

Minister of State with responsibility for Local Government and Planning

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022 Environmental Report

Final report

Prepared by LUC

June 2022



Minister of State with responsibility for Local Government and Planning

**SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
Environmental Report**

Project Number
11599

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Contents

Contents

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Chapter 1 Introduction	1	Chapter 5 SEA findings	45
Description of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022	2	Do nothing scenario	45
Strategic Environmental Assessment	6	The removal of limitations on solar PV or solar thermal collector installations on protected structures, proposed protected structures, and structures in Architectural Conservation Areas	46
Links to Appropriate Assessment	6	The restriction of solar PV or solar thermal collector installations in relation to houses within Solar Safeguarding Zones	46
Links between SEA, AA and Regulation-making processes	7	The restriction of solar PV or solar thermal collector installations on roofs and walls facing roads	46
Meeting the requirements of the SEA Regulations	9	SEA objective 1: Biodiversity, fauna and flora	46
Structure of the Environmental Report	13	SEA objective 2: Population and human health	46
		SEA objective 3: Climatic factors and SEA objective 4: Air	47
Chapter 2 SEA methodology	14	SEA objective 5: Soil	47
SEA guidance documents	14	SEA objective 6: Water	48
Stages in SEA process	15	SEA objective 7: Cultural heritage including Architectural Heritage and SEA objective 8: Landscape	48
Difficulties encountered and data limitations	21	SEA objective 9: Material assets	49
		Duration of effects	50
Chapter 3 Relationship with other plans and programmes	22	Secondary, cumulative and synergistic effects	50
Key international plans, programmes and environmental protection objectives	23	Transboundary effects	51
Key national plans, programmes and environmental protection objectives	23	Chapter 6 Mitigation and enhancement	53
		Mitigation and enhancement	53
Chapter 4 Environmental baseline information	26	Chapter 7 Monitoring	56
Biodiversity, flora and fauna	29	Chapter 8 Conclusion and next steps	58
Population and human health	30	Next steps	59
Climatic factors	31	Appendix A Consultation responses	A-1
Air	35		
Soil	36		
Water	38		
Cultural heritage including architectural and archaeological heritage	41		
Landscape	42		
Material assets	43		

Contents

Appendix B Relevant plans and programmes	B-1
---	------------

Appendix C Comparison between proposed regulations and principal regulations	C-1
---	------------

Appendix D SEA matrices	D-1
--	------------

Chapter 1

Introduction

LUC was commissioned to support the Minister of State with responsibility for Local Government and Planning in undertaking a Strategic Environmental Assessment of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022 regarding the placing or erection of solar PV / thermal installations (hereafter collectively referred to as the 'proposed regulations').

1.1 The Strategic Environmental Assessment (SEA) process is a requirement of the [SEA Directive 2001/42/EC](#) which requires that an environmental assessment is carried out of certain plans and programmes – or in this case regulations – which are likely to have significant effects on the environment.

1.2 The purpose of this Environmental Report is to:

- inform the development of the proposed regulations;
- identify, describe and evaluate the likely significant effects (both positive and negative) of implementing the proposed regulations and reasonable alternatives to the proposed regulations; and,
- provide an early opportunity for the statutory and non-statutory consultees to offer views on any aspect of this Environmental Report and accompanying proposed regulations, through consultation.

Description of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

Context for the proposed regulations

The latest IPCC report, *Climate Change 2022: Impacts, Adaptation and Vulnerability*, published in April 2022, highlights that the window to prevent global temperatures from rising by more than 1.5°C above pre-industrial averages is rapidly closing and the world remains on course to exceed the Paris Agreement's temperature threshold. This highlights the urgency of nations and governments to take action and ensure society's resilience.

Furthermore, according to the EPA's latest projections on greenhouse gas emissions up to 2040, "*urgent implementation of all climate plans and policies, plus further new measures, are needed for Ireland to meet the 51 per cent emissions reduction target and put Ireland on track for climate neutrality by 2050*"¹.

1.3 The effects of climate change can be clearly seen in Ireland, the most evident effect is the increased temperature. The last five year (2017-2022) and ten-year (2012-2022) average temperatures are the warmest on record. Since the 1980s, each successive decade has been warmer than any preceding decade since 1850. These increased temperatures have had knock on effects on Ireland's natural environment. An increase in the frequency and impact of storms has also been recorded in the last few decades. Sea surface temperature in Irish waters has increased at a rate of approximately 0.6°C per decade since 1994, which is unprecedented in the 150-year observational record. Ireland has also seen an increase in average annual national rainfall

of approximately 6mm or 5% in the period 1981-2010, compared to the 30-year period 1961-1990².

1.4 If the rate of global warming and climate change continues, Ireland could experience even more severe adverse effects. As an island nation, Ireland is particularly vulnerable to rising sea level with coastal regions being directly at risk from flooding³.

1.5 Ireland's current high fossil fuel dependency is particularly challenging and requires immediate action. Renewable energy development such as solar development may help to ameliorate the worst impacts of climate change. Implementation will be critical, and the pace of emissions reductions must accelerate beyond 2030. This requires far-reaching transformative change across the economy and society⁴.

1.6 In addition to the need to plan for a changing climate, international activities, most notably the Russian invasion of Ukraine, has resulted in significant increases in the price of oil and natural gas which has, in turn, led to increased retail prices for petrol, diesel, heating oil, gas and electricity – highlighting the urgency for security of energy supplies, not just in Ireland but across Europe.

1.7 Solar energy is largely underutilised in Ireland, and solar energy production accounts for only a fraction of the renewable energy generated. **Figure 1.1** overleaf illustrates the solar energy generation across Europe in 2021⁵. This figure indicates that this energy sector is significantly underutilised in Ireland in comparison to other European nations with similar latitudes. For example, the UK is the third country in Europe with the highest volume of solar energy generation, following Germany and Italy. The cumulative installed capacity of solar photovoltaics (PV) in the UK during the last decade has substantially increased, rising from 95MW in 2010 to 13,563MW by the end of 2020⁶, primarily driven by the Feed-in Tariff scheme (operational from 2010-2019) which created a financial incentive for individuals and small

¹ EPA (2022) Ireland's Greenhouse Gas Emissions Projections 2021 to 2040 (pdf) Available at: <https://www.epa.ie/publications/monitoring-assessment/climate-change/air-emissions/EPA-Ireland's-GHG-Projections-Report-2021-2040v2.pdf>

² EPA (undated) What impact will climate change have on Ireland? [online] Available at: <https://www.epa.ie/environment-and-you/climate-change/what-impact-will-climate-change-have-for-ireland/#:~:text=and%20storm%20tracks-increased%20likelihood%20of%20river%20and%20coastal%20flooding,on%20human%20health%20and%20wellbeing>

³ Geological Survey Ireland (undated) Effects in Ireland. [online] Available at: <https://www.gsi.ie/en-ie/geoscience-topics/climate-change/Pages/Effect-in-Ireland.aspx>

⁴ Environmental Protection Agency (2020) Ireland's Environment. An Integrated Assessment 2020. [online] Available at: https://www.epa.ie/publications/monitoring-assessment/assessment/state-of-the-environment/EPA_Irelands_Environment_2020.pdf

⁵ Our World in Data (2022) Solar energy generation [online] Available at: <https://ourworldindata.org/renewable-energy#solar-energy>

⁶ Statista (2021) Solar PV cumulative installed capacity in the United Kingdom (UK) 2009 – 2020. [online] Available at: <https://www.statista.com/statistics/792406/cumulative-solar-pv-capacity-united-kingdom/>

businesses to install eligible small-scale renewable energy systems such as solar panels.

1.8 In 2020 there was 40MW of grid-connected solar energy capacity in Ireland, an increase of 29% since 2019 and 1,609% since 2015⁷. This accounted for 1% of renewable capacity in 2020. In spite of its small contribution in 2020, growth in the solar power sector is expected to continue, with 63 solar projects securing contracts under the RESS-1 auction in 2020 (1,000MW (796GWh)). RESS-2 auction is currently under way.

1.9 In 2019 the Government published the first Climate Action Plan (CAP) and pledged €3.7 million to support the installation of solar panels in homes. Moreover, the CAP

contained provisions that allows citizens to sell privately micro-generated solar power back to the national grid. Support for domestic solar panels uptake has also been offered by Sustainable Energy Authority of Ireland (SEAI) in the form of a Residential Rooftop Solar PV Scheme. The scheme provides a contribution of up to €2,400 towards total installation costs. Furthermore, the Warmer Home Energy Scheme offers a broad range of measures free to householders in need of energy efficiency upgrades, totalling to an average of €3,000.⁸

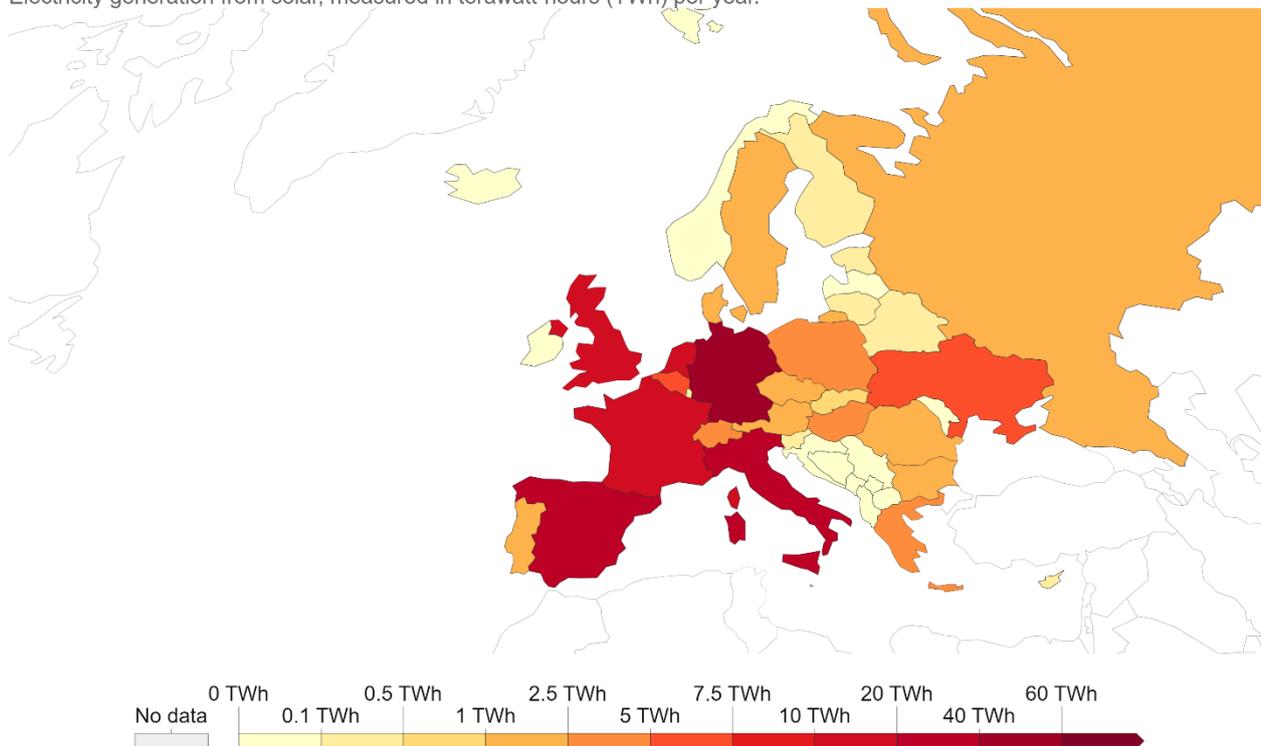
1.10 The extension of solar panel exempted development provisions can enable greater uptake of solar panels across the country especially in residential buildings.

Figure 1.1: Solar power generation in Europe in 2021

Solar power generation, 2021

Electricity generation from solar, measured in terawatt-hours (TWh) per year.

Our World in Data



Source: Our World in Data based on BP Statistical Review of World Energy & Ember

OurWorldInData.org/renewable-energy • CC BY

⁷ International Renewable Energy Agency (2021) Energy Profile Ireland (pdf) Available at: https://www.irena.org/IRENADocuments/Statistical_Profiles/Europe/Ireland_Europe_RE_SP.pdf

⁸ https://www.citizensinformation.ie/en/housing/housing_grants_and_schemes/grants_for_solar_panels_and_battery_systems.html

Background to the proposed regulations

1.11 The Climate Action and Low Carbon Development (Amendment) Act 2021 set targets for Ireland to deliver up to 80% of electricity from renewables and to reduce greenhouse gas emissions by 51% by 2030 and reach net-zero no later than 2050. How these targets will be achieved is set out in the Climate Action Plan 2021. The Government will annually update the Climate Action Plan and the roadmap of actions to reflect developments in the previous year to ensure the required emissions reductions are achieved. The 2022 Plan (not yet released) will reflect the legally binding carbon budgets and sectoral ceilings adopted by Government.

Actions in the 2021 Climate Action Plan and Annex of Actions⁹:

Action 103 (Action 105 in the Annex of Actions)

Deliver a Microgeneration Policy Framework

Action 105 (Action 107 in the Annex of Actions)

Conclude the review of the current planning exemptions relating to solar panels, to ensure that households, schools, and communities can be strong champions of climate action.

Action 106 (Action 108 in the Annex of Actions)

Deliver a Solar and Small-Scale Generation Policy Framework

Action 131 (Action 138 in the Annex of Actions)

Publish a standard recommendation for the design, installation and commissioning of solar PV panels in new and existing dwellings.

1.12 In the context of the Climate Action Plan 2021, the Department of Housing, Local Government and Heritage (DHLGH) has undertaken a review of the existing provisions and is proposing to significantly extend the solar panel exemptions set out in Schedule 2 'Exempted Development' of the Planning and Development Regulations 2001 (SI No. 600 of 2001), as amended (hereafter referred to as the 'Principal Regulations'), specifically by the Planning and Development Regulations 2007 (SI No. 83 of 2007) and the Planning and Development Regulations 2008 (SI No.235 of 2008).

Scope and content of the proposed regulations

1.13 Under the Planning and Development Act 2000, as amended, (hereafter referred to as 'the Act'), all development,

unless specifically exempted under the Act or Principal Regulations, requires planning permission. Section 4 of the Act and Schedule 2 of the Principal Regulations, set out various exemptions from the requirement to obtain planning permission. Any such exemptions are subject to compliance with any general restrictions on exemptions set out in the Act or the Principal Regulations and to the specific conditions set out in each class of exempted development in Schedule 2 of the Principal Regulations. Included in the current planning exemptions set out in the Principal Regulations are those applying to the installation of solar infrastructure on a variety of building types, including houses, businesses, industrial and agricultural to which specific conditions are attached.

1.14 In general, solar planning exemptions do not currently apply to apartment buildings, educational buildings, hospitals, healthcare centres, places of worship, sports facilities, community facilities or libraries.

1.15 The proposed regulations aim to increase the amount of solar infrastructure that can be installed on various classes of development (houses, industrial buildings, agricultural buildings, etc.) as well as providing exemptions for apartment buildings, educational buildings, hospitals, healthcare centres, places of worship, sports facilities, community facilities and libraries without the need to first obtain planning permission. **Appendix C** presents a comparison between the Principal Regulations and the proposed regulations, detailing the proposed changes. A brief summary of the proposed changes to the regulations is provided in the subsequent paragraphs.

1.16 The main focus of the revision of the Principal Regulations is on the removal of the 12 square metre-based limit / 50% of the total roof area limit which applies currently to houses and the 50 square metre-based limit / 50% of the total roof area limit which applies currently to business premises, light industrial buildings and agricultural structures, to allow more extensive coverage.

1.17 The proposed regulations seek to add two new classes of development to the exemptions, namely apartments and educational / community / sports / healthcare / religious buildings.

1.18 The proposed regulations seek to reduce, where possible, obstacles to the expansion of rooftop solar development. The revised rooftop exemptions will cover the vast majority of the land area of the country. However, in light of the need to appropriately address aviation safety concerns arising from glint and glare impacts on aircrafts and the easing of the solar panel planning exemption thresholds, the DHLGH,

⁹ Note that there is a discrepancy between the action numbers in the Action Plan and Annex of Actions.

in consultation with the Irish Aviation Authority (IAA), the Department of Defence, and the Health Services Executive (HSE), have identified 43 Solar Safeguarding Zones around airports (5km zone), aerodromes (3km zone) and helipads (3km zone). A 60 square metre area limit (an increase on the current limit of 50 square metres) will apply to rooftop solar installations in respect of all classes of development within these zones, with the exception of houses.

1.19 The proposed regulations also seek to amend existing or propose new criteria for exempted development. For example, the height of any free-standing solar PV or solar thermal collector installations in the curtilage of a house / industrial building / business premises / light industrial building / agricultural structure must not exceed 2.5 metres above ground level (increased from 2 metres in the Principal Regulations) or 25 square metres in area for houses and 60 square metres in area for industrial buildings, business premises, light industrial buildings and agricultural structures. The same height criteria for free-standing solar PV or solar thermal collector installations applies to the newly proposed class of development for educational / community / sports / healthcare / religious buildings i.e. a maximum of 2.5 metres above ground level and 60 square metres in total area. Free-standing solar panel installations are not exempted development for apartment buildings.

1.20 The main condition in the proposed regulations relates to the maximum projection from the plane of roofs and the minimum set-back distances from the edges of roofs, ranging from 15cm to 2 metres depending on the class of development and the roof type (flat or pitched):

- For houses, this continues to be a maximum projection of 15cm in the case of a pitched roof and a maximum projection of 50cm in the case of a flat roof from the plane of the roof; and a minimum setback of 50cm from the edge of a roof.
- For industrial buildings and agricultural structures, the distance between the plane of the roof must not exceed 1.2 metres for pitched roofs and 2 metres for flat roofs.
- For light industrial buildings, the distance between the plane of the roof must not exceed 50cm for pitched roofs and 2 metres for flat roofs.
- For business premises, apartments, and educational / community / sports / healthcare / religious buildings, the distance between the plane of the roof must not exceed 15cm for pitched roofs and 1.2 metres for flat roofs.

1.21 For all classes of development (with the exception of houses), solar installations must be a minimum of 50cm from

the edge of a pitched roof and 2 metres from the edge of a flat roof.

1.22 For all classes of development, installations on pitched roofs facing the road are not exempted development in the case of protected structures, proposed protected structures, or structures located in an Architectural Conservation Area.

1.23 Free-standing installations are not exempted development where they are placed forward of the front wall of the house. Free-standing solar panel installations are not exempted development for apartment buildings. For all other classes of development, free-standing solar panel installations are not exempted development where the building or premises is a protected structure, proposed protected structure, or structure located in an Architectural Conservation Area. For agricultural buildings, free-standing installations must not be located forward of the front wall of the nearest agricultural structure to a public road.

1.24 Wall mounted exemptions apply only to industrial and agricultural buildings where the total area of the solar installation does not exceed 60 square meters (increased from 50 square metres for industrial buildings and 25 square meters for agricultural buildings under the Principal Regulations). Wall mounted installations are not exempted development for protected structures, proposed protected structures, or structures located in an Architectural Conservation Area. Wall mounted installations are not exempted development for houses, business premises / light industrial premises, apartment buildings, educational / health care/ sports / community / religious buildings.

