



An
Bord
Pleanála

Inspector's Report ABP-300603-18

Development	Solar PV Farm at Cahernamona, Loughrea County Galway
Location	Cahernamona, Loughrea County Galway
Planning Authority	Galway County Council
Planning Authority Reg. Ref.	17/792
Applicants	Engie Developments Ireland Ltd
Type of Application	Permission
Planning Authority Decision	Refuse Permission
Type of Appeal	First Party
Appellants	Engie Developments Ireland Ltd
Date of Site Inspection	26 th June 2018
Inspector	Dolores McCague

1.0 Site Location and Description

- 1.1.1. The site is located at Cahernamona, a few kilometres north of Loughrea County Galway, close to an elevated section of the N65 which runs in a north south direction, less than 60m to the east. The site adjoins and is south of a local road the L-8180, and adjoins and is west of a local road, the L-8193. The St Clarens River, forms the southern boundary and the site is crossed by a number of streams and drains. To the west the site adjoins farmland.
- 1.1.2. The nearest dwellings are located along the L-8180 opposite the site.
- 1.1.3. The site comprises two fields currently in rough pasture.
- 1.1.4. The site is given as 9.3ha.

2.0 Proposed Development

- 2.1.1. Per original application details the proposed development is the construction of a 5MW solar PV farm, comprising approx. 27,602 sq m of solar panels on ground mounted frames, 1 no. electrical control building, 2 no. inverter cabins, a temporary construction area and ancillary facilities, boundary security fence, use of current site entrance and creation of an additional site entrance, access tracks, CCTV security system and all associated site works. The proposal includes rows of fixed, non-reflective solar photovoltaic panels, mounted on steel frames and set into the ground by direct piling or screw piling. The panels are arranged in east-west rows at 7.6m to 9m apart with panels tilted southwards at approximately 25° from the horizontal, with an approximate height above ground of 2.5m to the top of the panel frame, on level ground. The lower edge of the array varies in height above ground. The lower edge is generally around 800mm above ground level. The proposed-substation is to be up to 3.7m in height. A deer fence is proposed to surround the site up to 2.4m high comprising welded mesh with steel posts. It is to have infra-red security cameras attached. Permanent lighting is not proposed. The application is for a 10 year permission. It is anticipated that the solar farm will be in operation for a minimum of 30 years. When it ceases to be operational all elements can be removed and the site re-instated to its former condition.

The application was accompanied by a letter which states that the development will include 19,608 solar panels rated at 260W each with an anticipated height of 2.5m; one electrical control building hosting client site and District \ Network Operator equipment as required. The design life is anticipated to be 30 years, after which all infrastructure will be removed and the ground restored. A 10 year permission is sought to ensure suitable timescale to complete; renewable developments often require complex agreements which can take considerable time to negotiate. Grid network capacity restrictions and other unforeseen challenges, beyond the developer's control, can significantly delay projects of this nature.

The initial feasibility study undertaken considered key constraints:

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- Resource predicted to be 1240kWh/m² which is considered acceptable subject to other constraints and costs.
- Land orientation and topography – south facing or flat or gentle gradient – south facing 62-65mOD.
- Suitable ground conditions – the site should not be in a flood risk area; no flood event has been recorded.
- Landscape character – best quality land is not favoured.
- Proximity to grid infrastructure – approx 2.5km from nearest suitable grid connection point.
- Access for HGV deliveries.
- Ecology – no designated conservation sites within 2km.

The application was accompanied by a supporting statement which includes:

Figure 2.1 which illustrates the site elevation plan of a panel and indicates that the lowest edge of the proposed panel would be raised 0.8m above ground level and up to 2.5m high at the highest point. This height allows for the area to be grazed by sheep and mitigates risk to the panels or sheep in relation to potential for collision. Guidance suggests that, in order to facilitate grazing, panels should be positioned at least 0.7m above ground, and all associated cabling suitably protected.

The application was accompanied by a book of drawings which includes:

A landowner map which identifies a rectangular plot at the north-western corner of the field as being in separate ownership (Fig 1.1).

A drawing showing solar panel details which indicate panels extending from 1.08m above ground level to 2.5m above ground level (Fig 2.1).

Site contours (ITM - Irish Transverse Mercator) and cross section lines (which relate to a separate drawing) (Fig 2.1b).

Indicative Grid Connection Route options (Fig 2.2).

Zone of Theoretical Visibility (bare earth) and Viewpoints (Fig 4.1).

Regional Bedrock Geology (Fig 6.1).

Soils (Fig 6.3 and 6.4), which shows large parts of the site having alluvium soils.

Subsoils (Fig 6.5 and 6.6), which shows areas along the western, southern and eastern boundary of the site having alluvium subsoils.

Groundwater Vulnerability (Fig 6.11 and 6.12), show the site as having high groundwater vulnerability, with the Saint Cleran's river having rock near the surface or karst.

Noise levels (Fig 8.2 to 8.9).

The application was accompanied by Technical Appendices which comprises:

Appendix 4 Landscape and Visual Impact Assessment

Appendix 5 Ecology

Appendix 6 Soils, Geology, Hydrogeology and Hydrology

Appendix 7 Archaeology

Appendix 8 Noise

Appendix 9 Glint and Glare, and

Appendix 10 Traffic and Transport.

2.1.2. The Landscape and Visual Impact Assessment includes:

In considering the potential for glint and glare on visual amenity it is noted that:

- Solar PV panels are purposely designed to absorb rather than reflect light. At an angle of 30⁰ solar panels reflect only 3% to 5% of incoming sunlight compared to steel at c. 46%, standard glass at c. 10% and smooth water at c. 5%.
- The panel frames and racking are likely to be aluminium and steel, with a matt finish to minimise solar reflection.
- Both glint and glare attenuate with distance with glare reducing rapidly, thus affecting a relatively localised area; and
- Glint and glare occur in bright conditions, and at certain angles of the sun and times of the year, so the frequency and duration of any effects would be relatively limited throughout the year.
- Technical improvements are reducing the impact of glint and glare.

The N65 is a single carriageway trunk road that runs north to south at approximately 0.3km to the east of the site at its nearest point.

The ZTV study indicates that there would be some potential for visibility of the proposed solar farm from the route for up to 2km to the east. Vegetation to the south of the site, combined with local landform variances in the wider landscape beyond the site, would limit much of the visibility to an isolated stretch of visibility for around 0.5km on the carriageway at 0.3km to the east.

There would be clear views of the site from two local roads where they run adjacent to the site boundary. At points beyond the site boundary some intermittent field boundary vegetation would filter some views towards the proposed development.

2.1.3. Appendix 9 - Glint and Glare includes:

The proposal is for rows of fixed solar photovoltaic (PV) panels, mounted on steel frames and set into the ground by direct piling or screw piling. The panels are non-reflective. They are arranged in east-west rows at 25⁰ from the horizontal, with an approximate height above ground of 2.5m to the top of the panel frame, on level

ground. The lower edge of the array varies in height above ground, generally around 800mm above ground level.

The assessment is based on a height of 2m above ground level to represent the solar panels.

In total 41 road receptors and 13 dwelling receptors were examined. Table 9.1 identifies the locations of road receptors (using Irish National Grid Co-ordinates, i.e. latitude and longitude).

Up to 27 of the 41 road user locations could experience a solar reflection under bare earth scenario. Planting to infill gaps in the northern boundary hedgerow and new planting of hedgerows along the eastern boundary (c800m), will filter views of the development as proposed in technical appendix 4 as part of the landscape and visual mitigation.

Considering the existing and proposed screening, a solar reflection will be visible from approx. 800m of nearby road, 450m of the N65 and 350m of the unnamed road to the east, shown on Fig 9.4. As the hedgerow gaps are filled, as proposed, and the hedgerow matures, the potential effect will be reduced further. The significance of impact on the local road is considered low. Along the N 65 reflection will not occur from locations in front of road users, i.e. a driver would have to look away from the direction of travel to observe a reflection directly. In accordance with the methodology of 'impact significance' definition, which they set out, the impact is stated as moderate and the mitigation proposed is landscaping. Moderate impact is defined as 'a solar reflection is geometrically possible and visible however it occurs under conditions that do not represent a worst-case.' Mitigation is stated: 'whilst the impact may be acceptable, consultation and/or further analysis should be undertaken to determine the requirement for mitigation'.

