NPF Submissions,
Forward Planning Section,
Department of Housing, Planning,
Community and Local Government,
Custom House,
Dublin D01 W6X0

30th March 2017

Submission on the National Planning Framework (NPF) – Ireland 2040 Our Plan

Thank you for the opportunity to comment on this consultation document led by the Department of Housing, Planning, Community and Local Government. Lightsource welcomes the proactive introduction of this high level national policy document which will be the successor to the National Spatial Strategy 2002 (NSS).

Lightsource Renewable Energy (Lightsource) is Europe's leading utility scale solar energy generator. Our in-house Planning Team has successfully sought planning approval for 133 solar farms, totalling 825MWp of capacity in the past 5 years, and as a company we have developed over 1.3GW of solar farms and rooftop installations.

Lightsource launched Ireland's first solar farm in March 2016 at Crookedstone Road, Nutts Corner, Co. Antrim, which directly powers Belfast International Airport. Lightsource have planning approval for a further 10 sites across Northern Ireland (6 of which have recently started generating renewable energy), the largest being a 25MW (100 acre) solar farm project in Maghaberry, Co. Antrim.

We currently have approval for a 19.1MW (82 acre) solar farm at Monaraha, Cahir, Co. Tipperary (Planning Register Reference: 16600565), and other projects under development in the Republic.

The Issues and Choices Paper February 2017 covers a thorough and wide ranging list of emerging areas of consideration. Our response will focus on key matters relating to energy in Ireland particularly solar energy and how it can add significant value to Ireland's energy mix. The basis of our response will be focusing on Section 5.3 Re-Energising Ireland, with some general information on Solar.

Solar Energy in Ireland

Ireland has legally binding EU targets to meet 16% of its overall energy needs from renewable energy sources by 2020. As part of this target, the Government has committed to increasing electricity generation from renewable energy sources to 40%. Lightsource believes this national policy document is key to achieving these ambitious targets.

If Ireland does not meet these targets, the Sustainable Energy Authority Ireland believe annual fines of between €100-€150 million per percentage point missed must be paid by Irish taxpayers. By adding solar to Ireland's already varied energy mix, we can reduce the likelihood of missing these targets and reduce our reliance on importing expensive fossil fuels.

Although solar is relatively new to the island, the technology has been around for many years and has proved to be a huge success across the globe. Several countries now generate a significant portion of their energy through solar generation.

Lightsource welcomes and strongly supports the fact that solar is included in the Issues and Choices Paper. Our response aims to add value to the document by providing additional information or clarification to matters relating to solar energy, which from our experience will prove beneficial to the deployment of solar in the Republic of Ireland.

Paragraph 5.3.1 *Ireland's Energy White Paper*

The Energy White Paper outlines a role for the deployment of solar development in an Irish context and is welcomed by Lightsource. The paper highlights the declining costs of the infrastructure, the quick construction times as well as the capacity for the sector to generate employment and other economic benefits. This White Paper sets out a commitment to develop a new Renewable Electricity Support Scheme, with Solar PV mentioned as one of the technologies under consideration. Lightsource is of the view that policy documents at National, Regional and Local Level must recognise this support for solar and include policies and statements that encourage deployment of this clean energy source.

For example:

Tipperary County Council's Renewable Energy Strategy September 2016

The Council is supportive of the use of both solar thermal and solar PV technologies in Tipperary and has already led the way in the installation of solar PV panels on its civic buildings.

Laois County Development Plan 2017-2023

"*The Council is supportive of the development and expansion of the ground mounted solar energy sector throughout the county subject to normal planning and environmental considerations"*

It is Lightsource's opinion that the NPF needs to recognise this support for solar at a National Level to encourage more Councils to adopt such statements and policies as mentioned.

Paragraph 5.3.3 *Energy cost*

Lightsource also recognises the importance of competitive energy prices and supports the point that high-energy cost can have a negative impact on overseas investment. We are currently addressing this issue by offering high energy users a chance to significantly reduce their energy cost by generating renewable power on site or connect by private wire to a location nearby. The user can own the asset or developers like ourselves can own and operate under a Private Wire Power Purchase Agreement (PPA).

Also, since the generation is behind the meter, the demand on the grid is reduced. Lightsource is of the view that policy documents at National, Regional and Local level must support distributed generations, on-or-off site generation by clean energy technologies.