1.25 The distance between the plane of a wall and installation must not exceed 15cm (applies to industrial buildings and agricultural structures only) and must be a minimum of 50cm from the edge of the wall on which it is mounted (applies to both industrial buildings and agricultural structures).

1.26 For all classes of development (with the exception of houses), the height of ancillary equipment on a flat roof must not exceed 1.6 metres and must be a minimum of 2 metres from the edge of the flat roof on which it is mounted. Ancillary equipment associated with solar panel installations must not be placed or erected on a wall or pitched roof. Development is only exempted for industrial buildings, business premises / light industrial buildings and agricultural buildings where the solar panel installation does not exceed the highest part of a pitched roof (excluding any chimney).

1.27 For houses, there is a specific criterion which ensures that any free-standing solar installation does not reduce the remaining area of private open space to less than 25sqm.

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

1.28 The exemptions proposed for all classes (with the exception of houses) only apply where the installation relates primarily to the provision of electricity or heating for:

- the building / premises;
- any ancillary buildings within the curtilage of such buildings / premises; and
- any ancillary uses within the curtilage of such buildings / premises.

1.29 Proposed solar installations that do not meet the criteria for exempted development will require planning permission.

The proposed regulations will facilitate a significant uptake of solar panel installations (particularly for the new classes of buildings in the proposed regulations) and potentially a greater area of panels installed overall when considered at a national scale. The proposed regulations have direct relevance to increasing the uptake of renewable energy using solar panels, reducing reliance on fossil fuels, and addressing international commitments to reducing carbon emissions, likely resulting in significant positive environmental effects. However, there are also likely to be a range of other environmental effects which the SEA process will identify and assess in consistent and transparent manner, including those associated with the production, transport, operation and disposal of solar panels.

Stage of the proposed regulations

1.30 A draft of the proposed regulations has been completed. The DHLGH has engaged with the Department of the Environment, Climate and Communications (DECC) and key stakeholders in the Microgeneration Working Group, as well as the Irish Aviation Authority, the Department of Defence and the Health Services Executive (HSE), to help inform the amendments to the Principal Regulations.

1.31 It is anticipated that the draft regulations will be laid before the Houses of the Oireachtas following the finalisation of the Environmental Report. The Houses of the Oireachtas must pass a resolution approving the draft before the regulations can be made. It is expected that the Minister of State with responsibility for Local Government and Planning will sign the regulations into law in Q3 2022 (assuming no substantial changes to the proposed regulations are made which would require SEA).

Strategic Environmental Assessment

1.32 The SEA Directive - [Directive 2001/42/EC](#) on the assessment of the effects of certain plans and programmes on

the environment - requires that an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment. The purpose of SEA, as defined in Article 1 of the SEA Directive is *'to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans...with a view to promoting sustainable development'*.

1.33 In Ireland, the SEA Directive has been transposed into national legislation through:

- [S.I. No. 435 of 2004](#) (European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, as amended by [S.I. No. 200 of 2011](#) (European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011)(i.e. the 'SEA Regulations').
- [S.I. No. 436 of 2004](#) (Planning and Development (Strategic Environmental Assessment) Regulations 2004, as amended by [S.I. No. 201 of 2011](#) (Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011).

1.34 The objective of this SEA is to ensure that the environmental effects of the proposed regulations are identified during their development, providing the opportunity for negative environmental effects to be avoided, mitigated or compensated and for positive environmental effects to be enhanced, where opportunities arise. In this way, environmental considerations can be integrated into the preparation of the proposed regulations.

Links to Appropriate Assessment

1.35 Article 6(3) of the EU [Habitats Directive](#) is transposed for certain plans in Ireland by [S.I. No. 477/2011](#) (European Communities (Birds and Nature Habitats) Regulations, 2011, as amended by [S.I. No. 293 of 2021](#)), and Part XAB of the [Planning and Development Act 2000](#), as amended.

1.36 All plans and projects that either individually or in combination with other plans, are likely to have a significant effect on any site in the Natura 2000 network (i.e., those designated as Special Areas of Conservation or Special Protection Areas, collectively referred to as 'European sites'), require an appropriate assessment (AA) of these effects to determine if they will adversely affect the integrity of these sites. If the effects are deemed to be significant, potentially significant, or uncertain then the plan or project must undergo Stage 2 AA.

1.37 Regulation 42(A) of S.I. No. 293 of 2021 (European Union (Birds and Natural Habitats (Amendment) Regulations, 2021) outlines that:

- (1) *"Where the Minister proposes to undertake or adopt a plan or project which is not directly connected with or necessary to the management of the site as a European Site, the Minister shall request that a screening for Appropriate Assessment be carried out by the Ecological Assessment Unit to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.*
- (2) *The Ecological Assessment Unit shall carry out a screening for Appropriate Assessment under paragraph (1) before the Minister makes a decision to undertake or adopt a plan or project is taken."*

1.38 AA Screening of the proposed regulations was undertaken in March 2022 by ARUP on behalf of the Minister for Housing, Local Government and Heritage (MHLGH). The Screening Report concluded that the proposed regulations are not likely to have any significant effects on any European sites. The principal reasons for this conclusion are:

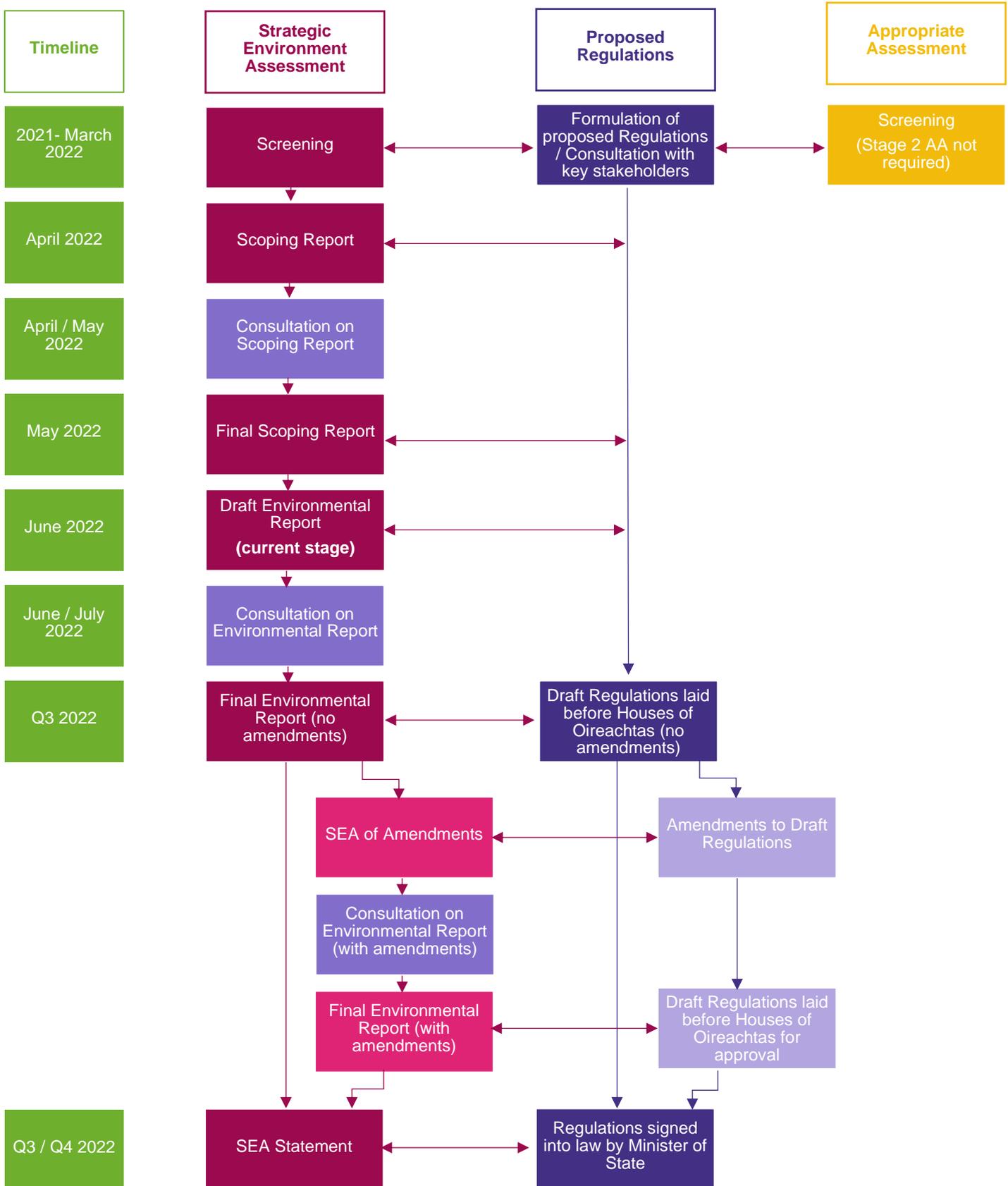
- The proposed regulations will allow development to take place close to existing structures in previously modified environments.
- Any proposals that are considered exempted development under the proposed regulations will be de-exempted if they are deemed to require a full AA (as prescribed by section 4 of the Act).

On 31 March 2022, the Ecological Assessment Unit of the DHLGH therefore determined, in accordance with in accordance with Regulation 42A(8) of the 2011 Regulations, that an Appropriate Assessment of the proposed regulations is not required because it can be excluded, on the basis of objective scientific information following a screening AA, that the proposed regulations individually or in combination with other plans or projects will have a significant effect on a European site or sites.

Links between SEA, AA and Regulation-making processes

1.39 The flowchart presented in **Figure 1.2** overleaf shows how the SEA process links to the regulation-making and AA processes.

Figure 1.2: Links between SEA, AA and Regulation-making processes



Meeting the requirements of the SEA Regulations

1.40 This Environmental Report complies with the requirements of the SEA Directive as implemented in Ireland through the SEA Regulations. **Table 1.1** signposts how the requirements of the SEA Regulations have been met within this report.

Table 1.1: Meeting the requirements of the SEA Regulations

SEA Regulations' Requirement	Covered in this Environmental Report?
Content and format of Environmental Report	
<p>Subject to sub-article (2), an environmental report under article 10 shall identify, describe and evaluate the likely significant effects on the environment of implementing the plan or programme, or modification to a plan or programme, and reasonable alternatives taking account of the objectives and the geographical scope of the plan or programme, or modification to a plan or programme, and for this purpose, the report shall—</p> <ul style="list-style-type: none"> ■ contain the information specified in Schedule 2, ■ take account of any submission or observation received in response to a notice under article 11(1), and ■ be of sufficient quality to meet the requirements of these Regulations. <p>Article 12(1)</p>	The Environmental Report(s) will adhere to this requirement.
<p>An environmental report shall include the information that may reasonably be required taking into account:</p> <ul style="list-style-type: none"> ■ current knowledge and methods of assessment; ■ the contents and level of detail in the plan or programme, or modification to a plan or programme; ■ the stage of the plan or programme, or modification to a plan or programme, in the decision-making process; and ■ the extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment. <p>Article 12(2)</p>	Chapter 1
Schedule 2 Information to be contained in an environmental report	
An outline of the contents and main objectives of the plan or programme, or modification to a plan or programme, and relationship with other relevant plans or programmes.	Chapter 1 and Chapter 3 Appendix B
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme, or modification to a plan or programme.	Chapter 4
The environmental characteristics of areas likely to be significantly affected.	Chapter 4
Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular	Chapter 4

SEA Regulations' Requirement	Covered in this Environmental Report?
environmental importance, such as areas designated pursuant to the Birds Directive or the Habitats Directive.	
The environmental protection objectives, established at international, European Union or national level, which are relevant to the plan or programme, or modification to a plan or programme, and the way those objectives and any environmental considerations have been taken into account during its preparation.	Chapter 3 Appendix B
The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive effects, and secondary, cumulative and synergistic effects, on issues such as: (a) biodiversity; (b) population; (c) human health; (d) fauna; (e) flora; (f) soil; (g) water; (h) air; (i) climatic factors; (j) material assets; (k) cultural heritage, including architectural and archaeological heritage; (l) landscape; and (m) the interrelationship between the issues referred to in sub-paragraphs (a) to (l).	Chapter 5 Appendix D
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	Chapter 6
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Chapter 2
A description of the measures envisaged concerning monitoring of the significant environmental effects of implementation of the plan or programme, or modification to a plan or programme.	Chapter 7
A non-technical summary of the information provided under the above headings.	A sperate non-technical summary document has been prepared to accompany the Environmental Report.
Consultations	
<p>A competent authority shall:</p> <ul style="list-style-type: none"> ■ send notice and a copy of the draft plan or programme, or modification to a plan or programme, and associated environmental report to the environmental authorities specified in article 9(5), as appropriate, and state that a written submission or observation with respect to the draft plan or programme, or modification to a plan or programme, and 	Consultation on the SEA Scoping Report was undertaken with the Environmental Authorities from Thursday 28 April 2022 to Friday 27 May 2022.

SEA Regulations' Requirement	Covered in this Environmental Report?
<p>associated environmental report made to the competent authority within a specified period of not less than 4 weeks from the date of the notice will be taken into consideration before the finalisation of the plan or programme, or modification to a plan or programme, and</p> <ul style="list-style-type: none"> ■ publish notice, in accordance with sub-article (2), of the preparation of the draft plan or programme, or modification to a plan or programme, and associated environmental report in at least one newspaper with a sufficiently large circulation in the area covered by the plan or programme, or modification to a plan or programme. <p>A notice under sub-article (1)(b) shall state that—</p> <ul style="list-style-type: none"> ■ a copy of the draft plan or programme, or modification to a draft plan or programme and associated environmental report are available for public inspection at the offices of the competent authority during office hours and on the website of the authority or any other stated place or places at the stated times during a specified period which shall be not less than 4 weeks from the date of the notice (and the copy shall be kept available for inspection accordingly) and, ■ a written submission or observation with respect to the draft plan or programme, or modification to a plan or programme, and associated environmental report made to the competent authority within the period referred to in paragraph (a), or such period as may be specified in law in respect of the draft plan or programme, or modification to a plan or programme, will be taken into consideration before the finalisation of the plan or programme, or modification to a plan or programme. <p>Article 13(1) and (2)</p>	<p>Consultation on the SEA Environmental Report will be undertaken with the Environmental Authorities and the public from Wednesday 15 June 2022 to Wednesday 13 July 2022.</p>
<p>A competent authority shall, following consultation with the responsible Minister, forward a copy of a draft plan or programme, or modification to a plan or programme, and associated environmental report to a Member State—</p> <ul style="list-style-type: none"> ■ where the competent authority considers that implementation of the plan or programme, or modification to a plan or programme, is likely to have significant effects on the environment of such Member State, or ■ where a Member State, likely to be significantly affected, so requests. <p>Article 14(1)</p>	<p>The departure of the United Kingdom including Northern Ireland from the European Union results in Ireland having no directly neighbouring European Member State. It is believed that the overall impact of increasing renewable energy capacity and reducing carbon emissions in Ireland will contribute to delivering net positive environmental outcomes to Northern Ireland and mainland UK, in terms of a positive contribution to collective efforts for reducing climatic impact. However, the impacts are not likely to be significant and therefore no special transboundary consultation is deemed necessary for the proposed SEA.</p>
Information on decision	
<p>As soon as practicable after the adoption of a plan or programme, or modification to a plan or programme, the competent authority shall—</p> <ul style="list-style-type: none"> ■ send notice of adoption of, and a copy of, the plan or programme, or modification to a plan or programme, and a copy of the statement 	<p>Requirement will be met after the proposed regulations are enacted.</p>

SEA Regulations' Requirement	Covered in this Environmental Report?
<p>referred to in sub-article (2)(b) to the environmental authorities specified in article 9(5), as appropriate, and</p> <ul style="list-style-type: none"> ■ publish notice of the adoption of the plan or programme, or modification to a plan or programme, in at least one newspaper with a sufficiently large circulation in the area covered by the plan or programme, or modification to a plan or programme. <p>A notice under sub-article (1)(b) shall state that</p> <ul style="list-style-type: none"> ■ a copy of the plan or programme, or modification to a plan or programme, is available for inspection at a stated place or places and at stated times and a copy shall be kept available for inspection accordingly, and ■ a statement is also available for inspection which summarises— <ul style="list-style-type: none"> – how environmental considerations have been integrated into the plan or programme, or modification to a plan or programme, – how the environmental report prepared pursuant to article 12 – how submissions and observations made to the competent authority in response to a notice under article 13, and – how any consultations under article 14, have been taken into account during the preparation of the plan or programme, or modification to a plan or programme, ■ the reasons for choosing the plan or programme, or modification to a plan or programme, in the light of the other reasonable alternatives dealt with, and ■ the measures decided upon to monitor, in accordance with article 17, the significant environmental effects of implementation of the plan or programme, or modification to a plan or programme. <p>Article 16 (1) and (2)</p>	
Monitoring	
<p>The competent authority shall monitor the significant environmental effects of implementation of the plan or programme, or modification to a plan or programme in order, inter alia, to identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action and, for this purpose, existing monitoring arrangements may be used, if appropriate, with a view to avoiding duplication of monitoring.</p>	<p>Requirement will be met after the proposed regulations are enacted.</p>

Structure of the Environmental Report

1.41 This Environmental Report is structured to be compliant with the reporting requirements of the SEA Regulations. This chapter has introduced the SEA process for the proposed regulations. The remainder of this report is structured into the following sections:

- **Chapter 2 SEA methodology** – describes the method used in carrying out the SEA, the approach to assessing reasonable alternatives and describes any difficulties encountered and data limitations.
- **Chapter 3 Relationship with other plans and programmes** - describes the review of plans, programmes and environmental protection objectives of relevance to the SEA of the proposed regulations (this is supported by more detailed information in **Appendix B**).
- **Chapter 4 Environmental baseline information** - identifies current baseline conditions; key issues / problems currently being faced nationally; and a description of the expected evolution of the environment should the proposed regulations not be amended.
- **Chapters 5 SEA findings** – sets out the findings from the SEA of the proposed regulations and reasonable alternatives.
- **Chapter 6 Mitigation and enhancement** – describes the mitigation measures that have been considered and incorporated to avoid or mitigate any potential (significant) adverse impacts.
- **Chapter 7 Monitoring** – sets out the measures envisaged to monitor the proposed regulations.
- **Chapter 8 Conclusion and next steps** – summarises the key findings from the SEA and sets out information on the consultation including how to provide views on the Environmental Report and how these responses will be taken into account in the finalisation of the proposed regulations.

1.42 The SEA Report is supported by the following appendices:

- **Appendix A** details the consultation responses received on the Screening and Scoping Reports.
- **Appendix B** details the review of relevant plans, programmes and environmental protection objectives.
- **Appendix C** presents a comparison between the proposed regulations and Principal Regulations, detailing the proposed changes.
- **Appendix D** presents the detailed SEA matrices.

1.43 A separate **Non-Technical Executive Summary** accompanies this Environmental Report and provides a non-technical summary of the information contained in this report.

