a no-till system. On some soils this is preceded by a set of discs if tilth is insufficient. No-till is nonsensical on a field, especially an undulating one such as the site proposed. Throwing grass seed onto an uncultivated field with no tilth to cover seed will not result in germination. Seeds, particularly grass, are very light and with the first rain will just float away downhill with the run-off water. Repeatedly doing so will not get a different result.

Soil organic matter is necessary to hold nutrients. It feeds soil micro-organisms which form the start of the in-soil food chain for insects and invertebrates which then form channels in the soil allowing air and water to pass. This process leads to a healthy topsoil which allows good germination, strong root development and improves nutrient pick-up. A strong plant puts out more roots and, unless there is something such as compaction preventing it, enables

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<sup>14</sup> <http://www.landis.org.uk/soilscapes/>

full root development. A bean plant will push out roots to three feet deep if the soil allows. As noted above, the soils on these sites would be classed as Grade1 soils for productivity but are hampered by the high clay and silt (fine particles) which restrict percolation of rain through the soil downwards, because of the sensitivity to compaction, leading to rainfall run-off. Consequently, occasional sub-soiling and mole-draining (pulling a 6-inch 'torpedo' through the soil at a depth of 3-4 ft toward the ditches at distances of several metres apart, forming a sub-surface 'pipeway' through which water can flow) is required to assist water percolation. This also assists soil aeration necessary for micro-organisms and root growth. Note that, as previously stated, the only traffic on fields in general arable production is confined to a pair of fixed tramlines 24 metres apart from October-November to the following August. The solar PV proposal informs that construction will take 6 months during which time vehicles will be running repeatedly all over the site using high-pressure tyres. The effect of doing so will be to ruin established soil drainage through percolation channels by compaction (as shown in the Flood and Water Management chapter).

In addition, there will be no means of correcting the damage caused to soil drainage.

We are told: *"4.9 The proposed solar farm is located in the gentle undulations associated with the MIS 12 era glacial meltwater valleys which formed the Waveney, Deben, Gipping and Stour in the site's wider region. The site is located on the east facing flank of the Gipping watershed south of The Channel Gipping tributary and varies from approximately 53m AoD at the south-west to approximately 13m AoD to the north-east."*

Impacts of Construction on permeability will remain for 35 years. Rainfall absorption during a period when the land is at field capacity (126 days per year. Data supplied) or waterlogged will be effectively nil and therefore any rain will flow immediately on the surface off the fields. All tracks built by the applicant will be permanent for 35 years. Construction of these tracks is shown to be compaction of the surface soil to achieve a depth of 300mm to accommodate the roadstone. These roads are quoted as 3.5 to 4 metres in width and there are miles of them across all fields. This method of construction shows a complete disregard of field drainage. The roadways will cause 3.5 to 4 metre subsurface dams of solid compacted earth which will prevent any drainage. They will cause surface erosion, collection of water into substantial surface flows and further speed rainfall off the fields as run-off. This is reckless. Soil Organic Matter (SOM) and Soil Organic Carbon (SOC) are linked.

As a generalisation. SOM is the larger particles of plant matter from roots and vegetation in the soil which is slowly broken down by invertebrates, insects and the microbial activity in the soil. These form the SOC element. Until recently SOM and SOC have been largely ignored for their benefits to crop nutrition and nutrient availability.

Mixed farms are now uncommon in East Anglia, so manures are not as widespread and crop residues such as straw were habitually burnt in situ after harvest (cereal straw) or sold off the farm. Hence levels of SOM and more significantly SOC have been ignored until quite recently. SOC levels in the Soil Survey report for these soil types (above) are reported as LOW. However, soils are the largest carbon reservoir of the terrestrial carbon cycle.

The quantity of carbon stored in soils is highly significant; soils contain about three times more carbon than vegetation and twice as much as that which is present in the atmosphere (Batjes and Sombroek, 1997). The only larger carbon reservoir is the ocean. The soils on the proposal site are ideally suited to carbon storage. The ELMS requirements will demand across-the-board practices which will enhance soils as a matter of Government policy. There are no details of how these practices required of arable farming to enhance soil fertility will be matched by the Land Management stated by the applicants proposal.

Firstly: Construction is known to be taking place over a 6 month period using heavy plant with no regard for low-ground pressure operation. Roads will be supporting well over 1000 vehicle movements, some of 44 tonnes.

Secondly: Compaction leading to lack of aeration (by definition) and lack of drainage will suppress subsequent plant growth. There can be no fieldwork done after construction to correct damage because the affected areas will be largely covered in permanent PV panels. Therefore, there can be no cultivation to achieve a medium suitable for seed establishment (a tilth). There can be no drainage remediation across the site.

Thirdly: The applicant's System of Plant Establishment states that seed will be sprinkled on the surface after construction is completed. Successful grass and small seed establishment requires a fine surface tilth in which seed

can be mixed and firmed to allow close contact with soil. This is to allow the new roots to penetrate the soil rather than have them push the seed upwards. It also allows sufficient moisture to be held around the seed to facilitate germination. A cultivated seedbed is essential.

Sprinkling seed on the surface without cultivation will fail. Soil Survey data notes that the soil is prone to capping. Fine particles of soil clump together forming platelets several inches square and about 0.25 inches deep on the surface. These are quite strong and also impermeable. Any light seed such as grass or wildflower seeds which are simply broadcast and which fall on the capping will stay there until blown away by wind or washed away with rainwater.

Farmed soils tend to be managed to maintain high phosphate and potash levels. Field nutrient status appears to be missing from the soil analysis results. However, phosphate P and potash K nutrient indices are likely to be high. These levels cannot be easily reduced in topsoil. High P and K levels are unsuitable for most wildflowers. A solution would be to remove large areas of topsoil to facilitate wildflower establishment. However, there is no mention of this operation in the applicant's proposal, nor mention of where the topsoil would be stored for return at the end of the life of the development. Grassland Management 16

<http://www.magnificentmeadows.org.uk/advice-guidance/section/how-can-i-restore-or-recreate-a-meadow/P1>

The applicant's proposal stipulates that grass management will consist of cutting grass at intervals for removal (presumably to cause a loss of soil fertility), and does not specify what happens next. If the collected material is left in heaps, the grass will rot and lead to anaerobic digestion of the heaps. Often confused with liquid biofuels, biogas has also been called swamp gas or sewer gas. It is a mixture of gases composed largely of methane (CH<sub>4</sub>) produced during the natural decomposition of organic material in an airtight environment. Ordinary lawn clippings yield one of the highest volumes of biogas per ton. Anaerobic digestion leads to Methane production. Aerobic digestion as happens when plant matter is incorporated into soil leads to CARBON CAPTURE. Methane is a potent greenhouse gas—about 28 times more powerful than carbon dioxide at warming the Earth, on a 100-year timescale, and more than 80 times more powerful over 20 years. Therefore, the applicant's grassland management system could be more dangerous to the Environment and Climate Change than the methods of management currently specified under DEFRA Countryside Stewardship rules and the envisaged practices in ELMS schemes.

### Biodiversity

The applicant makes claims about improving wildflower population to provide for pollinating insects. Wildflowers, if they can be established using the methods described, will be in flower in mid-late Summer depending on species. However, there is not a shortage of flowering plants at that time. Notably, clovers, elders and blackberry are at their peak then and cover crops such as phacelia and mustard will be available dependant on the cropping regime. The effect of a small area of wildflowers will be minimal compared to a field of cover crop under a full agriculture system if the panels were not built.

We would be pleased to see an element of crop growing on the site and believe this should be made a condition of planning approval. This would ensure at least some agricultural activity on the site. This condition must apply to every owner or operator of the site until decommissioning. Cropping regimes Cereal crops (wheat, barley etc) are the same plant family as most of the planting proposed by the applicant for use under the solar panels. Other grasses are Graminaea also. A reasonable crop of hay may yield 2 tonnes per acre dry matter. A poor crop of unproductive grass might yield 300kg.

A good wheat crop may yield 3.5 tonnes of wheat and 2 tonnes of straw. Instead, the applicant proposes to plant grass. If, when the grass is cut, the grass arisings are tipped on the field edge to rot in anaerobic heaps, they will produce Methane. Wheat production would be annual with the possible addition also of a cover crop which might provide nectar-rich insect food or at least a further deposit of plant matter incorporated into the soil, enhancing SOC. Also, a wheat plant's root system is much larger and more vigorous than a grass plant and replaced annually, rather than being semi-permanent, so that contributes further to SOC.

COMMON CROPS AND USES AS FOOD SOURCES FOR INSECTS AND ENERGY SOURCES

CROP	INSECT FOOD	NECTAR SOURCE	HUMAN/ ANIMAL FOOD	ENERGY SOURCE	OTHER
Cereals	Y	Y	Y	Biomass	Straw
Sugarbeet	Y		Y	Biomass	Straw & Fuel
Oilseed Rape	Y	Y	Y	Biomass	Nitrogen Fixer
Peas	Y	Y	Y	Biomass	Nitrogen Fixer
Beans	Y	Y			Cover Crop
Mustard	Y	Y			Cover Crop
Phaselias etc.	Y	Y			Straw
Linseed	Y	Y	Oil	Biomass	
Proposed Grass	Y				
Proposed Flowers	Y	Y			

The crops listed above are in common rotation on soils such as these local to the sites. All attract insects. Sugar beet in particular attracts aphids for the sap, which are a notable food source for birds. The other break crops have a long flowering period suitable for bees etc. All harvested crops produce valuable human food except linseed which produces valuable oil. All could also be used as Biomass in useful amounts for the CHP and Biomass Gasifiers in local operation. All provide larger amounts of sub-surface organic matter annually than perennial and short-life grasses.

Therefore, all the species of plant grown on local arable land will exceed the projected growth of grass under uncultivated PV areas whilst maintaining full-scale useful agricultural production and also lead to greater SOM and SOC locked into the soil. Under DEFRA CSC/ELMS management the current farming system will exceed the capability of the proposed management system of the developer without damage to soil, land drainage, flooding, or loss of food production.

Decommissioning

Decommissioning will be a repeat of the soil damage which will happen during construction except that there will be many more vehicle movements. Materials will arrive on site for construction on neat pallets, maximising loads to save shipping costs. Steelwork will, for decommissioning, be grab-loaded into roll-on-offs for shredding probably at a local scrap merchant so loading will be done for speed, not to minimise shipping long-distances. There will be very large quantities of roadstone, now contaminated with soil, which will all be classed as waste. However, the biggest problem will be restoration of the land to a usable condition for farming, or if this is even possible or worthwhile.

Fertility and drainage will have to be re-established, which are natural processes which cannot be restored artificially. The soil profile was last significantly altered during the Ipswichian interglacial period 120,000 to 11,500 years ago.

In order that Soil Organic Matter can be improved, as claimed by the application, and that Soil Organic Carbon can be increased in order that a maximum amount of Carbon can be sequestered from the atmosphere in accordance with Government obligations related to Global Warming, it must be a condition of Planning Approval that the land is covered totally with 100% live plant matter within one year of completion of the build and that this cover is maintained throughout the life of the project. This condition must apply to every owner or operator of the site until decommissioning.

There will be a number of miles of permanent way constructed on the same distance of compressed clay and silt 'subsurface wall' which will be laterally impermeable. It should be noted from the Soil Survey classifications and the soil data that these soil types are prone to compaction in normal farming circumstances. Class 9 and Class 18 both note 'structural damage when wet' or 'tendency to cause surface run-off and erosion.' There is a declared and deliberate intention to damage natural drainage which will lead to areas being permanently waterlogged. There will be concentrated water release via erosion channels and rapid rainfall run-off.

It should be noted that, even now, the colour of the ditch water in surrounding ditches is that of milky tea, indicating that the ditches are filled by runoff rather than percolation. Add to this the 6 month construction period following which there is no possibility of soil structure and drainage remediation because the panels will be in position, along with associated shallow cable trenching thus preventing any cultivation. The damage caused will be permanent and irrecoverable.

### Conclusion

The agricultural land selected for this development falls under the ALC classification as the best, most versatile land that the country has. Current mapping as is used by the Agricultural Industry based on more recent surveying by Soil Survey, (Cranfield University), increases the classifications to 27 types. More usefully than ALC, this suggests cropping ability. Consequently much of the selected land is potentially upgraded to Grade 1 land but for the shortfall of it being prone to damage by compaction. Note: Land of the same Soil Survey Classification as much of the proposed site on a farm three miles from it at Great Bricett is, by local reputation, some of the best wheat land in Europe. The proposal by the developer is to take this national asset which is vulnerable to compaction and spend 6 months compacting it. Furthermore, rather than attempt to remedy the damage, the proposal is to install permanent features which will exacerbate the damage caused for a 35 year period, and then repeat the damaging activities during decommissioning. The loss of food production from the national larder is significant and may become even more so in the future. The Commission on Climate Change, a Government body, seems to believe so.

The application ignores current management practices of Food Production such as the Countryside Stewardship Scheme. This is superior to the paltry 'mitigation' measures proposed for this site. Furthermore, it totally ignores the DEFRA ELMS schemes which will be financially, agronomically and nationally beneficial whilst allowing food production to continue.

If the plans are rejected wildlife will continue to exist without disturbance. The landscape will continue to enhance the life experience of the local population. And food can still be grown on BMV agricultural land that is protected in both local policy and national policy.

## 5. Heritage

The National Planning Policy Framework (NPPF para 194) requires clear and convincing justification for all levels of harm to heritage assets, including their settings.

Substantial harm to assets of the highest significance, including Grade 1 listed buildings, should be wholly exceptional.

And section S66(1) of the Planning (Listed Buildings and Conservation Areas) Act 1990 requires special regard to be held to the desirability of preserving the settings of listed buildings.

The Planning Practice Guidance calls for great care to be exercised to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting.

The NPPF and the PPG also recognise that the “significance derives not only from a heritage asset’s physical presence, but also from its setting.” The need for robust interpretation and application of the NPPF has been explained in analysis of planning authority decisions carried out for the statutory consultee, Historic England: *“Many local planning authorities could take bolder action to protect heritage assets to achieve NPPF objectives... to avoid or minimize conflict between heritage assets’ conservation and any aspect of a proposal, local planning authorities should more vigorously consider the wider alternatives to the submitted scheme: this is supported in case law..”*

This is continued in local development plans. The MSDC Local Plan 1998 policy HB1 states “The district planning authority places a high priority on protecting the character and appearance of all buildings of architectural or historic interest. Particular attention will be given to protecting the settings of listed buildings.” And the MSDC Core Strategy 2008 objective SO4 seeks “To protect, manage, enhance and restore the historic heritage / environment and the unique character and identity of the towns and villages by ensuring that new developments are appropriate in terms of scale and location in the context of settlement form and character.”

We understand that the applicant acknowledges 57 listed buildings within 2 km. We are concerned that the applicant is of the view that the project would not cause significant harm to any property of sufficiently high value that the Local Planning Authority would need to take it into consideration.

In addition, there is fresh guidance on assessment of landscape and heritage value that supports objections already made.

The National Policy Framework (NPPF) provides protection for ‘valued landscapes’ in para 170:

“Planning policies and decisions should contribute to and enhance the natural and local environment by; a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan).”

This sentence has helped afford protection to nationally designated sites but has often resulted in confusion with regard to areas of local value that lack designation.

The Landscape Institute’s new *Technical Guidance Note 02/21- Assess landscape value outside national designations* provides useful direction and a historical perspective of relevant legislation.

Applying the factors set out in Table 1 of the LI’s Guidance Note provides a holistic approach which takes account not merely of natural heritage but also of cultural heritage, landscape condition, perceptual values and functionality.

The site in question scores highly for these factors.

While no single feature or attribute may be exceptional, the preservation of a historical, farmed landscape with a large number of listed heritage assets, each in their original setting, makes this a valued landscape for local people and tourists alike.

Landscape condition is in a good physical state in terms of individual elements and overall landscape structure. The area has a high perceptual rating while retaining its functional purpose for versatile, high quality agricultural production. It is also remarkable for what the Guide describes as “cultural time depth” in that field patterns and related farmsteads remain in situ.

Landscape qualities = characteristics/ features of a landscape that are valued.

The report explains that “this term is being used to distinguish landscape qualities from landscape characteristics which are elements, or combinations of elements, which make a particular contribution to landscape character. Landscape qualities (in the sense meant in this TGN) are usually referred to as “special qualities” or “special landscape qualities.”

Table 1: Range of factors that can be considered when identifying landscape value

FACTOR	DEFINITION	EXAMPLES OF INDICATORS OF LANDSCAPE VALUE	EXAMPLES OF EVIDENCE
<b>HERITAGE</b>	Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape	Presence of wildlife and habitats of ecological interest that contribute to sense of place	Landscape character assessment
		Extent and survival of seminatural habitat that is characteristic of the landscape type	LANDMAP Geological Landscape and Landscape Habitats Aspects (in Wales)
		Presence of distinctive geological, geomorphological or pedological features	Ecological and geological designations
		Landscape which contains valued natural capital assets that contribute to ecosystem services, for example distinctive ecological communities and habitats that form Nature recovery networks/ nature pathways the basis of ecological networks	Ecological and geological designations Geological Conservation Review Habitat surveys Priority habitats Habitat network opportunity mapping/ green infrastructure mapping
		Landscape which makes an identified contribution to a nature recovery/ green infrastructure network	Catchment management plans  Ecosystem services assessment/ schemes  Specialist ecological studies
Cultural heritage	Landscape with clear evidence of archaeological, historical or	Presence of historic landmark structures or designed landscape elements (e.g. follies,	Landscape character assessment

Precedent for protection on the grounds cited above predates the new Guide. In August 2019 the Inspector concluded that a development would harm a valued landscape at Poplar Hill, Stowmarket, even though the site was not located within a nationally or locally designated area.

Further, the large number of listed farmhouses within the site area is evidence of important and prosperous agricultural history and landscape in the area. And whilst independently they may not, collectively they paint a picture of greater importance.