Paragraph 5.3.4 *Alternative Energy Sources*

Lightsource welcomes and supports line two of this section where it states *"Alternative energy sources are also required"* to meet the Countries future energy needs. Solar can play a significant part in delivering on this objective of the National Planning Framework for the following reasons:

- Solar panels generate clean energy in cloudy or overcast weather conditions, and perform more efficiently in cooler temperatures
- As well as generating clean electricity, solar farms can work in harmony with agricultural activities
- Compared with many other electricity generation technologies, solar PV is relatively quick to deploy, with low environmental impacts.
- About 70% of a solar farm is open grassland. So, where appropriate, the land can remain in agricultural use with smaller livestock such as chickens or sheep grazing comfortably under the panels. The infrastructure is raised so that livestock can also graze and take shelter beneath the panels, so stocking densities are hardly affected.
- Solar farms can provide havens for local wildlife habitats to flourish undisturbed and biodiversity levels to increase, meaning our declining native species can repopulate and find food throughout the seasons.
- Renting land to solar developers for he generation of renewable energy can provide rural business with a predictable, steady income stream which can support the rest of the farming business and keep Ireland's food production going.

Paragraph 5.3.5 *Renewable energy projects at suitable locations across Ireland.*

This section of the energy chapter is welcomed by Lightsource and demonstrates support for suitably located renewable energy projects. Lightsource believes solar deployment can be a standards setter in development of suitably located renewable energy projects for the following reasons:

- Typical heights of solar panel arrays are 2-2.8m
- Considered site selection can allow for solar farms to be hidden or largely screened behind well-established hedgerows & woodland
- Views of a solar farm can be mitigated by the introduction of additional planting where necessary
- No moving parts
- No noise beyond the boundary of the solar farm
- Significant biodiversity gain potential through implementing complementary habitat enhancement measures
- All cabling is weather proofed and securely attached to the structure.
- Where possible existing trees and hedgerows in and around the site are retained and managed as part of the project.
- Species rich grass is sown where required to ensure any grass that is damaged during construction is replaced and allowed to flourish.
- Timber & wire agricultural fencing of about 2 metres in height is preferred to be used as it is more appropriate to the rural setting. The fence sits inside the surrounding vegetation leaving wide field margins on the outside.
- Mammal gates in the fencing allow the free movement of small mammals across the site.

Appendix 1 attached to this submission includes a copy of a Lightsource Landscape Strategy that was approved by Tipperary County Council for a 19MW solar farm. This demonstrates in practice many of the points outlined above.

Also worth noting in this section that a green field site is not in itself inappropriate for solar development, and likewise not all brown field sites are appropriate for solar development. Visual impact can be addressed through appropriate site selection and this document can provide clear policy direction on this.

Paragraph 5.3.6 *Type, scale and location of renewable infrastructure*

Lightsource see the current strategy of sub 5MW projects ground mounted installations in rural areas, adopted by many developers as micro utility generation, the equivalent of ribbon development in rural housing terms. Macro installations (approximately 25MW and over) offer the following advantages over sporadic micro installations.

- Fewer applications to the national grid and councils
- Easier for councils to administer once built e.g. less retention applications
- Greater chance of meaningful local employment
- Greater economies of scale that can lead to lower energy cost to the consumer
- More security and reliability of power generation with larger established developers.

The scale of a solar farm is determined by several factors but the viability of a project is linked to the number of solar arrays and therefore the level of renewable energy a project can generate.

Paragraph 5.3.7 *Strategic Energy Zones or Corridors*

Lightsource wishes to raise serious concerns about the establishment of a "Strategic Energy Zone" in Ireland for the following reasons:

1. Suitable site selection criteria

Site selection is critical to ensuring that an efficient, technically and economically viable solar farm can be developed without causing significant adverse environmental impacts. Of the numerous sites assessed by Lightsource we proceed with less than 10% of these, with the other 90% either unviable technically, unable to achieve grid connection, or considered inappropriate from a planning policy and environmental impact point of view. Adoption of a strategic energy zone or corridor in a small country like Ireland would not be conducive to the critical site selection processes that should be adopted by all solar farm/renewable energy developers.

2. Policy designation restrictions at local level

Creating a strategic energy zone in the Republic of Ireland may result in being contrary to the policies of a local development plan. Many local authorities have adopted a Renewable Energy Strategy that is to be welcomed however if a strategic energy zone is adopted this may result in local authorities no longer prioritising theses County specific development plan documents.