Chapter 2

SEA methodology

This chapter describes the approach that has been undertaken during the SEA of the proposed regulations. In addition to complying with legal requirements, the approach is based on current best practice and guidance.

SEA guidance documents

2.1 The following principal sources of guidance have been used during the preparation of the Scoping and Environmental Reports:

- Strategic Environmental Assessment (SEA) Pack. 2022. Environmental Protection Agency.
- Good Practice Note on SEA for the Energy Sector. 2021. Environmental Protection Agency.
- SEA Spatial Information Sources Inventory. 2021. Environmental Protection Agency.
- Good Practice Guidance on Cumulative Effect Assessment in SEA. 2020. Environmental Protection Agency.
- Guidance on SEA Statements and Monitoring. 2020. Environmental Protection Agency.
- Second Review of SEA Effectiveness in Ireland. 2020. Environmental Protection Agency.
- Integrating Climate Change into Strategic Environmental Assessment in Ireland - A Guidance Note. 2019. Environmental Protection Agency.
- GISEA Manual – Improving the Evidence Base in SEA. 2017. Environmental Protection Agency.
- Developing and Assessing Alternatives in Strategic Environmental Assessment – Good Practice Guidance. 2015. Environmental Protection Agency.
- Integrating Biodiversity Impact Assessment: Streamlining AA, SEA and EIA Processes –

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

Practitioner's Manual. STRIVE Report Series No. 106. 2013. Environmental Protection Agency.

- SEA Process Checklist - Consultation Draft. 2013. Environmental Protection Agency.
- Implementation of SEA Directive (2001/42/EC). Assessment of Certain Plans and Programmes on the Environment. Guidelines for Regional Planning Authorities. November 2004. Department of Environment, Heritage and Local Government.
- Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland. Synthesis Report. 2003. Environmental Protection Agency.

2.2 The SEA will also have regard to the findings of the EPA's 2012¹⁰ and 2020¹¹ reviews of SEA effectiveness in Ireland.

Stages in SEA process

2.3 The SEA of the proposed regulations comprises the following principal stages:

- 1. Screening (completed):** Determine whether the proposed regulations are likely to result in significant environmental effects.
- 2. Scoping (completed):** Consultation with the Environmental Authorities on the scope and level of detail to be considered in the assessment; and finalisation of the Scoping Report taking into account the submissions and observations received from the Environmental Authorities.
- 3. Environmental Report (completed):** An assessment of the likely significant impacts on the environment as a result of the proposed regulations.
- 4. Consultation (current stage)** on the draft Environmental Report.
- 5. Evaluation** of the submissions and observations made on the draft Environmental Report prior to finalising the proposed regulations.
- 6. Issuing of an SEA Statement** identifying how environmental considerations and consultation have been integrated into the final regulations.

Stage 1: Screening

2.4 Screening for SEA was undertaken by the Minister of State for Local Government and Planning pursuant to the criteria set out in Schedule 1 of the SEA Regulations. The Screening Report concluded that the proposed regulations have the potential to pose both positive and negative impacts on the environment. The potential positive effects relate to the facilitation of the uptake of renewable energy from solar panels and reduced reliance on fossil fuel energy sources. The potential adverse effects of the proposed regulations are regarded to be significant if multiple solar panels are erected in sensitive environments, causing potential significant adverse impacts on the appearance of that landscape. This cumulative impact could have a higher level of significance for free-standing panels which may be erected in less disturbed landscapes. Panels erected on roofs and walls are generally less obtrusive as they are interventions in an already-disturbed environment. Therefore, the Minister of State for Local Government and Planning signed the SEA Screening Determination on 12 April 2022 which determined that the proposed regulations would require SEA.

2.5 As part of the SEA screening process, the Environmental Authorities were notified that submissions and observations in relation to whether the proposed regulations would or would not be likely to have significant effects on the environment, could be made to DHLGH.

2.6 The Environmental Authorities defined in section 9(5) of the SEA Regulations¹², as amended, are:

- Environmental Protection Agency
- Minister for Housing, Local Government and Heritage
- Minister for Environment, Climate and Communications
- Minister for Agriculture, Food and the Marine

2.7 One submission was received in response to the SEA Screening Report from the Environmental Protection Agency. The issues raised in this submission and how they have been taken into account in the finalised Screening Report and this Environmental Report are detailed in **Appendix A**.

Stage 2: Scoping

2.8 The Scoping Report is required to provide information for consideration in respect of the requisite content of the SEA. It is obligatory to conduct the scoping stage of an SEA such that

¹⁰ EPA (2012) SEA Effectiveness Review in Ireland (online) Available at: <https://www.epa.ie/publications/monitoring--assessment/assessment/sea-effectiveness-review-in-ireland---action-plan-2012-16.php>

¹¹ EPA (2020) Second Review of SEA Effectiveness in Ireland (online) Available at: <https://www.epa.ie/publications/monitoring-->

[assessment/assessment/second-review-of-sea-effectiveness-in-ireland.php](https://www.epa.ie/publications/monitoring--assessment/assessment/second-review-of-sea-effectiveness-in-ireland.php)

¹² A number of government departments have changed name and certain responsibilities have migrated between departments. The SEA legislation has not yet been updated to reflect these changes however, for clarity the current relevant departments are listed.

the content and boundaries for the SEA are agreed prior to commencement of the Environmental Report.

2.9 The main stages in carrying out scoping include:

- Identifying plans, programmes, and environmental objectives of relevance to the proposed regulations.
- Scoping of SEA Topics¹³ relevant to the proposed regulations.
- Identifying geographic, temporal and transboundary scope of the proposed regulations.
- Collecting baseline information.
- Identifying sustainability issues and problems.
- Developing the SEA framework comprising environmental objectives, indicators and targets to allow the evaluation of impacts on the environment.
- Identifying reasonable alternatives to the proposed regulations.
- Consulting on the scope of the SEA.

Geographical and transboundary scope

2.10 The proposed regulations are national in scale and application. The proposed regulations do not have any geographic specificity associated with them with the exception of the Solar Safeguarding Zones which apply within a 3km radius around hospitals and aerodromes and 5km radius around aviation sites. The nature of this development type would suggest that solar PV or thermal installations would be located on or in proximity to existing structures. These structures could therefore be located in a variety of urban or rural landscape types.

2.11 The SEA Regulations require the SEA to consider whether the plan / programme is likely to have significant effects on neighbouring European Member States. The departure of the United Kingdom including Northern Ireland from the European Union results in Ireland having no directly neighbouring European Member State. It is believed that the overall impact of increasing renewable energy capacity and reducing carbon emissions in Ireland will contribute to delivering net positive environmental outcomes to Northern Ireland and mainland UK, in terms of a positive contribution to collective efforts for reducing climatic impact.

Temporal scope

2.12 The proposed regulations are open ended with no fixed end date. For the purpose of this SEA, the short-term will

consider the period up to 2025, the medium term up to 2030 to coincide with Ireland's target for renewable energy generation (34% by 2030), and the long-term horizon will consider the period up to 2050 to coincide with the net zero emissions target.

Scoping of SEA topics

2.13 The environmental topics in the SEA Regulations that were scoped in for the assessment include: Biodiversity, Flora and Fauna; Population and Human Health; Climatic Factors; Air; Soil; Water; Cultural Heritage including Architectural and Archaeological Heritage; Landscape; Material Assets; and the interrelationship between these factors.

Scoping consultation

2.14 Article 13 of the SEA Regulations sets out the details of the requirements for consultation with the Environmental Authorities on the scoping of the Environmental Report. In accordance with those requirements, the relevant Environmental Authorities were notified that an SEA will be conducted as part of the proposed Planning and Development Act, 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022, in recognition of the likely significant effects on the environment.

The Scoping Report was issued to the Environmental Authorities for a four-week consultation period from Thursday 28 April 2022 to Friday 27 May 2022.

2.15 Five submissions were received in response to the SEA Scoping Report from:

- Environmental Protection Agency;
- Department of Agriculture, Food and the Marine;
- Department of Environment, Climate and Communications;
- Development Applications Unit of the Department of Housing, Local Government and Heritage; and
- National Monuments Service of the Department of Housing, Local Government and Heritage.

2.16 The Scoping Report was subsequently updated to take account of the submissions received from the Environmental Authorities. The issues raised in these submissions and how they have been taken into account in the finalised Scoping

¹³ Biodiversity, Flora and Fauna; Population and Human Health; Climatic Factors; Air; Soil; Water; Cultural Heritage including

Architectural and Archaeological Heritage; Landscape; Material Assets

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Report and this Environmental Report are detailed in **Appendix A**.

Stage 3: Environmental Report

2.17 The SEA Regulations require an Environmental Report to be prepared, in line with the completed Scoping Report. This Environmental Report contains the findings of the assessment of the likely significant effects on the environment resulting from implementation of the proposed regulations. It reflects the requirements of the SEA Directive and the transposed SEA Regulations by providing the following information:

- An outline of the contents of the proposed regulations and its relationship with other relevant plans and programmes.
- The environmental characteristics of the study area, including any problems and issues identified and their likely evolution without the proposed regulations.
- Key environmental policy objectives set at the international, national and local levels that are relevant to the proposed regulations.
- The SEA Framework and the criteria used to make judgements about the effects of the proposed regulations.
- The likely significant effects of the proposed regulations and reasonable alternative options appraised against each of the Environmental Protection Objectives (EPOs) in the SEA Framework, taking into account mitigation (which may take the form of policy safeguards in national policy or other regulatory mechanisms).
- Any difficulties encountered during the assessment process, including data limitations.
- How consultation comments have been taken into account, including those obtained on the Screening Report and Scoping Report.
- Proposed monitoring framework for significant effects identified (including uncertain effects where these could become significant).
- Appendices, including the consultation responses tables, and SEA matrices.

2.18 This Environmental Report clearly sets out the SEA conclusions for the proposed regulations, highlighting any likely significant effects, and would make any recommendations for mitigating potential negative effects identified. The assessment of significant effects includes likely secondary, cumulative, synergistic, short-medium-long term, permanent, temporary, positive and negative effects, as well

as the interrelationships between each SEA topic, as set out in Schedule 2 of the SEA Regulations. The Environmental Report is accompanied by a Non-Technical Summary document.

Review of relevant plans and programmes

2.19 The SEA Regulations require the Environmental Report to describe the relationship of the proposed regulations with other relevant plans and programmes. The proposed regulations should also be consistent with environmental protection legislation and support attainment of environmental objectives that have been established at the international and national levels.

2.20 A review was therefore undertaken of plans and programmes at the international and national levels that were considered to be relevant to the scope of the proposed regulations. The full review is presented in **Appendix B** and a summary of the most relevant plans and programmes is outlined in **Chapter 3** of this ER.

Collecting baseline information and identifying key environmental issues

2.21 To fulfil the requirements of Schedule 2, the Scoping Report set out a description of the state of the environment at present; identified the key issues / problems currently being faced nationally; and described the expected evolution of the environment should the proposed regulations not be amended. The baseline information presented in **Chapter 4** of this Environmental Report has been updated since the Scoping Report to take into account the representations received from the Environmental Authorities. The baseline reflects the strategic nature of the proposed regulations. The environmental baseline is presented by SEA topic area.

Developing an SEA Framework

2.22 The relevant environmental objectives identified by the review of plans and programmes together with the key environmental issues identified by the collection and review of baseline information, helped to inform the development of a set of environmental objectives (the 'SEA Framework') against which the effects of the proposed regulations have been assessed.

2.23 Development of the SEA Framework is not a requirement of the SEA Regulations, but it is a recognised way in which the likely environmental effects of the proposed regulations can be transparently and consistently described, analysed and compared. The SEA Framework that has been used throughout the SEA process is presented in **Table 2.1**. It is considered that the objectives selected adequately reflect the requirements of Schedule 2 of the SEA Regulations.

Table 2.1: SEA Framework

SEA Topic	SEA Headline Objective	Environmental Sub Objective(s)
Biodiversity, Flora and Fauna	1. Protect, maintain, and where possible enhance, biodiversity and geodiversity.	a. Protect and enhance habitats of international, national, regional or local importance.
		b. Protect international, national, regional or locally important species.
		c. Protect geological sites of national, regional or local importance.
		d. Maintain wildlife corridors and minimise fragmentation of ecological areas.
Population and Human Health	2. Improve the health of the people of Ireland.	a. Avoid adverse effects on health and quality of life.
		b. Improve the health of people and communities by reducing reliance on fossil fuels and their associated toxic emissions.
		c. Protect aviation and road users from glint, glare, dazzle and reflections from solar panels.
Climatic Factors	3. Reduce Ireland's contribution and vulnerability to climate change.	a. Reduce Ireland's contribution to climate change by reducing greenhouse gas emissions from non-renewable energy sources.
		b. Avoid development in areas at risk of flooding or where this would increase the risk of flooding.
Air	4. Improve Ireland's air quality.	a. Improve air quality through reduced reliance and combustion on fossil fuels.
Soil	5. Protect soil quality and resources.	a. Safeguard soil quality and quantity.
		b. Conserve and protect carbon rich soils.
Water	6. Protect the quality and quantity of watercourses and waterbodies.	a. Protect the quality and quantity of watercourses and surface water and groundwater waterbodies.
Cultural Heritage including Architectural Heritage	7. Protect the character and built quality of settlements and Ireland's historic environment and cultural heritage.	a. Protect designated and undesignated heritage assets, their settings and their contribution to townscape, including Architectural Conservation Areas, Listed Buildings, buried archaeology, areas of historical heritage and cultural value e.g. locally important buildings.
Landscape	8. Protect landscape character and the quality of Ireland's landscapes.	a. Protect landscape character and the quality of Ireland's landscapes, particularly in designated or sensitive landscapes, historic landscapes or rural areas.
		b. Protect visual amenity.
Material Assets	9. Use natural resources and energy more efficiently.	a. Encourage the prudent use of natural resources, particularly scarce resources.
		b. Secure domestic energy supply through captured solar energy and reduce reliance on fuel imports.

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Identifying and appraising reasonable alternatives for the proposed regulations

2.24 One of the critical roles of the SEA is to facilitate an evaluation of the likely environmental consequences of a range of alternative development scenarios, in this case the proposed regulations. These alternative scenarios should meet the following considerations:

- Take into account the geographical scope, hierarchy and objectives of the proposed regulations – **be realistic**
- Be based on socio-economic and environmental evidence – **be reasonable**
- Be capable of being delivered within the regulations' timeframe and resources – **be implementable**
- Be technically and institutionally feasible – **be viable**

2.25 The reason for assessing alternatives is to determine if the significant adverse effects of the proposed regulations can be reduced or avoided. Therefore, the alternatives should be “reasonable”. The term reasonable is not defined in the SEA Directive/Regulations. However, considering the EPA's Developing and Assessing Alternatives in Strategic Environmental Assessment – Good Practice Guidance, for an alternative to be considered reasonable for the purposes of this SEA, it must meet the objectives of the proposed regulations.

2.26 Given the high-level nature of the proposed regulations, the alternatives to be considered are at the strategic level and include consideration of a *do nothing* scenario relating to the business as usual approach. Reasonable alternatives also relate to:

- the removal of limitations on solar PV or solar thermal collector installations on proposed protected structures, protected structures, and structures in Architectural Conservation Areas.
- the restriction of solar PV or solar thermal collector installations in relation to houses within Solar Safeguarding Zones.
- the restriction of solar PV or solar thermal collector installations on roofs and walls facing roads.

Appraisal methodology

2.27 The proposed regulations and reasonable alternatives have been appraised against the objectives in the SEA Framework set out in **Table 2.1**. The findings from the SEA are presented in SEA matrices in **Appendix D**, which include colour coded symbols showing the score of each component of the regulations against each of the SEA objectives along

with a concise justification for the score given. The use of colour coding in the matrices allows for likely significant effects (both positive and negative) to be easily identified, as shown in **Figure 2.1**.

Figure 2.1: Key to symbols and colour coding

++	The regulation is likely to have a significant positive effect on the SEA objective(s).
++/-	The regulation is likely to have a mixed effect (significant positive and minor negative) on the SEA objective(s).
+	The regulation is likely to have a minor positive effect on the SEA objective(s).
0	The regulation is likely to have a negligible or no effect on the SEA objective(s).
-	The regulation is likely to have a minor negative effect on the SEA objective(s).
-/+	The regulation is likely to have a mixed effect (significant negative and minor positive) on the SEA objective(s).
--	The regulation is likely to have a significant negative effect on the SEA objective(s).
?	It is uncertain what effect the regulation will have on the SEA objective(s), due to a lack of data.
+/-	The regulation is likely to have a mixture of positive and negative effects on the SEA objective(s).

2.28 The dividing line in making a decision about the significance of an effect is often quite small. Where either (++) or (--) has been used to distinguish significant effects from more minor effects (+ or -) this is because the effect of the proposed regulations on the SEA objective in question is considered to be of such magnitude that it will have a noticeable and measurable effect taking into account other factors that may influence the achievement of that objective.

2.29 Where a potential positive or negative effect is uncertain, a question mark is added to the relevant effect (e.g., +? or -?) and the effect is colour coded as per the potential positive, negligible or negative effect (e.g., green, white, pink, etc.). Schedule 2 of SEA Regulations identifies criteria for determining the likely significance of effects on the environment (see **Table 2.2**) which has guided the approach to scoring in the assessment.

Table 2.2: Approach to scoring effects

SEA Assessment Criteria	Breakdown and Description
The probability, duration, frequency and reversibility of the effects	<p><u>Probability</u> Low – Not likely to have an effect Medium High – Highly likely to have an effect</p> <p><u>Duration</u> Short-term – up to 2025 Medium-term – up to 2030 Long-term – up to 2050</p> <p><u>Frequency</u> Continual; defined by number of occurrences; or intermittent</p> <p><u>Reversibility</u> Whether the effect can be reversed (i.e., can the receptor return to baseline condition) without significant intervention</p>
The cumulative nature of the effects	Where several options each have insignificant effects but together have a significant or combined effect. This includes synergistic effects, which is when effects interact to produce a total effect greater than the sum of the individual effects.
The transboundary nature of the effects	Effects beyond Ireland's boundary.
The risks to human health or the environment	Whether the impact of the effect would present a risk for people and the environment.
The magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected)	<p><u>Magnitude</u> High – High proportion of the receptor affected Medium Low – Low proportion of the receptor affected</p> <p><u>Spatial extent</u> National/Transboundary – Effects on Ireland International – Effects extending to beyond Ireland</p>
The value and vulnerability of the area likely to be affected due to: <ul style="list-style-type: none"> (i) special natural characteristics or cultural heritage (ii) exceeded environmental quality standards or limit values (iii) intensive land-use 	Impact of the effect on the value or condition of the existing area.
The effects on areas or landscapes which have a recognised national, European Union or international protection status	Impacts on areas with national, European Union or international protection.

2.30 Chapter 5 presents summaries of the findings for each component of the proposed regulations. Drawing on the findings from the assessment, narrative text is provided in Chapter 5 which sets out the potential cumulative, synergistic and in-combination effects likely to arise from the proposed regulations.

Monitoring

2.31 A monitoring programme is required to facilitate monitoring of environmental effects during implementation of the proposed regulations. This will be focussed on the significant effects identified during the assessment phase. The monitoring programme is presented in Chapter 7 and has been developed in line with the EPA's Guidance on SEA Statements and Monitoring.