Graphs and associated mapped points are given for road points 16 -19 and 23- 27 and for dwelling points 9 and 10.

- 2.2. An extension of time is referred to on the file to 30th November 2017. This followed the first planning report, and during the extended period, unsolicited further information was received.

2.3. Unsolicited Further Information received on the 17th November 2017, includes:

Unsolicited Further Information Planning Report

Flood Risk Assessment

Appropriate Assessment Screening Report

Photomontages, and

Landscape Plan.

2.3.1. Revisions are referred to: the proposed-substation is to be up to 1m taller, 4.65m in height; the CCTV cameras are proposed to be a maximum of 4m in height with standalone cameras (originally 2.4m high), they will be inward facing and have no light over any dwelling or residential area. Panels heights are raised to a minimum of 1.08m above ground level.

2.3.2. The Unsolicited Further Information Planning Report includes:

2.3.3. In relation to road safety, in the interest of completeness, the applicant has commissioned the preparation of an ancillary glint and glare assessment, which takes account of the updated landscaping scheme that is being proposed for the application site. The purpose of this ancillary assessment is to assess potential impact of glint and glare on sensitive receptors.

2.3.4. For glare to be experienced by road users the car must be travelling in a south to north direction, glare will only affect particular parts of the road, it will only occur at particular times of the day, weather conditions must be clear skies and sunny, and the driver must face away from the direction of travel to face the application site.

In total 17 assessment points were selected and, of these, in a bare earth scenario, 13 would be potentially subject to glare. The impact on these receptors in a bare earth situation is given in table 1; and in table 2 for year 1 with deer fencing and windbreak netting; table 3 shows that in year 5 with 4 m high hedgerow,

none of the receptors will experience glare. It concludes that the impact on the public road will be negligible.

2.3.5. The Glint and Glare Assessment is included as an appendix to the report. Road point 3 is approximately parallel to the northern line of panels and point 10 is approximately parallel to the southern line of panels. Points 5 to 10 experience the

most impact with point 9 experiencing up to 934 minutes per annum and 5.8 minutes per day on average. North of point 5 and south of point 10 the impact diminishes. The results are provided in tabular form and as graphs with associated mapped points. Northings and eastings used are not directly comparable with the earlier submission, which used Irish National Grid Co-ordinates, i.e. latitude and longitude.

- 2.3.6. The Flood Risk Assessment includes a description of the existing site drainage, including the Saint Cleran's river, a fast flowing river, which flows south-east to north-west along the southern boundary and which has benefitted from drainage works; and the main drain which flows south, in the middle of the site and includes flow from recently constructed road drainage, associated with the N65 roadworks. Maps given are extracts from OPW Indicative Flood Maps (Fig C) in which the site is shown as benefitting land, PFRA maps (Fig D) which shows an area along the Saint Cleran's river (including within the southern part of the site) within the 1% AEP (100 yr) fluvial event and a small pocket of land at the western boundary within the 1% AEP (100 yr) pluvial event. The CFRAM maps (Fig E) do not show the site within the 0.1% AEP fluvial extent.

The main potential source of flooding in this area is fluvial, primarily overbank flooding of the Saint Cleran's river during significant rainfall events. The assessment reports no evidence that any land drains within the site would have significant flow during wet periods and the risk of fluvial flooding from the drainage ditch network is considered to be low: flood zone C. Evidence of local surface water ponding observed is unlikely to be an issue for solar panels mounted on frames well above ground level.

The frame mounted PV cells will have a 1.08m height above ground level which is sufficient for the current and future flood risk at the proposed site. No vulnerable infrastructure is proposed for the flood affected section of the development site.

In relation to drainage it is proposed to provide a drain across the entrance and soakaways of sufficient capacity within the access track footprint to ensure no runoff to the public road. To mitigate against any very minor potential increased runoff, a site specific drainage system will be used.

A justification test is included. It notes per box 5.1 of the guidelines 'The Planning System and Flood Risk Management' that the lands have not been zoned but that

under the current development plan, as a rural area, solar development is consistent with Development Management Standard 12.

The Council will consider...renewable energy resources...in rural and coastal areas within the County subject to considerations of proper planning...

The development has been subject to a flood risk assessment and this has resulted in the incorporation of appropriate design measures for project infrastructure in areas mapped in fluvial flood zone A. High vulnerability infrastructure is to be located in flood zone C. The presence of the panels does not obstruct the flow of flood water or displace flood capacity. The panel frames have negligible impact.

Proposals in relation to sediment control during construction, and measures to mimic existing surface water flows post development, are included.

2.3.7. The Appropriate Assessment Screening Report, includes:

A description of the development; implementation of standard best practice measures; prevention pollution control measures, invasive species measures and general precaution measures.

In relation to emissions the report states that the closest European Sites are the Lough Rea SAC and SPA which are located 3.5km from the proposed development. As these sites are upstream of the proposed works there will be no impact as a result of the proposed works. The closest sites with direct downstream surface water connectivity are Rahasane Turlough SPA (004089) and Rahasane Turlough SAC (000322). These sites are approx. 11 km downstream. The project has been specifically designed so that infrastructure is set back from any areas within the proposed site that are deemed susceptible to flooding, per Flood Risk Assessment. Given the nature of the proposal, a solar farm with no emissions, the only potential for emissions to occur is during the construction or decommissioning / restoration phase. Given the nature of the proposal, impacts associated with decommissioning are likely to be similar to those associated with construction. Panel support structures, site tracks and associated infrastructure will be removed, with the ground reinstated to agricultural use. Best practice environmental control measures implemented during the construction phase will be implemented during decommissioning so as to avoid any potential impact on water quality, and consequently downstream EU Designated Sites. There will be no direct discharges

to watercourses. During the operational phase surface water runoff will percolate to the existing field with no direct discharge to site drainage. There will be no additional site drainage associated with the works.

The development has been designed to be outside Flood Risk Zone A to minimise any potential for impacts on water quality. A 10m buffer has been implemented to all drains and watercourses from the solar array. These measures will minimise any potential for impact on water quality. Impacts on water quality as a result of emissions from excavation works are not anticipated; impacts on European Sites as a result of emissions from excavation works are not anticipated.

The report concludes that in light of best scientific knowledge in the field the proposed development by itself or in combination with other plans and projects, will not have significant effects on any European site in view of the sites conservation objectives and there is no requirement for AA.

- 2.3.8. The Landscape Plan states that gaps in existing hedgerow are to be filled; new planting in three staggered rows, comprising a specified mix of field maple, hazel, hawthorn, spindle, holly, crab apple, blackthorn and elder, will be grown and maintained to a height of 4m. The hedgerows will be planted as whips and are expected to grow to 2.5m in 3-5 years, depending on plant quality, planting conditions, soil and weather, so these heights are estimated.

3.0 Planning Authority Decision

3.1. Decision

- 3.1.1. The planning authority decided to refuse permission for 5 reasons:
- 1 By reason of large scale, orientation glint and glare and proximity to a local road and the N65, would be at variance with policy in relation to national roads, would adversely affect the operation and safety of national and local roads by reason of traffic hazard.
 - 2 Lack of comprehensive details to manage surface water and the location within a flood risk area.

- 3 Potential impact on Natura sites and the failure to satisfactorily consider the restoration state, flood risk, cleaning of the panels, surface water disposal, and cumulative impacts including grid connection options.
- 4 Impact on residential amenity by reason of visual impact, glint and glare, and potential overlooking.
- 5 Injury to the visual amenities of the rural area and interference with the character of the rural landscape.

3.2. Planning Authority Reports

3.2.1. Planning Reports

There are two planning reports on the file. The first, dated 26th July 2017, recommending refusal of permission for 6 reasons, includes:

- The site is at risk of flooding, a site-specific assessment carried out in accordance with the guidance The Planning System and Flood Risk Management Guidelines 2009 has not been included with the application.
- No details of surface water, or any details of detergents to be used for cleaning the panels, have been provided.
- Limited details on the maintenance of the agricultural lands, have been provided, reference to spraying is of concern.
- It is stated that potential hydrocarbon spillage is proposed to be mitigated through the implementation of an Environmental Management Plan for the operation phase.
- Appropriate Assessment – the planning authority does not have enough information.
- EIAR – the project is not a category of development that falls within Schedule 5 of the Planning and Development Regulations 2001 as amended. Applicants were advised that EIS screening would be required. No screening report is included. An Environmental Report accompanies the planning application, it does not provide for environmental consideration of site restoration or grid connection options.