#### Rutters Farmhouse - Grade 2 listed

In addition to the wider heritage landscape of the area, one grade 2 listed building is noticeably absent from the application. That of Rutters Farmhouse, which shares a boundary to the east of the proposed development. Views of the farmhouse can be seen from PRow footpath Bramford 8a, and the rising land from the property dominates the setting of it. The proposed site, as is clearly visible from the photographs below, comes right up to the boundary of the property.

*View from inside Rutters Farmhouse*



*The boundary of Rutters Farmhouse*

This field will contain solar panels as far as the eye can see.



*Panoramic View from garden of Rutters Farmhouse*

This field will see solar panels as far as the eye can see.



Conclusion

Whilst the development is of a temporary nature, it is nonetheless for 35 years which is a very long time, during which the adverse impacts would be experienced by very many people. Given the potential for the applicant to reapply for the site to remain in place at the end of the 35 years, as indicated in the proposal, the possibility of it remaining a permanent development cannot be ruled out, particularly factoring in the change of land use aspect of this application.

Neither has the applicant provided a detailed sequential test analysis to show that other locations were not available.

The application fails to protect the settings of listed buildings, which is given particular consideration in the local plan, and fails to protect the heritage of the valued landscape.

## 6. Flood and Water Management

There are a number of serious issues and omissions associated with the applicant's proposal that are likely to have a significant effect on the extent of flooding in the area. The likely impact of this will be to restrict road access to the surrounding villages as well as significantly elevate the risk of flooding to a number of residential properties that are already at risk from the increased rainfall associated with climate change.

The following sections detail the main issues that CARE Suffolk has identified. However as the applicant's proposal has significant omissions associated with its Flood Risk Assessment and Drainage Strategy it is simply not possible to provide a full analysis of the expected detail as it is absent from the applicant's submission. These omissions are also identified at a high level, and should updates or further submissions be provided by the applicant, we would conduct a further review and make a representation back via the LPA.

### 1. The applicant's Flood Risk Assessment is based on the flawed assumption that the “..the amount of permeable land on site is expected to only slightly reduce during operation of the solar farm compared to pre-development.” (FRA 9.30)

**This assumption excludes any proper consideration of how the permeability of currently permeable land is likely to be affected by the construction activity at the site and limits the scope of its assessment to the change in the ratio of permeable : non-permeable surface area created as part of the development. This assumption is in direct conflict with the primary research<sup>15</sup> that the FRA cites when it states that “Solar panels themselves should not have a significant impact on runoff volumes, peak rates or time to peak rates..” (FRA 9.32)**

**In reality the primary research cited<sup>16</sup> in the FRA details empirical evidence that runoff volumes and peak discharge rates can be significantly affected by the installation of solar farms where suitable ground cover is not present & adequately maintained from the point of installation.**

The paper states the following potential effects:

- *"If maintenance vehicles used the spacer section regularly and the grass cover was not adequately maintained, the soil in the spacer section would be compacted and potentially the runoff volumes and rates would increase. Grass that is not maintained has the potential to become patchy and turn to bare ground. The grass under the panel may not get enough sunlight and die. Fig. 1 shows the result of the maintenance trucks frequently driving in the spacer section, which diminished the grass cover."*
- *"The effect of the lack of solar farm maintenance on runoff characteristics was modelled by changing the Manning's n to a value of 0.02 for bare ground. In this scenario, the roughness coefficient for the ground under the panels, i.e., the dry section, as well as in the spacer cell was changed from grass covered to bare ground (n 1/4 0.02). The effects were nearly identical to that of the gravel. **The runoff volume increased by 7% from the grass-covered to the bare-ground condition. The peak discharge increased by 72% when compared with the grass-covered condition. The runoff for the bare ground condition also resulted in an earlier time to peak by approximately 10 min.**"*
- *"With the spacer section as bare ground, **the peak discharge increased by 100%**"*
- *"If the grass cover of a solar farm is not maintained, it can deteriorate either because of a lack of sunlight or maintenance vehicle traffic. In this case, the runoff characteristics can change significantly with both runoff rates and volumes increasing by significant amounts."*
- *"If bare ground is foreseen to be a problem or gravel is to be placed under the panels to prevent erosion, it is necessary to counteract the excess runoff using some form of storm-water management."*
- *"Water draining from a solar panel can increase the potential for erosion of the spacer section. If the spacer section is bare ground, the high kinetic energy of water draining from the panel can cause soil detachment and transport (Garde and Raju 1977; Beuselinck et al. 2002)."*
- *"**The energy of the water draining from the panel onto the ground can be nearly 10 times greater than the rain itself falling onto the ground area. If the solar panel runoff falls onto an unsealed soil, considerable detachment can result (Motha et al. 2004). Thus, because of the increased kinetic energy, it is possible that***

<sup>15</sup> Hydrologic Response of Solar Farms, J. Hydrol. Eng., **2013**, 18(5): 536-541

<sup>16</sup> Hydrologic Response of Solar Farms, J. Hydrol. Eng., **2013**, 18(5): 536-541

*the soil is much more prone to erosion with the panels than without. Where panels are installed, methods of erosion control should be included in the design."*

- *"Bare ground beneath the panels and in the spacer section is a realistic possibility (see Figs. 1 and 5). Thus, a good, well-maintained grass cover beneath the panels and in the spacer section is highly recommended."*

After conducting a thorough review of the primary research that the FRA selectively cites, it is our assessment that each of the potential effects detailed in the research is of concern in relation to the specifics of EDF's proposed development. The application of these effects to specific factors associated with the proposal is expanded in the next section.

## **2. There is a significant risk that the way the construction & management of the site is conducted will dramatically increase surface runoff rates.**

As cited above, primary research provides evidence that there is potential for dramatic increase to:

- The surface runoff peak discharge rate (Approx. 100% increase)
- The total flood volume emanating from the site (Approx. 10% increase)
- The concentration of rainfall & kinetic energy available to produce soil erosion (Approx. 1000%, 10x increase)

It is our assessment that there are a number of risk factors associated with, and heightened by, the nature of the proposed development - some of which are in *addition* to those already identified in the primary research as having a significant effect on flood risk.

These risk factors include:

### **A. Soil compaction**

*(Hydrologic impact = reduced loss rate, increased surface smoothness)*

The soil classifications documented as part of recent local soil surveys identify the site to be composed of soil prone to compaction due to the presence of clay and silt within the soil structure. These soil types are noted as being prone to "structural damage when wet" as well as having a "tendency to cause surface runoff and erosion".

During the 6 month construction phase the applicant has indicated (Chapter 8 - Transport and Access, Table 8.2) that there will be at least 1,826 vehicle movements (of mass up-to 44 tonnes) accessing the site and each of these movements will be multiplied further internally within the site to facilitate the construction of the solar arrays and associated infrastructure.

Each of these movements will cause significant compaction of the soil and furthermore:

- The compaction will be across the entirety of the developed area of the site - far exceeding the surface area of compaction associated with traditional farming techniques (which post-drilling restrict vehicle movements to a single pair of "tramlines" within a given area and are good weather dependant)
- A significant proportion (approx. 20%) of the activity causing the compaction will occur during a period when the land is too wet to work on and when the land is normally left free of all farming activity (Due to the 6 month construction period a conservative estimate would assess that a least two months of construction activity will take place during this period)
- Following the construction phase there is expected to be regular maintenance activity conducted at the site which will continue to cause soil compaction throughout the run-phase of the development. Some of this activity (for instance grass cutting & site maintenance) will involve regular vehicle movement across land not accessible by the internal roads and is expected to cause further compaction.

All of the activities detailed above will have the effect of increasing the density of the soil at the surface and directly below in the subsurface, this increased density will reduce the ability of water to be absorbed within the soil structure (reducing water storage) as well as reduce the ability of water to be transported within the soil (both down - to aquifers, and across - to other areas of soil or to ditches and other watercourses)

Evidence of the direct effect of solar farm construction on soil compaction and stormwater management was recently documented in *Environmental Science & Engineering* magazine, (*Lessons learned: Solar projects present unique stormwater management challenges*). This reflected on key lessons learned following Canada's initial liberalising of planning law enabled a flurry of more than

100 10MW solar farms to be constructed under Renewable Energy Approvals (REA) in Ontario. The article detailed findings that *“In hindsight, it has become apparent that the selection of sites must place great significance on topography, existing site conditions and constraints such as nearby watercourses and soil types. All of these factors readily influence the volume and flow rate of runoff that, if not properly managed, can result in negative impacts to downstream and neighbouring properties.”*

*In general, undeveloped sites either did not possess known existing stormwater concerns or were in locations where seasonal flooding occurred. In either case, fields would remain untouched until they were stable enough to be worked. However, in a situation where a solar farm is constructed on an existing row crop, the land is drastically transformed from a site that would see minimal usage/disturbance until planting to a site that requires complete year-round accessibility by machines and workers during construction and early stages of operation.”*

Fig 1- Typical standing surface water present following soil compaction during typical solar farm construction



Alarming EDF's FRA makes no effort to consider the effects of soil compaction on the surface water run-off rate - it instead assumes that water *“will infiltrate into the underlying soils, and, for more extreme events, some of which will run-off through the vegetation, in a similar way to the site response at present.”* (FRA 9.31) The impact of this flawed assumption is propagated into its drainage strategy where EDF limits their desk-based hydrological modelling to use standard greenfield run-off rates (Table 9.1). In doing so EDF neglects to assess the actual current run-off rate for site pre-development or indeed make any assessment of how this might alter during and after construction.

**B. Increased proportion of impermeable surfaces due to the construction of solar array frames, access tracks, buildings and other infrastructure**

*(Hydrologic impact = reduced loss rate both vertically - from rainwater above and horizontally as a result of a subsurface “damming” effect preventing water transport laterally across the subsurface, increased surface smoothness)*

The applicant's plans assess that the development will transform 34,700 square meters of currently permeable land into an impermeable surface (Table 9.2) associated with concrete pilings used for the solar array frames as well as ancillary buildings. This assessment however assumes that several kilometres of constructed access tracks can be considered permeable but does not assess how this surface's permeability compares with the current surface present at the site.

Increasing the proportion of the surface area of the site that has a reduced permeability relative to the current soil structure will reduce the amount of water that is able to be absorbed into the soil (the loss rate) as well as transferred and stored in other areas of soil or transferred to other established drainage.

In addition, increasing the proportion of the surface area of the site that has an increased surface smoothness and decreased hydrophilicity will have the effect of increasing the rate at which water can travel across the surface of the site (the discharge rate associated with surface runoff).

### **C. Destruction of existing land drainage systems currently present**

*(Hydrologic impact = reduced loss rate)*

The land currently has an established drainage system which makes use of channels present in the soil (created either naturally by root structures and invertebrate movement, or through techniques such as the construction of “mole-drains”) to aid water transport laterally across the fields for evacuation via a network of ditches linking the fields to the surrounding watercourses.

It is of note that this situation was realised recently by the cable laying activities associated with EA1 and EA3. In July 2021 remedial work was undertaken over two weeks by Miles Drainage to install drainage along the cable route because heavy machinery from the installation had compacted the soil and damaged the underground drainage channels. This cable route and needed remedial work is on the very same site that EDF now proposed to build their solar farm. With heavy machinery. This cannot be undone in the same way that it could for the cable route. There would be solar panels in the way.

One of the secondary effects of the activities which produce soil compaction (Section A, above) and are used in the creation of access and other infrastructure (Section B, above) will be destruction of existing drainage systems which make use of the current (un-compacted) soil subsurface.

The destruction of the land drainage systems currently present at the site (either through soil compaction or through activity like access track construction which will change the soil subsurface) will have the effect of reducing the ability of the land to safely & slowly transport & store water within its structure, this will in-turn mean that the soil above the existing permeable layer will more quickly become saturated with flood water, rapidly decreasing the loss rate of the soil when subjected to rainwater.

### **D. Reduction in surface vegetation - in the period from the commencement of the construction phase to the point where planted vegetation has reached suitable maturity.**

*(Hydrologic impact = increased surface smoothness & reduced soil surface shear strength)*

Initially there will be a significant reduction in the surface vegetation present across the site area, this will be as a result of:

- The cessation of activity to produce arable crops
- The clearance of vegetation to allow access to the site
- Increased soil compaction and water saturation of soil associated with vehicle movements and other construction activity (creating highly unfavourable growing conditions)

The presence of established and well maintained surface vegetation and the improved surface roughness that this provides has been identified<sup>17</sup> as the key factor that helps mitigate surface runoff by reducing the speed at which water is able to flow across the surface of the land. A pronounced decrease in vegetation will therefore increase the smoothness of the surface and enable rainwater to flow across the surface at significantly increased speeds. This in-turn then means that other drainage infrastructure will be presented with a higher volume of water within a smaller time period making it more likely that its drainage capacity will be breached and flooding will occur.

In addition, reducing the level of vegetation will reduce the shear strength of the soil as this is usually enhanced by the root structures of the vegetation present. The reduction in this soil strength will make soil erosion more possible which will have a secondary effect of reducing the efficacy of existing drainage systems downstream of the site (as these will now be presented with larger volumes of solid matter / silt in addition to the increased volumes of rainwater)

EDF have made no assessment in their FRA of the proportion of vegetation loss that can be expected

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<sup>17</sup> Hydrologic Response of Solar Farms, J. Hydrol. Eng., 2013, 18(5): 536-541

as a result of their construction activity. They have also failed to assess what impact any loss of vegetation will have on flood risk, other than to admit that only by “*providing that vegetation cover beneath the solar arrays is maintained..*” can they assess that in their view there is unlikely to be a “*..significant increase in surface water runoff is anticipated as a result of the solar array.*” (FRA 9.32)

#### E. The topography of the land

(Hydrologic impact = acceleration of overground surface water flow)

There are three variables directly associated with the topography of the land that have a direct impact on the velocity of the surface runoff flow observed.<sup>18</sup>

1. Slope length
2. Slope gradient
3. Flow path convergence

The site of the proposed development contains a range of topographical features that will cause acceleration of the surface water that flows across it.

These include:

- A range of slopes of significant lengths (Up-to approx. 800 m before being intersected with a drainage ditch)
- Field slope gradients >10%
- Multiple converged flow paths leading to watercourses to both the north & south of the site

EDF have neglected to conduct a full topographical survey and associated flow analysis. It is therefore not possible to analyse the contribution of each topographical feature and quantify its affect on overground flow rates.

#### F. The angle of the panels when in operation

(Hydrologic impact = acceleration of rainwater, increased rainwater kinetic energy per unit area, variation in uncovered ground surface area able to act as a rainwater buffer)

The applicant has stated that the angle of the solar panels will be fixed, however within their application there seems to be some confusion as to which angle the tilt will be fixed at, with it variously being stated at 25° (Section 4.2, *Environmental Report- Geology, Hydrology and Hydrogeology*) and 20° (Section 9.11, *FRA*)

The variation in panel angle will have the following effects on the rainwater presented to the surface of both the panels and the ground below.

Broadly this can be summarised by two contrasting effects:

##### Increasing panel acuteness

This would increase the accelerating effect of the panel, however it would also present a smaller panel surface area for the collection of rainwater (reducing the volume of water flowing across the panel) and present a larger ground surface area beneath the panel.

##### Decreasing panel acuteness

This would decrease the accelerating effect of the panel, however it would also present a larger panel surface area for the collection of rainwater (increasing the volume of water flowing across the panel) and present a smaller ground surface area beneath the panel.

In summary, variation between the two extremes in panel angle will affect the volume of water accelerated across the panels and the amount of increased kinetic energy the water possesses when it is discharged from the edge of the panel and made available for further flow across the ground and erosion of the surface.

At each panel angle extreme (or indeed the optimum angle in between) the acceleration of water across the panel surface will be significantly above that of bare ground or vegetation, this being true even if the panel were to be completely flat as the panel surface has a significantly increased smoothness coefficient relative to bare ground or ground cover.

It is not clear from EDF's proposal how a tilt angle of 25°(or 20°) has been selected, however it is clear that their Flood Risk Assessment includes no assessment of how the chosen tilt angle may impact the

<sup>18</sup> . Reaney, S.R. and Bracken, L.J. and Kirkby, M.J. (2014) 'The importance of surface controls on overland ow connectivity in semi-arid environments : results from a numerical experimental approach.', *Hydrological processes.*, 28 (4). pp. 2116-2128.

flood risk associated with water accelerated across the panels and subsequently directed into the existing distribution of flow paths specific to the site and its topography.

Fig.2- Example of rainfall concentrated to the lower edge of the panels, forming its own surface water run-off channels along the field surface to wherever the nearest escape route is downhill.



**G. The location & distribution of the panels when installed - specifically the surface area between the panel rows**

*(Hydrologic impact = reduced loss rate due to water saturation)*

The importance of spacer sections between panel rows and “buffer” sections located at strategic points has been well documented<sup>19 20</sup> as a necessary mitigation for surface run-off emanating from landscapes incorporating solar arrays or those with high rates of overground pluvial flow.

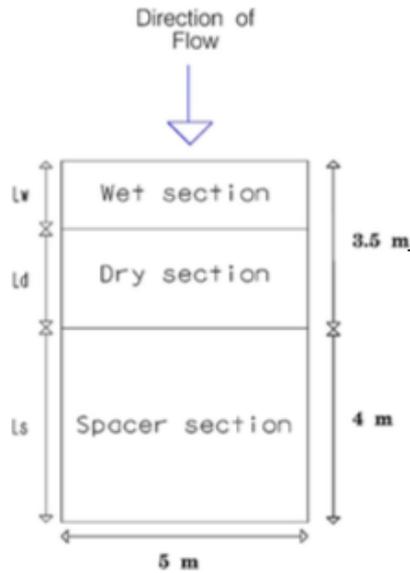
The action of spacers or buffers is to strategically present ground surfaces and subsurfaces at places where the velocity of overground flow needs to be attenuated or the total volume of the flow reduced. This is achieved by maintaining ground with increased surface roughness (relative to the ground beneath solar panels, or the surface of the panels themselves) and increased ability to “absorb and store” or “absorb and slowly transport” the water through vertical or lateral percolation in the subsurface.