Stage 4: Consultation

2.32 Information about consultation on the SEA that has already taken place at earlier stages is provided above.

Public consultation will be carried out on this Environmental Report for a four-week period from Wednesday 15 June 2022 to Wednesday 13 July 2022.

2.33 The Environmental Report and associated Non-Technical Summary will be published on DHLGH's website for consultation.

Stage 5: Evaluation

2.34 The submissions and observations received during the public consultation period will be reviewed and considered during the finalisation of the regulations. If the proposed regulations are further revised, these revisions will be subject to further assessment. If there are no further alterations to the proposed regulations, a Final Environmental Report will be prepared and made available on the DHLGH's website.

Stage 6: SEA Statement

2.35 An SEA Statement will be prepared identifying how each of the requirements in article 16 of the SEA Regulations have been met during the SEA process. The finalised SEA Statement will be published after the Minister of State signs the regulations into law.

Difficulties encountered and data limitations

2.36 Schedule 2 of S.I. No. 435 of 2004 states that the Environmental Report should identify any difficulties encountered during the assessment process. The main difficulties and data gaps encountered were:

- Lack of geographic specificity for the proposed regulations, with the exception of the Solar Safeguarding Zones.
- The assessment is more qualitative as quantitative assessment is made difficult due to the very strategic level of the proposed regulations and lack of spatial dimension.

2.37 No other specific data limitations or difficulties were encountered during the SEA process.

Chapter 3

Relationship with other plans and programmes

The proposed regulations are greatly influenced by other plans / programmes and by broader environmental objectives. The proposed regulations must conform to environmental protection legislation and the environmental objectives established at international, European and national levels, as well as contributing to the goals of a wide range of other plans and programmes.

Schedule 2 of the SEA Regulations requires:

“an outline of the contents and main objectives of the plan or programme...and relationship with other relevant plans or programmes”; and

the environmental protection objectives, established at international, European Union or national level, which are relevant to the plan or programme...and the way those objectives and any environmental considerations have been taken into account during its preparation”.

3.1 A review of the key international, European and national legislation and plans / programmes of relevance to the proposed regulations is detailed in **Appendix B**. This review was initially prepared during the scoping stage of the SEA and has been subsequently updated to take into account plans and programmes suggested by the Environmental Authorities during the consultation of the Scoping Report. It should be noted that this Environmental Report has been prepared to be proportionate to the scale and nature of the proposed changes that may result from the implementation of the proposed regulations. It is not intended to be a register of all legislation /

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

plans / programmes, but rather an examination of the key environmental protection objectives relevant to the proposed regulations. A summary of the most relevant plans / programmes is provided in the subsequent paragraphs.

Figure 3.1 overleaf illustrates the links and inter-relationships between the proposed regulations and other key relevant international, European and national plans / programmes and legislation.

Key international plans, programmes and environmental protection objectives

3.2 At the international level, Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the 'SEA Directive') and Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') are particularly significant as they require SEA and AA to be undertaken in relation to the proposed regulations. The SEA and AA processes have been undertaken iteratively and integrated into the development of the regulations in order to ensure that any potential negative environmental effects (including on European-level nature conservation designations) are identified and can be mitigated.

3.3 A number of international policies set out high-level strategic objectives for addressing climate change and increasing renewable energy generation. The proposed regulations aim to address several UN Sustainable Development Goals including:

- Goal 7: Affordable and Clean Energy; and
- Goal 13: Climate Action.

3.4 The proposed regulations aim to significantly extend the solar panel planning exemptions. This highlights the Government's commitment to the International Convention on Biological Diversity and to the UN Paris Climate Change Agreement which aims to ensure that global temperatures stay below 2°C (based on pre-industrial levels).

3.5 At the European Union (EU) level, there are several important directives that focus on protecting and conserving the natural environment which are relevant to the proposed regulations. These include the Air Quality Directive, the Water Framework Directive, the Birds Directive, and the Habitats Directive.

3.6 The European Climate Law sets the legal basis for the goals set out in the European Green Deal committing the EU to becoming the first climate-neutral continent by 2050. This will be achieved by reducing emissions by 55% by 2030 (compared with 1990 levels). The Fit for 55 Package, published as part of the European Green Deal in 2021, sets out a suite of legislative initiatives across various sectors,

including energy, transport and buildings, which are intended to keep Europe on track to delivery on its climate targets. This includes proposals to update the Renewable Energy Directive (RED II) and Energy Efficiency Directive (EED II) (among other directives) to reflect the revised climate targets of providing 40% of Europe's total energy needs with renewable energy by 2030, to reduce greenhouse gas emissions by 55% by 2030, and for Europe to be climate neutral by 2050.

3.7 The 2030 Climate Action Plan and the EU Eighth Environmental Action Programme set out how these ambitions targets can be achieved.

3.8 The recently published REPowerEU Plan by the European Commission sets out the plan to end the Union's dependency on Russian fossil fuels by fast forwarding the clean energy transition. At the heart of this plan is boosting renewable energy generation including the installation of solar PVs. The Commission sets a target of over 320GW of newly installed solar PVs by 2025, over twice today's level, and almost 600GW by 2030. The EU Solar Energy Strategy sets out how this will be achieved, primarily through the introduction of the European Solar Rooftop Initiative which seeks to:

- increase the 2030 target for renewable share to 45%;
- limit the length of permitting for rooftop solar installations to a maximum of three months;
- adopt provisions to ensure that all new buildings are 'solar ready';
- make the installation of rooftop solar energy compulsory for:
 - all new public and commercial buildings with useful floor area larger than 250 m² by 2026;
 - all existing public and commercial buildings with useful floor area larger than 250 m² by 2027; and
 - all new residential buildings by 2029.

3.9 Therefore, by significantly extending the solar panel planning exemptions to encourage the expansion of solar energy generation in Ireland, the proposed regulations will contribute towards achieving the European Union's renewable energy and greenhouse gas emissions targets.

Key national plans, programmes and environmental protection objectives

3.10 The Climate Action and Low Carbon Development (Amendment) Act 2021 set targets for Ireland to deliver up to 80% of electricity from renewables and to reduce greenhouse gas emissions by 51% by 2030 and reach net-zero no later than 2050. How these targets will be achieved is set out in the

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

Climate Action Plan 2021 (the 2022 Climate Action Plan has not been published at the time of writing). Action 107 of the Climate Action Plan 2021 directly relates to the proposed regulations and requires the Government to conclude the review of current planning exemptions relating to solar panels. A 2030 Key Performance Indicator set out in the Climate Action Plan 2021 is the delivery of 1.5-2.5GW of solar PV energy. The delivery of up to 2.5GW of grid-scale solar energy by 2030 is also reflected in the National Development Plan 2021-2030 as a strategic investment priority.

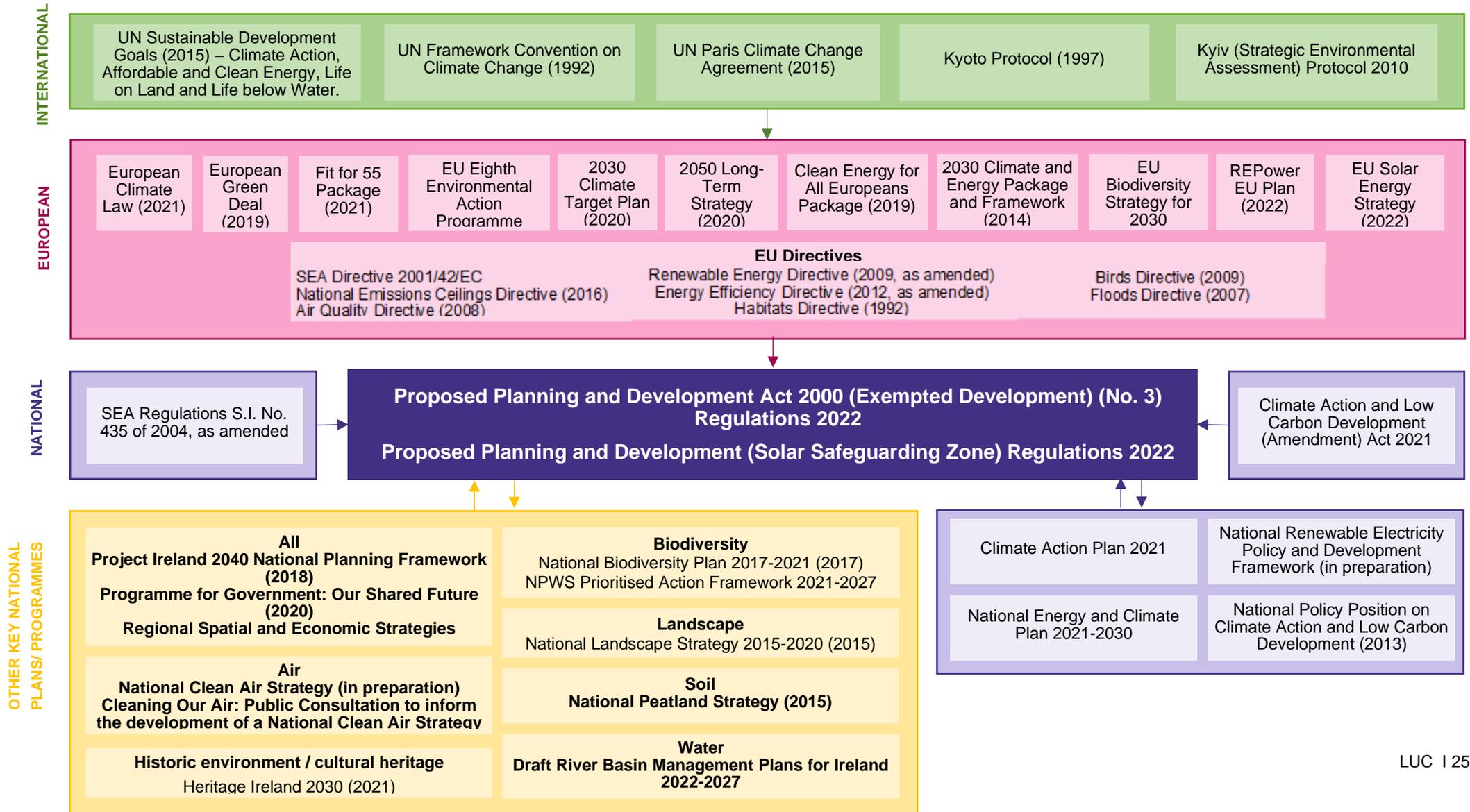
3.11 The proposed regulations support the key objectives of the National Energy and Climate Plan 2021-2030 which include:

- reducing emissions from sectors outside the EU's Emissions Trading System by 30% (relative to 2005 levels by 2030).
- achieving a 34% share of renewable energy in energy consumption by 2030.
- increasing electricity generated from renewable sources to 70% (now 80% under the Climate Action Act 2021).
- up to 1.5GW of grid scale solar energy (between 1.5-2.5GW under the Climate Action Plan 2021).

3.12 The proposed regulations will also relate to the National Renewable Electricity Policy and Development Framework and Clean Air Strategy which are currently in preparation.

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Figure 3.1: Policy context



Chapter 4

Environmental baseline information

Baseline information provides the basis for predicting and monitoring the likely environmental effects of the proposed regulations and helps to identify key environmental problems and means of dealing with them.

Schedule 2 of the SEA Regulations requires information to be provided on:

"The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme, or modification to a plan or programme.

The environmental characteristics of areas likely to be significantly affected.

Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to the Birds Directive or the Habitats Directive."

4.1 To fulfil the requirements of Schedule 2, this chapter sets out a description of the state of the environment at present; a discussion of the key issues / problems currently being faced nationally; and a description of the expected evolution of the environment should the proposed regulations not be amended.

4.2 The baseline will reflect the strategic nature of the proposed regulations. The environmental baseline is presented by SEA topic area. It will be key that the current state of the environment is described using the most up-to-date environmental data, information and reports. Where updates of significant environmental data and associated reports become available during the SEA process, this new information will be incorporated into the baseline.

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Baseline data sources

4.3 Table 4.1 indicates many of the headline relevant sources for defining the baseline data in each of the SEA categories.

4.4 One of the primary sources of information to identify the current baseline conditions, key issues and challenges has been the State of the Environment Report – Ireland’s Environment An Integrated Assessment 2020 (specific relevant chapters are referenced in **Table 4.1**). The Environmental Sensitivity Mapping (ESM) Web Tool, an SEA decision support tool, has also been used to spatially examine environmental sensitivities.

Table 4.1: Baseline data sources

SEA Category	Baseline Data Sources
Biodiversity, Flora and Fauna	<u>State of the Environment Report - Ireland's Environment 2020 – Chapter 6 Nature</u> . 2020. EPA. <u>The Status of EU Protected Habitats and Species in Ireland</u> .2019. National Parks and Wildlife Service.
Population and Human Health	<u>State of the Environment Report - Ireland's Environment 2020 – Chapter 14 Environment, Health and Wellbeing</u> . 2020. EPA. <u>Air Quality in Ireland 2020</u> . 2020. EPA.
Climatic Factors	<u>State of the Environment Report - Ireland's Environment 2020 – Chapter 2 Climate</u> . 2020. EPA. <u>Ireland's Greenhouse Gas Emissions Projections 2021-2040</u> . 2022. EPA. <u>Ireland National Inventory Report 2021 Greenhouse Gas Emissions 1990-2019</u> . 2021. EPA. <u>Ireland's Provisional Greenhouse Gas Emissions 1990-2020</u> . 2021. EPA.
Air	<u>State of the Environment Report - Ireland's Environment 2020 – Chapter 3 Air Quality</u> . 2020. EPA. <u>Air Quality in Ireland 2019</u> . 2020. EPA. <u>National Air Pollution Control Programme Report: Update of the 2019 NAPCP</u> . 2021. Government of Ireland. EPA inventory and forecasting data for air pollutants
Soil	<u>State of the Environment Report - Ireland's Environment 2020 – Chapter 5 Land and Soil</u> . 2020. EPA.
Water	<u>Draft River Basin Management Plan for 2022-2027</u> . 2022. Government of Ireland <u>State of the Environment Report - Ireland's Environment 2020 – Chapter 7 Water Quality</u> . 2020. EPA. <u>Water Quality in 2020: An Indicators Report</u> . 2021. EPA. <u>Water Quality in Ireland 2013-2018</u> . 2019. EPA.
Cultural Heritage including Architectural Heritage	<u>Heritage Ireland 2030: A Framework for Heritage</u> . Government of Ireland. 2022
Landscape	<u>National Landscape Strategy for Ireland 2015-2025</u> . 2015. Government of Ireland. <u>State of the Environment Report - Ireland's Environment 2020 – Chapter 5 Land and Soil</u> . 2020. EPA.

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

SEA Category	Baseline Data Sources
Material Assets	<p><u>State of the Environment Report - Ireland's Environment 2020 – Chapter 12 Environment and Energy</u>. 2020. EPA.</p> <p><u>State of the Environment Report - Ireland's Environment 2020 – Chapter 10 Environment and Industry</u>. 2020. EPA.</p> <p><u>State of the Environment Report - Ireland's Environment 2020 – Chapter 13 Environment and Agriculture</u>. 2020. EPA.</p> <p><u>State of the Environment Report - Ireland's Environment 2020 – Chapter 11 Environment and Transport</u>. 2020. EPA.</p>

4.5 Chapter 15 of the State of the Environment Report – Ireland's Environment An Integrated Assessment 2020 presents a summary of the current status, the dominant trends over the past 20-25 years, and the outlook / perspective of

Ireland meeting relevant objectives / targets, for the areas of climate, air and nature. The same key (see **Table 4.2**) will be used to summarise the current baseline conditions and the outlook / trends for each SEA topic area.

Table 4.2: Key for identifying current baseline conditions and future outlook / trends

	Very poor / significant environmental and/or compliance challenges to address.
	Poor / environmental and/or compliance challenges to address.
	Moderate / on track generally / local or occasional challenges.
	Good / mainly achieving objectives.
	Very good / fully achieving objectives.
	Largely not on track to meet policy objectives and targets. Significant challenges remain to achieving full compliance.
	Partially on track to achieving full compliance or measures in place or planned that will improve the situation.
	Largely on track to achieving full compliance. Measures in place provide prospect of meeting policy objectives / targets.

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Biodiversity, flora and fauna

Current baseline

4.6 A report by the National Parks and Wildlife Service (NPWS) provided the current status of Ireland's 59 protected natural habitats and 60 protected species naturally occurring in Ireland¹⁴. This report informed the European Environment Agency's 2021 'State of Nature in Europe: A Health Check'. Most protected habitats in Ireland are reported to be in a poor conservation status according to European level metrics.

4.7 The overall status of habitats protected by Special Areas of Conservation under the Habitats Directive is depicted in

Figure 4.1. 85% of habitats are in unfavourable condition (i.e., inadequate or bad status), with 46% of habitats demonstrating ongoing declining trends. Of particular concern are raised bogs, woodlands and species-rich grasslands, whose range has significantly diminished.

4.8 For protected species, the picture is slightly more positive, with 57% in a favourable condition, but many key species are declining: the freshwater pearl mussel, for example, faces a critical shortage of habitat (see **Figure 4.2**)

Figure 4.1: Status of and trends in habitats protected under the EU Habitats Directive in Ireland

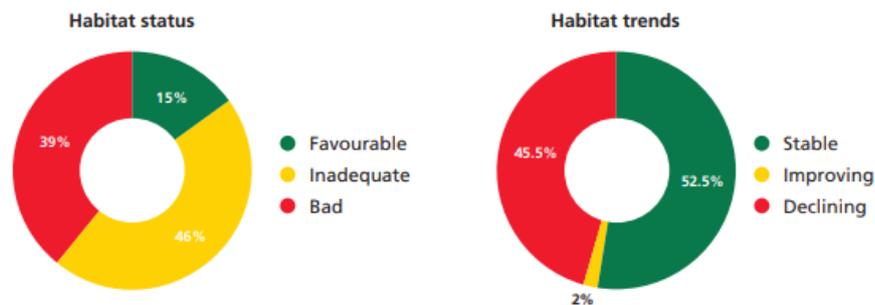
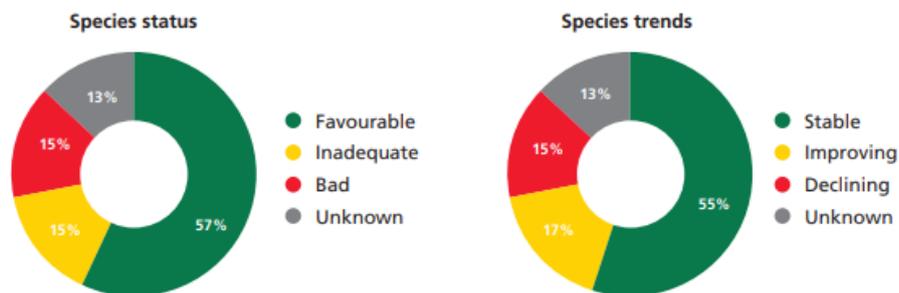


Figure 4.2: Status of and trends in species protected under the EU Habitats Directive in Ireland



¹⁴ NPWS (2019) The Status of EU Protected Habitats and Species in Ireland: Volume 1: Summary Overview (pdf) Available at:

https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2019_Vol1_Summary_Article17.pdf (accessed 02/07/2021)

Current assessment, outlook / trends, pressures and likely evolution without the proposed regulations

Table 4.3: Biodiversity – current assessment, outlook / trends, main pressures and likely evolution without the proposed regulations

Current Assessment	Outlook / Trends	Pressures	Likely evolution without the proposed regulations
	 Current assessment is 'very poor'. Whilst protected species are on a broadly stable trend (15% declining, 17% improving), protected habitats are dramatically declining (46% declining, 2% improving).	The main pressures on Ireland's protected habitats and species are from agriculture and other land uses such as extraction of resources (including minerals and peat) and forestry, urbanisation, recreation, and invasive species. The most vulnerable habitats being at higher risk.	Without the proposed regulations, pressures on biodiversity as a result of climate change including declining populations, reduced food availability and habitat loss, are likely to continue.