- Roads and transportation – the main access is from the L-8180 with a secondary access to the south east onto the L-8193 to avoid water crossing. A maximum of 10 HGV movements per day will be generated during the construction phase and auto-tracking demonstrates adequate provision within the site.
- Glint & glare – the planning authority has serious concerns regarding this aspect of the development. The glint & glare analysis submitted has been reviewed and it is noted that the height of 2m was used for the solar panel height although the panels proposed are 2.5m. It is also noted that sample locations identified on figure 9-4 relate to the edge of the site and no other areas within the site. The assessment states that 0.8km of road network will be affected by glint and glare, 500m of the N65 and 300m of the L-8193 to the east of the site. In relation to the national road, it is stated that reflection will not occur from locations in front of road users, meaning drivers would have to look away from their direction of travel to observe a reflection directly. The impact is stated as moderate and mitigation proposed is landscaping. In relation to the local road the impact is stated as low.
- 11 of the 22 houses assessed could geometrically experience a solar reflection, however, due to the presence of existing screening the impact is reduced to two, with impacts identified as low and no mitigation proposed. Results rely on existing screening as reducing impact; which screening is outside the site, can be removed, and may be less effective in winter; time of assessment is not stated. Proposals deemed unsatisfactory.
- Soils/ Geology/ Hydrogeology & Hydrology – technical appendix 6 examines soils/ geology/ hydrogeology & hydrology in the context of the site and states that the site is not sensitive. Glacial till derived from limestone bedrock provides a stable geological platform for development. The risk of landslide events are negligible.
- Ecological Assessment - technical appendix 5 – site is of low ecological value; a small gap is to be provided at the bottom of the deer fence to allow small animals to enter and exit the site; best practice mitigation measures are proposed for the construction phase; residual impacts are not likely.

- Agricultural Lands – currently grazed by sheep and cattle; it is unclear if there is a Nutrient Management Plan in place. Limited information is provided on the maintenance of the lands; spraying is referred to. Concerns re impact on surface waters.
- Lighting – manual operated lighting is proposed for the substation and /or inverters.
- Security – security cameras are proposed around the boundary of the site. Details of height are not given or how it is to be ensured that they do not overlook other properties. Deer fencing is proposed around the perimeter, palisade gates and fencing, to the northern and eastern boundaries.
- Noise - technical appendix 8, noise assessment, focuses on inverters, modelled outside the cabin for worst case scenario. The substation is scoped out due to the location to the south west of the site and the level of emissions. (Fig 8-1 missing). Mitigation is required, proposed mitigation is the housing of inverters in a cabin.
- Visual / Design / Landscape – A 4km zone of theoretical visibility was examined. The extent of actual visibility is confined to points around the site boundaries and up to 0.5-0.75km to the south. Temporary effects as a result of ground disturbance during construction; minimal tree removal (3 no.) effect moderate to minor. Four houses will be impacted, landscaping would screen; mitigation - hedgerow planting 300m in length, no details given; considered vague. No other landscaping proposals.
- Health – electromagnetic fields – the solar panels produce direct current energy and have a much lower emission than household appliances.
- Recommending refusal for 6 reasons:
 - Glint and glare and proximity to a local road and the N65.
 - Lack of comprehensive details to manage surface water; and the location within a flood risk area.
 - Potential impact on Natura sites and the failure to satisfactorily consider the restoration state, flood risk, cleaning of the panels, surface water disposal, and cumulative impacts including grid connection options.

- Impact on residential amenity by reason of visual impact, glint and glare, and potential overlooking.
- Injury to the visual amenities of the rural area and interference with the character of the rural landscape.
- Water supply.

3.2.2. Other Technical Reports

3.2.3. Roads & Transportation Unit report dated 25th July 2017, includes:

The Roads & Transportation Unit follows the policy stance taken by TII in relation to glint and glare impacts on traffic safety. The Roads & Transportation Unit recommends the policy be extended to the regional road network and to sections of the local primary network where traffic volumes and speeds are similar to the regional roads.

TII does not offer guidance on the assessment of risk relating to glint and glare. Guidance is available on the positioning of road lighting and signage, to avoid negative impact on drivers due to light and its reflection. Lighting effects may create a serious risk to road safety.

The studies referred to in the application consider 1km as the buffer, outside which the effects of glint and glare are negligible. In the absence of national guidance on how its effects on the road network should be treated, a 1km buffer to the national and regional road network should apply.

3.3. Prescribed Bodies

3.3.1. TII (22nd June 2017)– the submission includes:

3.3.2. The development is at variance with official policy in relation to control of development on/affecting national roads as outlined in the DoECLG Spatial Planning and National Roads Guidelines as the development and by precedent which a grant of permission would set would adversely affect the operation and safety of the national road network for the reasons:

The proposed development, because of its location where particular vigilance is required, would endanger public safety by reason of traffic hazard due to its scale and distraction of drivers.

The authority is of the opinion that insufficient data has been submitted with the planning application to demonstrate that the proposed development will not have a detrimental impact on the capacity, safety or operational efficiency of the national road network in the vicinity of the site.

TII considers that the documentation submitted with the planning application does not adequately address glint and glare impacts on the N65.

3.3.3. An Taisce (16th June 2017) – a Strategic National and Regional strategy is required for solar array development. The Council should ensure optimum site suitability is selected, protecting biodiversity, sensitive areas, archaeological heritage and good tillage land. The capacity of Lough Rea 38kV to accommodate the subject proposal and planning proposal ref 17/791, should be considered.

3.4. **Unsolicited Further Information:**

3.5. During extended time (referred to on the file as extending to 30th November 2017) unsolicited further information was received.

3.5.1. The unsolicited further information received, 17 Nov 2017: including a landscaping plan; flood risk assessment; and an appropriate assessment screening report; is referred to under the heading proposed development earlier in this report.

3.6. **Further Reports**

3.6.1. A further planning report, dated 30th November, includes:

- Outstanding issues remain in relation to traffic safety arising from glint and glare.
- A SFRA has been submitted which confirms that solar panels remain located within flood zone A. The updated AA screening report refers to no development in flood risk areas. The SFRA states that a site specific drainage regime is required but no details are given. Concerns remain re surface water disposal and spraying.
- AA report – no reference to flood risk, surface water, spraying, and grid connection options.

- CCTV cameras have increased in height to 4m in order to provide adequate surveillance of solar panels, concerns remain regarding visual extent.
- Visual impact remains a concern owing to proximity to the road network, the level in relation to the national road, interim screening, and over reliance on landscaping to screen.
- Water is to be tankered to the site. No reference to water for cleaning.
- Recommending refusal for 5 reasons; which refusal decision issued.

3.7. **Third Party Observations**

- 3.7.1. An observation on the file has been read and noted: Liam and John Murray whose father's sitting room overlooks natural country landscape / the proposed site. Screening of up to 5m will be required – details required; concerned with devaluation of properties – where they have three existing dwellings and a site, all within 350m of the site.

4.0 **Planning History**

None stated for this site.

Other solar farms in east Galway:

ABP-300596 PA Reg Ref 17/791 Solar PV Farm and all Associated Works at Ardnamona East, Loughrea, County Galway, appeal against the PA decision to refuse a permission, granted the Board.

ABP 302034 PA Reg Ref 17/1538, 791 Solar PV Farm and all Associated Works near Athenry, Co Galway, currently before the Board.

5.0 **Policy Context**

5.1. **Development Plan**

- 5.1.1. Galway County Development Plan 2015-2021 is the operative plan, relevant provisions include:

5.1.2. Relevant policies and objectives include:

Policies - ER 1 – Sustainable Energy Policy & Targets; ER 2 – Development of Renewable Energy; ER 3 – Security of Supply.

Objectives - ER1 – Electricity and Renewable Energy Infrastructure; ER 3 – Low Carbon County; ER 4 Renewable Energy.

Objectives - FL 1 – Flood Risk Management and Assessment; FL 2- Surface Water Drainage and Sustainable Drainage Infrastructure (SuDs); FL 3 – Protection of Waterbodies and Watercourses; FL 4 Flood Risk Assessment for Planning Applications and CFRAMS.