EDF’s plans do not identify in any meaningful detail the distribution, location or size of buffer/spacer sections between the panels, and without the size and placement of buffers/spacers being correctly calculated and incorporated within the plan it is evident that the ground will be less able to absorb the increased volumes and velocity of water that it is presented with and therefore surface water flow rates and volumes emanating from the site are likely to increase significantly.

<sup>19</sup> Hydrologic Response of Solar Farms, J. Hydrol. Eng., 2013, 18(5): 536-541

<sup>20</sup> Dabney, S. M., Moore, M. T., and Locke, M. A. (2006). “Integrated management of in-field, edge-offield, and after-field buffers.” J. Amer. Water Resour. Assoc., 42(1), 15–24

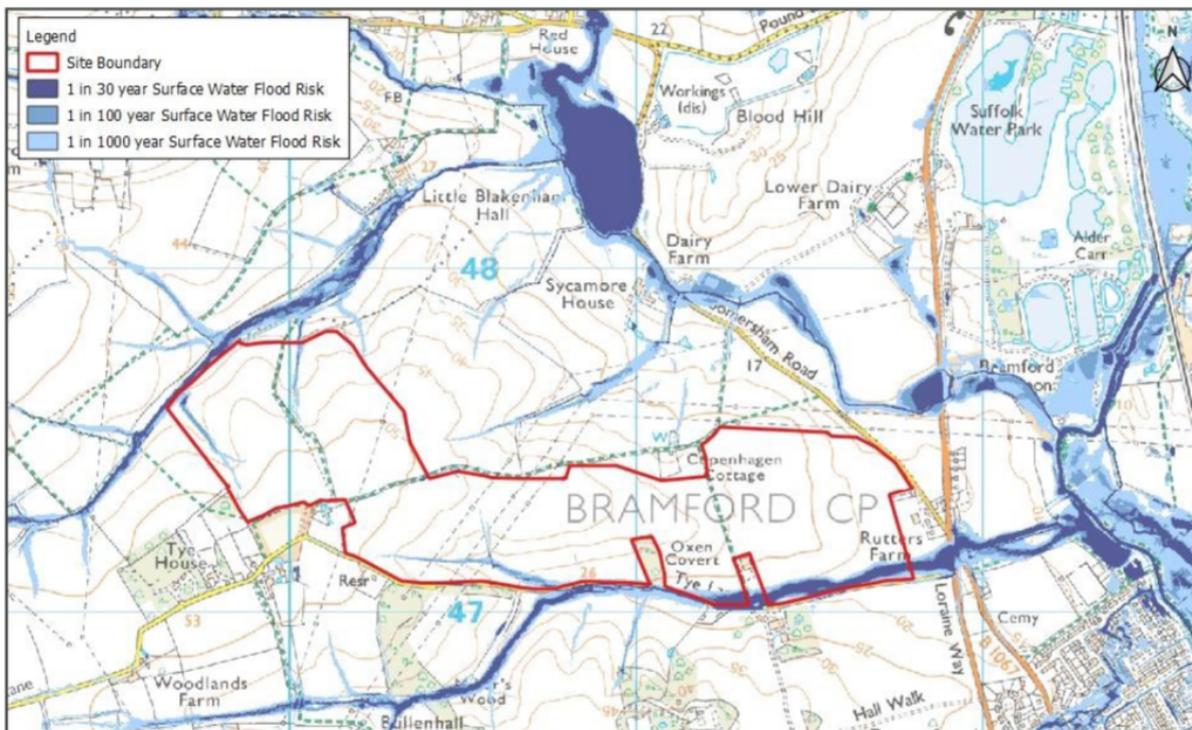
Fig.3- Schema showing a typical spacer arrangement between solar panel roses relative to the direction of overground flow paths.<sup>21</sup>



**3. The Environment Agency data already documents a high degree of flood risk associated with surface runoff emanating from flow paths crossing the location.**

The Environment Agency's Surface Water Risk Ma (fig.4.) details areas of high surface water flood risk associated with overland flow paths emanating from the site and transporting surface run-off into the Channel or directly into the Gipping via a drainage ditch and culvert.

Fig.4- EA Surface Water Risk Map identifying the site as being direction associated with areas of high surface water risk for the Channel, the Gipping, and Tye Lane<sup>22</sup>



<sup>21</sup> Hydrologic Response of Solar Farms, J. Hydrol. Eng., 2013, 18(5): 536-541

<sup>22</sup> EA's Low Risk Surface Water Flood Depth Map

#### **4. The applicant's Flood Risk Assessment lacks the necessary quantitative / hydraulic analysis that would enable determination of the worst case scenario flood risk (against which suitable mitigations could properly be determined & assessed)**

The applicant's FRA states (9.12) *"..Flood risk to the proposed development site has been assessed by reviewing the Environment Agency's (EA) online flood maps."* and is exclusively *"..a desk-based assessment.."* (9.3)

The sole use of the Environment Agency's mapping for this purpose is not appropriate, as outlined by Environment Agency's own caveat supplied alongside its mapping and the JFLOW data on which it is based:

*"The Flood Zone maps in this area are formed of national generalised modelling, which was used in 2004 to create fluvial floodplain maps on a national scale. This modelling is not a detailed local assessment, it is used to give an indication of areas at risk from flooding.  
JFLOW outputs are not suitable for detailed decision making."*

As previously discussed there is clear potential for significantly elevated flood risk associated with pluvial flow crossing land impacted by the development. From our assessment of the FRA and wider literature there appear to be a number of factors that should be quantitatively assessed / modelled within the applicant's FRA such that the "worst case scenario" discharge rates and volumes could be calculated, and against which a suitable drainage strategy could be determined (and included as a condition within their proposal).

Their FRA should (and currently does not) include a consideration of:

- The current fluvial & pluvial flow volumes & rates for all areas impacted by the proposal (this would include ranges to include the 1/100 year storm events, and an allowance for the expected 35% increase in flow rates due to climate change etc.)
- The specific soil types present at the site & their associated loss rates
- The ground slope / topography of the site & its impact on specific overland flow paths
- The range of panel angles and orientations to be used & their hydrologic impact within the context of the site
- The distribution of the solar panels across the site and relative to these the distribution of any spacer/buffer areas should they be proposed
- Changes to the surfaces over-which flow occurs (specifically how the range of roughness coefficients and loss rates will be impacted & the distribution of these different surfaces across the site)  
This should separately consider the construction phase (when there will be expected to be significant soil compaction as discussed in Section 2A above), during the run phase (when the panels & access tracks will be installed & in use, and maintenance activity conducted) and during the decommissioning phase.
- Any changes to direction of expected flow paths as a result of the development.
- The current capacity for drainage at the site & how this is likely to be impacted by construction activity

It is our assessment that without a comprehensive quantitative analysis of the above factors it is simply not possible to determine the degree to which the flood risk will be elevated by the activity & construction proposed by the applicant. And without this analysis it is also not possible to provide assurance to those likely to be impacted by flooding emanating from the site that any proposed mitigation would even be effective.

#### **5. The applicant's Flood Risk Assessment does not adequately assess the current impact of flooding associated with overground flow from the area**

EDF's FRA documents the applicant's contact with Suffolk County Council to confirm the presence of any formal flood records associated with the site. The applicant then references a number of flood events for the years 2015, 2016, 2017 and 2019 but describes these as being *"..low priority.."* and limited to *"..Flooding of the roads/ pavements.."* (9.21, 9.22).

Aside from the fact that there are no pavements associated with any area within or adjacent to the site, the applicant's assessment overlooks important information regarding the impact of flooding provided to them during their community consultation in 2020.

Specifically they have chosen to not include key information provided during a site visit on 18th November 2020 to their Development and Consents Manager.

During this visit a number of local residential properties were visited and serious historical residential flooding incidents associated with the site were discussed.

In addition to this representation, the local community have also repeatedly articulated the impact of the flooding to Tye Lane (presented in the FRA as "low priority"), which due to the importance of this access has the effect of isolating a number of villages to the west of the proposed site.

EDF's neglect of the information provided to them by the community during their own consultation is of some

obvious concern to CARE Suffolk as the impact from flooding emanating from this site is well known to local residents - with regular road closures restricting access to the surrounding villages, and numerous properties at risk of flooding downstream of the site & this set to increase inline with increased rainfall expected as a result of climate change alongside increased residential development proposed within various local plans.

To support a better understanding of the current local impact of flood water emanating from the site CARE Suffolk has conducted some open-source / community research relating to flood events observed in the last 13 months and these are further evaluated in the following section.

## **6. The impact of flooding on the local area is already severe**

Recent research has been conducted which identified at least four serious flood events in the last 24 months. The most significant of these occurred in December & January 2020 when the Gipping severely burst its banks at Bramford flooding areas within 50 metres of sites selected for residential development within the area's local plan. In addition historical and repeated flooding of Tye Lane, and the flooding of Dairy Farm (within 150m of the proposed site) is documented.

The significantly adverse impact of this flooding is clearly demonstrated by the evidence collated below. This catalogues photographic, print media and social media evidence to help provide a picture of the current impact of flooding emanating from the site in the year preceding the receipt of the applicant's proposal.

Proposed development DC/21/04711 - EA Surface Water Flood Map with local photo & social media evidence overlay

1

2



- Key**
- Red Line Boundary
  - Low Surface Water Flood Extent
  - Medium Surface Water Flood Extent
  - High Surface Water Flood Extent

3

4

Proposed development DC/21/04711 - Historic flood evidence - Impact to Somersham Road



Flooding of Lower Road, Somersham, 14/01/21 observed by Samantha Main, who was prevented from accessing Somersham from Little Blakenham. Postal deliveries were also impacted as a result with the road being impassable to cars (only larger trucks being able to pass through the water)

Claire [redacted] Somersham community kindness (Ipswich) ...  
 24 Dec 2020 · Is there ANY way out of the village?? I need to get to Ipswich about 3.  
 13 comments

Laura [redacted] Somersham community kindness (Ipswich) ...  
 29 Jan · Somersham Road is very FLOODED. Its deep. AVOID  
 7 11 comments

Nathan [redacted] Somersham community kindness (Ipswich) ...  
 28 Jan · The main road is flooded this morning, I did pass through it but more rain due will only get worse .  
 9

Susan B [redacted] Somersham community kindness (Ipswich) ...  
 28 Jan · Somersham road flooded again.  
 2

Kirsty [redacted] 24 December 2020 ·  
 Do not attempt to use the main road going out the village the floods are really deep!  
 2 2 comments Seen by 136

Sarah [redacted] 4 December 2020 ·  
 The road is flooded from village hall all along to water works corner and it's deep so be careful if you've got a smaller car 🚗  
 7 11 comments Seen by 149

**Suffolk village completely cut off by flooded roads**

Newsroom  
 Published: 2:32 PM December 20, 2019 Updated: 6:38 PM October 11, 2020

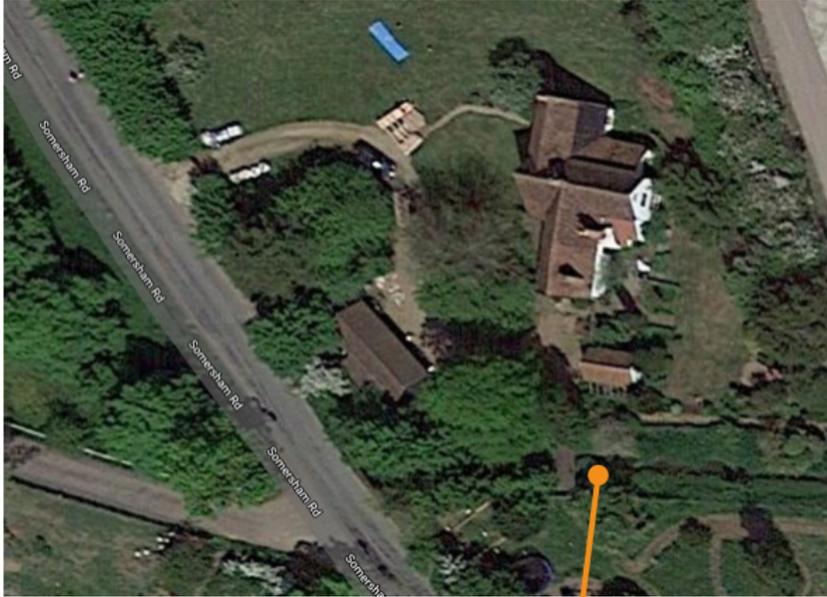
<https://www.eadt.co.uk/news/villagers-in-ofton-suffolk-cut-off-by-flooded-roads-2632468>

**Multiple reports of cars stuck in deep water as Suffolk flood warnings remain in place**

Holly Hume  
 Published: 1:59 PM December 20, 2019 Updated: 6:38 PM October 11, 2020

Some motorists have been able to free themselves from the waters whilst others have been rescued by the fire service - such as one unlucky car in Somersham Road, Little Blakenham, at 10.47am.  
<https://www.eadt.co.uk/news/flooding-across-suffolk-2635116>

## Proposed development DC/21/04711 - Historic flood evidence - Impact to Dairy Farm, Somersham Road



*Dairy Farm is situated 150m from EDF's proposed site on Somersham Road, it is a Grade II listed farmhouse dating back to the 1600s.*

*It is located within 15m of the Channel watercourse and has historically been flooded on two occasions within the last 16 years. Over the last 5 years the owner has recorded frequent incidents where the water level has approached that required to overwhelm the flood defences and flood the property; were this to happen serious damage would occur to this historically significant farmhouse.*

*The owner has indicated that they are currently unable to obtain flood cover with their house insurance due to the house's location in relation to this flood risk area.*



*Photo documenting high levels of flood water and an elevated water level >1.5m higher than as normal and within 15cm of bursting the banks on the north-east elevation which would flow directly into the house.*

Proposed development DC/21/04711 - Historic flood evidence - Impact to essential access to Flowton, Tye Lane



Flooding at Tye Lane, Bramford Tye on 4th December 2020.



Flooding on Tye Lane, 14th Jan 2021

14 January · [Profile]

The road section that currently under water bramford village end of Tye Lane.

10 others [Profile] 8 comments Seen by 68

Like Comment

This block contains a social media post from January 14th. The text describes a flooded road section at the Bramford village end of Tye Lane. It includes a video thumbnail with a play button and a collage of three smaller photographs showing different views of the flooded road. The post has 10 reactions, 8 comments, and was seen by 68 people.

Judy [Profile] 21 January · [Profile]

Has anyone been along Tye Lane today, is the flooding passable?

2 comments Seen by 64

Like Comment

Mary [Profile] 13 October 2020 · [Profile]

Tye Lane very definitely closed just beyond Tye this evening!

2 [Profile] 5 comments Seen by 53

Like Comment

Shane [Profile] 14 January · [Profile]

Very flooded road bramford end of tye Lane, I wouldnt risk it in a car my lorry only just clears it height wise. Its flowing down like a river!

3 [Profile] 14 comments Seen by 66

Tom [Profile] 14 February · [Profile]

Maybe we need one of these to navigate Tye Lane:

YOUTUBE.COM

This block contains a vertical stack of social media posts. The first post from Judy asks if the flooding is passable. The second post from Mary states the road is closed. The third post from Shane describes the road as being flooded like a river. The fourth post from Tom includes a video thumbnail of a tractor wading through floodwater, suggesting it might be needed to navigate the area.

4

*Proposed development DC/21/04711 - Historic flood evidence - Impact to Bramford & risk to new residential develop adjacent to the Gipping*



Sal [redacted]  
Unfortunately the flooding just moves along. I totally agree Sharon [redacted] our houses will be flooded - our gardens already flood and 200 extra houses will make it worse even if they put a small pond in - it wont be enough. I have photos of how far the water goes up to the field boundary and the water level is only going to get worse with global warming



Abbi [redacted]  
Oh god! They are ruining our wonderful countryside we are now experiencing more flooding than ever before and now they want to build more!!!! They are ruining one of the prettiest areas round ipswich!



Paul [redacted]  
25 December 2020 · 🌐



The Lake is back 3rd time in 7 years.



Chris [redacted]  
28 December 2020 · 🌐



## 7. The applicant has not provided sufficient detail regarding the construction or management of necessary flood mitigations or an adequate drainage strategy within their proposal

The applicant's Drainage Strategy (FRA 9.34-9.35) proposes two flood mitigation measures however these measures and their suitability are not sufficiently detailed to enable proper evaluation, furthermore the detail provided and their surrounding assumptions contain some serious flaws.

The main areas of concern are detailed below:

The underlying assumption of the drainage strategy is that mitigations *"..have been proposed as a precautionary and conservative measure as the solar farm is not expected to significantly alter existing site drainage."* (FRA 9.42)

This assumption has demonstrably set the tone for the amount of detail they deem necessary to include when articulating the mitigations, and it is our concern that as the applicant has a working assumption that their development doesn't have the potential to seriously affect the land's drainage properties then the applicant is unlikely to act in a responsible manner to control the necessary flood risk factors during the construction and run phases of the development.

The choice of a swale as a mitigation strategy seems to be based on a flawed assumption regarding the nature of the flood risk *"..this method is deemed appropriate as it accounts for a nominal increase in volume of runoff rather than an increase in runoff rate."* (FRA 9.35)

This assumption is flawed as the academic research referenced in EDF's FRA and discussed in section 1 of this report is clear that the main risk associated with solar farm construction is larger increase in runoff rate (approx 100%) and smaller increase in runoff volume (approx 10%). This is the inverse of what the FRA states, however the FRA does not offer any justification for this assumption.