Corresponding Environmental Protection Objectives in the SEA Framework

- Protect, maintain, and where possible enhance, biodiversity and geodiversity:
 - Protect and enhance habitats of international, national, regional or local importance.
 - Protect international, national, regional or locally important species.
 - Protect geological sites of national, regional or local importance.
 - Maintain wildlife corridors and minimise fragmentation of ecological areas.

Population and human health

Current baseline

4.9 Air quality is a serious threat to human health in Ireland and it leads to 1,380 premature deaths per year because of

the exposure to particulate matter and other pollutants¹⁵. Air pollution is also linked to a range of other illnesses and impacts that can negatively influence on quality of life. In terms of compliance with the National Emissions Ceilings Directive (NECD)¹⁶, Ireland has made substantial progress to date in relation to its annual sulphur dioxide (SO₂), nitrogen oxide (NO_x) and particulate matter (PM_{2.5}) emissions, however significant challenges remain in relation to emissions of ammonia and non-methane volatile organic compounds (NMVOCs) to achieve the 2030 NECD reduction commitments¹⁷.

4.10 Climate change is likely to have an increasing impact on human health into the future. Whilst cold-related deaths are likely to decrease, heat-related deaths and injuries are likely to increase. Furthermore, the expectation is that there will be greater impacts associated with the increased prevalence of floods and other extreme weather events.

¹⁵ European Environment Agency (2021) Air Quality in Europe – 2020 Report (online) Available at: <https://www.eea.europa.eu/publications/air-quality-in-europe-2021>

¹⁶ European Parliament (2016) *National Emissions reduction Commitments Directive* (online) available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.344.01.0001.01.ENG&toc=OJ.L:2016:344:TOC

¹⁷ Government of Ireland (2022) Draft Clean Air Strategy Public Consultation (online) Available at: <https://www.gov.ie/en/consultation/0a7cf-consultation-on-the-clean-air-strategy-for-ireland/#:-:text=This%20Clean%20Air%20Strategy%20will,delivering%20on%20wider%20national%20objectives>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022 June 2022

Current assessment, outlook / trends, pressures and likely evolution without the proposed regulations

Table 4.4: Population and human health – current assessment, outlook / trends, main pressures and likely evolution without the proposed regulations

Current Assessment	Outlook / Trends	Pressures	Likely evolution without the proposed regulations
	 Overall air quality in Ireland is good, however, there are localised issues with some pollutants (such as particulates) that have serious potential health impacts. Ireland is generally on track to meet the 2030 emissions targets with the exception of ammonia and NMVOC emissions from agriculture, which breached the National Emission Ceilings Directive in 2019 for the fifth successive year. Reliable time-series indicators for other relevant issues such as noise, odour, energy poverty and green space access are not available.	Factors such as location, age, and level of deprivation can impact an individual's vulnerability to health risks. For example, coastal communities are at risk of rising sea levels, changes in wave heights and increasing extreme weather events. Likewise, densely populated urban areas are at a higher risk of summer heat stress and surface flooding. While new building and housing developments show improvements in energy efficiency, there is a significant stock of old buildings and houses in Ireland that have very poor energy efficiency that can be linked to health issues, particularly in the winter. Additionally, well known issues such as poor air and water quality can also lead to health issues.	Without the proposed regulations, there is likely to be a continued reliance on fossil fuels as sources of energy rather than renewable, solar energy, resulting in negative effects on human health. Without the transition to renewable and low carbon energy, the effects of climate change are likely to be exacerbated. Rising sea levels, more extreme weather events, summer heat waves and flooding will become more frequent and will pose greater risks to health.

Corresponding Environmental Protection Objectives in the SEA Framework

- Improve the health of the people of Ireland:
 - Avoid adverse effects on health and quality of life.
 - Improve the health of people and communities by reducing reliance on fossil fuels and their associated toxic emissions.
 - Protect aviation and road users from glint, glare, dazzle and reflections from solar panels.

Climatic factors

Current baseline

4.11 The latest EPA greenhouse gas projections show that currently implemented measures will achieve a reduction of 10% on 2025 levels by 2030, significantly short of the 30% reduction target¹⁸.

4.12 Agriculture is the single largest contributor to the overall emissions at 48.8% in 2021. Transport, the residential sector and industry and commercial are the next largest contributors at 24.6%, 15.6% and 7.2%, respectively (see **Figure 4.3**).

4.13 GHG emissions from all sectors have decreased since 1990, with the exception of the transport and manufacturing/combustion sectors, and fluorinated gases (F-gases) (see **Figure 4.4**).

4.14 Ireland has exceeded its 2020 annual limit of GHG emissions set under the EU's Effort Sharing Decision (ESD) by 6.73 million tonnes of CO₂ equivalent, the fifth year in a row that limits have been exceeded (see **Figure 4.5**).

4.15 It is projected that Ireland's emissions will begin to decline once carbon emission measures are implemented as shown in **Figure 4.6**. Implementation of "additional measures" (including those in the 2021 Climate Action Plan) is projected to save 58 million tonnes of CO₂ equivalent over the period 2021-2030 compared "with existing measures". This

¹⁸ EPA (2022) Ireland's Greenhouse Gas Emissions Projections 2021 to 2040 (pdf) Available at: <https://www.epa.ie/publications/monitoring-->

[assessment/climate-change/air-emissions/EPA-Ireland's-GHG-Projections-Report-2021-2040v2.pdf](https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Ireland's-GHG-Projections-Report-2021-2040v2.pdf)

represents a reduction of 1.8% per annum in emissions over the period¹⁹.

Figure 4.3: GHG emissions in 2021 and 2030 under the With Existing Measures scenario²⁰

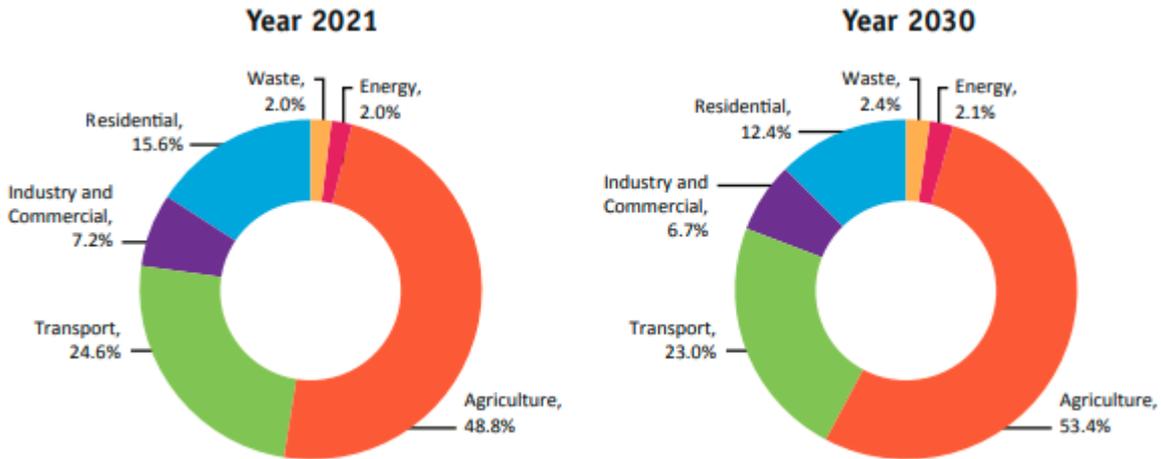
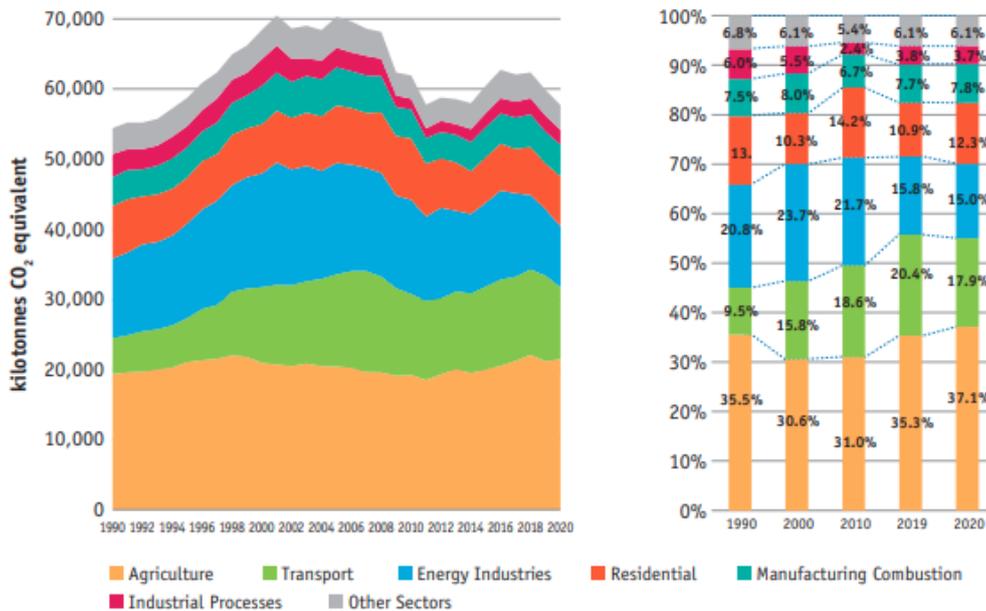


Figure 4.4: Trend in greenhouse gas emissions for largest sectors 1990-2020²¹



¹⁹ EPA (2021) Ireland's Greenhouse Gas Emissions Projections 2020-2040 [pdf] Available at: <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Irelands-Greenhouse-Gas-Emissions-Projections-report-2020-2040v2.pdf> (accessed 06/04/2022)

²⁰ EPA (2022) Ireland's Greenhouse Gas Emissions Projections 2021 to 2040 (pdf) Available at: <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Ireland's-GHG-Projections-Report-2021-2040v2.pdf>

²¹ EPA (2021) Ireland's Provisional Greenhouse Gas Emissions 1990-2020 (pdf) Available at: https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/Irelands-Provisional-Greenhouse-Gas-Emissions-report-1990-2020_finalv2.pdf

Figure 4.5: Compliance with ESD targets 2013-2020²²

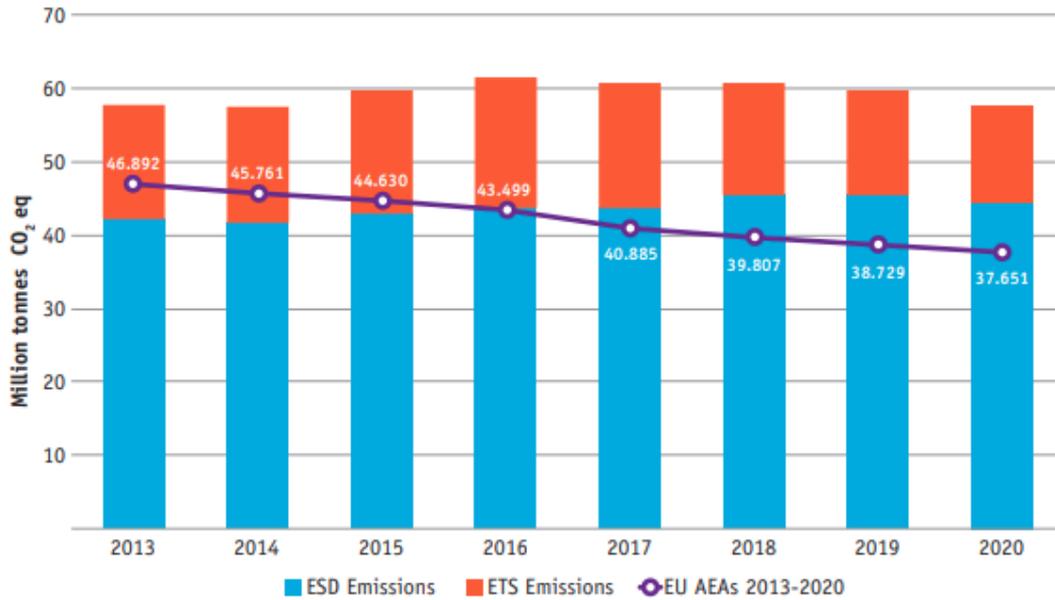
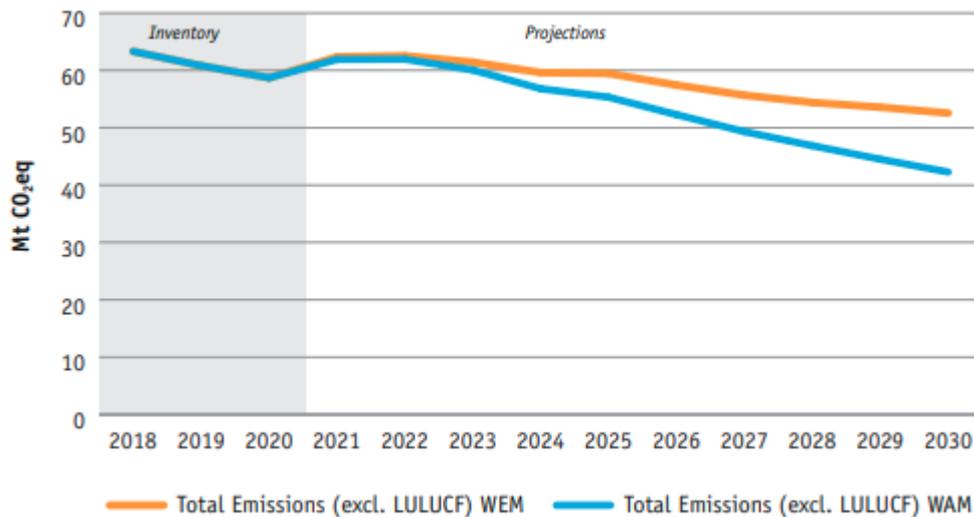


Figure 4.6: Ireland's GHG emissions projections 2018 – 2030 – With Existing Measures (WEM) and With Additional Measures (WAM)²³



²² EPA (2021) Ireland's Provisional Greenhouse Gas Emissions 1990-2020 (pdf) Available at: https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/Irelands-Provisional-Greenhouse-Gas-Emissions-report-1990-2020_finalv2.pdf
²³ EPA (2022) Ireland's Greenhouse Gas Emissions Projections 2021 to 2040 (pdf) Available at: <https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Ireland's-GHG-Projections-Report-2021-2040v2.pdf>

Current assessment, outlook / trends, pressures and likely evolution without the proposed regulations

Table 4.5: Climatic factors – current assessment, outlook / trends, main pressures and likely evolution without the proposed regulations

Current Assessment	Outlook / Trends	Pressures	Likely evolution without the proposed regulations
	<p style="text-align: center;">  </p> <p>Ireland had the third highest per capita GHG emissions in the EU in 2018, at 12.1 tonnes of CO₂e, compared with an EU average of 7.9 tonnes CO₂e²⁴. While some progress has been made to reduce GHG emissions in the energy sector, other sectors have been generally increasing or not decreasing fast enough to achieve Ireland's decarbonisation targets. Agriculture continues to be the largest source of emissions. Since 2014, emissions from the agriculture sector have trended upwards with an overall peak in emissions in 2018. The transport sector has been the fastest growing source of GHG emissions with a 10% increase between 2013-2019. However, transport emissions decreased significantly by 15.7% in 2020 due to the impact of COVID-19 restrictions on passenger car and public transport journeys.</p> <p>Despite considerable expansion in recent years, Ireland's renewable energy share in 2020 (at 13.5%) remained well below the EU average (17.5%), and Ireland missed the 2020 renewable energy target of 16%. In 2020, fossil energy made up 87% of Ireland's energy needs²⁵.</p> <p>There was 40MW of grid-connected solar energy capacity in Ireland in 2020, an increase of 29% since 2019 and 1,609% since 2015²⁶. This accounted for 1% of renewable capacity in 2020. Growth in the solar power sector is expected to continue, with 63 solar projects securing contracts under the RESS-1 auction in 2020 (1,000MW (796GWh)). RESS-2 auction is currently under way.</p> <p>Growth is largely linked to the renewables requirement in the building</p>	<p>Every major sector of the economy presents emissions pressure, and action will require a comprehensive, cross-sectoral, all of government effort in order to limit the dangerous effects of climate change and improve the overall level of resilience and sustainability within our society. This will involve mitigation measures across all core sectors of the economy – agriculture, transport, built environment, industry, waste, and energy generation.</p>	<p>Without the proposed regulations, there is likely to be a continued reliance on fossil fuels as sources of energy rather than renewable, solar energy, thereby exacerbating the effects of climate change.</p>

²⁴ Central Statistics Office (2021) Environmental Indicators Ireland 2021 (online) Available at: <https://www.cso.ie/en/releasesandpublications/ep/p-eii/environmentalindicatorsireland2020/greenhousegasesandclimatechange/#:~:text=In%202018%2C%20Ireland%20had%20the,EU28%20average%20of%208.2%20tonnes>.

²⁵ Sustainable Energy Authority of Ireland (2021) Energy in Ireland 2021 Report (pdf) Available at: https://www.seai.ie/publications/Energy-in-Ireland-2021_Final.pdf

²⁶ International Renewable Energy Agency (2021) Energy Profile Ireland (pdf) Available at: https://www.irena.org/IRENADocuments/Statistical_Profiles/Europe/Ireland_Europe_RE_SP.pdf

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

Current Assessment	Outlook / Trends	Pressures	Likely evolution without the proposed regulations
	<p>regulations for new dwellings, reduced prices, and also due to the introduction of a capital grant for domestic solar PV in existing dwellings (SEAI Grant). With an increasing population, it is likely that the development new build houses, and requirements for renewables, will continue in the future.</p> <p>Meeting 2030 targets and the 2050 transition objective will require the full implementation of current policies and significant national investments.</p>		

Corresponding Environmental Protection Objectives in the SEA Framework

- Reduce Ireland's contribution and vulnerability to climate change:
 - Reduce Ireland's contribution to climate change by reducing greenhouse gas emissions from non-renewable energy sources.
 - Avoid development in areas at risk of flooding or where this would increase the risk of flooding.