Objectives - DS 6 – Natura 2000 Network and Habitats Directive Assessment; DS 9 – Projects/Associated Improvement Works/Infrastructure and Appropriate Assessment; DS 10 – Impacts of Developments on Protected Sites.

Objective WS 2- EU Policies and Directives.

Policy NHB1/2/4/8 – To protect natural heritage and water resources.

Objectives – NHB1 – Protected Habitats and Species; NHB2 – Biodiversity and Ecological Networks; NHB 3 – Water Resources

Policy LCM1 – Preservation of Landscape Character

Objectives LCM 1 – Landscape Sensitivity Classification; LCM 2 – Landscape Sensitivity Ratings.

Map LCM 1 sets out Landscape Value Ratings. MAP LCM 2 Landscape Sensitivity and Character Areas. The appeal site lies within an area with a Landscape Value rating of 'Low' and lies within the East Central Galway (Athenry, Ballinasloe to Portumna) Character Area.

Strategic Aims Transportation • To safeguard the strategic transport function and carrying capacity of the motorway and national road network and associated junctions in order to provide for the safe and efficient movement of inter-urban and inter-regional traffic.

Policy TI 6 – Protection of Strategic Transportation Infrastructure - Seek to protect and safeguard the significant investment made in strategic transportation

infrastructure, in particular the network of national roads, the existing rail lines and the Western Rail Corridor.

5.2. **Spatial Planning and National Roads Guidelines for Planning Authorities (2012)**

5.2.1. Considerable investment has been provided by Government to transform the network of national roads to the highest international standards. Having made this investment and with future investment being focused on public transport, it is important that the efficiency, capacity and safety of the national road network is maintained.

5.2.2. Investment in the capacity of national roads must be protected through appropriate policies and local planning and collaboration between planning authorities and the National Roads Authority.

5.2.3. There is no specific reference to solar farms. There is reference to the control of roadside and adjoining, signage and lighting:

the control of roadside and adjoining signage and lighting is an important contributor towards achieving enhanced road safety and planning authorities should use their regulatory and enforcement powers accordingly.

5.3. **Project Ireland 2040: Building Ireland's Future, National Planning Framework**

5.3.1. The National Planning Framework (replacing the National Spatial Strategy (NSS)) is the overarching national planning policy document. Its focus is on ten National Strategic Outcomes:

- Compact Growth
- Enhanced Regional Accessibility
- Strengthened Rural Economies and Communities
- Sustainable Mobility
- A Strong Economy, supported by Enterprise, Innovation and Skills
- High-Quality International Connectivity

- Enhanced Amenities and Heritage
- Sustainable Management of Water, Waste and other Environmental Resources
- Transition to a Low Carbon and Climate Resilient Society
- Access to Quality Childcare, Education and Health Services

5.3.2. Solar energy as part of a more distributed, more renewables focused energy generation system is seen as an important part of our transition to a low carbon and climate resilient society, and an important part of our environmental and sustainability goals. It also supports the rural economy and provides jobs in rural areas.

Part of the future planning and development of our communities at local level will be refocused to tackle Ireland's higher than average carbon-intensity per capita and enable a national transition to a competitive low carbon, climate resilient and environmentally sustainable economy by 2050, through harnessing our country's prodigious renewable energy potential.

5.3.3. National Strategic Outcome 2 includes: maintaining the strategic capacity and safety of the national roads network.

5.4. **The Planning System and Flood Risk Management**

5.4.1. To ensure that flood risk is a key consideration in preparing development plans and local area plans and in the assessment of planning applications.

5.4.2. A staged approach should be adopted, carrying out only such appraisal and assessment as is needed for the purposes of decision-making at the regional, development and local area plan levels, and also at the site specific level. The stages of appraisal and assessment are:

Stage 1 - flood risk identification – Regional guidelines & plan level.

Stage 2 - initial flood risk assessment – to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps. Where hydraulic models exist the potential impact of a development on flooding elsewhere and of the scope of possible

mitigation measures can be assessed. In addition, the requirements of the detailed assessment should be scoped; and

Stage 3 - detailed flood risk assessment – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

5.5. Natural Heritage Designations

- 5.5.1. The Lough Rea SPA site code 004134 and Lough Rea SAC site code 00304 are the nearest Natura sites, less than 4km away. The Rahasane Turlough SAC (site code 000322) and SPA (site code 004089) are located c 9.5km away.

6.0 The Appeal

6.1. Grounds of Appeal

- 6.1.1. McCarthy, Kelville, O'Sullivan Planning & Environmental Consultants have submitted the appeal on behalf of the first party, which includes, in appendices: Glint & Glare Assessment (4-1); Flood Risk Assessment (4-2); Hydro Environmental Ltd's Additional Response Letter, Surface Water Drainage Layout, Surface Water Drainage Detail (4-3); and CCTV Layout and Detail (4-4).

- 6.1.2. The grounds includes:

- 6.1.3. Glint and glare – this is reason No. 1 of the refusal:

- a glint and glare assessment is submitted with the grounds, and was submitted to the planning authority as unsolicited further information; which was not referred to either the TII or the Roads & Traffic Unit at Galway County Council. The assessment notes the potential for impact of glint and glare.
- In the first instance it should be noted that a number of conditions must be met for glare to be experienced by a road user:
 - Car travelling in a south to north direction
 - Glare will only affect particular parts of the road

- Glare will only occur at particular times of the day
- Weather conditions must be clear skies and sunny
- Driver must face away from the direction of travel to face the application site.
- The glint and glare - in a bare earth scenario, in a year 1 landscaping scenario, and in year 5 scenario, are given in tables 4.1, 4.2 and 4.3 of the grounds.
- The glint and glare assessment concludes that negligible impacts would arise as a result of the proposed development.
- UK examples of solar farms in proximity to roads are given.

6.1.4. Flood risk management – this is reason No. 2 of the refusal –

- A hydrology assessment was submitted to the planning authority with the application, however no flood risk assessment was included. A site specific flood risk assessment, was submitted to the planning authority as unsolicited further information, and is submitted with the grounds. This concludes that there are areas located in flood risk zones A and B, however site infrastructure has been designed to remove all highly vulnerable infrastructure from within mapped flood zones A and B. Infrastructure located in flood zones are limited to less vulnerable such as PV panels and fencing. There is a 1.08 clearance between existing ground levels and the bottom of solar panels. The overall risk of flooding posed by the proposed development is estimated to be low.
- They consider that the planning authority did not give due consideration to this information. A further report is provided which addresses this and The Planning System and Flood Risk Management Guidelines, 2009.
- Surface water is referred to in reason No. 2 of the refusal and is addressed in the Flood Risk Assessment, attached.
- The intention of the drainage design is to mimic existing hydrology. Drainage will use SuDS principles and runoff rates.
- Solar panels are raised a minimum of 1080mm above ground.
- Key infrastructure is located in flood zone C.

- Any soil compaction will be mitigated by chisel ploughing.
- There are many gaps in solar arrays, and these prevent concentration of runoff flows.
- Drainage details at site entrance are outlined.
- Tracks and hardstands will be of permeable construction.
- A proposed drainage layout is provided.

6.1.5. Natura Sites – this is reason No. 3 of the refusal – An AA screening report was submitted to the planning authority as unsolicited further information, and is submitted in a modified form with the grounds.

- Additional information has been provided re. on-site drainage and the assessment of impacts of the grid connection, within a defined corridor.
- The screening demonstrates how some of the issues raised in reason 3 have been addressed:
 - Restoration and decommissioning – screening report is cited.
 - Flood risk - screening report is cited.
 - Cleaning the panels - screening report is cited.
 - Surface water disposal – while it is considered that the development will have minimal impact, a drainage plan has been developed and is provided with the grounds.
 - Cumulative impact including grid connection – the grid connection is not part of this planning application and the exact details of its construction have not been finalised. An assessment of impacts of the grid connection, within a defined corridor between the wind farm and Caherevine substation, is now included in the AA screening report.

6.1.6. Residential Amenity – this is reason No. 4 of the refusal.

- A detailed landscaping plan and Photomontage Booklet were submitted to the planning authority as unsolicited further information.
- The scale of the development is not considered to be significant in the context of the application site or in the wider vicinity.