3. Grid Connection

Grid connection and capacity is one of the major challenges for solar developers in the Republic of Ireland and does have a significant impact on the location of a solar farm. It is difficult to comprehend how a strategic energy zone would work given the challenges developers and Eirgrid/Electricity Supply Board have with grid connections/capacity.

4. Local Community Objection

It is Lightsource's view that establishing a strategic energy zone has a significant risk of local community opposition and a potential "dumping ground" attitude.

Additional Areas for Consideration

In addition to the comments included above, Lightsource has taken the opportunity to suggest the following areas that should be considered for inclusion in the NPF.

Development Contributions

Lightsource believes the drafting of the NPF provides an excellent opportunity to provide Council's with the necessary direction on the implantation of suitable/appropriate development contribution schemes. From our experience to date dealing with various LPA's throughout the Republic of Ireland, many adopted development contribution schemes are outdated and not fit to facilitate to deployment of solar. The approach taken by most LPA's is to add a development contribution on the same pretence as to what you would request for a wind farm. This is fundamentally flawed and could risk the viability of deploying solar in the Republic of Ireland.

Whilst wind farms and solar farms both generate electricity, and require some similar equipment such as transformers and substations (as do any energy generation facilities) this is where the similarities end.

The rationale for development contributions is to ensure that new development contributes equitably to enhancements of existing, or new, infrastructure and facilities as necessitated by the demand created by the development. Therefore, it is important to look at what the impact of a solar farm is on local infrastructure and facilities, in comparison with that of a wind farm.

The key aspects of infrastructure utilised by solar farms during construction and operation are:

- The local roadwork, for transporting materials to the site during construction, and ongoing monitoring and maintenance works; and
- The local electricity grid network.

The construction and operation of solar farms has very limited impacts on roads and public infrastructure. The average construction period for a solar farm of 20MW is approximately 4-5 months. While the construction timeframe for a similar capacity wind farm would be closer to 12 months. For example, a 19.25 MW wind farm approved in Co. Tipperary under planning register reference 01934 has a construction phase of 6-7 months for the civil engineering works alone as outlined on page 17 of their Environmental Impact Statement. The relevant extract as follows:

Duration of Works

- *Civil engineering works will take approximately 6-7 months*
- *Electrical works will take approximately two months and will be carried out in conjunction with the civil works*
- *Turbine erection will take 1-2 months and will commence when the bulk of the civil works are complete*

All equipment and materials required for the construction of a solar farm can be delivered to site on standard 40ft HGVs or smaller, unlike wind farms where oversized vehicles are frequently required to transport the wind turbine towers and blades to the site. Therefore, solar farm construction does not typically require any material alternations to public access roads. Any upgrades required to the site access itself are at the developer's expense and in accordance with any recommendations made by the Councils Roads Department.

Again, unlike wind farms, solar farms do not require significant volumes of concrete to be delivered to the site thereby reducing the impact on the local road infrastructure from heavy concrete trucks.

In terms of impact on the national grid network, in the case of both wind and solar farm developments, any upgrades required to provide for their connection are included in the grid connection costs paid directly by the developer.

In terms of other impacts experienced by communities for wind farm developments, with solar farms these are either negligible or much less significant than for wind farms, including:

- Visual Impact: Given their low profile, when carefully sited solar farms can be largely screened from public views, therefore having a significantly lower visual impact on the landscape than wind turbines.
- Noise: unlike wind turbines, solar farms are quiet operations. The solar PV panels themselves which make up most of the infrastructure on site, are silent in operation. The cooling fans within the inverter cabinets do emit noise, however careful design and positioning mean that noise beyond the boundary of a solar farm can be avoided
- Vibration: there are no vibration impacts associated with solar farms, as the only moving parts are the fans with the inverter cabinets.

The drafting of the NPF is an excellent opportunity for Government to advise and encourage LPA's to update their Development Contribution Schemes to facilitate the deployment of solar and not hinder the technology by non-equitable development contributions.