Air

Current baseline

4.16 By European standards, Ireland's ambient air quality is relatively good and ambient air quality limit values are respected. The EPA Air Quality in Ireland 2020 report²⁷ found that there were no exceedances of air pollutants above the EU annual limit values. In fact, there are no safe levels of air pollution, and under the stricter criteria of the World Health Organisation (WHO) level, air quality was found to have breached WHO ambient guidelines at 38 of the 67 monitoring sites across the country, often because of the burning of solid fuels within the built environment. Key air pollutants of particular concern in Ireland include nitrogen dioxide,

particularly from vehicle exhausts in urban settings, and the burning of solid fuel in cities, towns, and villages, which contributes to fine particulate matter and other toxic air pollutants. Monitored nitrogen dioxide levels were much reduced in 2020 when compared to previous years, with a 50% reduction compared to 2019, predominately as a result of restrictions imposed to reduce transmission of COVID-19²⁸.

4.17 Research has estimated 1,380 premature deaths per year because of the exposure to particulate matter and other pollutants²⁹. These figures also exclude air pollution related morbidity and the broad range of conditions linked with poor air quality that reduce productivity and quality of life. There are ongoing efforts to deliver sustained cleaner air for all citizens.

4.18 In terms of compliance with the National Emissions Ceilings Directive (NECD), Ireland has made substantial progress to date in relation to its annual sulphur dioxide (SO₂), nitrogen oxide (NO_x) and particulate matter (PM_{2.5}) emissions, however significant challenges remain in relation to emissions of ammonia and non-methane volatile organic compounds (NMVOCs) to achieve the 2030 NECD reduction commitments³⁰. Agriculture is the dominant source of national ammonia emissions. Livestock herd size, spreading techniques and fertilizer use are other important drivers of emissions. In terms of NO_x, internal combustion engine vehicle use remains a key source of the pollutant. Finally, solid

²⁷ EPA (2021) Air Quality in Ireland 2020. [online] Available at: <https://www.epa.ie/publications/monitoring--assessment/air/Air-Quality-in-Ireland-2020.pdf> (accessed 06/04/2022)

²⁸ EPA (2021) Air Quality in Ireland 2020. [online] Available at: <https://www.epa.ie/publications/monitoring--assessment/air/Air-Quality-in-Ireland-2020.pdf> (accessed 06/04/2022)

²⁹ European Environment Agency (2021) Air Quality in Europe – 2020 Report (online) Available at: <https://www.eea.europa.eu/publications/air-quality-in-europe-2021>

³⁰ Government of Ireland (2022) Draft Clean Air Strategy Public Consultation (online) Available at: <https://www.gov.ie/en/consultation/0a7cf-consultation-on-the-clean-air-strategy-for-ireland/#:~:text=This%20Clean%20Air%20Strategy%20will,delivering%20on%20wider%20national%20objectives>.

fuel combustion is the dominant source of fine particulate matter in Ireland.

Current assessment, outlook / trends, pressures and likely evolution without the proposed regulations

Table 4.6: Air – current assessment, outlook / trends, main pressures and likely evolution without the proposed regulations

Current Assessment	Outlook / Trends	Pressures	Likely evolution without the proposed regulations
	 Between 1990 and 2019, substantial reductions were achieved for many pollutants: sulphur dioxide by 94.1%; particulate matter by 80.7%; nitrogen oxides by 41.4%; and NMVOC by 21.2%. Shifts to less polluting domestic heating methods should support improved air quality.	The main pressures on air quality in Ireland are from transport, solid fuel burning and agricultural practices.	Without the proposed regulations, there is likely to be a continued reliance on fossil fuels as sources of energy rather than renewable, solar energy, resulting in adverse effects on air quality and consequently on human health and the environment.

Corresponding Environmental Protection Objectives in the SEA Framework

- Improve Ireland's air quality:
 - Improve air quality through reduced reliance and combustion on fossil fuels.

Soil

Current baseline

4.19 Ireland's agricultural soils are in a reasonably good condition by European standards, with relatively little evidence of soil erosion or compaction. Research by the EPA found that an average level of erosion is <1 t/ha/year which is low by

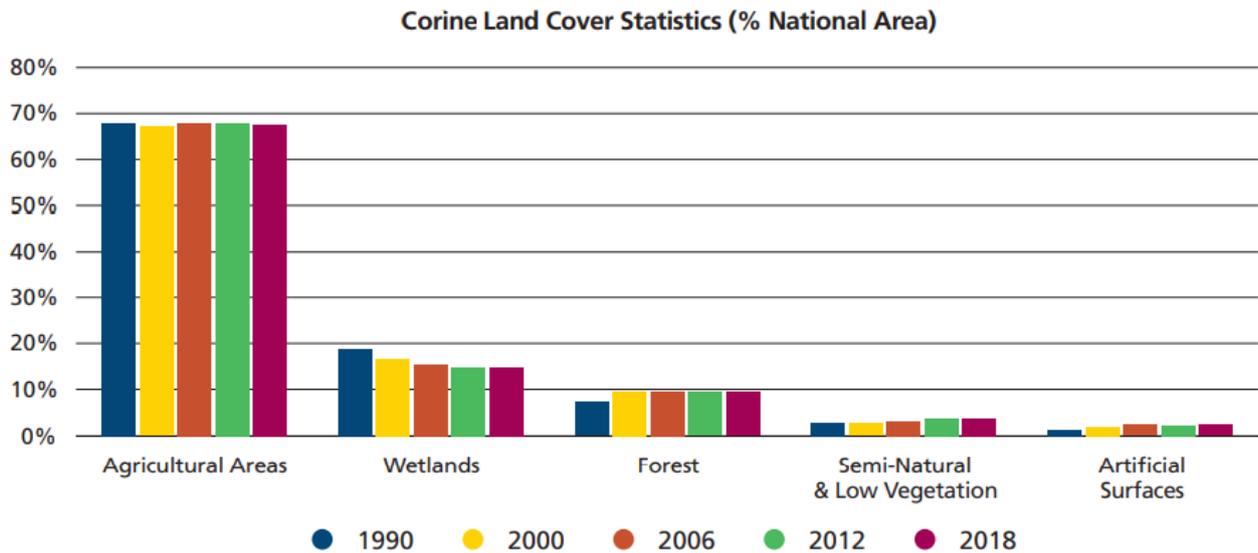
international standards. The relatively mild climate, flat landscape, and the prevalence of livestock agriculture rather than tillage all contribute to this outcome³¹.

4.20 Agriculture is the dominant national land cover type, representing 67% of the national area in 2018. There is an overall downward trend, with a reduction of 8,230 hectares of agricultural land since 1990 (see **Figure 4.7**). In 2018, wetlands represented 14.9% of the national area, a moderate decrease since 2012. However, in 1990, wetlands represented 18.6% of the national area. There has therefore been a 20% reduction in this important land cover type since 1990, with a loss of 258,800 hectares. The primary change was from peat bogs to transitional woodland scrub and coniferous planting in the 1990s.

³¹ Kiely, G. et al., 2014. Interactions of Soil Hydrology, Land Use and Climate Change and their Impact on Soil Quality (SoilH), Ireland: Environmental Protection Agency. [online] Available at: [https://www.epa.ie/publications/research/land-use-soils-and-](https://www.epa.ie/publications/research/land-use-soils-and-transport/STRIVE-118---Interactions-of-Soil-Hydrology,-Land-Use-and-Climate-Change-and-their-Impact-on-Soil-Quality-(SoilH).pdf)

[transport/STRIVE-118---Interactions-of-Soil-Hydrology,-Land-Use-and-Climate-Change-and-their-Impact-on-Soil-Quality-\(SoilH\).pdf](https://www.epa.ie/publications/research/land-use-soils-and-transport/STRIVE-118---Interactions-of-Soil-Hydrology,-Land-Use-and-Climate-Change-and-their-Impact-on-Soil-Quality-(SoilH).pdf) (accessed 02/07/2021)

Figure 4.7: Corine Land Cover Statistics



4.21 Peatland soils remain a major concern as many peatlands are critically degraded, and only 10% of the original extent of raised bogs and 28% of blanket bog in Ireland have been deemed suitable for conservation³². In the future, further intensification of agriculture (including greater use of inputs and higher stocking rates) may further increase the pressure

on soils. Climate change is also likely to increase the pressures on peatland soils, as well as soils in general through increased intensity of rainfall³³. The rate of urbanisation also presents a threat to soils through 'soil-sealing', or the covering of land with impermeable material surfaces such as concrete.

Current assessment, outlook / trends, pressures and likely evolution without the proposed regulations

Table 4.7: Soil – current assessment, outlook / trends, main pressures and likely evolution without the proposed regulations

Current Assessment	Outlook / Trends	Pressures	Likely evolution without the proposed regulations
●	⊖ Ireland's agricultural soils are in a reasonably good condition by European standards, with relatively little evidence of soil erosion or compaction. However, active raised bogs continue to have an overall 'bad' conservation status, with a continuing deteriorating trend; similarly, the overall conservation status of blanket bogs is described as 'unfavourable to bad', with a	Changes in soil water content and temperature increase probability of drought or flooding. This can increase the likelihood of soil carbon loss (particularly for carbon-rich peat soils), threaten soil viability, and increase greenhouse gas emissions.	Without the proposed regulations, there is likely to be a continued reliance on fossil fuels such as peat as sources of energy rather than renewable, solar energy, resulting in adverse effects on soil quality and quantity.

³² NPWS, 2015. National Peatland Strategy. [online] Available at: <https://www.npws.ie/sites/default/files/publications/pdf/NationalPeatlandsStrategy2015EnglishVers.pdf> (accessed 02/07/2021)

³³ EPA (2020) Ireland's Environment 2020 - An Assessment, Ireland. [online] Available at: <https://epawebapp.epa.ie/ebooks/soe2020/419/> (access 02/07/2021)

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Current Assessment	Outlook / Trends		Pressures	Likely evolution without the proposed regulations
		<p>continuing deteriorating trend. This trend may improve in the future as the Department of Housing, Local Government and Heritage is restoring active raised bogs at 12 Special Areas of Conservation and plans to restore over 1800 hectares of raised bogs.</p>		

Corresponding Environmental Protection Objectives in the SEA Framework

- Protect soil quality and resources:
 - Safeguard soil quality and quantity.
 - Conserve and protect carbon rich soils.

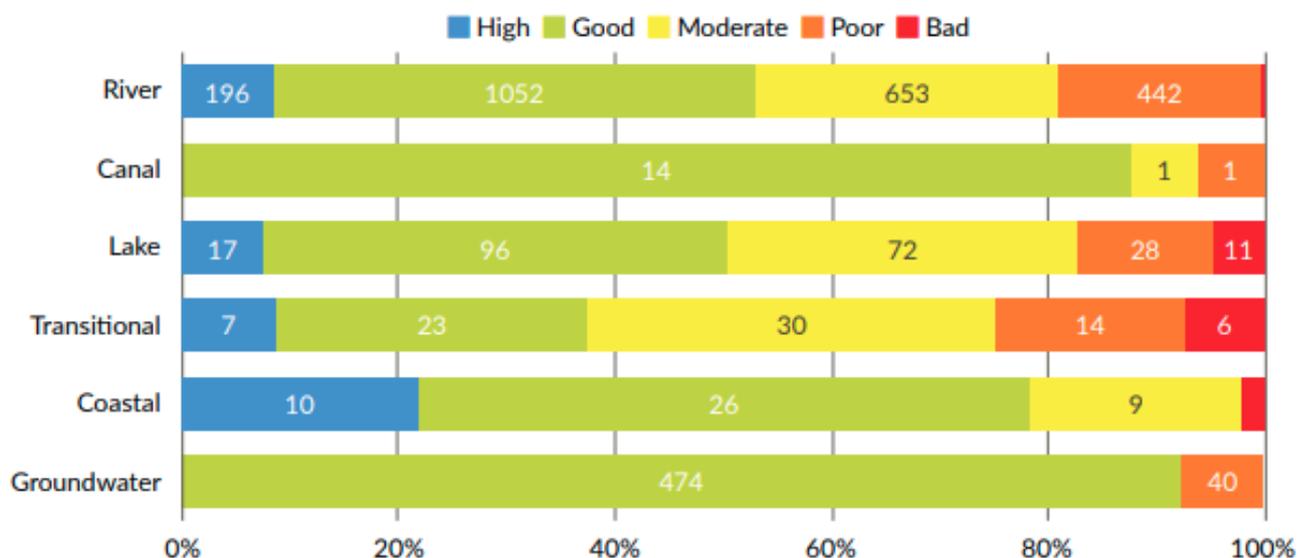
Water

Current baseline

4.22 In spring 2022, the Draft River Basin Management Plan for 2022-2027 was published for consultation which provides an overview of the status and characterisation of waterbodies, the significant pressures impacting Ireland’s waters and the key measures required to mitigate these impacts.

4.23 The quality of bathing water is improving with 96% of waterbodies achieving an excellent or good status in 2020, compared to 89% in 2019. The status of the range of waterbodies in Ireland is shown in **Figure 4.8**. 92% of groundwater bodies have a good or high status with this trend improving. Coastal and canal water quality are also very good, with 78% of coastal waterbodies having a good or high status and 87% of canals having good status. Only 53% of rivers are of high or good status, and the remaining 47% of rivers are in moderate, poor or bad ecological status. This means that nearly half of the rivers in Ireland are failing to meet the objectives set by the EU Water Framework Directive (2000/60/EC) because of pollution and other human disturbance. Only 50% of lake waterbodies and 38% of transitional waterbodies have good or high status.

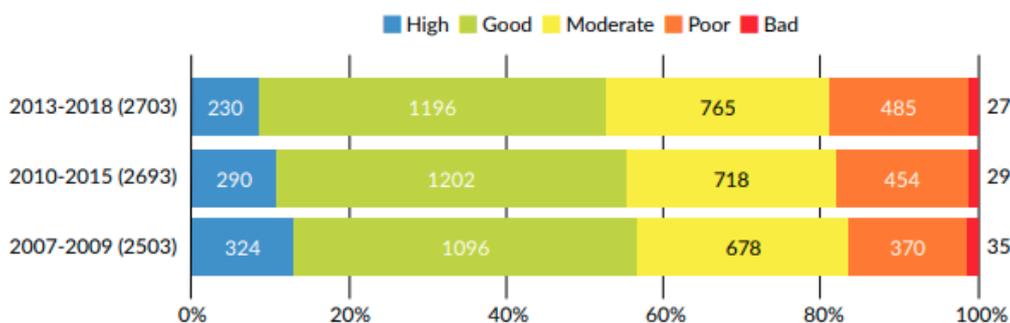
Figure 4.8: Status of waterbodies in Ireland³⁴



4.24 75% of waterbodies in Ireland are in good chemical status. However, as shown in **Figure 4.9** overleaf, when comparing the change in surface water status based on monitoring results during the first and second cycles, 68.4% of waterbodies did not change status (i.e., 'stable'), 18% declined and 13.6% improved. This results in an overall 4.4% net

decline in water quality which was mostly driven by the worsening of river water quality caused by pollution (18% of river water bodies declined in their chemical status).

Figure 4.9: Changes in waterbodies chemical status³⁵



4.25 41% of waterbodies in Ireland are within the 'Not at Risk' category, i.e., they are meeting their environmental objective of good or high status. 33% are 'At Risk' of not meeting their environmental objective of good or high status while 26% are currently in 'Review'. The principal cause of decline in quality

comes from the discharge of excess nutrients (nitrogen and phosphorous) in the waterbodies, leading to eutrophication and a subsequent loss of biological diversity. Some of the key pressures on Ireland's waterbodies are shown in **Figure 4.10**. The largest single source of nutrient pollution (runoff and

³⁴ Government of Ireland (2022) Draft River Basin Management Plan for Ireland 2022-2027 (online) Available at: <https://www.gov.ie/en/consultation/2bda0-public-consultation-on-the-draft-river-basin-management-plan-for-ireland-2022-2027/#documents>

³⁵ Government of Ireland (2022) Draft River Basin Management Plan for Ireland 2022-2027 (online) Available at: <https://www.gov.ie/en/consultation/2bda0-public-consultation-on-the-draft-river-basin-management-plan-for-ireland-2022-2027/#documents>

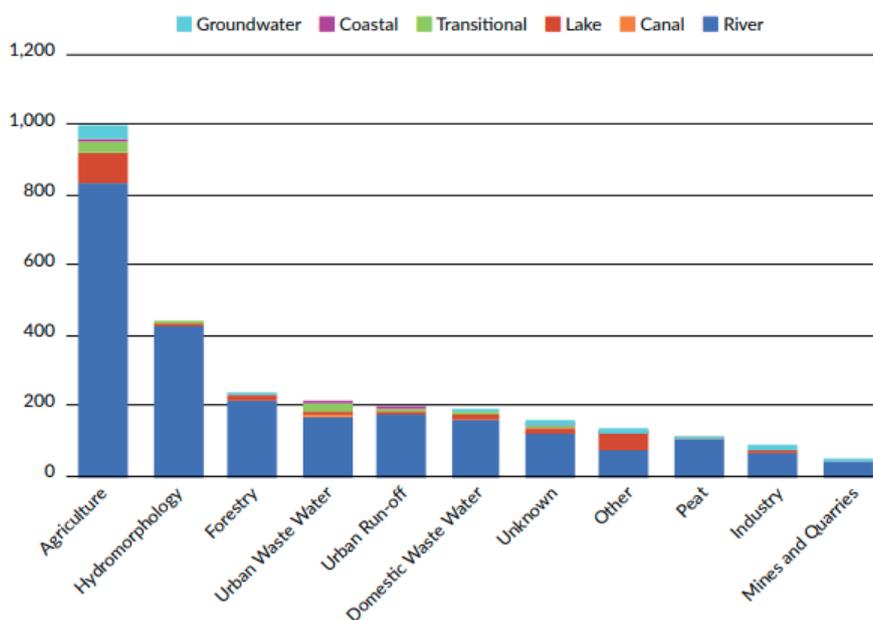
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leaching) is from agriculture (1,000 waterbodies affected). The overall number of waterbodies impacted by agriculture has increased by 223 since the second cycle assessment. This is followed by hydromorphological pressures (physical changes to habitat conditions) (442 waterbodies affected), which have also increased since the previous cycle. Pressures from forestry and urban waste water are also significant pressures with 233 and 208 waterbodies affected respectively, however

the number of waterbodies affected by these pressures have decreased since the previous cycle assessment.

4.26 With increased agricultural intensification, this decline in water quality may be expected to continue, although policy measures such as the River Basin Management Plan, and related actions on sources of relevant air pollutants are in place to attempt to reduce the pressures on water quality.