- The settlement pattern in the area is irregular and includes residential, commercial and agricultural uses. The most suitable locations for development such as this, is in the open countryside on sites which minimise the visual impact of the solar panels. The application site is such a site and the landscaping measures only serve to further reduce the visual impact. The site has been carefully chosen because of its location and topography, which result in very limited visual impact.
- A positive impact of landscaping is illustrated in Viewpoint 4 (VP4).
- In order to reduce the overall visual impact, the proposed security fencing has been removed entirely and replaced with deer fencing and screen planting where appropriate.
- The development has no impact on the residential amenity of neighbouring properties.
- CCTV will have a view range of approx. 80m and will be angled towards the ground. A drawing is provided which illustrates the view angle and field of vision.
- Cameras have been sited to take due consideration of potential privacy and / or amenity issues.

6.1.7. Landscape and Visual Impact – this is reason No. 5 of the refusal.

- A Landscape and Visual Impact Assessment was submitted with the application. Further details were submitted to the planning authority as unsolicited further information, and are now submitted with the grounds.
- Re overreliance on screening, the proposed development will not have any adverse visual impact even in the absence of screening.
- Proposed Landscape Plan - Retention of existing hedgerow; additional native species planting on eastern, south eastern, north eastern and north western boundaries; proposed windbreak netting affixed to deer fencing on eastern boundary; deer fencing is up to 2.4m. Native hedgerow planting will be allowed to grow to 4m. This screening is proposed to address visibility from the roads east of the site, as well as to reduce potential glint and glare.
- The existing hedgerow will be retained and supplemented along the northern, southern and western boundaries.

- Photomontages were provided with the application and are referred to.
- LVIA was provided with the application and is referred to.

6.1.8. Glint and Glare Assessment - a Glint and Glare Assessment is attached as appendix 1 to the grounds. This is supplementary to the Glint and Glare Assessment submitted with the application. The consultants were charged with completing a fine-grained analysis of Glint and Glare potential along the N65 National secondary road and identifying the minimum requirements in terms of screening height, to feed into a mitigation strategy that will completely eliminate the potential for reflectance effects along this road.

The results tables (Appendix A) and output graphs (appendices B, C, and D) set out the days of the year and the times of the day that glint and glare effects could theoretically be experienced at road receptor points along the N65.

In the first instance the proposed solar array was incorporated into a digital terrain model of the site and study area, representing a bare ground scenario. The glint and glare analysis indicates that there is a potential for some sections of the N65, to the east and southeast of the site, to experience reflectance up to 934 minutes per year. Reflectance has the potential to occur along the N65 for intermittent periods from March to September during the evening hours between 6.30 pm to 8.30 pm. Points at which reflectance is possible are referred to, with reference to a map given in Figure 1.

As an interim measure, to reduce reflectance potential and to aid rapid screen planting establishment, 2.4m high horticultural wind-stop netting will be applied to the eastern perimeter security fence. A glint and glare model was produced to take into account the screening provided by the wind-stop netting and offers an understanding of the levels of glint and glare from the site in the first year following construction.

There is potential for some points along the N65 to continue to experience up to 240 minutes per year of reflectance for intermittent periods from March to September during the evening hours between 6.30 pm to 8.00 pm.

After testing a range of mitigation planting strategies, using the glint and glare model, a workable solution was achieved, which includes a section of 4m vegetative

screening along the eastern perimeter of the site. A glint and glare model was produced to take into account the screening, approximately 5 years after construction has been completed. This indicates that the glint and glare effects along the N65 will be completely eliminated once mitigation becomes established and is maintained to a minimum height of 4m.

They reiterate the limited impact of any reflectance.

Figures 1, 2 and 3 are mapped representations of the extent of the solar panels which can be seen and the degree of impact experienced at points along the N65: (1) without mitigation, (2) with the wind-stop netting in place, and (3) with 4m high planting.

Results tables are presented in an appendix to the report.

Reflectance graphs, and related mapped locations, are shown in attached appendices. Universal Transverse Mercator coordinates (UTM) appear to have been used, with points given in northings and eastings.

6.2. Planning Authority Response

6.2.1. The Planning Authority has not responded to the grounds of appeal.

6.3. Observations

6.3.1. No observations have been received.

6.4. Board Correspondence

6.4.1. The Board wrote to TII informing them of receipt of the appeal and of receipt of information in relation to glint and glare.

6.4.2. TII has responded to the grounds of appeal. The response includes:

6.4.3. TII notes that the enclosure from An Bord Pleanála under cover letter 3 August 2018 is a copy of Technical Appendix 9 of the original planning application Glint & Glare, that has been reviewed by TII as part of the original planning application submission.

Re the Board's enclosures under cover 26 July 2018, the Glint & Glare Assessment circulated is stated to be a fine grain analysis of Glint and Glare along the N65 National secondary road and identifying the minimum requirements (in terms of screening height) to feed into a mitigation strategy that will completely eliminate the potential for reflectance effects along this road.

- 6.4.4. The assessment is supported by 3 summary figures showing 17 points along the N65 east of the site and the level of reflection anticipated from the proposed panels, summarily described as:

Fig 1 which indicates that the majority of panels will reflect light (glint/glare) to the N65 without mitigation in the form of extant or proposed planting.

Fig 2 which indicates a section of panels will reflect light (glint/glare) to the N65 after mitigation at year 1. The mitigation proposed is the installation of 2.4m high windstop netting along the eastern boundary of the subject site. It is noted that the reflecting panels will occur in an east to west direction across the proposed development.

The accompanying report states that as an interim measure a 2.4m high windstop netting will be applied to eastern perimeter fence. The authority assumes that, having regard to the permanent mitigation proposed, the 2.4m high windstop netting will be atop the proposed site fencing to create an overall barrier of over 4m in height.

Fig 3 indicates no reflection of light from the proposed panels at year 5, when the mitigation planting has grown to 4m in height along sections of the eastern boundary.

- 6.4.5. TII submits the following observations for the Board's consideration:

- 6.4.6. Notwithstanding the assessment's assertion that any reflectance will be similar to still water in terms of intensity, it is submitted that this is a new development proposal. TII cannot, either alone or for the reason of the precedent it will set, support new development that will create a traffic hazard as will arise in the current proposal for reason of glint and glare that affects the N65 and its road users.

- 6.4.7. TII furthermore reject the assessment's reliance on the fleeting nature of the anticipated reflection for reason of the main characteristics of glint reflection being its temporary nature. Any occurrence of glint and glare (reflection) that is a distraction to road users is unacceptable to TII. Furthermore it is noted that it appears that all of the anticipated glint and glare occurrences are to occur in the evening between 6.30

and 8.00 pm which coincides with the PM AADT peaks in national road traffic, thus the safety risk arising for national road users is increased.

- 6.4.8. A major role of TII is to achieve and maintain a safe and efficient network of national roads. The proposed development, in the creation of glint and glare that does not already exist, undermines the safety of the national road network. As at TII's original submission to the planning application, TII submits that the subject site is at a location, where particular vigilance is required.
- 6.4.9. TII notes that a 10 year permission was sought and that long term (after 5 years) mitigation removes all potential reflection onto the N 65. The appeal glint and glare assessment submitted shows that the mitigation proposed is not entirely effective until year 5 after construction and therefore finds the proposal, including the mitigation proposed as part of the appeal statement, does not mitigate the potential for glint and glare and thus traffic hazard to national roads users in the interim period. This is a serious road safety concern which has not been addressed by the applicant.
- 6.4.10. The proposal on appeal therefore remains contrary to official roads policy in the Spatial Planning and National Roads Guidelines for Planning Authorities (2012) as it will adversely affect the operation and safety of the national road network.

7.0 Assessment

- 7.1.1. The issues which arise in relation to this appeal are: appropriate assessment, environmental impact assessment, principle of the proposed development, glint and glare, residential amenity, landscape impact and flood risk, and the following assessment is dealt with under those headings.

7.2. Appropriate Assessment - Screening

- 7.2.1. Potential impact on Natura sites and failure to satisfactorily consider the restoration state, flood risk, cleaning of the panels, surface water disposal, and cumulative impacts including grid connection options is stated as reason number three of the planning authority's decision.