Exemptions for Roof Top Solar Development

Lightsource believes the drafting of the NPF presents an opportunity to Government to recommend amendments to exempted rooftop solar development under The Planning and Development Regulations 2008 (S.I. No. 235 of 2008). Lightsource believes these exemptions should be increased significantly and the removal of the 50% cap relating to total roof area. The current exemptions do not allow for adequate economies of scale for solar power generation. This is partly to blame for the

relatively low uptake of solar development by medium to large industries in the Republic of Ireland when compared to other EU countries. For example, a review of the planning exemptions for roof top solar in the UK demonstrates a significant difference to the regulations in the Republic of Ireland see the comparison table in Appendix 2.

The table clearly demonstrates the onerous nature of the planning regulations in the Republic of Ireland when to comes to solar technology. Lightsource would encourage the Department to consider a recommendation in the NPF to review these exemptions to allow for more solar deployment. We would also welcome a form of exemption introduced for solar projects sited adjacent to Windfarms.

Useful Guidance Documents to reference in NPF

We believe the following guidance documents are worth reviewing as part of the NPF process. Lightsource have submitted detailed comments to both publications and believe they offer good guidance and scope to contribute as an evidence base to the NPF.

1. Planning and Development Guidance Recommendations for Utility Scale Solar Photovoltaic Schemes in Ireland (Sustainable Energy Authority of Ireland)
2. Tipperary Energy Agency (2014) "Tipperary County Council Solar PV 2014

Thank you for the opportunity to comment on the 'National Planning Framework' we trust you will find our response of interest and benefit to the final draft. Please do not hesitate to contact us if you would like to discuss this response.

Yours sincerely,

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[redacted]

APPENDIX 1: Sample Landscape Strategy (Refer to Standalone PDF for Full Scale View)