The suitability of swales as a mitigation measure is not based on an assessment of infiltration rates specific to site proposed for the swale or indeed the flood risk factors associated with the site and over the three phases critical to the risk (before construction, during construction and after construction)

Specifically to assess the suitability of the swales, or other mitigation strategies, full hydrologic modelling would need to be included in their report. It is expected this should include:

- The specific enhanced volumes & peak discharge rates that the drainage strategy needs to counter (as per the quantitative / hydraulic assessment noted in section 4 above)
- The expected net reductions to volumes & peak discharge rates as a result of changing the surface smoothness, absorption or other mitigatory transport (Detailing the specific contribution in either direction from each changed surface)

EDF instead simply state:

*"Due to the unverified infiltration rates at the site, the swale has been designed to capture and store all the site runoff, assuming no infiltration"* (FRA 9.43)

As a statement to include in a Flood Risk Assessment this is absurd as there is no consideration as to how to discharge the water once it has been collected in the swale, and it is frankly ridiculous to assume that the swale will be able to capture and store all runoff for the whole site over all time.

Furthermore the Drainage Strategy seems to suggest that EDF have purposely excluded a consideration of the drainage outfall from the swales, with them being described *"..as a precautionary measure with no proposed formal drainage outfall, continuing the existing overland flow regime, it is deemed unnecessary to apply for consents with the LLFA."*

This is of some significant concern as "the existing overland flood regime" adjacent to the proposed swale location is Tye Lane which as evidenced in section 6 is frequently and seriously flooded.

The location of the swales is severely limited such that it creates significant blind spots in the mitigation of flooding emanating from the site.

EDF's plans only detail measures *"..to store some of the run-off volume adjacent to the higher surface water flood risk location at Tye Lane (drainage Zone 2)."* (FRA 9.33)

From the EA's surface water flood map and from section 6 of this report it is clear that there are areas of significant flood risk associated with flow paths emanating from the north and east of the site. The swales are excessively proposed for the south of the site, leaving the enhanced flow paths from the other elevations entirely unmitigated.

Vegetation and planting as a mitigation strategy is critical, however it is underrepresented in the Drainage Strategy, and lacks sufficient detail to be adequately appraised.

*"At other locations along the site boundary it is proposed to provide vegetated buffer strips in the form of*

hedgerow improvement or tree planting to provide increased roughness and attenuation of flow.” (FRA 9.33)

Whilst this mitigation is welcomed there is no further detail relating to the amount, type, location, and distribution of the proposed planting and how this will interact with the flow paths present at the site (as well as those presented from the hydrological modelling as being heightened as a result of the construction).

Furthermore further detail is needed regarding the sequence of the establishment of the mitigations within the applicant’s installation plan or schedule of works & a statement regarding the point within this plan that the mitigations are expected to be effective.

In particular where the mitigation proposed relates to the establishment of grassland, or other vegetation the applicant should evaluate at what point in maturity this vegetation should be considered able to mitigate the impact of the enhanced surface water flow paths it is designed to impede.

The importance of this evaluation is highlighted by recent research<sup>23</sup> that demonstrates the significant impact the maturity of vegetation has upon the runoff coefficient observed.

Provides an illustration of how this research was conducted, and Fig 5 demonstrates the results which show how the growing stage of a particular crop (in this case Maize, NB for Maize vegetation density at ground level is inversely proportional to maturity) affects the vegetation density at the surface of the ground and how this in turn can alter the runoff coefficient by a factor of between 3.1 and 3.6x depending on the gradient of the ground.

Fig.5 - The structure of the experimental plots used in recent research to assess the effect of vegetation maturity on surface runoff coefficients<sup>24</sup>

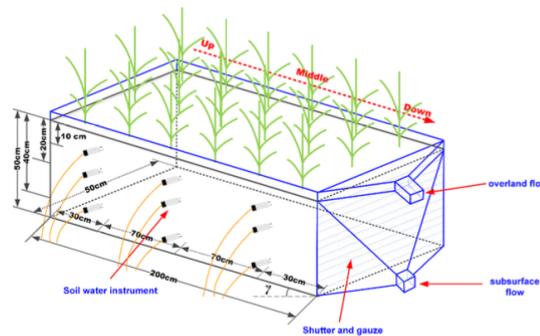
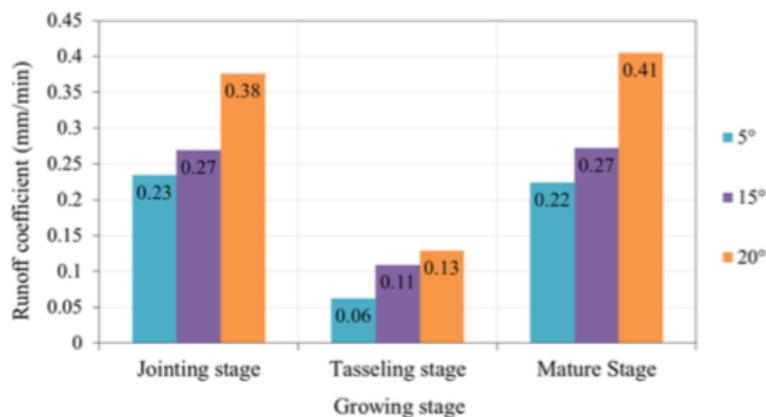


Fig.6- Results of recent research to assess the effect of vegetation maturity on surface runoff coefficients<sup>25</sup>



<sup>23</sup> Effects of Rainfall Intensity and Slope Gradient on Runoff and Soil Moisture Content on Different Growing Stages of Spring Maize, Water, 2015, 7, 2990-3008

<sup>24</sup> Effects of Rainfall Intensity and Slope Gradient on Runoff and Soil Moisture Content on Different Growing Stages of Spring Maize, Water, 2015, 7, 2990-3008

<sup>25</sup> Effects of Rainfall Intensity and Slope Gradient on Runoff and Soil Moisture Content on Different Growing Stages of Spring Maize, Water, 2015, 7, 2990-3008

Currently EDF's Drainage Strategy fails to state when the mitigations it proposes would be in place and when they would be considered effective (with the enhanced risk fully mitigated). Furthermore the clearest articulation of a schedule of installation for the suggested mitigations (Table 8.2) seems to detail the clearance of vegetation at the start of the construction (months 1 and 2) and with planting commencing at the end of the construction (in months 5 and 6).

As this is the case it seems clear that the compacted bare ground resulting from the construction activity would not be adequately mitigated against for quite some time after construction, and that this would be entirely dependent upon how sensitively the site is managed post-construction.

In addition to this lack of detail there are also concerns regarding the presence of commercial incentives that would encourage the applicant to commence operation of the solar array before ground cover is established and to continue to neglect the management of this ground cover.

These incentives relate to:

1. The time-costs associated with rent of the land, grid connection, business rates & cost of finance
2. The need to conduct maintenance activity (panel cleaning and grass cutting) that would further compact the soil post-construction but potentially before grassland and vegetation buffers have been allowed to establish.

Fig.7- Example of heavy machinery proposed to perform maintenance activity producing compaction of essential buffer and spacer sections between panel rows (Plate 7.2, Chapter 7 - Construction, Operation and Decommissioning)



Without commitment to an appropriate set of mitigation measures and management strategies, and adherence to these being enforceable, it is clear that these commercial incentives are likely to de-incentivise mitigation of flood risk, the reduction of which is of critical importance to the local community.

## 8. Conclusion

The NPPF makes it clear that *“development should be made safe for its lifetime without increasing flood risk elsewhere”* (p.159) and *“should consider cumulative impacts in, or affecting, local areas susceptible to flooding”* (p.160). Further the NPPF states development should be *“using opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques)”* (p.167c).

The NPPF continues in paragraph 167 *“When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere.”*

The MSDC Core Strategy 2008 states at policy CS4 *“The council will support development proposals that avoid areas of current and future flood risk, and which do not increase flooding elsewhere...”*

The MSDC Local Plan 1998 saved policy E10 states applications for development in the countryside must have regard for (inter alia) *“the prospect of pollution including the effect on nearby watercourses and groundwater sources.”*

The emerging Joint Local Plan states at policy LP29 that “Proposals for new development can be approved where...

2. In areas at medium or high risk from flooding, it has been soundly demonstrated that the new development or intensification of development, can be made safe for its lifetime without increasing flooding elsewhere.

3. Mitigation is provided against existing and potential flood risks throughout the life of the development (including fluvial, surface, coastal and sewer flooding) through application of a sequential approach to flood risk, the implementation of Sustainable Drainage Systems (SuDS), and risks to ground or surface water quality.

4. Above ground, appropriate SuDS are incorporated within new developments wherever possible, and take opportunities to provide multifunctional benefits, including biodiversity, landscape, amenity and water quality enhancement.

5. Proposals are submitted appropriate to the scale of development detailing how on-site surface water drainage will be managed so as to not cause, or increase flooding elsewhere. This includes the cumulative impact of minor developments.

6. Opportunities to provide betterment of greenfield runoff rates to reduce the overall risk of flooding, have been provided wherever possible.”

In summary it is our assessment that the applicant’s proposal is woefully deficient in its consideration of both the latent flood risks present at the site, as well as the likely significant contribution that the construction will make in further heightening this risk and how this escalation will impact those who live, work and access the environment within which the site is situated.

Given the factors considered above it is clear that the proposal contains activity that will significantly elevate flood risk by increasing peak discharge rates, volumes and the kinetic energy associated with pluvial flow whilst removing existing mitigations associated with the land’s current use & before planned mitigations are in place.

It therefore seems likely from the plans submitted, that the worst case flood scenario is *likely* to occur should the the proposal be approved - this would be represented by:

- i. Reduction of vegetation at the site
- ii. Soil compaction during construction
- iii. Destruction of existing drainage systems
- iv. Increased proportion of impermeable surfaces due to the construction of access tracks, buildings and other infrastructure
- v. Installation of solar panels concentrating & accelerating rainfall
- vi. The delayed establishment of mitigatory grassland & vegetation - this not being mature enough to sufficiently slow or absorb water flow at the point when the soil is most compacted
- vii. Notional application of swales as a mitigation strategy, and not being sized or located appropriately or indeed drained at all
- viii. Insufficient application of spacing and buffer areas to retard the pluvial flow
- ix. Maintenance activity further compacting the soil
- x. A storm event occurring within this time (Nb. The construction is likely to take >40 weeks, and, as over the last 13 months at least 4 storm events have been recorded, it is therefore reasonable to assume at least two storm events are likely to occur during the construction phase.)

Furthermore it should be noted that all of the above issues discussed throughout this section also apply to adjacent solar farms proposed within the proximity of this site, further exacerbating the cumulative impact of flooding on the area should any combination of the applications be approved.

We therefore are highly concerned as to how the heightened risk of flood water emanating from EDF’s site would interact with unmitigated flow-paths emanating from the ENSO and StatKraft sites. From examining ENSOs application and StatKraft’s proposal it is clear that EDF and ENSO have the potential to produce cumulative flood risk to the Channel, Somersham Road and Gipping. Whereas, EDF and Statkraft’s proposals have the potential to produce cumulative flood risk to Tye Lane, Belstead Brook, and Gipping (via the culverts present adjacent to Tye Lane).

We would therefore urge planners and the LLFA to consider the cumulative effect of all three applications in terms of how their ability to elevate flood risk to the areas interact.

**Given this assessment we ask that the local planning authority REFUSE the application on the grounds of the heightened flood risk it represents, the applicant’s neglect to propose an acceptable mitigation strategy, and the failure to comply with national and local policy in relation to flood risk.**

## 7. Biodiversity

A considerable range of legislation and planning and related guidance is relevant to the proposals in respect of wildlife and biodiversity. Much of this is summarised in documents submitted with the planning application and is not repeated here. Further guidance is listed in MSDC's Scoping Opinion on ENSO's proposed Bramford Solar Farm: Mid Suffolk District Council requested that EDF Renewables adopt these findings and apply these to their proposals. In essence, the requirement is for developers to protect and enhance biodiversity and not to damage irreplaceable habitats or vulnerable species. EDF claims that they would follow this guidance, but their claims are based on limited and patchy data and take no account of the substantial length of time that any proposed new habitat would take to grow and be populated.

Research done by the applicants is patchy at best.

Some useful ecological surveys, which we welcome, have been carried out for the applicants by Turnstone Ecology Limited but it seems that little or no additional desk research has been undertaken. No account appears to have been taken of advice from Natural England that "Records of protected species should be sought from appropriate local biological record centres, nature conservation organisations, groups and individuals" and that "... botanical and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present," despite MSDC's Scoping Opinion asking that this advice should be followed, and SCC Ecology's clear statement in response that "Field and desk-top survey results must be adequate and up to date in accordance with Natural England Standing Advice [and] provide a summary of all species and habitats likely to be affected by the proposals."

As a result, the baseline information that underpins the applicants proposals is limited. No attempt seems to have been made, for example, to have sought information from the Suffolk Naturalists' Society or Suffolk Bird Group, both of which publish comprehensive annual reports based on reports made to county recorders; or from Suffolk Butterflies, which lists many butterfly sightings and maps these; or from the Suffolk Moth Group, which records and maps moth sightings, with 130,000 records in 2020; or indeed from any individuals, of which a number keep detailed records of sightings in the areas affected by the applicants proposal.

These sources suggest that many vulnerable species, especially of invertebrates, may have been missed. Records of species' presence do not, of course, necessarily indicate that they are breeding in the area - though there is evidence that many of them are - or that they would be directly damaged by the plans, but the general conclusions of the ecological surveys that little damage would be caused by the applicant's proposals must be doubtful. What is more, virtually no account is taken by the applicant of the two other current proposals for large-scale solar installations in the immediate area. If either or both of these were approved along with the applicants' plan, the overall damage would be considerably more than the sum of its parts, as some 600 acres of habitat would be destroyed together with much wider damage resulting from the construction processes. In this context, the advice of Natural England should be noted, that "consideration should be given to the wider context of the site, for example in terms of habitat linkages and protected species populations in the wider area." This has not been done here.

No account is taken in any of the applicants documentation of the proposed grid connection route, which is shown to neighbour the Miller's Wood County Wildlife Site. Almost no information is provided about the width of the trench or the construction area that would be required for this route. As a result, it is impossible to make any assessment of the ecological impact of this part of the plan.

The patchy and limited information about biodiversity and the impact of their proposals that the applicant provides means that it is difficult from the outset to take any of their claims about biodiversity improvements at all seriously. These claims are simply unacceptable.

### Biodiversity gain or loss?

Despite widespread national agreement that Biodiversity Net Gains should be mandated for planning applications such as this, and their inclusion in the Environment Bill currently awaiting its final stages through Parliament, no Biodiversity Net Gain metrics are included in the applicant's application. Instead, there is a vague assertion where they say: "the above shows that overall the extensive enhancements to all habitats on site (arable, hedgerow and trees) will ensure that a Biodiversity Net Gain is achieved by the proposed development." This statement is

misleading. It is based on unsubstantiated assertions such as “the arable land is not of ecological importance at any level” and “the whole development site (the proposed solar farm and temporary construction areas ) will only directly affect botanically poor arable fields.” In reality, the existing largely arable area already has considerable biodiversity, which would be lost in its entirety if the plans went ahead. The arable fields themselves are frequently planted with oilseed rape, which is a rich nectar source for insects, especially bees. In the past the fields have been planted with potatoes, and they could be used for crops such as linseed or peas. There is, therefore, no baseline for the applicants claims and no sign that they understand the contribution to biodiversity that the fields already make – compounding the almost complete lack of evidence that might validate the applicants assertion that there would be a net gain. This assertion can surely not be accepted.

Very little is said in the application, despite its huge length, about what they claim would be extensive enhancements. “Seeding between solar panels with native grasses, also wildflower seeding” is suggested, but no detail is provided of its extent or impact. “A comprehensive mitigation scheme is also proposed including tree belts, new hedgerows and hedgerow management” but, again, no further information is provided other than a rough sketch map and some very rudimentary further information. This is simply not comprehensive, as the developers claim. They say that “the biodiversity enhancements will be incorporated with the development of the solar farm in accordance with a Biodiversity Management Plan” but make no attempt even to suggest what such a plan might look like. It is impossible to make any sensible judgments or comments about the biodiversity impacts of the applicants plans without having more detail of what they propose, so we suggest that no consideration by MSDC of the application is undertaken until the applicant presents genuine mitigation and management schemes for comment and discussion.

The applicants say that the proposed mitigation scheme would take several years – at least ten - to establish. No information has been provided on a number of key variables, such as the rate of growth of new habitat to a condition that would be attractive to wildlife; the time that wildlife would take to colonise newly-planted habitat; the true biodiversity value of existing habitats before they are damaged during the planned construction phase; and so on. There is considerable doubt whether some of the mitigation measures proposed would be successful, or to what timescale they would be effective, so it is impossible to tell when any possible gains might be realised. It is quite possible – given the damage that would be caused during the lengthy construction period, and the inevitable displacement of many species - that there would be no real gains for many years, if ever. And, even if there were gains in the long run, these would be lost when the life of the installation came to an end and the land returned to arable production, if that is indeed the applicant's plan. It is unclear, from the applicant's documentation and their application for change of use of the land, whether there is any real intention to do this. If the real plan is for a permanent solar (or other industrial) installation, then the damage that would be done by the plans would be permanent, with a wide range of ramifications not only for wildlife but for almost every other issue covered by their Environmental Statement.

As the Technical Supplement to the Defra Biodiversity Metric says, “Many factors influence how long a habitat takes to go from the point of creation or restoration to the desired end point condition. Factors are often site dependent but can include soil nutrient status, soil types and pH, site preparation, climate and the neighbouring habitats and species matrix available to colonise the new or restored habitat. The timeframe is also resource dependent ...”

Ten years is nearly one-third of the proposed life of the project and, until that time, there would be no effective screening of the panels and shipping containers. The visual impact will be huge: 114,000 solar panels, 8.1 km of fencing, more than 4 km of new tracks; and ugly tree guards on whips and saplings would make this impact even worse for a decade or more. If the tree guards used were to be plastic, as is common, there would also be a serious pollution risk, so a planning condition that should be imposed if the application is granted is that all tree guards must be biodegradable. This ambiguity over the time that plants would take to grow casts considerable doubt both over the extent to which there would be any genuine biodiversity gains, and on the claim that new planting would mitigate the potential effects of glint and glare.