7.3. Screening

7.4. Screening must be carried out by the Board in order to determine if the proposed development, individually or in combination with other plans or projects, is likely to have a significant effect on a European site or sites. If it cannot be excluded, on the basis of objective information that the proposed development will have a significant effect on a Natura site, either individually or in combination with other plans or projects in view of the sites' conservation objectives, it must be subject to appropriate assessment.

7.4.1. Screening Report Provided

An Appropriate Assessment Screening Report has been provided.

It includes a description of the development and the Natura sites with the potential to be impacted.

The site construction phase is described:

- Site preparation including mowing and marking out the site.
- Erecting security fencing (mammal friendly);
- Screwing support frames into the ground;
- Affixing panels to mounting frames;
- Trenching for cables to an approximate depth of 1 metre and laying cables;
- Installation of the inverters and transformer cabinets;
- Connecting cables and backfilling trenches.

7.4.2. It is anticipated that cleaning will be required only once or twice a year. Cleaning will comprise of the use of water with no additives. This will be allowed to percolate through the grassland beneath the panels. The grassland will remain as some grazing can be facilitated beneath the panels. Any additional maintenance will be undertaken using strimmer's. The hedgerows and treelines on the site will be retained.

7.4.3. The drainage has been designed to ensure that there is no impact on downstream and ecological ecosystems. There are no requirements for instream works.

7.4.4. Rainfall that is intercepted by the panels will run off and will spread out and infiltrate into the rain shadow beneath the panels. It is not anticipated that the proposed development will result in any additional run off or potential for impact on surface

water. The panels will be positioned at a level that will be above the height of any flood that may occur. The indicative and conservative drainage layout ensures that there is no impact on the surrounding waterbodies.

- 7.4.5. The indicative drainage layout submitted with the grounds: Drawing No P1241-1-1217-A3-D101-00A, shows a network of swales and settlement ponds/attenuation ponds within the drainage layout, from which waters discharge to existing watercourses.
- 7.4.6. It is stated that the stream which forms the southern boundary flows in a westerly direction before discharging to the St Cleran's River approx. 2.5km to the west. There are drainage ditches throughout the site that discharge to the stream.
- 7.4.7. A small section at the southern end of the site is located within a flood risk zone. The development has been designed so that solar arrays are located at a higher elevation than the maximum flood height.
- 7.4.8. Only the panel support structures' legs will be within the floodable area and will have a negligible effect on flood storage.
- 7.4.9. The grid connection is not part of this application. It will be located within a corridor shown, and will be either underground or overhead, or a combination of the two. It may primarily be located within the road network or through farmland. It will cross two tributaries of the St Cleran's River but will not involve in-stream works.
- 7.4.10. The site will be restored to agricultural land at the time of decommissioning, involving similar works to the construction phase; with similar best practice environmental control measures proposed.
- 7.4.11. Standard best practice measures are given as:
- Security fencing will be installed inside the boundary vegetation and 5 metres from onsite watercourses and all works will be confined within this area.
 - Within a 10m buffer from the streams, vegetation will be retained and no works permitted.
 - Mammal friendly security fencing will allow a 20-30cm gap at the base, for mammals to pass under.

- Excavations will be back filled at the end of each working day to prevent fauna becoming trapped overnight.
- Night-time working will not be required and artificial lighting will not be used.

7.4.12. Measures for works within the flood risk zone, for general pollution prevention, for hydrocarbons, and for invasive species, are outlined.

7.4.13. Measures for works within the flood risk zone are listed in section 2.3.1.1 as:

- Works will not be undertaken during periods of heavy rainfall to minimise disturbance to existing ground conditions or the generation of silt laden surface water.
- Long range weather conditions should be checked to avoid periods of unsettled weather during site works.
- Ground works should be minimised so as to reduce the area of exposed soil at any one time, stripping only small sections at any one time.
- All works will be reinstated immediately after completion and reseeded to facilitate immediate revegetation of exposed soil.
- The project has been designed with an increased elevation of the solar panels. The placement of solar panels will be above the ground will panels installed so they will have a 1.08m clearance off the ground. Such ground clearance will ensure that panels are suspended above any temporary flooding within the site. This will also reduce the requirement for excavations and will limit the extent of habitat loss.

7.5. Protected Sites

7.5.1. European Sites within 15km of the subject site are considered. Only Rahasane Turlough SPA (004089) and Rahasane Turlough SAC (000322) have surface water connectivity and are downstream of the subject site.

7.5.2. Conservation objective for Rahasane Turlough SAC (000322):

to maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:

Turloughs*

* denotes a priority habitat.

7.5.3. Conservation objective for Rahasane Turlough SPA (004089):

to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

Whooper swan

Widgeon

Golden plover

Black-tailed godwit

Greenland white-fronted goose

and

To maintain or restore the favourable conservation condition of the wetland habitat at Rahasane Turlough SPA as a resource for the regularly-occurring migratory waterbirds that utilise it:

Wetlands and Waterbirds.

7.6. Assessment of Potential for Effect

7.6.1. Likely effects of the proposed development on the European sites are listed in table 5.1 of the screening report submitted. It is stated that the foregoing sites Rahasane Turlough SPA and Rahasane Turlough SAC are located approx. 11km downstream, surface water distance, or 9.8km straight line distance.

7.6.2. Operational Phase

7.6.3. I accept that the proposed setback of 10m from the bank of the St Cleran's River maintains a riparian buffer and will effectively protect the river from any contaminants in the runoff, during the operational phase. I also accept that the development would reduce the traditional sources of pollution such as livestock effluent, although I note that some grazing can be facilitated beneath the solar panels during the operational phase. I am satisfied that during the operational stage there is no potential for significant effects on designated sites.

- 7.6.4. Construction Phase
- 7.6.5. During the construction phase the likely effect to be considered is silt laden runoff from ground disturbance reaching the St Cleran's River, which is a direct pathway to the designated sites. I note that the proposed 10m setback from the bank of the river provides some protection, although measures to ensure that no impact, for example from traffic or storage of excavated soil, within this riparian area, are not detailed; and there are no specific measures provided in relation to construction runoff.
- 7.6.6. The flood risk area for a 1:100 year fluvial flood, extends from the river well into the development area. Measures are listed in section 2.3.1.1, for works within the flood risk zone: no works during periods of heavy rainfall; long range weather conditions should be checked to avoid periods of unsettled weather; ground works minimised so as to reduce the area of exposed soil at any one time, reinstatement and reseeded immediately after completion. These measures are well directed, however they are not sufficiently detailed to satisfy the Board that the issue has been given adequate consideration and that these bullet point measures will be entirely sufficient. In my opinion, having regard to the risk involved, precautionary measures should be specified in greater detail.
- 7.6.7. The Board should note that the length of cabling required to connect the 19,608 solar panels is not given, but it is extensive. A 1m trench depth is proposed for this cabling, which is a considerable depth, and is not akin to any normal farming practice, being well in excess of the 20cm maximum depth of standard farm ploughing; and in this regard the Board should also note that this land is currently in non-intensive pasture. It is stated that the 19,608 solar photovoltaic panels will be mounted on steel frames and set into the ground by direct piling or screw piling. Figure 2-1, in the book of figures, shows front views and side views of the panels. A detailed construction methodology has not been provided for the extensive excavation and construction work involved.
- 7.6.8. Cumulative Effects
- 7.6.9. I accept that there are no effects arising as cumulative effects with the grid connection, which is not part of the current application, or with other plans or projects, which are likely to have significant effect on Natura Sites.

7.7. Conclusion of AA Screening

- 7.7.1. Having regard to the foregoing I am not satisfied that the Board can reach the conclusion, which is reached in the appropriate assessment screening report submitted, that the only potential pathway for impacts on downstream European Sites is avoided. In my opinion, from the information available, having regard to the lack of detailed information on the construction methodology and the management of construction runoff, a definitive conclusion regarding the absence of likely significant effects cannot be reached, and appropriate assessment is required, which would require the submission of a Natura Impact Statement.