Figure 4.10: Significant pressures on Ireland’s aquatic environment³⁶



Current assessment, outlook / trends, pressures and likely evolution without the proposed regulations

Table 4.8: Water – current assessment, outlook / trends, main pressures and likely evolution without the proposed regulations

Current Assessment	Outlook / Trends	Pressures	Likely evolution without the proposed regulations
●	⊖ Overall, current assessment is 'poor'. Trends are mixed, with serious declines in pristine river sites. Only 53% of rivers, 50% of lakes and 38% of transitional waterbodies have good or high status. 75% of waterbodies in Ireland are in good chemical status, however there has been a	Agriculture is the main pressure on water quality in Ireland, followed by hydromorphology, forestry and urban waste water. Urban waste water is the greatest pressure affecting bathing water.	Without the proposed regulations, there is likely to be a continued reliance on fossil fuels as sources of energy rather than renewable, solar energy, resulting in adverse effects on water quality and quantity. For example, mitigating

³⁶ Government of Ireland (2022) Draft River Basin Management Plan for Ireland 2022-2027 (online) Available at: <https://www.gov.ie/en/consultation/2bda0-public-consultation-on-the-draft-river-basin-management-plan-for-ireland-2022-2027/#documents>

Current Assessment	Outlook / Trends		Pressures	Likely evolution without the proposed regulations
		4.4% net decline in water quality since the previous cycle.		against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Furthermore, when compared to electricity from coal, solar PV uses 86-89% less water. However, the most significant pressure on water quality in Ireland is diffuse pollution from agricultural practices which the proposed regulations will not have a direct impact on.

Corresponding Environmental Protection Objectives in the SEA Framework

- Protect the quality and quantity of watercourses and waterbodies:
 - Protect the quality and quantity of watercourses and surface water and groundwater waterbodies.

Cultural heritage including architectural and archaeological heritage

Current baseline

4.27 Archaeology is the study of past societies through their material remains and the evidence of their environment. It is not restricted solely to ancient periods; it includes the study of relatively recent societies through, for example, industrial and military sites. Archaeological heritage comprises all material remains of past societies and includes the remains of features such as settlements, monuments, burials, ships and boats and portable objects of all kinds. It also includes evidence of the environment in which those societies lived. Archaeological heritage may exist in the form of upstanding or visible remains, or as subsurface features with no surface/visible presentation. Built heritage may form part of the fabric of a medieval urban setting and may incorporate within their structure elements of an earlier building of late medieval provenance.

4.28 Ireland's historic, archaeological and cultural heritage occurs in all environments including urban and rural, upland and lowland, grassland, tillage and forestry, inland and coastal, dryland, wetland (including peatlands) and underwater (including watercourses, lakes and the sea). Ireland contains many sites of historical, cultural, and aesthetic value, including two UNESCO world heritage sites (Skellig Michael and Brú na Boinne). Ireland's cultural and archaeological heritage is recognised as a key asset for promoting tourism, particularly in major strategic branding initiatives such as the 'Wild Atlantic Way' or the 'Ancient East'.

4.29 To a large extent, built heritage and areas of cultural or architectural protection are determined at the local, rather than the national level. Under the Planning and Development Act 2000, planning authorities have a responsibility to create a list of protected structures, which then enjoy protection under law from inappropriate development. Known archaeological sites are listed under the Record of Monuments and Places, which is administered by the National Monuments Service. There are approximately 38,000 Protected Structures and over 120,000 monuments protected under the National Monument Act. Around 1,000 particularly significant sites under the direct ownership and management of the Government are classified as 'Monuments in State Care'. Architectural Conservation Areas cover a range of historic townscapes, whilst a great number of structures are not formally designated under Government legislation. For example, it is estimated that there

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are around 175,000 buildings in Ireland that were constructed prior to 1919³⁷.

4.30 Architectural and built heritage can suffer negative impacts from inappropriate development – either deliberate or accidental – or neglect.

Current assessment, outlook / trends, pressures and likely evolution without the proposed regulations

Table 4.9: Cultural heritage – current assessment, outlook / trends, main pressures and likely evolution without the proposed regulations

Current Assessment	Outlook / Trends	Pressures	Likely evolution without the proposed regulations
Uncertain	Uncertain Ireland is generally recognised as having a strong endowment in the context of heritage and visual amenity with two UNESCO world heritage sites (Skellig Michael and Brú na Boinne), 38,000 Protected Structures, over 120,000 monuments protected under the National Monument Act, and numerous Architectural Conservation Areas and undesignated heritage assets.	Pressures from development, economic activity, and increasing extreme weather events may present challenges for cultural heritage. Pressure as a result of climate change include the potential degradation of buildings and historical monuments. Additionally, there may be impacts to archaeology due to the planting / harvesting of energy crops and retrofitting of old buildings.	Without the proposed regulations, there is likely to be a continued reliance on fossil fuels as sources of energy rather than renewable, solar energy, thereby exacerbating the effects of climate change which causes degradation of buildings and historical monuments.

Corresponding Environmental Protection Objectives in the SEA Framework

- Protect the character and built quality of settlements and Ireland's historic environment and cultural heritage:
 - Protect designated and undesignated heritage assets, their settings and their contribution to townscape, including Architectural Conservation Areas, Listed Buildings, buried archaeology, areas of historical heritage and cultural value e.g. locally important buildings.

Landscape

Current baseline

4.31 Ireland contains many landscapes including six National Parks such as those in Killarney, the Burren and Connemara.

Ireland's distinctive landscape is recognised as a key asset for promoting tourism, particularly in major strategic branding initiatives such as the 'Wild Atlantic Way'. The 2015-2025 National Landscape Strategy set out an objective to provide a policy framework and evidence base on which to assess landscape quality and characteristics, including a 'National Landscape Character Assessment'. Local authorities will also be required to prepare 'State of the Landscape' reports for their local areas (to be summarised at a national scale by DHLGH) which will provide an overview of the current condition and pressures on the landscape. At present, there is no other quantitative basis on which trends in landscape quality can be objectively assessed. Pressures on landscape quality come from land use change – for example, from traditional agricultural practices or natural landscapes such as peat bogs to commercial forestry or a more intensive form agriculture, or indeed through urbanisation and development.

³⁷ Ecorys (undated) Economic Value of Ireland's Historic Environment (online) Available at:

https://www.heritagecouncil.ie/content/files/ecorys_economic_evaluation_historic_environment_final_report_1mb.pdf

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June 2022

Current assessment, outlook / trends, pressures and likely evolution without the proposed regulations

Table 4.10: Landscape – current assessment, outlook / trends, main pressures and likely evolution without the proposed regulations

Current Assessment	Outlook / Trends		Pressures	Likely evolution without the proposed regulations
Uncertain	Uncertain	There is limited meaningful data that offers a quantitative sense of landscape status over time in Ireland. However, Ireland is generally recognised as having a strong endowment in the context of natural environment and visual amenity.	The main pressure on landscape quality is from land use change. Climate change could also change landscapes due to coastal erosion and increased flooding.	Without the proposed regulations, there is likely to be a continued reliance on fossil fuels as sources of energy rather than renewable, solar energy, thereby exacerbating the effects of climate change including coastal erosion and flooding.

Corresponding Environmental Protection Objectives in the SEA Framework

- Protect landscape character and the quality of Ireland's landscapes:
 - Protect landscape character and the quality of Ireland's landscapes, particularly in designated or sensitive landscapes, historic landscapes or rural areas.
 - Protect visual amenity.

Material assets

Current baseline

4.32 Material assets refer to natural resources, infrastructure, and the built environment in a broad sense. Ireland's primary natural resources include large areas of agricultural land (that are particularly suitable for beef and dairy production), extensive fisheries (both inland and offshore), timber forestry, and mineral and geological resources, particularly in zinc and offshore natural gas deposits. Agriculture makes up most of the land use in Ireland, with 61% of land area under grassland and 10% under cropland. A further 10% of land area is under forestry. The vast majority of this is commercial and state-owned timber plantation mainly of sitka spruce. Majority of timber supports domestic, UK and EU construction industries.

4.33 The country also has substantial fish resources, with 77,000km of rivers, 250,000 ha of lakes and an extensive coastline, and an area of continental shelf. Inland fisheries are used for commercial angling for species such as salmon and trout, as well as aquaculture. Offshore fisheries are managed jointly with other EU member states under the Common Fisheries Policy. Despite fishing yields being relatively stable over recent years, there are conservation concerns around many species, including salmon, arctic char, lamprey, and eel.

4.34 Ireland benefits from a large area of peatland in the form of blanket and raised bogs. Peat has been historically used as an indigenous source of fossil fuel energy. Commercial peat harvesting was banned by the High Court in 2019, however, the current position regarding peat harvesting is unclear particularly regarding turbary rights and local harvesting. Fossil energy made up 86% of the energy consumed in Ireland in 2020, down from 88% in 2019 (and 97% in 2005). Electricity generation from peat halved in 2020, due to closures at two of the three peat burning power plants. Ireland has excellent renewable energy resources however, in 2020 the overall renewable energy share (RES) in Ireland was only 13.5%, compared to the 2020 target of 16%. This means that Ireland failed on its RES target for 2020³⁸. This percentage of renewable energy has increased significantly relative to 2008 (at 3.9%) but remains low compared other European countries.

4.35 In terms of mineral resources, Ireland is particularly rich in zinc and lead; the mine at Tara is Europe's largest zinc mine. Copper and precious metals are also mined. The

³⁸ Sustainable Energy Authority of Ireland (2021) Energy in Ireland 2021 Report (pdf) Available at: https://www.seai.ie/publications/Energy-in-Ireland-2021_Final.pdf

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June 2022

continental shelf holds natural gas resources, with four natural gas fields commercially exploited, although the Kinsale Area gas fields is currently preparing for decommissioning. The government ended offshore exploration for oil in 2018, and the present government has committed to ending natural gas exploration over the course of its term.

4.36 Ireland's population is predicted to grow, and this will lead to an increased demand of resources. Ireland's population is forecast to increase up to 6.7 million by 2051³⁹.

Current assessment, outlook / trends, pressures and likely evolution without the proposed regulations

Table 4.11: Material assets – current assessment, outlook / trends, main pressures and likely evolution without the proposed regulations

Current Assessment	Outlook / Trends		Pressures	Likely evolution without the proposed regulations
●	⊖	<p>Given the broad scope of material assets, it is difficult to establish a baseline trajectory. Ireland possesses substantial and growing infrastructure in the context of transport, renewable energy, natural resources, and forestry. Broadly these could be considered as growing.</p>	<p>Material assets such as transport infrastructure, natural resources and other buildings are at risk of damage due to increasing extreme weather events. A further pressure will also be the projected increase in population of an additional 1 million people by 2040. There is also potential for scarcity of resources considering growing population and their demand.</p>	<p>Without the proposed regulations, the renewable energy potential of the country will not be utilised to its full potential resulting in the continued reliance on fossil fuels and fuel imports. However, scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). Furthermore, as the manufacture of solar PV cells rely heavily on the use of electricity (for more than 95%), this makes the embodied emissions of solar PVs relatively high.</p>

Corresponding Environmental Protection Objectives in the SEA Framework

- Use natural resources and energy more efficiently.

- Encourage the prudent use of natural resources, particularly scarce resources.

- Secure domestic energy supply through captured solar energy and reduce reliance on fuel imports.

³⁹ EPA (2020) Ireland's Environment 2020 - An Assessment, Ireland. [online] Available at: <https://www.epa.ie/our-services/monitoring-->

[assessment/assessment/irelands-environment/state-of-environment-report-/#](https://www.epa.ie/our-services/monitoring--assessment/assessment/irelands-environment/state-of-environment-report-/#) (accessed 02/07/2021)

Chapter 5

SEA findings

This chapter presents a summary of the SEA findings for the appraisal of the proposed regulations which were assessed against the SEA Framework presented in Chapter 2.

5.1 The detailed SEA matrices for the proposed regulations and reasonable alternatives are presented in **Appendix D**. A summary of the SEA scores for the proposed regulations is provided in **Table 5.1** at the of this chapter.

SEA findings of the reasonable alternatives

5.1 The assessment examined the environmental effects of reasonable alternatives to the proposed regulations. The alternatives and assessment findings were as follows.

Do nothing scenario

5.2 In the absence of the proposed regulations the potential to make a significant positive contribution to reducing emissions of greenhouse gas emissions will be missed. Furthermore, as highlighted by the latest EPA's projections on greenhouse gas emissions, "*urgent implementation of all climate plans and policies, plus further new measures, are needed for Ireland to meet the 51 per cent emissions reduction target and put Ireland on track for climate neutrality by 2050*"⁴⁰. Therefore, the current regulations are not sufficient to support the widespread uptake of solar PVs. Furthermore, the current regulations do not extend to other sectors such as educational, healthcare and community facilities, or places of worship. These sectors may therefore remain more reliant on traditional fossil fuelled energy. The failure to tackle climate

⁴⁰ EPA (2022) Ireland's Greenhouse Gas Emissions Projections 2021 to 2040 (pdf) Available at: <https://www.epa.ie/publications/monitoring-->

[assessment/climate-change/air-emissions/EPA-Ireland's-GHG-Projections-Report-2021-2040v2.pdf](https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Ireland's-GHG-Projections-Report-2021-2040v2.pdf)

change will increasingly impact people, biodiversity, cultural heritage, water and soils.

The removal of limitations on solar PV or solar thermal collector installations on protected structures, proposed protected structures, and structures in Architectural Conservation Areas

5.3 Under this alternative, it is likely that there would be some increase in the deployment of solar panels, with associated benefits in terms of emission reductions. However, the likely negative impacts on cultural heritage and landscape in particular could be significant.

The restriction of solar PV or solar thermal collector installations in relation to houses within Solar Safeguarding Zones

5.4 Under this alternative, it is likely there would be reduced deployment of solar panels within Solar Safeguarding Zones, resulting in a lower level of solar energy production when compared with implementation of the proposed regulations. While there may be some benefits in terms of aircraft safety, it is likely these would be marginal in nature given the small scale of most domestic installations.

The restriction of solar PV or solar thermal collector installations on roofs and walls facing roads

5.5 Under this alternative, it is likely there would be reduced deployment of solar panels, resulting in a lower level of solar energy production when compared with implementation of the proposed regulations. This would reduce some of the impacts on landscape and cultural heritage. Most of these effects are, in any case, reversible.

SEA findings of the proposed regulations

SEA objective 1: Biodiversity, fauna and flora

5.6 The first SEA objective seeks to assess the impact of the proposed regulations on the biodiversity, specifically how greater roll out of solar panels across Ireland may impact its ecosystem services, biodiversity, habitats and species.

5.7 Mixed effects are identified for **all** classes of exemption in relation to SEA objective 1: Biodiversity, flora and fauna.

5.8 The installation of free-standing and roof mounted solar panels could disturb bats and birds nesting in or on roofs, particularly species commonly associated with agricultural buildings such as barn owls, barn swallows, house martins and swifts. The installation of solar panels is unlikely to block access to bat roosts and bird nests as the proposed regulations require the installations to be set back from the edges of roofs. Free-standing solar PVs could disturb and displace ground nesting birds during installation; however, impacts are likely to be short-term as land can be reseeded to provide habitat and forage to pollinators, birds and other small species. Glint and glare from solar panels may disturb birds and bats, particularly where multiple panels are installed in the same area.

5.9 However, the significance of these effects is reduced as the Wildlife Act 1976 (and Wildlife (Amendment) Act 2000) and European Communities (Birds and Habitats) Regulations 2011 protect certain species of volant (e.g. bats and pine marten) and non-volant mammals, along with nesting breeding birds, and their habitats (breeding sites and resting places). Furthermore, Section 4(4) of the Planning and Development Act provides that development shall not be exempted if an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA) of the development is required.

5.10 The longer-term effects of reducing GHG emissions and the effects of climate change may have positive effects on biodiversity by reducing habitat loss and the spread of invasive species and improving food availability. Furthermore, when compared to electricity from coal, solar PV electricity contributes 92-97% less to acid rain and 97-98% less to marine eutrophication, which may have further benefits for habitats and wildlife⁴¹.

SEA objective 2: Population and human health

5.11 The second SEA objective seeks to assess the impact of the regulations on the population and human health, specifically how greater roll out of solar panels across Ireland may impact its population's health and wellbeing.

5.12 In terms of impacts on SEA objective 2: Population and Human Health, **mixed (minor positive and minor negative)** effects are identified for all classes of exemption.

5.13 The uptake of solar energy will deliver benefits for the health and wellbeing of the population primarily through air quality improvements, leading to less respiratory illnesses and

⁴¹ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at:

<https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

a reduction in premature deaths from poor air quality. Furthermore, the greater uptake of renewable energy will reduce the future effects of climate change, including extreme weather events such as droughts, storms, and flooding, which would also benefit the health and wellbeing of the population. Free-standing solar installations are not classed as exempted development for houses where the remaining area of private open space within the curtilage of a property is reduced to less than 25 square meters which ensures that occupants have sufficient outdoor space for recreation and relaxation. Furthermore, the greater uptake of solar PV and solar thermal collector installations will encourage investment in the solar energy sector which could create additional jobs and new start-ups. Further positive effects are expected for population and human health by reducing fuel poverty across Ireland as self-generated electricity protects citizens from the volatility of fossil fuel prices.

5.14 The installation of solar panels, particularly roof-mounted panels could increase the risk of fire resulting from electrical faults which could result in adverse effects on users of the building (and livestock in the case of agricultural structures). The installation of roof-mounted solar panels within Solar Safeguarding Zones, within all classes of development except houses, has the potential to result in adverse effects as a result of glint and glare from cumulative developments which could have health and safety implications for aircrafts, and to a lesser extent, road users. However, the installation of roof-mounted solar panels within Solar Safeguarding Zones is subject to conditions relating to the total aperture area (i.e. a 60 square metre area limit, an increase on the current limit of 50 square metres) which is likely to reduce the scale of the impact.

SEA objective 3: Climatic factors and SEA objective 4: Air

5.15 The third and fourth SEA objectives seek to assess the impact of the proposed regulations on the climatic factors and air, specifically how greater roll out of solar panels across Ireland may impact its GHG emissions and air quality.

5.16 In relation to SEA objective 3: Climatic factors and SEA objective 4: Air, **mixed effects (significant positive and minor negative)** are identified for all classes of exemption.

5.17 Extending solar panel exemptions, including within Solar Safeguarding Zones (subject to conditions on total area and certain classes of development), will promote the uptake of

renewable energy technologies, increasing Ireland's installed renewable energy capacity, helping to achieve net zero emissions by 2050. This will reduce GHG emissions by reducing reliance on traditional fossil fuels as solar PV electricity/heating contributes 96-98% less GHGs than electricity from coal, and 92-96% less GHGs than the European electricity mix⁴².

5.18 However, the production of solar panels and thermal equipment is energy intensive which releases GHG emissions, including carbon dioxide (CO₂), nitrogen dioxide (NO_x) and sulphur dioxide (SO₂), during the processing, manufacturing, and transportation stages of solar panels⁴³. The average lifespan of solar panels is 20-30 years (depending on a number of factors) and it takes approximately six years for the carbon produced during manufacturing to be offset⁴⁴.

5.19 For all classes of development (except for houses), the 60 square metre limit of roof-mounted solar panel installations within the 43 Solar Safeguarding Zones around airports (5km zone), aerodromes (3km zone) and helipads (3km zone) restricts the extent of solar panel installations which will be classed as exempted development in these areas, potentially resulting in less electricity/heating being generated from solar energy. However, planning permission may still be sought for installations which go beyond the exemptions in these areas.

5.20 Conditions for all classes of development (except for houses) specify that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. These conditions restrict the energy generated primarily to self-consumption with limited options to sell excess renewable energy to the grid. This may limit the amount of renewable energy generated in Ireland and facilitate the continued reliance on energy generated from fossil fuels and their associated GHG emissions.