It is possible that even this lengthy timescale is an under-estimate. One element of the limited information provided is a “wide new hedgerow grown and maintained to heights of 3 - 4 m” in a small area to the west of the proposed development area. Estimates of the time hedges take to grow vary, depending on species and ground conditions, from 3 to 12 inches a year. In other words, it would take at least 13 years but maybe longer than the entire life of the project for this proposed hedge to grow. Furthermore, the height of a hedge is not the only important criterion –

hedges need to be thick and dense, both to provide good habitat and for effective screening. Full density typically takes between 10 and 17 years but this requires regular annual maintenance. That said, no hedgerow management plan has been proposed.

Any new planting of trees and hedges, and replacements for those that would be damaged, could easily be affected by the construction works proposed, with associated ground compaction, and by digging trenches for cables. If permission were to be granted, all planting and subsequent care of trees and hedges should be to British Standards 5837 (Trees in relation to design, demolition and construction) and 8545 (Trees: from nursery to independence in the landscape).

### Dangers of fencing

If approved, the site would be surrounded by two-metre high deer fencing. Although some routes for smaller mammals would be provided through this, the evidence for the effectiveness of such gates and gaps is mixed. Furthermore, the creation of fenced areas and corridors (such as the footpaths across fields) would likely have a number of impacts on the wildlife that currently lives and breeds in the area, beyond the direct damage to their habitats. It would remove or reduce animals' access to their natural areas for grazing and hunting, and also to important water sources available in the on-site and surrounding ponds. And it would drive larger animals (in particular deer and badgers) onto the narrow lanes – where the development would inevitably make drivers' sight lines worse – risking damage to both animals and to vehicles and their occupants, and into gardens, with resultant damage to plants, fruit and vegetable and lawns. There is also evidence that such fencing can act as a trap to deer and cause them injury. These impacts would be bad enough were there just one solar installation in the vicinity; the prospect of three which were more or less contiguous would be horrifying.

### Impact of the construction period

The developers say that they will implement a range of mitigation measures aimed at avoiding disturbance to some vulnerable species present in the area. These are, however, generally vague: for example (in respect of bats) “appropriate mitigation will need to be agreed to ensure there is no possible disturbance of roosts should they be present.” As far as the potentially destructive construction period is concerned, the applicant says that “standard mitigation measures ... will all be undertaken in line with good practice guidance. This is expected to be undertaken through the implementation of a Construction Environmental Management Plan (CEMP) and Ecological Mitigation and Enhancement Plan (EMEP)” but no details of what these proposed plans might contain have been provided. MSDC should not consider the proposal until full details of these plans have been published and both statutory and other consultees have had an opportunity to comment on them.

The developers make much of their long-term plans but say very little about the damage – possibly permanent – that would be caused by the lengthy construction period that they propose. A minimum six-month construction period (which experience shows is likely to over-run), during which there would be considerable noise, would do considerable harm to landscape, habitats and breeding wildlife which in some cases could be irreversible. The Suffolk Biodiversity Validation Requirements show that the key seasons for the main species likely to be impacted by the plans cover, between them, every month of the year. The lack of a Construction Ecological Management Plan makes it impossible to know what is suggested to mitigate this damage.

The developers say that “works affecting suitable nesting habitat (grassland or where hedgerow gaps are widened for access and potentially the arable fields) will be completed outside the bird nesting season (March to August inclusive) or, if this is not possible [our italics], after a survey by an experienced ecologist to check for nesting birds. If nesting birds are found then appropriate buffers with no work round the nest will need to be set up and left in place until nesting has ended naturally.” This vague statement is highly unsatisfactory. The arable fields are known to be nesting habitat for Skylark (as many as 12 pairs according to the Breeding Bird Survey) and buffers round areas where ground would be cleared and panels installed would either cover the entire development area or would otherwise be impracticable. If this application is approved, therefore, there should be a pre-commencement planning condition that all work – including hedge removal, and any other impacts (such as noise) take place outside the bird breeding season.

### Some individual species

**Badgers.** The application acknowledges that there could be a direct negative impact on badgers through disturbance from boundary fencing to active setts and tunnels. It is unclear from the available documentation whether EDF believe that there might be any other threats to this protected species as the results of the ecological survey have not been made publicly available. One clear threat that is not mentioned is to the setts to the north of Oxen Covert, where welfare containers are planned to be sited. In that area, there are also what may have appeared on site visits to be unused setts but which, in reality, are likely to be used by young male badgers leaving the family sett. In any case, the mitigation measures proposed are vague – for example “where possible a buffer will be set up around any Badger setts” – and insufficient. Further, if the badgers have already nested, then removing their foraging habitat would have a direct negative impact on them. Under the Protection of Badgers Act 1992 it is an offence to disturb a badger while it is occupying a sett. Should the proposal be agreed, much clearer and more specific mitigation measures should be put in place.

Furthermore, EDF take no account of the impact that badgers could have on the development. In 2018, nearby Flowton Road collapsed owing to badgers digging a sett underneath it. It was closed for several months as the County Council ruled that repairs could not proceed until the badger breeding season had finished and Natural England issued a licence. A number of significant electrical installations are planned to be sited very close to a known badger sett, but no account is taken of badgers’ determination to dig, though there must be considerable safety issues (for both the equipment and the badgers) here. More widely, there is no mention in EDF’s documents of the potential impact of badgers digging under the anti-deer fencing and solar panels, or of the damage and pollution that could bring about.

**Brown Hare.** No mention of this species, which breeds in the fields that EDF proposes to cover with solar panels, can be found in any of EDF’s documentation. There is little doubt that they would be driven from their breeding sites by any construction work, and quite possibly during the operational phase. This would hardly be a biodiversity enhancement.

**Water Vole.** There is no mention of Water Vole in any of EDF’s documentation but this species is known to breed in a watercourse (‘The Channel’) which passes within 50 metres of the proposed development. Water Vole are protected in the UK under the Wildlife and Countryside Act, 1981, are a priority species under the UK Post-2010 Biodiversity Framework, and are listed as endangered on both the Great Britain and the England Red List for Mammals. EDF’s proposals could seriously endanger this threatened species which is extremely uncommon in this area. At the very least, their presence should be acknowledged and taken account of with protective measures for both the construction and operational stages.

**Moths and butterflies, and other invertebrates.** No attempt has been made to assess the impact of the proposals, although it is known that there are many vulnerable species in Flowton, and it is likely that many of these, and maybe others, live in the area covered by these plans. Many of these are dependent on hedgerow trees, flower-rich margins and less-managed hedges that would, at best, be impacted by the construction period and, at worst, permanently displaced.

**Birds.** Some mitigation measures are proposed, but there is no guarantee that they will be effective during the lengthy construction period, when some species could be driven away from the area permanently, or in the longer term. It is bizarre that there is no specific mention of Linnet and Yellowhammer – both Red List species that breed in the area directly affected – and the statement that “there may be disturbance during construction due to higher levels of human activity on the site. However, species present within the hedgerows are generally common and widespread species in Suffolk and are typical of the habitats present and any disturbance will not be a significant impact” is manifestly inappropriate. What the developers seem to be saying is that it doesn’t really matter if some species, including these two Red Listers, are removed from the area, as they can be found elsewhere. In reality, this means that at least one element of biodiversity would be reduced, and the pleasure for local residents and visitors to the area in seeing these birds would be destroyed.

The applicant admits that there will be no improvements in breeding habitat quality for skylark – another Red List species breeding across the affected fields - and there is no justification provided for the vague statement that “on completion of the development ... the whole site should remain as favourable for nesting as well as improved for

foraging skylark.” Not destroying these important fields with steel and glass would be much more favourable for skylark and many other species.

At p10.36 the applicant states “Two Schedule 1 species were recorded within the survey area during the 2020 surveys: Barn Owl and Hobby. It is considered the site is used for foraging only for these species although suitable nesting habitat is present immediately adjacent to site.” However, if large areas of their foraging grounds, or for any species, are removed by covering them in solar panels, the chances of them continuing to live nearby are questionable.

**Bats.** While some welcome mitigation measures are proposed, it is impossible to say whether they are adequate. No mention is made of the limited evidence that some bats are more prone to fatal collisions owing to mistaking solar panels for water to drink. No evidence has been provided of the potential impact of noise during the construction or operational phases on bats, which use ultrasonic sound for navigation and hunting. Evidence should be provided and mitigation measures proposed if necessary.

### Trees and plants

The proposals – albeit very sketchy - for creating new wildflower meadow under the panels are welcome but are not fully thought through. Perennial wildflowers prefer soils that are low in nutrients, but the areas where they would be sown have been farmed for production and have high nutrient levels. It might be necessary to remove the nutrient-rich topsoil altogether if any wildflower planting is to be successful. A condition of any planning permission should, therefore, be soil nutrient tests of all relevant areas and a guarantee of appropriate works if nutrient levels are found to be high. If re-seeding is necessary, there may be a need for repeated ground preparation such as scarifying, which could bring more heavy traffic. This will need to be accounted for in any Traffic Management Plan.

Although the applicant has noted their inability to provide new tree belts at Tye View Cottage, because of Cadent’s guidelines on planting over their gas main, they have failed to note this restriction in respect of their proposed tree belts behind Copenhagen Cottage or Rutters Cottage and its neighbours. The provision of tree belts – and any consequent biodiversity gains – would therefore be considerably more limited than the applicant claims.

It is disappointing that no suggestions have been made for planting climbers on the proposed security fencing. Plants such as honeysuckle, clematis and blackberries are good nectar sources and would provide additional screening. Such planting could be a condition of planning approval.

### Conclusion

The developers make this bold, but unsubstantiated, claim under the heading of ‘Community Benefits’:

*“In addition to the environmental benefits of the project, if approved, the solar farm development will bring further significant benefit to the local community, as follows:*

- *widespread ecological benefits as the project will also include extensive species-rich wild flower and grass margins to enhance the local biodiversity;*
- *significant tree planting will occur providing further woodland blocks and hedge planting in the area;*
- *bird and bat boxes will be placed on established trees; and*
- *a community fund will be established by EDF Renewables to support local social, environmental and community initiatives.”*

There is no evidence that the words ‘widespread’ and ‘significant’ here mean anything at all. In reality, any marginal ecological and biodiversity improvements would be hugely outweighed by the physical short- and long-term damage to the area, as well as by the noisy low hum that would come from the 17 containerised inverter/transformer units proposed, something that would be off-putting to both animals and people used to a quiet walk. The evidence that EDF provide for any benefits is limited and unconvincing. In reality, the proposals taken as a whole would be damaging in many ways, even on their own, let alone combined with similar impacts from the other local proposals for solar arrays. Local residents and visitors alike currently enjoy the openness of the landscape, wide views, wildlife and trees and plants in the area as a coherent whole. That would be impossible if every footpath were surrounded by fencing, views dominated by huge solar panels and shipping containers that would not even be partially screened for many years, and any possibility of seeing wildlife in its natural context removed.

It is possible that some tiny areas of new habitat would be created, but many existing habitats would be destroyed or damaged. There might, in time (possibly a very long time) be some small marginal gains but any enjoyment or indeed visibility of these would be limited at best. Wildlife and biodiversity in the area would far better be served by the current situation, in which both farmed and unfarmed areas support a wide range of animals, birds, invertebrates, plants and trees in their historic natural habitat.

## 8. Transport, PRowS & Security

### Relevant Policy

The MSDC Local Plan 1998 saved policy E10 states: *“Applications for new industrial and commercial development in the countryside will not be permitted unless an overriding need to be located away from towns and villages can be demonstrated. Where such need can be demonstrated applications will be considered on their merits having regard to the following:- (inter alia) The amount of traffic generated and the likelihood of unacceptable traffic movements, particularly, lorries, on non-principal roads...”*

At paragraph 2.7.3 it states *“The Transport objectives of the Local Plan are (inter alia): to plan for a safe and pleasant environment for pedestrians and cyclists; to seek a reduction in unnecessary car use, and an increase in bicycle use and walking, both by making the latter more attractive and by restraining traffic where appropriate...”*

And policy T10 states *“When considering planning application for development, the District Planning Authority will have regard to the following highway matters (inter alia): the provision of safe access to and egress from the site; the suitability of existing roads giving access to the development, in terms of the safe and free flow of traffic and pedestrian safety; whether the amount and type of traffic generated by the proposal will be acceptable in relation to the capacity of the road network in the locality of the site...”*

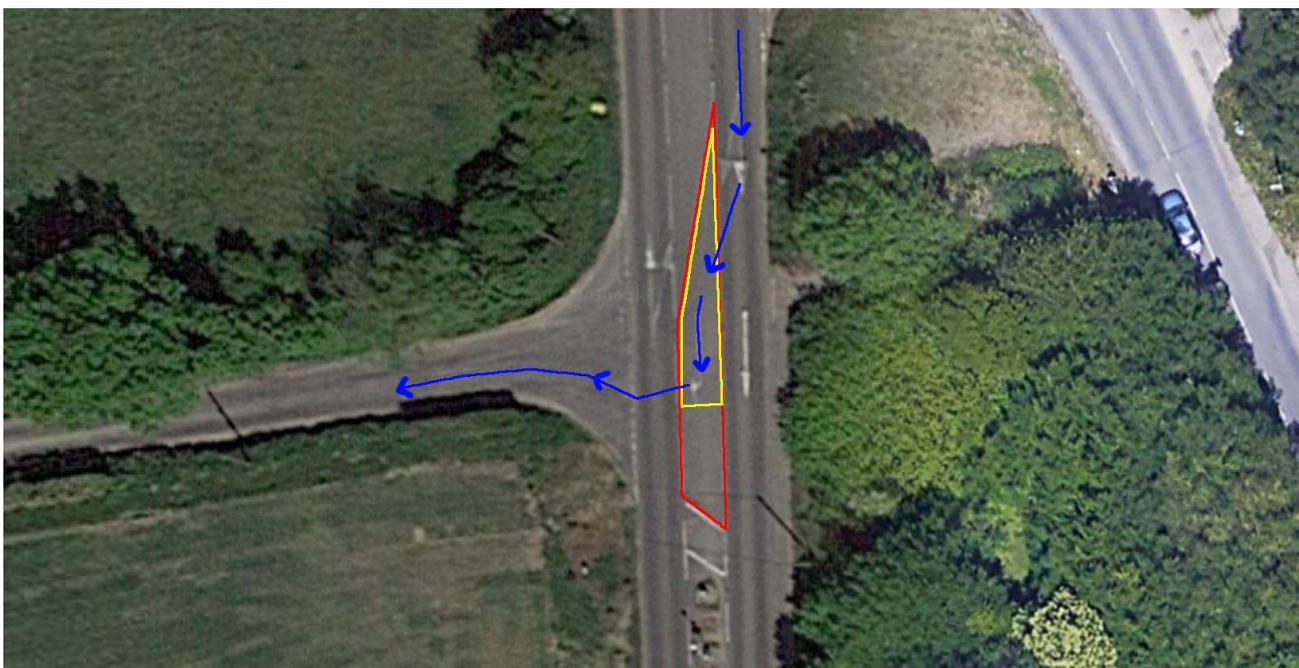
### Transport

#### Routes

The Design and Access Statement pDA.57 states *“Deliveries will exit the A14 at junction 54”*, but plate DA.2 shows junction 52 at Claydon. Junction 54 is the Sproughton exit and HGVs are banned from this route as the river bridge is too weak. Junction 52 is also mentioned in the Transport and Access chapter. We have assumed the applicant means junction 52.

Traffic is then diverted to the B113. This road is in East London. Assuming they mean the B1113, the applicant states *“2.9km from the A14 Junction 52 roundabout is the junction with Tye Lane (USRN: 25503242). A central right turn refuge lane provides safe turning.”* This central right turn refuge does indeed exist. But, the usable area of it is suitable for the length of one car and nothing more. The refuge may just be long enough for one HGV to fit in, but it would not be able to then turn into Tye Lane due to the poor alignment of it with the junction.

*Aerial View of Tye Lane Junction. Red shows marked refuge. Yellow shows usable refuge. Blue shows direction of construction traffic. You can see from the car to the right of the image that the usable space in the refuge is sufficient for a car, which also has a much smaller turning circle than an HGV.*



Approximately 600m down the single track windy country lane, with no suitable passing spaces for lorries, past an existing small warehouse, and over a blind hump, the site access is on the right hand side, shared with a caravan and camping site and a public footpath.

The application talks about convoys of 3 HGVs. There are no laybys along the B1113 large enough for 3 HGVs. The central refuge is large enough for maybe half an HGV. And there is one layby down Tye Lane large enough for one HGV if it were to meet a car or small van, but not another HGV or even a caravan.

CJ Frost, who run the warehouse down Tye Lane, are known to use tracking software on their lorries to ensure that no lorries meet each other along the short section of Tye Lane they use. This works extremely well. Equally the entrance to the warehouse sits atop a hump in the road so they get a good line of sight both ways when exiting. Lorry drivers are well known to wait for other vehicles to safely pass before exiting due to the lack of passing spaces for them along the road. Similar safety processes do not seem to be proposed by the applicant which is disappointing, and HGVs approaching the hump, as would be for site traffic, would not have the visibility that those at the warehouse do.

*Entrance to CJ Frost warehouse. The proposed site access is past this blind hump in the road.*



### *Tye Lane is a designated Quiet Lane and National Cycle Route*

Tye Lane is designated as a Quiet Lane. But there appears to be no mention, let alone consideration of this, in the application. The road is regularly used by walkers and cyclists, but there are no pavements on this road for them, which was one of the reasons for applying for the designated status.