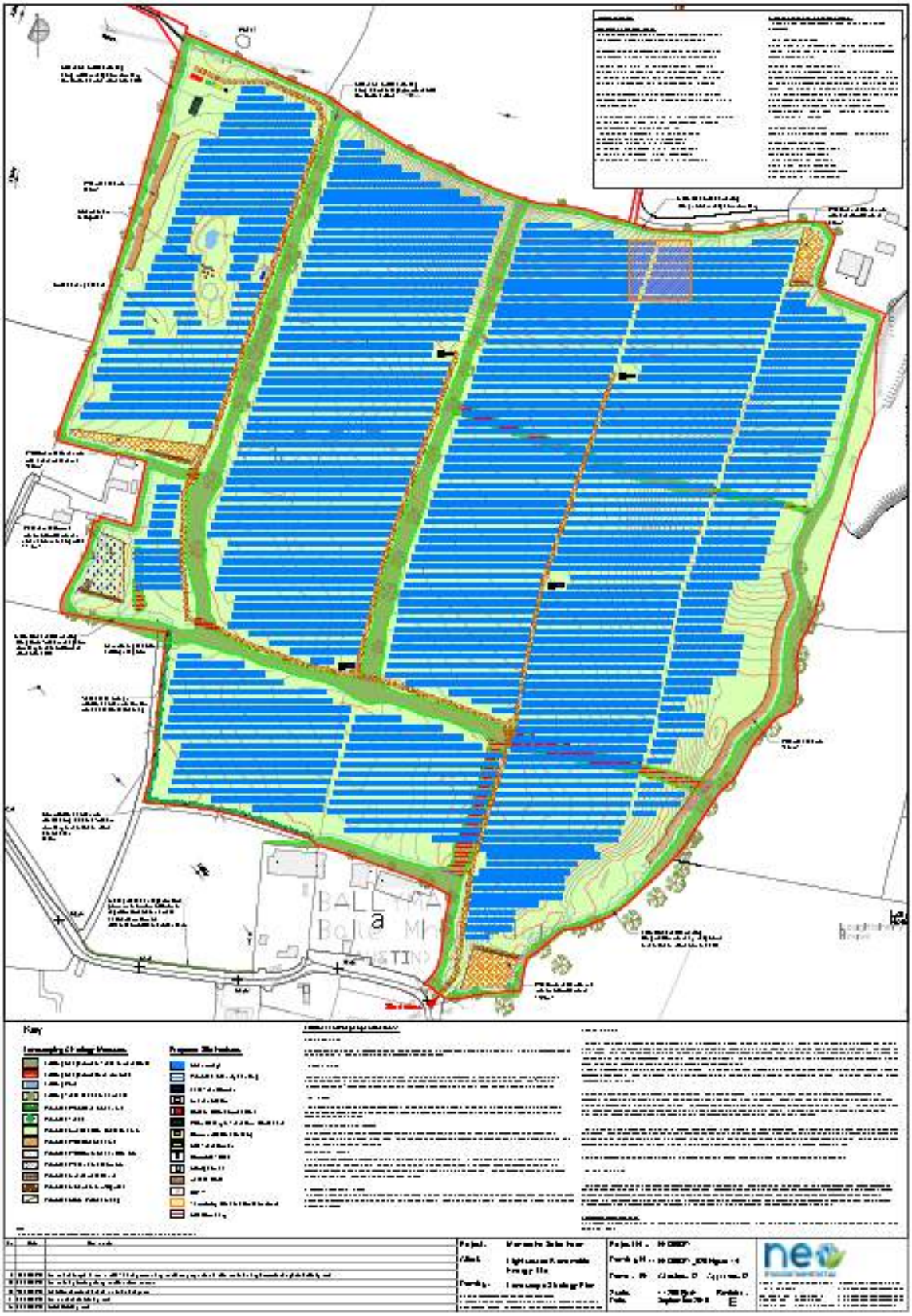
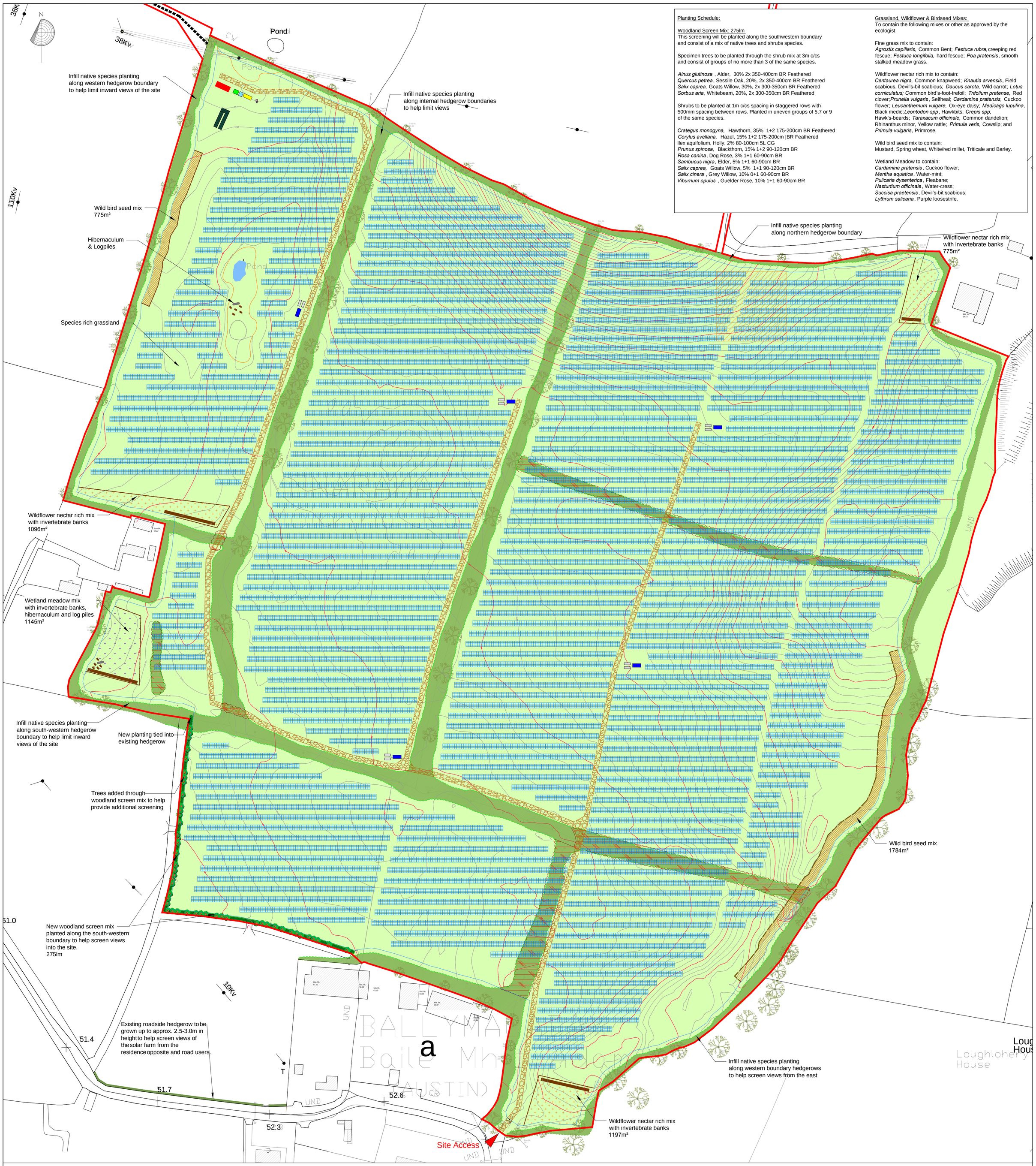