7.8. Environmental Impact Assessment

- 7.8.1. Schedule 5 of the Planning and Development Regulations, 2001 (as amended), sets out Annex I and Annex II projects which mandatorily require an EIS. Part 1, Schedule 5 outlines classes of development that require EIS and Part 2, Schedule 5 outlines classes of developments that require EIS but are subject to thresholds. I do not consider that a solar farm is included in any of the Part 1, Schedule 5 projects.; re the Part 2, Schedule 5 projects, although there are some projects under paragraph 3 'Energy Projects' which relate to energy production, these projects do not appear to include a solar farm as proposed. I note that the Board reached a similar conclusion in a number of relatively recent appeals (e.g. PL04.244539 and PL26.244351 and PL04.245862). The need for environmental impact assessment can, therefore, be excluded at preliminary examination and a screening determination is not required.

7.9. Principle of the Development

- 7.9.1. The National Framework Plan and the Galway County Development Plan support the development of solar farms on suitable sites, which, per se, are likely to be located in rural areas, on agricultural land. The subject site is located on agricultural land which is not of high quality and therefore there is no objection in principle to the proposed development.

7.10. Glint & Glare

- 7.10.1. Potential impact from glint and glare and the proximity to a local road and the N65 is stated as reason number one of the planning authority's decision.
- 7.10.2. Information in relation to glint and glare is presented in the application documents in Technical appendix 9, by Pager Power, dated May 2017 and in item 9 of the Supporting Statement. Glint and glare is further addressed in a Glint and Glare Assessment, by Macroworks, dated November 2017, submitted as unsolicited further information and also submitted with the grounds of appeal.
- 7.10.3. Technical appendix 9, by Pager Power refers to figure 9-1 of the book of Figures which shows the mapped locations of the road receptor points assessed. Figure 9-2 shows the mapped locations of the dwelling receptor points assessed. The main area of concern in relation to the national road is from south of point 22 (which is opposite a point just north of the local road which runs east from the N65), to north of point 28, (which is opposite a point just south of the bend in the local road south of the site); where views of the solar panels are possible between 18.20 and 19.00 GMT from March/April until September, or between these hours for a shorter summer period. Table 9-1 gives details of the latitude and longitude, ground height and assessed height of each point.
- 7.10.4. The Glint and Glare Assessment, by Macroworks, analyses 17 points along the N65. These points do not relate directly to the points used in the previous Pager Power assessment. The survey extends further north and further south along the N65 than the previous survey.
- 7.10.5. The results are shown mapped in figures 1, 2 and 3 of the report. Each map shows the extent of impact at each point on the road, reflected in the size of dot used to represent the analysis point; and the extent of the solar panels visible. Figure 1 shows the impact, not accounting for existing or proposed screening; figure 2 shows the impact when screening is provided by the 2.4m high wind-stop netting; and figure 3 shows the impact when 4m high mitigation planting is taken into account.
- 7.10.6. The report states that there is the potential for some sections of the N65 to experience up to 934 minutes per annum of reflectance, for intermittent periods from March to September, during evening hours between 6.30 pm and 8.30 pm. The impact between points 4 and 15 being the most significant, with reflectance

potentially occurring for a maximum of 16 minutes per day and 5.8 minutes per day on average.

7.10.7. Points 3 and 4 are north of the local road which runs east from the N65. Points 14 and 15 are south of the crossing of the St Cleran's River on the N65.

7.10.8. The 2.4m high wind-stop netting dramatically reduces the extent of the impact to a shorter stretch of road and reduces the daily time period to between 6.30 and 8 pm. Impact is shown as eliminated after five years with the growth of screen planting.

7.10.9. The results are provided in tabular form and as graphs with associated mapped points. Northings and eastings used are not directly comparable with the earlier submission, which used Irish National Grid Co-ordinates, i.e. latitude and longitude.

7.10.10. TII, in its submission to the planning authority, advised that the development is at variance with official policy in relation to control of development on/affecting national roads as outlined in the DoECLG Spatial Planning and National Roads Guidelines as the development and by precedent which a grant of permission would set would adversely affect the operation and safety of the national road network for the reasons:

The proposed development, because of its location where particular vigilance is required, would endanger public safety by reason of traffic hazard due to its scale and distraction of drivers.

The authority is of the opinion that insufficient data has been submitted with the planning application to demonstrate that the proposed development will not have a detrimental impact on the capacity, safety or operational efficiency of the national road network in the vicinity of the site.

TII further advises that the documentation submitted with the planning application does not adequately address glint and glare impacts on the N65.

7.10.11. The Board wrote to TII in relation to the appeal and a submission was received, which includes:

National Strategic Outcome 2 of The National Planning Framework includes the objective to maintain the strategic capacity and safety of the national roads network. It is also an investment priority of the National Development Plan, 2018 – 2027, to ensure that the extensive transport networks which have been greatly enhanced

over the last two decades are maintained to a high level to ensure quality levels of service, accessibility and connectivity to transport users.

The Technical Appendix 9 of the original planning application 'glint and glare' was reviewed by them as part of the original planning application submission.

They state in relation to figures 1, 2 and 3 of the Macro Works grounds of appeal submission, that figure 2 indicates a section of proposed panels will reflect light to the N65 after mitigation at year 1 with the proposed installation of 2.4m high windstop netting along the eastern boundary of the subject site, which they assume will be atop the proposed site fencing to create an overall barrier of over 4m in height. The reflecting panels all occur in an east to west direction across the proposed development.

Notwithstanding the assertion that any reflectance will be similar to still water in terms of intensity it is submitted that this is a new development proposal. TII cannot, either alone or for the reason of the precedent it will set, support new development that will create a traffic hazard as will arise in the current proposal for reason of glint and glare that affects the N65 and its road users.

TII furthermore reject the assessment's reliance on the fleeting nature of the anticipated reflection for reason of the main characteristics of glint reflection being its temporary nature. Any occurrence of glint and glare (reflection) that is a distraction to road users is unacceptable to TII. Furthermore it is noted that it appears that all of the anticipated glint and glare occurrences are to occur in the evening between 6.30 and 8.00 pm which coincides with the PM AADT peaks in national road traffic thus the safety risk arising for national road users is increased.

A major role of TII is to achieve and maintain a safe and efficient network of national roads. The proposed development, in the creation of glint and glare that does not already exist, undermines the safety of the national road network. As at TII's original submission to the planning application, TII submits that the subject site is at a location, where particular vigilance is required.

TII notes that a 10 year permission was sought and that long term (after 5 years) mitigation removes all potential reflection onto the N 65. The appeal glint and glare assessment submitted shows that the mitigation proposed is not entirely effective until year 5 after construction and therefore finds the proposal, including the mitigation proposed as part of the appeal statement, does not mitigate the potential

for glint and glare and thus traffic hazard to national roads users in the interim period. This is a serious road safety concern which has not been addressed by the applicant.

The proposal on appeal therefore remains contrary to official roads policy in the Spatial Planning and National Roads Guidelines for Planning Authorities (2012) as it will adversely affect the operation and safety of the national road network.

7.10.12. Glint and Glare Assessment

7.10.13. The first point to note in relation to glint and glare is that the proposed development evolved during the application process. An assessment of glint and glare was presented with the application and a further supplementary assessment was submitted as unsolicited further information and accompanied the grounds of appeal. It is not clear that the glint & glare assessment represents the development as finally proposed. At some point in the development of the proposal, the height of the bottom of the panels was raised from 0.8m above ground level to 1.08m, (an increase of 0.28m), in order to protect the panels from the risk of flood impact. In the glint & glare assessment submitted with the application it is stated that 2m has been added to the ground height to represent the height of the solar panel. At a bottom panel height of 1.08m above ground level, the top height of the panel is given as 2.5m, it therefore seems likely that the initial glint & glare assessment was based on panels of 0.8m above ground level. The basis for the subsequent calculations in the submission at appeal is not given, and comparison with the original submission is difficult because of the use of different map projections. It is not clear therefore that a top height of 2.5m above ground is used in the calculations. An increase in height involves greater reflectance impact and in order for screening to be effective would require an increase in its height.

7.10.14. The second point to note is that, in relation to the proposed mitigation at year 5, which is stated to be a 4m hedge maintained to at least that height, the landscaping plan, drawing no. 170826-a, which was part of the unsolicited further information, states that the hedgerows will be planted as whips. In the photomontages it is stated that hedging is expected to grow to approximately 2.5m in 3-5 years, and to be maintained at a height of approximately 4m for the lifetime of the solar array. From

this it appears that the proposed mitigation provided by a 4m high hedge is not anticipated at year 5, and it is unclear when it will achieve this height.