Further, Tye Lane is a National Cycle Route. Again there appears to be no mention, let alone consideration of this, in the application. There are 9 design principles for National Cycle Routes<sup>26</sup> but if EDF or any of the other two solar farms were built, then it is questionable whether the route would lose its status. And the tourism and local benefits which it brings to the area. You certainly wouldn't be able to class the road as safe with so many HGVs driving up and down it during the construction periods.

<sup>26</sup> <https://www.sustrans.org.uk/for-professionals/infrastructure/national-cycle-network-design-principles/>



*Tye Lane is Unsuitable*

In addition to the previous remarks about designated routes, and the presence of vulnerable road users, Tye Lane is unsuitable in other ways too. Paragraph 8.65 states that there is low potential for damage to verges. The embankment at the entrance to Tye Lane has been reported as dangerous as it has been reduced to such an extent that the telegraph pole is likely to fall soon. Further, the hump in the road at the CJ Frost warehouse entrance is a blind hump (as previously shown). This hump is a near miss hot spot, where vehicles going too fast over the hump take an emergency dive up the verge to avoid colliding with oncoming traffic. Meeting an HGV that has just exited from the proposed site would likely result in a collision and/or further damage to this road verge.

*Photo from outside of entrance to CJ Frost warehouse looking towards proposed site entrance.*

*Emergency passing space*

*Proposed site entrance*



Further, Tye Lane is flooding more frequently. Both locations are within the part of Tye Lane that is relevant to the proposal. The lower end of Tye Lane (near the junction with B1113) is frequently flooded and, at times, impassable. However, the worst part is from opposite Oxen Covert down to and including the proposed site entrance. This is a very long stretch of road, and is increasingly becoming impassable. This flooding is a result of surface water run-off from the fields (including the fields proposed for the site) and from water in the ditch network coming down from the EA1 and EA3 substation areas. Compacting the field during the construction process (as explained in other chapters in this report) would exacerbate this flooding, certainly making it difficult for the construction workers to arrive/leave site safely.

### Travel Flow Data

Table 8.1 and Appendix 8.1 show the travel flow figures for 5 days in March/April (excluding Monday and Tuesday). It is acknowledged this was during partial lockdown (stay local and work from home). It was also during a school half term, when school traffic is typically lower.

The diagram misleadingly shows that the equipment was situated some distance west of the site entrance, but this is not accurate, as it was much closer.

### *Location of ATC equipment adjacent to site entrance*



This means the traffic flow data did not record any lorries entering or leaving the CJ Frost warehouse site (yellow dot on the below image), nor did it record any of the caravan traffic for the Little Sage Hill campsite which uses the same entrance as the proposed site (red dot on the below image). The traffic flow data is therefore not representative of the traffic that the HGVs visiting the site would encounter on the stretch of Tye Lane to be used.

Further, the entrance to the proposed site is regularly used as a passing place. This means that on occasion vehicles will not be travelling normally along the road, but at a severely reduced speed due to the need to stop in order to safely pass. Because the equipment was placed so close to the entrance (blue dot on the below image and shown above) the speed figures will have been obscured, and there appears to be no removal of this situational data from the speed average, thereby artificially reducing the usual free flow traffic speed.



The misleading data shows the 85 percentile speeds as 37.5 mph. What were the maximum speeds?

Appendix 8.1 daily speeds and hourly volumes, shows the figures for Monday (in green) when the equipment was not in place, yet omits Saturday (in yellow). The daily volumes chart shows no traffic for Saturday or Sunday, yet there are figures for Monday and Tuesday, after the count had ceased.

Using such misleading data has resulted in misguided conclusions about the safety and suitability of the chosen access point, and as such appears to be contrary to local planning policies E10 and T10, and the transport objectives.

#### Numbers of vehicles

Construction (and decommissioning traffic) can present significant problems for other road users, including increased risk of accidents and delays (see paragraph 8.63 and others) and users of Public Rights of Way. The applicant's figures (Table 8.2) show that in Month 2 of construction they estimate 520 HGV vehicle movements – an average of 120 a week. This excludes constructors' vehicles (para 8.58), minibuses and service vehicles. There are already details available to the public about the proposed use of Tye Lane by Statkraft to construct a solar farm and EDF know of this (Non-Technical Summary page 12) but have discounted it from their assessment with no reasoning. The cumulative effect of transport from two independent solar farm construction projects would be catastrophic for users of Tye Lane.

Paragraph 8.58 states that construction vehicles have been excluded from the figures as they will be collected from key points and transported to sites. Whilst it seems unlikely that all staff vehicles will be excluded from the site, they will still need to get to site. The transportation movements for these vehicles needs to be included, even if they are mini-buses. Never known a site manager or safety inspector (of the many different varieties) to use a mini bus!

#### Exceptional Loads

Paragraph 8.3 states *"The construction of solar energy projects requires the delivery of a variety of loads, including 'Redimix' concrete, typical construction plant, standard HGV to carry the panel frames and solar panels and a small crane (typically 45T) to offload the inverter/transformer units and typical construction plant. There are no exceptional loads."*

The threshold for an exceptional load is 44T. There a 45T crane is an exceptional load.

## Road Accidents

The records only show personal injury accidents reported to the police. It is obvious that there are many damage-only accidents on these roads. Do they accept these will increase and become more severe with the large increase of traffic (both HGV and constructors) during construction and decommissioning?

This proposed development will also impact on safety further up Tye Lane along the hill. It doesn't appear to have a local name so from here we will refer to it as Tye Hill. The top of Tye Hill is near the Anglian Water Reservoir, and the bottom is near the EA1 and EA3 cables. The approaches to the hill are narrow, and bendy. They aren't sharp bends, but they are blind bends due to the hedging. Tye Hill is well known locally for black ice in the winter. It is wide enough for traffic to pass side by side during normal weather conditions, and slowly during wet conditions. But it is not safe for two vehicles to pass in icy conditions. Locally there is an unwritten right of way at Tye Hill in the winter. Vehicles wanting to come up get right of way, and those wanting to go down wait. Usually this is because those wanting to come up need the momentum to...ahem...make it all the way up! And for those wanting to go down a grass verge is a more attractive bumper stop than another vehicle. So how would the proposal affect Tye Hill? Well, at the moment the hedging on the approach to the hill, or more accurately the gaps in the hedging, allow drivers to get a heads up of what is coming the other way, for quite some distance. Vehicles can slow down and even find a passing place; other road users can seek refuge. This visibility will be lost with 8ft high panels and screening proposed for this entire section of the route.

*Photo from the bottom of and to the east of Tye Hill. You can see oncoming traffic at the top of the hill due to the lack of hedging. To the bottom left of the photo you can see the bend in the road at the bottom of the hill and the EA1 and EA3 electricity cable markers. You can also see some of the gaps in the hedging further along, giving extra visibility.*



*Photo from the top of Tye Hill showing the icy conditions. Due to the bend on the hill it is not suitable for passing traffic in icy conditions.*



*View from one of the gaps in the hedge further along from the top of Tye Hill. These gaps allow you to see down into the valley and crucially see for oncoming traffic along Tye Lane, giving you plenty of notice to safely slow down and wait at the top of Tye Hill.*



### Construction Management Transport Plan (CTMP)

Paragraph 3 states, "Construction traffic will be spread across the six existing entrances". Where are these 6 entrances please?

"A speed limit of 15 mph." Given that the site entrance is also a Public Right of Way, where there will be vulnerable road users, this seems too high.

HGV deliveries appear to be between 07:00 and 19:00 in some places and 09:00- 15:00 in others. Which is correct please?

"Wheel wash will be provided if required." This should be compulsory.

There also appears to be no mention of any banksmen in the CTMP during the construction nor decommissioning phase.

### Public Rights of Way (PRoWs)

We are highly concerned about the PRoWs. Aside from the adverse visual impact discussed in other chapters, there appears to be little detail regarding the PRoWs.

We note there are several places where the internal tracks will cross a PRoW (4 locations). There appear to be no details regarding the ground conditions proposed for the PRoW. Will these be changed to be the same as the internal tracks? Will there be fencing to prevent access into the site from the PRoW? Or a permanent banksmen?

What are the distances between the fences for the PRoWs, i.e., how wide will the PRoWs be? There appears to be no screening proposed for PRoW that intersect the site. Surely this is a mistake?

We also note that there will be several loud inverters placed alongside PRoWs. These are loud noisy pieces of equipment, and would adversely impact the amenity and tranquility of the PRoWs. The phrase in paragraph 8.91, "Minimum non-significant impacts are predicted for users of PRoWs" is an unfortunate phrase!

Chapter 11 LVIA paragraph 11.61 notes that there will be a significant long-term change in character of the site landscape until decommissioning. For many residents, this will be a life-time change. Figure 11.5 shows that, at points close to Flowton, both the Enso and EDF solar panels will be visible to users of the PRoWs - especially viewpoint 6 (The Meadows), where many walk their dogs. The proposed Statkraft site will also be seen in conjunction and sequentially with the EDF and Enso proposals, further exacerbating the adverse impact on users of the PRoW network.

The comment in the Design and Access document, paragraph DA18, stating that the presence of overhead electricity power lines across the site ... (means that) the proposed solar farm would fit well .. is subjective and misleading. Most people would recognize that the impact of the installation of 114,000 solar panels cannot be compared with some overhead power lines. The comments that "There are a wealth of walking options in the area" suggests that if we don't like the view, we should walk somewhere else! If all three solar farms are built there won't really be anywhere else to walk. At least not without having to drive some distance to get there, which is counter productive to the aims of local and national transport objectives. We note that the SCC PRoW team have commented that the allegation that walkers prefer walking on the road rather than the grass are quite subjective, presumptuous and based on limited observation. Many residents in the area quite enjoy walking on the softer ground of the footpaths.

The developer should note that part of footpath 8 (approaching footpath 7) has been closed off. It actually runs between two rows of trees, which have become overgrown and un-usable. Walkers now have to use the field edge at this point. The developer could effectively block access by siting panels right up to the trees. What action do they propose at this point?

*Photo showing the alternate route of footpath 8, and the trees that line the official path*



### **Security**

In paragraph 6.27 of the development statement and figure 6.11 of the Environment Statement, the developer states that they propose to use only deer fencing. This is in conflict with the usual advice of the police Designing out Crime Officer, that security fencing of grade SR2 (ideally SR3) should be used. The stated deer fencing does not meet this grade. We note that at the nearby substation deer fencing was initially used, but after National Grid could not secure insurance for this, they were required to upgrade to palisade fencing. The applicant admits in the application that even deer fencing is “intrusive”. Palisade fencing is even more so. We would like reassurance that, if the Council were minded to approve the development, that the developer would not be able to come back later requesting a change to the proposed fencing.

## 9. Glint & Glare

### Tye Lane

The EDF submission for Glint and Glare indicates that virtually all roads in the area to the West of Bramford will suffer to some degree at least once per day and that Solar reflection will occur AM in directions 65 to 129 deg. and PM in angles 238 to 299 deg.

The submitted report predicts that these Solar reflections will be highest in the months March to October. Road users already suffer from glare when traveling east in the morning and west in the evening from the low sun at these times of year. Additional glare from the solar panels to the side of the road would exacerbate this hazard to road users, where at the moment the arable fields provide some relief from the road glare.

The portion of Tye Lane adjacent to the proposed panels varies in direction between 260 and 290 deg. the precise direction where EDF predicts the higher levels of reflection and which already suffers from dangerous head on glare when the sun is low in the sky.

*Tye Lane and glare from the sun travelling west in the afternoon*



The additional predicted glare from the panels would compound the sun's glare and lead to even more dangerous driving conditions along the lane in early mornings and late afternoons, exactly when traffic is at its busiest!

Any mitigations to minimise the additional distraction in the guise of hedging would take several years to be effective and probably never be achieved when descending the hill in the early morning.

### Little Sage Hill & PRoW Footpath Bramford 8a

The main site access is also the entrance drive to Little Sage Hill caravan and camping site, and PRoW footpath Bramford 8a. There is no hedging or mitigation of any kind proposed for this route. This means there is nothing to mitigate the glint and glare that would occur along the drive to the Little Sage Hill site, nor its junction with Tye Lane. This junction is also regularly used as a passing place for traffic on Tye Lane. As the Solar site entrance is also proposed here, any glare will again increase the likelihood of road accidents using the route and entrance way for currently safe passing.

### Quiet Lane

Tye Lane is designated as a 'Quiet lane' and as such is used by cyclists, walkers and horse riders. Anything that increases the probability of accidents, particularly to vulnerable users such as this, should not be permitted.

## Residential & Public Amenity

Most local properties that currently have a view of the area will also be adversely affected by solar reflections. The EDF submission identifies that 12 of these will have a 'high magnitude of impact' (up to 281 hrs/year) with those closest to the panels having their amenity, and therefore wellbeing, seriously compromised.

The submitted report recognises that some of these residential properties, even after 10 years of vegetation growth of the limited proposed planting, would still be suffering a '*Substantial/Moderate*' magnitude of change resulting in an overall '*Major/Moderate +*' effect on residents.

Further, the glint and glare Assessment submitted concludes solar reflections are possible at 48 of the 59 residential receptors assessed within the 1km study area. Glare is also identified as being possible at numerous other residential properties including large numbers of homes in Bramford, including the developments still under construction to the north of the village. A large number of people have the potential to be impacted by glint and glare from the development.

The mitigation proposed for the homes in Bramford is in the form of a 5m wide deciduous tree belt at the eastern edge of the site. However, we note that this is unlikely due to planting restrictions around high pressure gas mains, just like the one which goes through the proposed tree belt. This planting would also take many years to become even slightly effective, and as deciduous trees there would be no leaf cover to help protect from glint and glare in the winter months when the effects are most significant anyway.

Further, the glint and glare suffered from the various popular footpaths and PRowS that traverse or bound the proposed site will represent a serious reduction in public amenity and any screening from view will be a poor substitute for the rural views currently enjoyed.

The undulating nature of the area means that it is unrealistic to eliminate the effects of glint and glare from Solar panels.

## Airfields

The applicant assesses the potential for glint and glare on the approach paths for both runways at Wattisham Flying Station, however this is for fixed wing aircraft.

Wattisham Flying Station is now a base for military helicopters, as well as the Air Ambulance. As such pilots are not constrained in their direction of approach. This factor has not been assessed.

## Policy

Whilst there is little planning policy relating to glint and glare, it does feature in the Planning Practice Guidance under paragraph 13 (Reference ID: 5-013-20150327), which sets out planning considerations that relate to large scale ground-mounted solar PV farms:

*“The deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.*

*Considerations to be taken into account by local planning authorities are;*

- *the proposal's visual impact, the effect on landscape of glint and glare and on neighbouring uses and aircraft safety...*”

This is an undulating landscape, and it is not well screened. From the results of the glint and glare assessment that have been conducted, several locations would receive high levels of glint and glare, and so the EDF proposal fails to meet this consideration in policy.

## 10. Climate Change

Wouldn't it be obvious, that as a solar PV installation, that it contributes positively to reversing the effects of climate change??

Chapter 5 of the application includes references to the Scoping Opinion that the applicant was asked to use:

*“The application documents should address all elements of renewable energy and resource efficiency measures incorporated within the development (during both construction and lifetime phases) as well as an analysis of other opportunities to secure renewable energy sources to meet the needs of the development with particular reference to existing developments within the locality. The application should address the carbon footprint of the development during construction, lifetime and decommissioning phases and a ‘cost-benefit’ type analysis of the proposed development in the context of regional and national targets, relative to its carbon footprint shall be provided with details of a timeframe for the achievement of carbon payback / neutrality where appropriate. Refer to: NPPF and policy CS3 of the MSDC LDF Core Strategy DPD 2008.”*

We have concerns that the applicant has provided very little detail specific to the application perhaps because there is an element of expectation involved. This chapter will outline the areas that we would like to be provided with significantly more detail, in line with the information requested by the EIA.

### **Policy**

#### **National Policy**

Local planning authorities are responsible for renewable and low carbon energy development where the installed capacity is less than 50MW, under the Town and Country Planning Act 1990.

The proposal from the applicant is for a 49.9 MW solar farm that would supply electricity into the electrical system. It is unclear if the applicant is connecting into the transmission system of the National Grid, or the distribution system of the local UKPN. They make references to connection of both interchangeably throughout the application and it is unclear which it really is. CARE Suffolk have asked for clarification of this but no answer has been received from the applicant. During the public pre-consultation phase they stated the connection was through a tertiary connection into the National Grid transmission network, though it is of note that if the applicant is not listed on the NG TEC Register as having an agreed connection here for a solar array as it should do. If this is indeed still the case (grid connections are expensive so it is unlikely any developer would be so carefree about changing it), then the electricity would not be supplying local communities. So it is of no benefit to local residents who are being unfairly asked to endure the development.

However, it is of note that the applicant states *“1.3 The total solar array would have a rated capacity of up to 49.9MW at the point of connection. The proposed operational lifetime of the project is 35 years, following which the solar farm and grid connection would be decommissioned, unless a fresh planning permission was granted for its retention.”* There is always an element of loss between the capacity of the solar panels and the export point of the development. This is partly because of energy loss along cables, and the inversion and transformation process (converting DC power to AC and upgrading the voltage). The threshold for local consideration is clear that it is the **installed capacity**, not the export capacity. It would be likely then that the installed capacity is above the threshold for local decision making, and this needs clarification.

As to types of development such as this, it is important that the planning concerns of local communities are properly heard in matters that directly affect them.<sup>27</sup>

*“Local and neighbourhood plans are the key to delivering development that has the backing of local communities. 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:*

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<sup>27</sup> Paragraph: 002 Reference ID: 5-002-20150618 <https://www.gov.uk/guidance/renewable-and-low-carbon-energy>

- *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;*
- *different technologies have different impacts and 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.”*

The NPPF is supportive of renewable energy projects, and as such states that developments do not need to demonstrate the overall need for renewable or low carbon energy. Local policy is also supportive of renewable energy projects, a factor that is mutually acceptable to both parties. The need to transition to low carbon and renewable energy is widely accepted and well publicised by local and national authorities, and we welcome this. *We note, however, the caveat that authorities should only approve “approve the application if its impacts are (or can be made) acceptable.”* Local policy supports this condition, specifically regarding landscape and heritage impacts. As these topics have been addressed in previous chapters, it is not essential to repeat them here.