Table 1: Exemptions Comparison UK & Ireland

UK Regulations for Roof Top	*UK Regulations for Stand Alone Solar Equipment (panels not on a building but within the grounds of a house or a block of flats*	*Republic of Ireland Regulations - Installation or erection of a solar panel on, or within the curtilage of a house, or any buildings within the curtilage of a house.*	*Republic of Ireland Regulations - for Stand Alone Solar Equipment*	*Republic of Ireland Regulations - the curtilage of an industrial building, or any ancillary buildings within the curtilage of an industrial building*
Panels should not be installed above the highest part of the roof (excluding the chimney) and should project no more than 200mm from the roof slope or wall surface.	*Only the first standalone solar installation will be permitted development. Further installations will require planning permission.*	The total aperture area of any such panel, taken together with any other such panel previously placed on or within the said curtilage, shall not exceed 12 square metres or 50% of the total roof area, whichever is the lesser	The height of a free-standing solar array shall not exceed 2 metres, at its highest point, above ground level.	The distance between the plane of the wall or a pitched roof and the panel shall not exceed 1 metre.
The panels must not be installed on a building that is within the grounds of a listed building or on a site designated as a scheduled monument.	*No part of the installation should be higher than four metres*	The distance between the plane of the wall or a pitched roof and the panel shall not exceed 15 centimetres	A free-standing solar array shall not be placed on or forward of the front wall of a house	The distance between the plane of a flat roof and the panel shall not exceed 2 metres.

	The installation should be at least 5m from the boundary of the property	The distance between the plane of a flat roof and the panel shall not exceed 50 centimetres	The erection of any free standing solar array shall not reduce the area of private open space, reserved exclusively for the use of the occupants of the house, to the rear or to the side of the house to less than 25 square metres.	The solar panel shall be a minimum of 50cm from the edge of the wall or roof on which it is mounted.
If your property is in a conservation area, or in a World Heritage Site, panels must not be fitted to a wall which fronts a highway.	*The size of the array should be no more than 9 square metres or 3m wide by 3m deep*	The solar panel shall be a minimum of 50cm from any edge of the wall or roof on which it is mounted		The total aperture area of any wall mounted panel, or free-standing solar array shall not exceed 50 square metres.
	Panels should not be installed within boundary of a listed building or a scheduled monument.	The height of a free-standing solar array shall not exceed 2 metres, at its highest point, above ground level.		Any equipment associated with the panels, including water tanks, shall be located within the roof space of the building.
	If your property is in a conservation area, or in a World Heritage Site, no			The height of a free-standing solar array shall not exceed 2 metres, at

	part of the solar installation should be nearer to any highway bounding the house than the part of the house that is nearest to that highway.			its highest point, above ground level.



Note:
To be read with site layout drawings *Monaraha Farm Indicative General Layout Rev 8* CHR_01_Rev 8

Rev	Date	Comments
E	02/09/2016	Amended length of removed W-E hedgerow along southern proportion of site, roadside hegderow text, updated site layout
D	25/08/2016	Amended planting along southwestern corner
C	13/05/2016	Additional note added to roadside hedgerow
B	28/04/2016	Ammended to Site Layout
A	22/04/2016	Inital Draft Layout

Project: Monaraha Solar Farm

Client: Lightsource Renewable Energy Ltd

Drawing: Landscape Strategy Plan

Project No.: NEO00371

Drawing No. : NEO00371_029 Figure 14

Drawn: RF **Checked:** DT **Approved:** DT

Scale: 1:1250 @ A1 **Revision:** E

Date: September 2016

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