- 7.10.15. In relation to the use of windstop netting, which is the proposed mitigation at year 1, the submission from TII considers that the proposal refers to the erection of this netting above the height of the fence, i.e. to achieve a height of 4m. The details submitted do not support this interpretation. The details indicate that the netting will be attached to the fence and will provide screening to the height of the fence, given as 2.4m high.
- 7.10.16. In my opinion the impact of glint and glare on the N65 is likely to be greater than indicated in the glint and glare assessment, wherein an impact on the N65 is acknowledged; and the proposed mitigation achieved by the landscaping proposed will not be achieved in the timescale put forward. Although I accept that in the longer term the proposed planting will achieve effective screening from the effect of glint and glare on motorists on the N65.
- 7.10.17. It is stated in the application details that motorists on the N65, to experience glare, must face away from the direction of travel to face the application site. I accept that the glare will not be from a point directly in front of a motorist but it will be within their field of vision and therefore will cause distraction. Indeed visibility of the solar farm itself from the national road, could be a source of driver distraction. As pointed out in the TII submission, the creation of a hazard cannot be equated with a naturally occurring hazard over which there may be limited or no control.
- 7.10.18. Policy in relation to development along national roads makes no specific reference to solar farms, but is clear on the need to protect the safety and capacity of national roads, and to control distractions to motorists on these roads.
- 7.10.19. The N65 at the site location is an extension to the N65 Borrisokane to Loughrea road. This extension was constructed since 2005 (per OSI aerial survey 2005) to join the new section of N6/M6 (between Ballinasloe and Galway), since the N6 no longer follows its former route through Loughrea. The extension has been constructed along the line of the former Loughrea & Attymon Light Railway and is elevated in the vicinity of the site.
- 7.10.20. Considerable public investment has been expended in the provision of this modern road and the protection of this investment is an objective of the National Framework

Plan and the Planning Guidelines 'Spatial Planning and National Roads'; as is the protection of the efficiency, safety and capacity of this road.

- 7.10.21. In my opinion any impact of glint and glare on the N65 is unacceptable; the degree of impact is uncertain having regard to the foregoing where inconsistencies in the documentation are noted; the site is at a location where particular vigilance is required; and the impact of glint and glare on the N65 is a reason to refuse permission.
- 7.10.22. Glint and glare has also been considered in relation to dwelling receptors and local roads. The local roads in the vicinity of the site are not elevated and are low volume traffic routes, and low speed roads, where provision of effective screening would be relatively straightforward. In my opinion impact on these roads should not be a reason to refuse permission. Impact on dwelling receptors in the vicinity of the site has been considered in the application submission and is referred to in the following section under the heading residential amenity.

7.11. Residential Amenity

- 7.11.1. Impact on residential amenity is stated as reason number four of the planning authority's decision. It is stated that the development would seriously injure the residential amenities and depreciate value of properties in the vicinity and would result in a haphazard disorderly development which would be out of character with the existing pattern of development in the area.
- 7.11.2. Glint and Glare - Technical appendix 9, by Pager Power deals with Glint and Glare and refers to figure 9-2 of the book of Figures which shows the mapped locations of the dwelling receptor points assessed. Figure 9-6 shows dwellings which could geometrically experience a solar reflection were it not for existing screening: 8 dwellings east of the N65. Figure 9-7 shows dwellings which could experience a solar reflection reduced to 2 dwellings when existing screening is considered; located on the opposite side of the N65 with limited exposure. I do not consider glint and glare to be a significant impact on residential amenity.
- 7.11.3. Noise impact on sensitive receptors / dwellings has been considered in the application technical appendix 8 and figures 8-2 to 8-9 refer. Noise will emanate mainly from inverters (3 types are considered) and from the substation. In the

absence of mitigation the noise impact would be significant. The proposed mitigation will involve the containment of the inverters in a cabin or similar structure. With mitigation the noise impact would not be significant.

- 7.11.4. Visual impact and depreciation of property values were concerns raised in an observation to the planning authority. No observation was received on this appeal. The proposed development will present to view for some dwellings an array of solar panels in lieu of green fields. Proposed landscape planting will mitigate any impact. In my opinion there is nothing to indicate either adverse visual impact or depreciation of property values.
- 7.11.5. CCTV – the use of CCTV was raised in the planner’s report and responded to in the unsolicited further information which details of the range and direction of view of the proposed cameras. It is considered that any further concern regarding the use of CCTV can be dealt with by condition.
- 7.11.6. In my opinion impact on residential amenity should not be a reason to refuse permission.

7.12. Landscape Impact

- 7.12.1. Landscape impact is stated as reason number five of the planning authority’s decision. It is stated that the development, within a relatively low-lying open and exposed rural setting, in close proximity to a number of residential properties and a national road network, in conjunction with the over-reliance on existing vegetation, interim screening proposals and landscaping to screen it, would form an incongruent feature incapable of being adequately assimilated into this rural landscape and would seriously injure the visual amenities of the rural area.
- 7.12.2. Landscaping impact is referred to in the documents provided with the application, including technical appendix 4 and Figures 4-1 to 4-3. There is limited visibility from: a section of the N65, sort stretches of local roads and some dwellings. The low lying nature of the site, local landform variances in the wider landscape and existing vegetation, limit visibility. Post landscaping visibility will be further reduced. This area is given in the development plan’s Landscape Sensitivity and Character Areas, a Landscape Value rating of ‘Low’.

7.12.3. In my opinion it will not constitute an objectionable or outstanding landscape feature and landscape impact should not be a reason to refuse permission.

7.13. **Flood Risk**

7.13.1. Impact on flood risk is stated as reason number two of the planning authority's decision. It is stated that in the absence of comprehensive details to manage surface water run-off and the location within a flood risk area, the development would be contrary to the section 28 guidelines 'The Planning System and Flood Risk Management' and policies and objectives of the CDP. Potential impact arising during the construction phase within the flood risk area has been dealt with earlier under the heading Appropriate Assessment.

7.13.2. A site specific flood risk assessment, was submitted to the planning authority as unsolicited further information, and is also submitted with the grounds of appeal. This concludes that there are areas located in flood risk zones A and B, however site infrastructure has been designed to remove all highly vulnerable infrastructure from within mapped flood zones A and B. Infrastructure located in flood zones are limited to less vulnerable type such as PV panels and fencing. There is a 1.08 clearance between existing ground levels and the bottom of solar panels. The presence of the panels will not obstruct the flow of flood water or displace flood capacity. The panel frames have negligible impact. Key infrastructure is located in flood zone C. The overall risk of flooding posed by the proposed development is estimated to be low.

7.13.3. In my opinion flood risk should not be a reason to refuse permission.

8.0 **Recommendation**

8.1.1. In the light of the above assessment I recommend that planning permission be refused for the following reasons and considerations.

9.0 Reasons and Considerations

1 On the basis of the information provided with the application and appeal and in the absence of a Natura Impact Statement the Board cannot be satisfied that the proposed development individually, or in combination with other plans or projects would not be likely to have a significant effect on European site No.s 4089 and 332, or any other European site, in view of the site's Conservation Objectives. In such circumstances the Board is precluded from granting approval/permission.

2 The proposed development is located in proximity to an elevated section of the national secondary road N65, at a location where particular vigilance is required, and glint and glare from the proposed development would endanger public safety by reason of traffic hazard and distraction of drivers and would interfere with the safety and free flow of traffic on the road. Furthermore, the proposed development, by itself or by the precedent which the grant of permission for it would set for other similar development, would adversely affect the capacity, safety and operational efficiency of the national road network in the vicinity of the site which would be contrary to national policy to protect the capacity of national routes. The proposed development would, therefore, be contrary to the proper planning and sustainable development of the area.

Planning Inspector

21 December 2018

1 Photographs

2 Extracts from the Galway City Development Plan 2017-2023

- 3 Extracts from Project Ireland 2040: Building Ireland's Future, National Planning Framework.
- 4 Site Synopsis for Rahasane Turlough SAC site code 000322
- 5 Site Synopsis for Rahasane Turlough SPA site code 004089
- 6 Extracts from Spatial Planning and National Roads Guidelines for Planning Authorities (2012)