### Government Net Zero Policy

The main aims of the UK government net zero strategy published w/c 18/10/2021 reinforces the commitment to fully decarbonise electricity generation by 2035. Solar energy, however, doesn’t appear to even get a mention, with more emphasis being put on offshore wind and nuclear:

*“MAIN AIMS OF UK GOVERNMENT NET ZERO STRATEGY – BUILD BACK GREENER (The Times)*

- *A “zero emission vehicle mandate” requiring manufacturers to sell a rising proportion of electric cars and vans from 2014*
- *620 million of additional funding for electric vehicle grants and charging points*
- *Two projects to capture and store carbon from industry selected for 1 billion of public funding subject to value for money tests*
- *£120 million Future Nuclear Enabling Fund to develop technologies such as small modular reactors*
- *£450 million “Boiler Upgrade Scheme” Providing £5,000 grants for heat pumps in up to 90,000 homes over three years from April 2022*
- *Quadrupling offshore wind farm capacity to 40 gigawatts by 2030, including up to one gigawatt of floating turbines.*
- *£124 million for tree planting and peatland restoration, adding to the existing £640 million Nature for Climate Fund.”*

There is some irony that £124 million is pledged for the “Nature for Climate Fund”, considering either the impact of this proposition and/or cumulative impact of multiple solar farms potentially causing industrialisation of the countryside in Suffolk.

Looking at this fund in more detail, the UK government pledges: *“Halting climate change and protecting the natural world are two sides of the same coin, so we will restore our countryside to reduce emissions, sequester carbon and build our resilience to climate change at the same time. We will support farmers to implement a range of low carbon farming practices that can help increase productivity and enable more efficient use of land....”*

Quite the contrary is proposed by the applicant.

### Local Policy

Policy CL3 deals specifically with ‘Major Utility Installations and Power Lines in the Countryside.’ The policy requires that *“new major installations for utilities and power lines exceeding 33kv should be carefully sited to ensure minimal intrusion in the landscape. The feasibility of undergrounding electricity lines will be regarded as a material consideration.”*

It is our consideration that the applicant has not made any attempt to do this, with no rigorous site selection process. The development will be able to be seen for miles around with limited mitigation. It is our concern that the applicant

is using climate change to gain permission to build a solar farm purely for the reasons of profit without due consideration for process or the landscape and local communities. We have concerns that if the applicant gains permission to change land use, this will be exploited under the General (Permitted Development) Order, with no thought for the area and the people who live here.

The current Adopted Development Plan for Mid Suffolk Council consists of the saved policies from the 1998 Local Plan, alongside the 2008 adopted Core Strategy and its 2012 Focussed Review and states that applications for planning permission be considered in accordance with the development plan, if there are no material considerations to dictate why this should not be the case. We believe that this application will cause great harm and cannot be justified as a renewable energy project when it fails to meet the conditions of development in the countryside, even for renewable energy projects such as this. The mere fact that it is a renewable energy project is not a reason to not adhere to the development plan, particularly when it comes to considering change of land use.

The application is clearly in conflict with many of the criteria relating to the principles of farm diversification under policy CL17 from the Local Plan 1998. For the purposes of this chapter, we would consider the application to be in conflict with conditions:

C) Proposals are compatible with the protection of the countryside in terms of its landscape, wildlife, natural resources and intrinsic recreational value.

D) Proposals do not involve the permanent loss of agricultural land of grades 1, 2 and 3a

E) There is no excessive traffic generation or adverse effect on the free flow and safety of traffic

Further, the application is clearly in conflict with the criteria relating to policy E10 for industrial and commercial development in the countryside (as discussed in detail in other chapters):

- The impact of the development on the surrounding countryside, including its landscape and wildlife features
- The prospect of pollution including the effect on nearby watercourses and groundwater sources
- The amount of traffic generated and the likelihood of unacceptable traffic movements, particularly lorries, on non-principal roads
- The loss of high quality agricultural land
- The contribution to the rural economy
- The employment opportunities created for nearby communities.

We are aware that Core Strategy policy CS2 is supportive of renewable energy projects being built in the countryside, however the National Planning Practice Guidance tells us: *“The National Planning Policy Framework explains that all communities have a responsibility to help increase the use and supply of green energy, but this does not mean that the need for renewable energy automatically overrides environmental protections and the planning concerns of local communities.”*<sup>28</sup>

### Renewable Energy and Sustainable Construction

The Core Strategy 2008 at p3.7 states *“The Council is seeking to ensure that all new development contributes towards sustainable development, reduces or minimises carbon emissions...”*

We welcome the fact that MSDC seeks to ensure that all new development contributes to sustainable development, and would like to see this policy put into action, noting that a number of recently built warehouses in the BMSDC area have no solar panels (La Doria - 6 acres, Amazon - 3.3 acres), and additionally new residential construction in the Bramford area will not be built with solar panels. There is also considerable existing warehouse development in Stowmarket that has no solar panels, and much more proposed. These amount to large areas of wasted rooftop space, which due to the sloping nature don't require extra land to accommodate space in between panels. In order to be resilient to the current and future implications of climate change, we would urge that MSDC adopt the strategy of putting solar panels on warehouses, carparks, and all new builds.

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<sup>28</sup> 'Renewable and Low Carbon Energy' paragraph: 003

We have taken the liberty of providing some calculations of our own to illustrate the point and show that, from warehouses and industrial estates alone, we can generate renewable energy without destroying our countryside and putting our food supply at risk.

There is also considerable solarless rooftop space in neighbouring districts:

- Anglia Retail Park (the one opposite Asda @ Whitehouse) is over 30 acres
- Whitehouse Industrial Estate is over 92 acres
- Ransomes Industrial Estate is around 298 acres

These are all wasted opportunities to fulfill the climate change agenda, and it can be done without allowing the destruction of food producing countryside.

### Albedo

In a question to the Scientific American, the topic of albedo was addressed. *“I wonder how much the albedo change of your roof offsets gains from electricity, much of the suns short wave energy must be being converted to heat therefore enhancing greenhouse (as well as producing some electricity) can you prove you are actually energy balance positive?”*

So, the view is that solar improves the environment – can it be true that it actually harms it? The short answer is yes. We are further told that:

*“Silicon solar cells convert about 1/6 of incident sunlight into electricity and dissipate most of the remaining 5/6 as heat. So, in terms of their direct climate effect, they have an albedo, or reflectivity, of 1/6. This is comparable to the albedo of standard asphalt shingles, so for most people, installing solar panels do not have a net heating effect.”*

However, the increase in heat absorption is a one off climate forcing, which is the same as adding a certain amount of CO<sub>2</sub> into the atmosphere, and, eventually, reaches a point where it is no longer beneficial to the environment.

A system that is rated at 3 kW of DC power, dissipates on the order of 10<sup>4</sup> W of heat. Its area is about 10 square meters, about one part in 10<sup>14</sup> of the Earth’s surface, so the system amounts to a global climate forcing of about 10<sup>-10</sup> W per square meter. To convert this to a carbon-dioxide equivalent, note that the cumulative industrial emissions of 200 billion tonnes of carbon dioxide have produced a forcing of 1.5 W per square meter, or about 10<sup>-11</sup> W per square meter per tonne.

Going even further with this, Gavin Schmidt of NASA GISS did his own calculation based over a year of solar panels providing renewable energy for the USA. He imagines that it would take a photovoltaic array about 200 kilometers square to power the entire USA, estimating the albedo forcing to be about 0.01 W per square meter, equivalent to about 1 ppm of atmospheric carbon dioxide, which the U.S. adds to the atmosphere in about three years.

This would suggest that the impact of solar panels on the environment is significant, and must be taken into consideration when calculating the overall carbon footprint of a solar farm.

### Climate Change Effect on Water Supplies and Flooding

In Chapter 2 the applicant notes that the proposed development *“is located in Suffolk, in the east of England (p2.45)”* and cites a study from 2012 as the most notable local study for the project rationale. We are informed that *“the East of England is the driest region in the UK, with annual rainfall at only 70% of the national average, (p2.49)”* however the report from 2012 highlighted that the east of England is also at risk of water scarcity, rising sea levels and flood. A brief search on the internet provides us with more current data, reporting that it is the south east England that was facing the greatest pressure on water supplies in 2020, a major factor being attributed to climate change (edie.net).

Solar panels are well known to contain a myriad of chemicals. Some harmless. But some toxic and carcinogenic, such a cadmium telluride as the most common. When panels break these chemicals can leech into the soil and groundwater supplies. Note that this is not a case of if the panels break. There will be breakages, particularly during the shipping process which will only be realised when the packaging is opened on site.

With the East of England already under pressure for water scarcity as the driest region in the UK, putting our water supply (the aquifer which groundwater from the site contributes to) at risk from contamination from these chemicals is unreasonable. And it isn't just the point of water supply, but the entire route from source to supply too.

### **Predicted Carbon Footprint**

*“The application should address the carbon footprint of the development during construction, lifetime and decommissioning phases and a ‘cost-benefit’ type analysis of the proposed development in the context of regional and national targets, relative to its carbon footprint shall be provided with details of a timeframe for the achievement of carbon payback / neutrality where appropriate. Refer to: NPPF and policy CS3 of the MSDC LDF Core Strategy DPD 2008.”*

We note that the applicant has not provided us with a cost benefit analysis in the context of regional and national targets, relative to its carbon footprint with details of a timeframe for the achievement of carbon payback and/or neutrality where appropriate.

With this in mind, we decided to have a go at it for them...

The application is for 49.9MW. This means that in one hour the site could theoretically generate 49.9MWh of electricity.

There are 8,760 hours in one year, so theoretically the site could generate 437,124MWh of electricity, or 437,124,000kWh. But this assumes that the sun is always shining.

Now, technically the sun is always shining. But it isn't always shining on this particular area of land. Sometimes it shines on the other side of the planet, also known as nighttime, and sometimes it shines behind cloud cover. (Although considering we live in the UK this ‘sometimes’ occurrence of cloud cover might more realistically seem like ‘most of the time’.)

Considering the sunshine doesn't always land on the ground, and therefore the proposed solar panels, the applicant states at p1.5 that they predict an annual yield of approximately 67,500MWh. This represents an efficiency rate of 15.4%. That's quite ambitious for a solar panel, even the tracking panels which these aren't. But we'll play along with this figure.

The applicant also states they will offset 17,100 tonnes of CO2 per year. This relates directly to the CO2 output of the UK Energy Mix, which for 2020 was 253g CO2/kWh. However, this is misleading for two reasons:

1. The reference point is one year fixed in time, and not the actual declining rate of CO2 emissions as we get closer to net zero targets of 2050.
2. The reference point is at a time when the installation was not generating electricity, and is irrelevant.

Both of these facts mean that the actual average annual CO2 saving, compared to the declining UK Energy Mix, is much lower.

If we use 253g CO2/kWh in 2020 as a reference point, and assume a consistent decline in emissions to 2050 to zero, and zero thereafter to the end of the project, and an assumed connection date of the 1st January 2023, the actual predicted average saving of CO2 over the lifetime of the project is 1,021 tonnes CO2 per year, or 35,735 tonnes CO2 for the lifetime of the project. This is considerably less than the applicant claims using their misleading snapshot in time.

This does not take into account the considerable carbon footprint of constructing the solar farm in the first place.

Figure 6.1 shows a typical solar panel, with 620 panels per 40ft container from China. 114,000 panels @ 620 panels/40ft container = 184 containers. These panels would presumably arrive at the Port of Felixstowe, which is a distance of 21.6 miles using the proposed route. 184 lorries @ 21.6 miles = 3,974.4 miles.

The average mpg for 33t+ HGV is 7.9 miles per gallon.<sup>29</sup> 3974.4 miles/ 7.9 miles = 503.1 gallons of diesel, or 2287 litres.

Diesel emits 2.63kgs of CO2 per litre.<sup>30</sup> 2287 litres x 2.63kgs = 6015.1 tonnes of CO2.

This is just to get the solar panels from the Port of Felixstowe to the site entrance. This does not include the panels travelling to the departure port in China, nor travelling across the globe to Felixstowe. Nor does it include the transportation of all the other materials, such as fencing (approximately 7989 metres) and fence posts (of which we estimate there to be 2595 standard fence posts + 160 CCTV posts - that's a lot of trees to cut down!), aggregate for roads, 17 inverter containers, metal frames for the panels, site welfare and storage facilities, substation, cables, construction vehicles, site workers, and all the other necessary transportation involved in the harvesting, manufacturing, and delivery of all the components and packaging required to bring together the entirety of the development.

Nor does this include the carbon footprint of relocating the annual crop production to another country and transporting it here. Nor does it include the carbon release effect from new research described in the Land Use and Soil chapter. Nor does it include the albedo effect described above.

Nor does it include the carbon footprint of replacing the solar panels, since they only last around 25-30 years. So at some stage, all 114,000 solar panels will require replacing, which means transporting the old ones to either be recycled or shipped somewhere else, and transporting the new ones again as calculated above.

Oh, and there is also the carbon footprint of:

- The decommissioning process
- The recycling process

Even without a final total of all these considerations, it is easy to see that the solar farm proposed by the applicant will be far from carbon neutral, and would in fact contribute to the carbon emissions of Mid-Suffolk, not the reduction of them.

### Summary

We have considered the following paragraphs from the NPPF in order to establish project rationale at a local level. Although the applicant has provided significant information in their chapter "Project Rationale," we could not see any evidence of this having been carefully considered at a local level. This project will, after all, have a dramatic impact on the local area, either as a stand alone project or in a cumulative sense.

**p152.** *"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."*

We cannot see any rationale for this at a local level, Bramford substation is known to be powered by significant amounts of offshore wind and nuclear energy (renewable and low carbon energy). On a local level, we do not need solar energy in the form that the applicant proposes, however, we do need our farmland for growing food and carbon capture.

**p153.** *"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 from rising temperatures."*

From a local standpoint, this project will INCREASE flood risk, impact severely on biodiversity and landscapes, and put already scarce water supply at unreasonable risk.

**p155.** *"To help increase the use and supply of renewable and low carbon energy and heat, plans should:*

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<sup>29</sup> [Average heavy goods vehicle fuel consumption: Great Britain](#)

<sup>30</sup> <https://donbur.co.uk/gb-en/calculator/carbon-emissions/>

*(a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);”*

The project rationale provides no evidence to suggest that the project will be of local benefit. Local people will be subject to adverse impacts from this project in both a stand alone and cumulative capacity.

In relation to electricity production claimed by the applicant, it is accompanied by words of “predicted” and “potential”. A 15.4% efficiency rating (as calculated further above) is ambitious for a static solar panel. General acceptance in the industry is somewhere between 10-12% (with 12% becoming more reflective of recent technology). These lower rates of productivity would further exacerbate the already clear CO2 increase of emissions that the development would add to the climate emergency.

We have real concerns that there is insufficient information in this application for a planning committee to be able to make an informed decision. Evidence and basic math tells us that the claims that this project will produce clean, renewable energy is subject to many more factors than what the applicant has even begun to consider, let alone actually revealed in the application.

The revelation of an increase in CO2 emissions due to this project, and the sacrifice of the loss of BMV land, and added damage to our communities, is just too great.

## 11. Decommissioning & Waste

“Describe the purpose and physical characteristics of the project and land use requirements during: construction, operation and decommissioning.”<sup>31</sup>

We understand that decommissioning is, in fact, a reference to “the suite of processes involved in withdrawing a facility from service at the end of its life; and the removal of components for reuse, remanufacturing, recycling, storage and/or disposal”.<sup>32</sup>

There is a distinct lack of detail on the topic of decommissioning. The applicant has devoted a few paragraphs in Chapter 7 of the application documents to this enormous task, stating that the decommissioning process “will follow the reverse of the construction phase over a shortened time period of approximately two months”. There is a passing reference stating “the panels and associated infrastructure will be decommissioned” and “**it is likely** that a temporary compound similar in size and nature to the main temporary construction compound will be required for the secure storage of equipment and for worker welfare facilities during decommissioning”. This language is vague and we would like to know what the applicant means by “it is likely”.

We are further told that “solar panels will be removed”, “the site will be reinstated”, “electrical connections isolated and made safe”, and EITHER “made safe **or** left in situ **or** removed for recycling” (p.7.33). This is also vague and we welcome clarification on this matter. We would welcome further clarification on what the applicant’s plan is, in view of the fact that the land may be returned to agricultural use, or, in the applicant’s words, “reinstated”.

Furthermore, the applicant states that “the inverter/transformers, site containers and cabinets will be removed from the site and foundations removed down to a level where they would have no impact upon reintroduction of farming use of the site” (p.7.34). We would ask for the evidence that the applicant has used to establish the fact that the foundations left would have no impact upon the reintroduction of farming at the site and, additionally, what will happen to inverter/transformers, site containers and cabinets?

We have already established in the flood section that there would be considerable compaction of the soil during the construction phase. This would be further exacerbated during the decommissioning phase. Mole drilling is going to be required to even attempt to return the land to agricultural use. Mole drills go down to a depth of around 2m. Any equipment (cables, posts, concrete, gravel, etc) left in the ground would inhibit any realistic chances of starting to recover the land.

The applicant further states that “fencing will be removed” (p.7.35) and “new site tracks would be left in place for use by the landowners for their farming practices, if required”. This is equally vague, and we would welcome some insight into what the applicant intends to do with the fencing, and also the tracks if they are not required.

The NPPF at paragraph 8 states that part of the environmental objective of development should be, inter alia, to “minimise waste and pollution.” If the Council were minded to approve the application, **ALL** components of the solar farm must be removed as part of a condition. The degradation of anything left in the ground over time risks pollution of plastics and metals in the soil and groundwater.

We note that several times throughout the application, and indeed several times during the decommissioning chapter, the applicant appears to primarily focus on the change in land use. Much of what is discussed in the decommissioning aspect of Chapter 7, refers to a “new application for a replacement solar energy development” and “if a replacement development is both applied for and consented” would seem to highlight this. Whilst we appreciate that the applicant is eager to gain consent to change the use of land, we would suggest that a detailed decommissioning plan is still required.

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<sup>31</sup> Chapter 5 Table 5.1

<sup>32</sup> Developing policies for the end-of-life of energy infrastructure: Coming to terms with the challenges of decommissioning: Invernizzi, D.C et al (2020)

This lack of clarity on decommissioning invites the criticism that this development is not as sustainable as the applicant is proclaiming it to be. Indeed, business models that include reuse, repair, remanufacture and recycling of materials from low carbon infrastructures are entirely absent, and plans to manage the waste arising from decommissioning low carbon infrastructure are still at a preliminary phase.(Ramana)

Furthermore, the applicant is far clearer about what will be left on the site should decommissioning take place, rather than what will be removed, where it will be taken and the associated carbon footprint.

Considering this, we would question the claim that the project is fully reversible. We are told in the application that hundreds of metres of new roads will be built, which will cause compaction of the land and by extension cause major issues with drainage on the site. We understand that the roads built by the applicant across BMV farmland will remain a permanent fixture, as there is no intention to remove them at the end of life of the project. We would therefore question the feasibility of the land being returned to agriculture following decommissioning. We would also question the statement that the decommissioning phase will cause “minimal disruption” to the land, and request some clarity around this statement as evidence in various chapters appears to contradict this.

“A solar panel lasts approximately 30 years. At the end of its life cycle, it has to be treated as a special waste. Numerous elements compose a PV panel, including toxic substances such as copper, lead, gallium, selenium, indium, cadmium and tellurium. The separation and recovery of these metals is not an easy process. These substances, potentially hazardous to health, are in small percentage compared to the most non-hazardous, such as glass, polymers, and aluminum. Since photovoltaics is a relatively new product, today we have to face the first phase of development of the photovoltaic recycling industry, which could convert this waste into a resource. It is not difficult to understand that proper recycling is a precious resource for the production of materials in production chains, photovoltaic panels and more. To do this, it is necessary to disassemble the panel and correctly separate the elements that compose it.”<sup>33</sup>

This, although it appears to have potential for successful recycling, is not an attractive prospect for those in the industry. In fact, in the UK, there appears to be only one recycling plant that carries out this work, “Recycle Solar” is based in Hull, and carries out solar panel recycling for the UK and Ireland. So, something else to factor into the carbon footprint, and a worrying matter when the hundreds of thousands of panels from solar farms in the UK reach the end of their life.

Further we note that the application is for 35 years, but the above research suggests panels have a lifespan of around 30 years. If the panels are all replaced around the 30 year mark, only to be decommissioned 5 years later this would be a huge waste of a reasonably new product. Combined with the applicant’s request to change the land use, and numerous references to apply for an extension at the end, it is reasonably questionable whether the applicant ever intends to decommission the site at all. This would mean the significant adverse impacts highlighted in other chapters would therefore be **permanent**.

In Chapter 5 under the scoping topic of Waste the applicant was told “Application documents should include an assessment of expected waste generation from the construction and lifetime phases of the development together with a waste management strategy incorporating details of recycling, re-use and disposal. This assessment should provide details of the location and capacity of waste management facilities, both on and off-site, and the associated noise and traffic impacts arising from the arrangements.” The applicant states “Wastes are considered within Chapter 7 - Construction, Operation and Decommissioning” yet Chapter 7 is completely devoid of any mention of waste.

Plans for decommissioning and waste disposal are essential and we request that the applicant provides them as a matter of urgency.

Additionally, should the solar farm fail to meet expectations and/or the owning company of the infrastructure at the time ceases to exist for whatever reason, part of the decommissioning plan should specify who will be responsible for returning the site back to agriculture. Further, a bond needs to be in place to cover the costs of proper decommissioning and disposal to ensure its return to agriculture. Selling the components on marketplace websites

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<sup>33</sup> <https://www.onlynaturalenergy.com/the-true-carbon-footprint-of-photovoltaic-energy/>

such as Gumtree is not appropriate.<sup>34</sup> The value of this bond should be reassessed and adjusted annually to ensure the changing costs of decommissioning and waste disposal are fully covered.

On a small note, Figure 6.5 for the access track mentions the use of geotextile. If the Council were minded to approve the application, we would like to see a commitment from the developer that this would be made from 100% natural fibres, rather than introducing micro plastics into the environment.

National Planning Policy for Waste 2015 states “Positive planning plays a pivotal role in delivering this country’s waste ambitions through: - helping to secure the re-use, recovery or disposal of waste without endangering human health and without harming the environment; and - ensuring the design and layout of new residential and commercial development and other infrastructure (such as safe and reliable transport links) complements sustainable waste management, including the provision of appropriate storage and segregation facilities to facilitate high quality collections of waste.”

The applicant has confirmed that a store will be located on the site, but makes no mention if this is for waste. We would welcome clarification on waste storage facilities and disposal.

Considering the possible cumulative impact of the solar farm proposals in our locality, decommissioning and waste plans should be at the forefront of the information provided by the applicant. We would hope to see some more details come forward before a decision is made.

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<sup>34</sup> <https://www.belfasttelegraph.co.uk/sunday-life/news/sun-sets-on-one-of-northern-irelands-first-solar-farms-40955559.html>

## 12. Major Accidents and Disasters

### *Risk to Wattisham Flying Station*

In the NPPF under paragraph 97 it states:

“Planning policies and decisions should promote public safety and take into account wider security and defence requirements by:

- a) anticipating and addressing possible malicious threats and natural hazards, especially in locations where large numbers of people are expected to congregate. Policies for relevant areas (such as town centre and regeneration frameworks), and the layout and design of developments, should be informed by the most up-to-date information available from the police and other agencies about the nature of potential threats and their implications. This includes appropriate and proportionate steps that can be taken to reduce vulnerability, increase resilience and ensure public safety and security; and
- b) recognising and supporting development required for operational defence and security purposes, and ensuring that operational sites are not affected adversely by the impact of other development proposed in the area.”

Within the Gling & Glare report the applicant briefly discusses the potential impact on nearby airfields, including Wattisham Flying Station (WFS). They claim they found no impact on the runways. However, the assessment fails to identify that WFS has a large fleet of helicopters as well as an open helipad for the Air Ambulance. These helicopters regularly fly over the site as: it is part of the flight path to RAF Woodbridge where they conduct a lot of training; and the area around Burstall is used as a training ground with the Bramford Substation being their practice target. Without assessing the impact on helicopters, and without engaging with WFS, a major disaster from glint and glare cannot be ruled out with the information currently presented, which is contrary to NPPF policy 97b stated above.

### *Risk to Little Sage Hill*

The HSE's Planning Advice Web App confirms the site lies within the consultation distance of at least one major accident hazard pipeline. As such the HSE needs to be consulted by the LPA on any developments on this site. Due to the proximity of the solar farm to Little Sage Hill, the underground high pressure gas mains under the proposed solar farm, and therefore the potential for a high volume of dangerous material to be around in the event of an explosion at one of the hazards, the vulnerability of visitors to Little Sage Hill caravan and camping ground needs to be considered in the decision of this application.

### *Flood Risk to Nearby Residential Property and Emergency Vehicle Access*

This has been covered in the Flood & Water Management chapter, but is relevant here.

### *Risk to EA1 and EA3 Electricity Cables*

The site is intersected by underground electricity cables for offshore wind farms EA1 and EA3. These are NSIP developments which supply a significant amount of electricity to the UK's grid. The owner of EA1 and EA3 will have wayleave access rights to their equipment across the site in order to maintain and repair the cables as needed. It would appear from the site layout plan that access tracks and cabling for the solar arrays will cross these cables. This would limit the ability of the wind farm operators to maintain and repair their equipment on this site, and therefore delay any restoration to electricity supply in the event of a fault.

### *Risk to Overhead Pylons*

The site is also intersected by overhead electricity cables and pylons, owned and operated by National Grid. These are major infrastructure of national importance. NG will have wayleave access rights to their equipment across the site in order to maintain and repair the cables and pylons as needed. Whilst it appears from the site layout plan that there are buffers around the pylons themselves, they have placed solar arrays directly underneath the overhead cables. As with the underground cables mentioned before, this would limit the ability of NG to maintain and repair their equipment on this site, and therefore delay any restoration to electricity supply in the event of a fault.

## 13. Population and Human Health

It has been known for many years that exercise has amazing benefits. If this can take place outside the benefits are greatly increased. Doctors now prescribe walking and other forms of exercise for a range of illnesses with amazing results.

Here in the Suffolk countryside we all have access to the freedom of open space and glorious views, just looking at this can help lower the blood pressure and still the mind and it is FREE, no prescription necessary.

Solar panels on our farmland will change all this. We will no longer benefit from seeing the changing colours of the fields and the wonderful smell as the soil is ploughed for the next crop. The song of the Skylark brings great joy as they fly up from the secret nesting sites on the stubble, Solar panels will ruin this.

The NPPF at paragraph 130f states *“Planning policies and decisions should ensure that developments create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users...”*

The NPPF at paragraph 185 states: *“Planning policies and decisions should ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

*a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life:*

*b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;...”*

We list below some points to emphasise how important our landscape is.

### *Physical health*

Regular brisk walking will:

- Improve performance of the heart, lungs and circulation
- Lower blood pressure
- Reduce the risk of coronary heart disease and strokes – inactive and unfit people have double the risk of dying from CHD

Walking regularly at any speed will:

- Help manage weight
- Reduce the risk of Type 2 diabetes
- Reduce the risk of certain cancers such as colon, breast and lung cancer
- Improve flexibility and strength of joints, muscles and bones, and reduce the risk of osteoporosis.
- Increase “good” cholesterol
- Boost the immune system
- Mental health and well being

Walking improves wellbeing and helps fight stress and depression. Walking, like other physical activities, releases endorphins which improve mood and reduce stress and anxiety.

Feeling fitter and controlling weight helps improve your body image and confidence. Active people have a reduced risk of suffering clinical depression.

Walking in a group is a sociable activity that can help improve mental health and overcome feelings of isolation.

Spending time outdoors and in contact with the natural environment – walking in our local green spaces – can have a positive effect on mental health. You don't need to concentrate on the walking itself, leaving you free to enjoy your

surroundings, chat to friends and family or just relax. You can enjoy a variety of surroundings as you walk in different places and different seasons.

Removing the beautiful open views by planting solar panels will have a detrimental effect on the wildlife and soundscape which so many walkers enjoy so much.

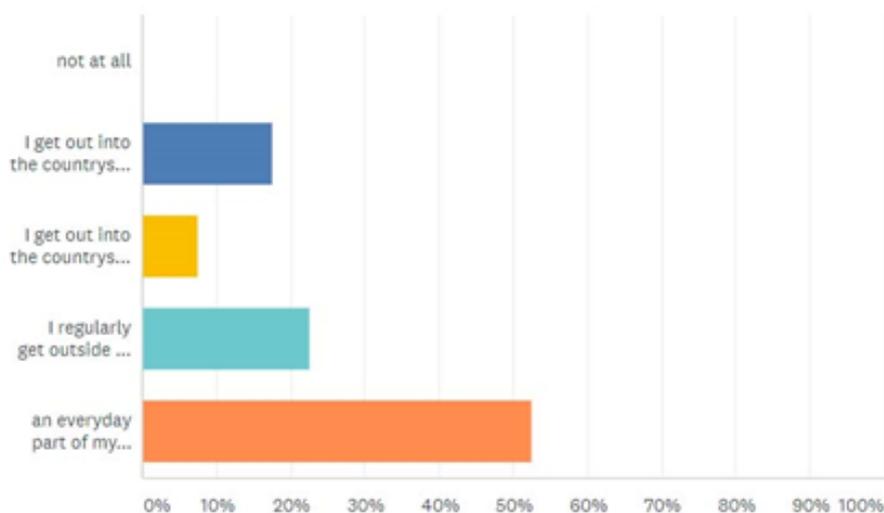
There are spectacular views which will be totally lost, and that cannot be appreciated from a carefully selected photo montage. A walk from Copenhagen Cottage to Bramford Tye currently gives a view of Gt and Lt Blakenham as far as Somersham across the valley. It is clear for miles.

This will be obliterated. The same view after construction will be of the first row of panels towering over your head to the north and the south as well. Effectively it will be a tunnel. Regardless of where footpaths are still usable the effect will be the same. Walks in open countryside will become walks on industrial estates. Cumulatively, construction will remove the incentive to use the paths and this would have a negative effect on wellbeing. It is widely reported that having a chance to get outdoors has been one of the few things which has helped people through lockdowns and Covid19.

CARE Suffolk conducted a voluntary survey in the area which saw 40 respondents. One question asked was “How big a part of your life is walking/exercising in the open countryside around or near to where you live?” More than 50% of respondents said this is “an everyday part of my existence.”

## How big a part of your life is walking/exercising in the open countryside around or near to where you live?

Answered: 40 Skipped: 0



ANSWER CHOICES	RESPONSES
not at all	0.00% 0
I get out into the countryside only occasionally	17.50% 7
I get out into the countryside quite often	7.50% 3
I regularly get outside in the countryside	22.50% 9
an everyday part of my existence	52.50% 21
<b>TOTAL</b>	<b>40</b>

Exercise in the open countryside is an important aspect of people's physical health. But to encourage people to go out into the open countryside requires them to have a pleasant experience doing so. The Landscape and Wellbeing Study 2009 reported *"In order to be perceived as an option for physical activity, rural green landscapes must be aesthetically appealing to their users."*<sup>35</sup>

If such landscapes are lost and mental wellbeing suffers, it would be Suffolk CC and the District Councils which have to provide the remedy through services, which are already overstretched.

### *Rest and Relaxation*

Relaxation reduces stress and the symptoms of mental health conditions like depression, anxiety and schizophrenia. Relaxation also has other related health benefits, including: lowering your heart rate, blood pressure and breathing rate. reducing muscle tension and chronic pain.

Our beautiful tranquil countryside enables many people to heal mentally and physically. Taking time out from the usual routine and away from the busy digital world to let go and just relax.

Peaceful hideaways such as Little Sage Hill Campsite in Bramford provide much needed space for this rest and relaxation. This will be taken away completely if solar panels are allowed to surround this beautiful area.

NICE recommends structured exercise programmes tailored to individual need to manage, and for rehabilitation after, certain health conditions, including:

- myocardial infarction (see NICE clinical guideline 172 on secondary prevention)
- stroke (see NICE clinical guideline 162 on rehabilitation)
- chronic heart failure (see NICE clinical guideline 108)
- chronic obstructive pulmonary disease (see NICE clinical guideline 101)
- depression (see NICE clinical guideline 90 for adults)
- low back pain and sciatica in over 16s: assessment and management (see NICE guideline NG59)
- chronic fatigue syndrome/myalgic encephalomyelitis (or encephalopathy) (see NICE clinical guideline 53)
- A walk in the countryside along the footpaths as they exist currently gives views for miles across open countryside.

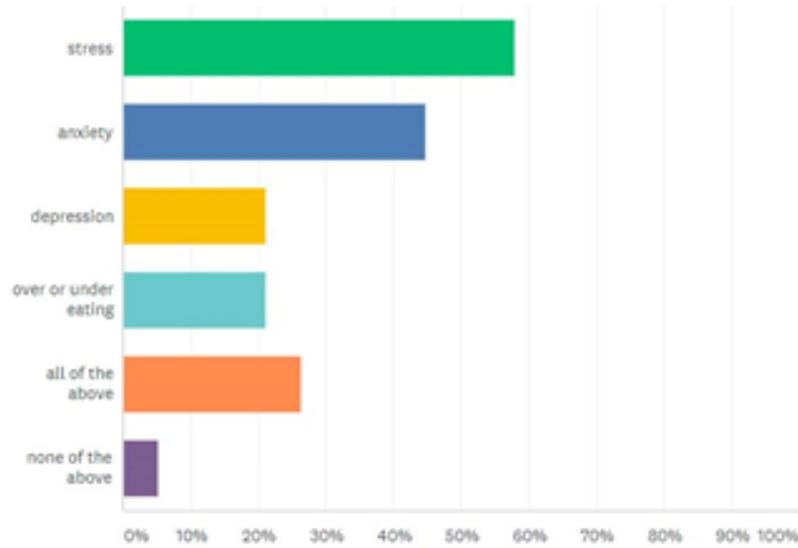
The Landscape and Wellbeing Study 2009 stated *"An appealing landscape contributes to people's health."*

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<sup>35</sup> Pretty J, Griffin M, Peacock J, Hine R, Sellens M, South NA (2005a) Countryside for health and wellbeing: the physical and mental health benefits of green exercise. Sheffield Hallam University, Countryside Recreation Network, Sheffield

In the last 2-3 years have you experienced any of the 4 most common wellbeing challenges with which access to natural countryside has helped? (Tick all that apply)

Answered: 38 Skipped: 2



ANSWER CHOICES	RESPONSES
stress	57.89% 22
anxiety	44.74% 17
depression	21.05% 8
over or under eating	21.05% 8
all of the above	26.32% 10
none of the above	5.26% 2
<b>Total Respondents: 38</b>	

If the EDF proposals are accepted the same beautiful countryside walks now would become a walk down an industrial tunnel, enclosed on both sides by close panels with views obliterated. The area will become an industrial estate and no longer countryside.

In addition, two other solar PV arrays are proposed. The Cumulative Impact of all three developments would be catastrophic because they all connect together. EDF’s claim that there are other paths to walk on would cease to be true.

Four linking villages will have their countryside walks adversely affected by these solar proposals and the loss of amenity value and wellbeing benefits will be gone for more than a generation of local residents and visitors.