SEA objective 5: Soil

5.21 The fifth SEA objective seeks to assess the impact of the proposed regulations on the soil, specifically how greater roll out of solar panels across Ireland may impact its soil quality.

5.22 Minor positive effects are identified for soil for all classes of exemption except for the installation of solar panels on or within the curtilage of agricultural structures and

⁴² The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

⁴³ Cool Effect (2021) Carbon Footprint of Solar Panel Manufacturing [Online] Available at: <https://www.cooleffect.org/solar-carbon-footprint>

⁴⁴ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

holdings which will have a **mixed (minor positive / minor negative)** effect on this SEA objective.

5.23 The installation of free-standing solar panels within the curtilage of a property or building is unlikely to have significant adverse effects on soil resources. The installation of free-standing solar panels within an agricultural holding is likely to have greater negative effects on soil quality, compaction, and disturbance. However, conditions within the proposed regulations seek to mitigate potential adverse effects by limiting the area covered by free-standing installations to 60 square metres within the agricultural holding which will help to reduce the area of soil disturbed or degraded.

5.24 The uptake of renewable energy will displace the use of peat as a fossil fuel, thereby protecting and conserving carbon-rich soils. Furthermore, mitigating against the effects of climate change may reduce extreme weather events such as flooding and drought which also affect soil quality.

SEA objective 6: Water

5.25 The sixth SEA objective seeks to assess the impact of the proposed regulations on the water, specifically how greater roll out of solar panels across Ireland may impact its fresh and sea water quality and quantity.

5.26 **Minor positive** effects are identified in relation to SEA objective 6: Water for all classes of exemption.

5.27 Reducing the use of fossil fuels and the release of GHG emissions will have several positive effects on the water environment. For example, mitigating against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Further positive effects for water are expected as the use of solar energy for electricity significantly reduces the consumption of water that would be used by conventional power generation plants to generate electricity. When compared to electricity from coal, solar PV uses 86-89% less water⁴⁵.

SEA objective 7: Cultural heritage including Architectural Heritage and SEA objective 8: Landscape

5.28 The seventh and eighth SEA objective seeks to assess the impact of the proposed regulations on the cultural heritage including architectural heritage and landscape, specifically how greater roll out of solar panels across Ireland may impact its heritage assets and unique landscapes.

5.29 In relation to SEA objective 7: Cultural Heritage and SEA objective 8: Landscape **mixed effects (minor positive / minor negative)** are identified for all classes of exemption.

5.30 The installation of solar PV and solar thermal collector installations on proposed protected structures, protected structures or within their curtilage, or structures within an Architectural Conservation Area (ACA), could adversely affect the setting, amenity and character of these heritage assets. There is also potential for adverse effects where there is intervisibility to heritage assets. Furthermore, there may be direct, negative impacts on buried archaeology from the installation of free-standing panels. Significant negative effects could also arise in relation to landscape and the historic environment as a result of an increase in cumulative solar developments, which could affect the appearance of the streetscape and landscape, adversely affecting the overall character / visual amenity of the area, particularly in vulnerable cultural heritage environments. Significant negative effects on landscape may also arise due to there being no limits on the area in which solar panels can cover a roof (except within Solar Safeguarding Zones). Additionally, with the exception of proposed protected structures, protected structures and structures within an ACA, there are no limitations on roof-mounted solar panels facing roads. Therefore, more solar panels would be visible from public roads which could affect visual amenity of an area.

5.31 However, the significance of the effects is reduced due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations and Planning and Development Act, as amended:

■ Conditions in proposed regulations:

- The proposed regulations specify that exemptions do not apply where the installation is on any wall or is free-standing, or on a pitched roof of a house facing a road that is classed as a proposed protected structure, protected structure or is located within an Architectural Conservation Area (ACA).
- Conditions for all classes of development (except for houses) specify that solar equipment should not be used to display signage or advertisements (excluding those required for safety purposes), which could prevent adverse effects on cultural heritage assets, ACAs and landscape character.
- Limitations on the area / height of free-standing installations and, set-back distances from the edges of roofs / plane of walls for wall and roof-mounted installations, will also help reduce the effects on landscape character. Free-standing installations

⁴⁵ Ibid

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

should not be located forward of the front wall of houses and industrial / business premises / educational, community health care facilities, and should not be located forward of the front wall of the nearest agricultural structure within the agricultural holding to a public road. For industrial buildings, businesses premises and agricultural structures roof-mounted installations should not exceed the highest part of a pitched roof (excluding any chimney). This is likely to further prevent negative effects on cultural heritage assets, landscape and streetscape character.

■ Conditions in Principal Regulations:

- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to the “[...] excavation, alteration or demolition...of places [...] of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan [...]”.
- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to developments that “consist of or comprise the excavation, alteration or demolition of any archaeological monument included in the Record of Monuments and Places [...]”.
- Article 9(1)(a)(xii) of the Principal Regulations also includes restrictions on developments that “[...] consist of or comprise the carrying out of works to the exterior of a structure, where the structure concerned is located within an architectural conservation area or an area specified as an architectural conservation area [...]”.
- Article 9(1)(a)(vi) of the Principal Regulations restricts exempted development where it would “interfere with the character of a landscape, or a view or prospect of special amenity value or special interest”.

■ Conditions in the Planning and Development Act, as amended:

- Article 57 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of: (a) the structure, or (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest”

- Article 82 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to the exterior of a structure located in an architectural conservation area shall be exempted development only if those works would not materially affect the character of the area”.

5.32 Therefore, minor rather than significant negative effects are identified for cultural heritage and landscape as impacts on landscape character and the setting of historic assets may occur, particularly as a result of cumulative solar developments in an area. The negative effects are mixed with positive effects as reducing the effects of climate change may minimise the degradation of historic buildings and reduce the risk of drought, flooding and erosion, which could otherwise alter landscape character.

SEA objective 9: Material assets

5.33 The ninth SEA objective seeks to assess the impact of the proposed regulations on the material assets, specifically how greater roll out of solar panels across Ireland may impact availability of its resources.

5.34 In relation to SEA objective 9: Materials Assets **mixed effects (minor positive /minor negative)** are identified for all classes of exemption.

5.35 The use of flexible and responsive renewable energy technologies such as solar power will have minor positive effects on population and human health and material assets, by improving the reliability, diversity and security of electricity supply, and potentially reducing electricity rates. Additionally, the greater uptake of solar will also reduce national dependency on fuel imports. The positive effects identified in relation to material assets are further enhanced as the use of solar PV and solar thermal collector installations is a sustainable use of natural resources (solar energy) and will promote economic growth in the green energy sector.

5.36 There may be negative effects on material assets as scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). However, as set out in the Waste From Electrical and Electronic Equipment (WEEE) Directive, end of life solar panels in Ireland must be recycled. This will help reduce the negative effects associated with use of scarce resources.

5.37 The proposed regulations specify conditions for all classes of development (except for houses) which require that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. These conditions therefore limit

energy generated primarily for self-consumption with limited option to sell excess renewable energy to the grid which may limit the amount of renewable energy generated in Ireland. Conversely, limiting the energy generated primarily for self-consumption may reduce reliance on energy generated from fossil fuels.

5.38 The occurrence of glint and glare within Solar Safeguarding Zones, particularly as a result of cumulative development, and the potential adverse effects on the aviation industry may result in minor negative effects on material assets.

5.39 Within agricultural landholdings, the installation of free-standing solar installations may result in conflicts of land use, as less land will be available for agricultural purposes. However, this effect is unlikely to be significant as there is a 60 square metre limit for free-standing solar installations within an agricultural holding.

Duration of effects

5.40 The majority of effects arising from the proposed regulations are considered to be long-term in nature. The placing or erection of solar PV and solar thermal collector installations across the various classes of development will have long-term positive effects on climatic factors, by reducing Ireland's contribution to GHG emissions. Likewise, positive effects on air and water quality associated with a reduction in GHG emissions will also be long-term in nature. Similarly, positive effects on population and human health associated with improvements in air quality are likely to be long-term, affecting several generations in the future.

5.41 The potential positive and negative effects identified in relation to landscape and cultural heritage are likely to be long-term in nature, given the operational lifetime of solar panels (20-30 years), however it is noted that these effects are reversible, and can be reversed by the decommissioning of solar equipment.

5.42 Potential negative effects are identified in relation to biodiversity. This includes disturbance to species such as birds (roof and ground nesting) and bat roosts in roofs, during the installation and decommissioning of solar equipment. However, it is noted that these effects would be temporary and short-term in nature. Likewise, any disturbance to the people arising from installation (e.g. noise, vibration and dust) would be short-term and temporary in nature.

Secondary, cumulative and synergistic effects

5.43 Secondary (or indirect) effects are effects that are not a direct result of the proposed regulations but occur away from the original effect or as a result of a complex pathway.

Cumulative effects occur where two or more insignificant impacts combine to form a significant impact. Synergistic effects occur as the result of interactions between individual effects producing a total effect greater than the sum of each of the individual effects. Secondary, cumulative or synergistic effects may be either positive or negative.

5.44 The secondary, cumulative and synergistic effects of the proposed regulations are summarised in the following paragraphs.

5.45 The proposed regulations are expected to make a significant contribution to Ireland's commitment to GHG reduction targets, by encouraging the greater uptake of solar PV and solar thermal installations, thereby having significant positive effects on climatic factors. Significant positive effects on climate factors will arise from cumulative solar developments across the domestic, industrial, business, agricultural and educational, health and community facilities sectors. Solar PV and solar thermal therefore could make a significant contribution towards meeting net zero targets and encouraging such renewable technology will help improve the security and flexibility of supply.

5.46 The proposed regulations are likely to have significant benefits for air quality in Ireland, because of reduced reliance on fossil fuels. As air pollution often originates from the same sources that contribute to the release of GHG emissions, including electricity/energy generation, the regulations supporting the move towards low-carbon and renewable solar energy are expected to have associated benefits to air quality. Therefore, reducing emissions from electricity and energy generation is therefore likely to improve air quality at both local and national levels.

5.47 Improvements in air quality subsequently will have positive effects on population and human health, notably in relation to respiratory illnesses. This will prevent unnecessary health care costs as well as premature deaths from poor air quality. Further positive effects are expected for population and human health by reducing fuel poverty across Ireland. The greater uptake of solar energy will also increase the resilience of buildings by ensuring a reliable, secure and flexible supply of energy. Negative effects may arise as a result of cumulative developments within Solar Safeguarding Zones causing glint and glare which could have health and safety implications for aircraft. Likewise, wall or roof-mounted solar equipment poses greater risk to fires, which may also cause negative effects on health and wellbeing. Negative effects may also arise as a result of installation activities, such as nuisance including dust, noise and vibration. However, these are likely to be short term and temporary in nature.

5.48 Soil sealing, disturbance and compaction arising from the installation of free-standing solar equipment is unlikely to result in significant adverse effects on soil quality due to

limitations on the size of schemes. However, the proposed regulations may have significant positive effects in relation to soil quality, as the greater uptake of solar energy across all sectors, but primarily the domestic sector, may reduce reliance on peat, which is an important carbon store, as a fuel source.

5.49 Significant positive effects may arise in relation to water due to cumulative solar developments across Ireland. Greater uptake of solar energy will contribute towards climate change mitigation and potential rises in temperature, which will prevent the occurrence of algal blooms. Furthermore, uptake of solar energy will reduce the water consumption associated with conventional power plants.

5.50 Significant negative cumulative effects are unlikely in relation to biodiversity, as the proposed regulations set out limitations in terms of how close to the edge of roofs or walls solar equipment can be located. This, therefore, will minimise effects on biodiversity such as wall/roof nesting bird and bat roosts. Cumulative effects on ground nesting birds and mammals due to free-standing solar installations are unlikely to be significant due to the short-term nature of disturbance to these areas. Cumulative effects of solar developments across Ireland may have positive effects on biodiversity by reducing GHG emissions and subsequent increases in temperature, preventing habitat loss, invasive species and increasing species resilience.

5.51 Significant negative effects on landscape and cultural heritage arising from cumulative developments are unlikely due to the conditions within the proposed regulations and the existing restrictions set out within the Principal Regulations (article 9(1)) and Planning and Development Act, as amended (articles 57 and 82). Cumulative effects arising from changes in the climate, may have positive effects on landscape and cultural heritage. Given the long-term nature of these expected changes, and the extent to which the climate and landscape would have to change to enable significant positive effects, it is unlikely positive cumulative effects would be significant in nature.

5.52 Encouraging the uptake of solar technologies is applicable to all classes of development in the proposed regulations (houses, apartments, industry, business, educational, agriculture etc.) and therefore supports the mass decarbonisation of energy generation. The implementation of solar technologies and reduced reliance on fossil-fuel derived energy and fuel imports will help improve the reliability, flexibility and security of electricity supply, having significant positive effects on material assets. Mass deployment of solar energy will have negative effects on scarce and finite materials used in their production, however the requirement for recycling of solar panels will help maintain a circular economy in the future. However, it is recognised that unless

recycled materials are already available for the production of solar panels, that these will need to be sourced from non-renewable sources elsewhere first.

Transboundary effects

5.53 Given the extensive nature of climate change issues, it is likely that the substantial reduction in GHG emissions in Ireland arising from the proposed regulations will impact the climate on an international scale. Reductions in GHG emissions, and the associated benefits for climate change will not only affect Ireland, but also neighbouring areas in Northern Ireland, the UK and Europe. Likewise, improvements in air quality arising from reduced reliance on fossil fuels may have indirect positive effects on air quality in nearby countries. Subsequent benefits for population and human health may also be expected. However, transboundary effects are unlikely to be significant in nature.

5.54 Table 5.1 provides a summary of the SEA scores for each SEA topic.

Table 5.1: Summary of the SEA findings

SEA Topics		Biodiversity, Flora and Fauna	Population and Human Health	Climatic Factors and Air	Soil	Water	Cultural Heritage and Landscape	Material Assets
Amendment of Part 1 of Schedule 2 to the Principal Regulations	Houses	+/-	+/-	++/-	+	+	+/-?	+/-
	Industrial buildings	+/-	+/-	++/-	+	+	+/-?	+/-?
	Business premises or light industrial buildings	+/-	+/-	++/-	+	+	+/-?	+/-?
	Apartment buildings	+/-	+/-	++/-	+	+	+/-?	+/-
	Educational buildings, health care facilities, sports facilities, community facilities, places of worship and libraries	+/-	+/-	++/-	+	+	+/-?	+/-
Amendment of Part 3 of Schedule 2 to the Principal Regulations	Agricultural structures	+/-	+/-	++/-	+/-	+	+/-?	+/-

Chapter 6

Mitigation and enhancement

This chapter outlines a number of ways in which potential adverse effects of the proposed regulations could be avoided or minimised. They relate to issues of good practice in implementation rather than requiring changes to the proposed regulations themselves.

Mitigation and enhancement

6.1 Solar panels will play an important role in reducing the overall GHG emissions from energy and in generating renewable heat. Considering the urgency of the climate emergency, solar panels uptake should be encouraged and managed in a way to enable as many households, businesses and industrial premises to implement this technology. However, it will be equally crucial to ensure that any potential negative impacts are avoided where possible and mitigated for where certain negative effects are unavoidable. It is also worth noting that solar panels have an expected life of 25 years, even in areas where the sun's radiation is received at less than 550kWh per m² such as Ireland, therefore for a typical solar panel it takes around six years to pay back its energy cost⁴⁶.

6.2 In terms of the risk of glare, especially within a vicinity of an airport, aerodrome or military grounds, one option would be to install anti-glare solar panels to reduce the ocular risk of glare. While not widely deployed at present, and requiring testing to confirm effectiveness under real life conditions, available technology allows for anti-reflective coatings to be added to the solar panels. These coatings can improve the light transmittance and the overall efficiency of a solar PV

⁴⁶ The Renewable Energy Hub UK (2022) Solar Photovoltaics – Cradle-to-Grave Analysis and Environmental Cost. [online] Available at: [https://www.renewableenergyhub.co.uk/main/solar-panels/solar-](https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/#:~:text=As%20solar%20panels%20have%20an,recent%20study%20by%20Vasilis%20M)

[panels-carbon-analysis/#:~:text=As%20solar%20panels%20have%20an,recent%20study%20by%20Vasilis%20M](https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/#:~:text=As%20solar%20panels%20have%20an,recent%20study%20by%20Vasilis%20M)

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

while reducing the glare effect from the glass⁴⁷. The coatings, if multi-layered, are resistant for approximately the lifetime of a panel, however they will require materials such as zirconium oxide and silicone dioxide⁴⁸.

6.3 While the proposed regulations relate to the installation of rooftop solar panels alternative technologies may be considered where there is a concern about the effects on the character of a historic building and the wider landscape or townscape. The use of solar slates, for example, can provide an appropriate roofing material which also generates electricity. A study by Alim et. al. (2019) indicates that in sunlight rich places solar slates can also generate up to 18% more electricity than traditional solar panels⁴⁹. A disadvantage of this technology is the cost, as for the moment such roof may be double the price of a traditional roofing solution⁵⁰. However, this may be a good option to help balance the needs of the historic asset's setting and ensure that renewable energy technologies are utilised to reduce the building's overall contribution to GHG emissions. In all cases, solar panels should be installed in a way that avoids or minimises impacts of the historic structure of the building in question, allowing effects to be reversed.

6.4 Currently, solar panels installations are limited to roofs and ground due to their shape and structure. New technologies are being developed, such as perovskite solar cells⁵¹ or paints⁵² that will enable solar energy generation from various surfaces. This, accordingly, is likely to boost the uptake of solar energy even further in the coming years, once the costs of such technologies become competitive to the traditional solar panels. It will be important to ensure that future solar energy policies consider the potential of such solutions. However, investigation into potential negative effects will also be required.

6.5 From regulatory perspective, solar PV panel waste falls under the general waste classification. However, at the EU level, PV panels are classified as e-waste within the Waste Electrical and Electronic Equipment (WEEE) Directive.

Therefore, solar cells manufacturers are bound by law to fulfil specific legal requirements and recycling standards. The recycling process of silicon-based PV panels starts with disassembling the actual product to separate aluminium and glass parts. As much as 95% of the glass can be reused, while all external metal parts are used for re-moulding cell frames. The remainder materials are treated at 500°C in a thermal processing unit⁵³. EU regulations require 85% collection and 80% recycling of materials used in PV panels, under the WEEE Directive. Considering the increasing uptake, and potential policies that are going to encourage even more solar panels, it will be critically important to enhance local recycling systems in Ireland to ensure that as many as possible of the materials stay in the loop after the end-of-life of a product⁵⁴.

6.6 While solar panels generate green energy, their manufacture can be energy intensive. The production of solar panels requires temperatures of 2,000°C, and therefore fossil fuel energy is generally used to produce such heat⁵⁵. Currently over 67% of the global supply of solar panels comes from China. Compared to Europe, Japan and the USA, the electricity grid in China is about twice as carbon-intensive and about 50% less energy efficient. This has the effect of extending the period over which energy and emissions savings are paid back. It is likely that technological advances will reduce the embodied energy and CO₂ and deliver increases in panel performance. However, there are currently benefits in considering these issues in the procurement of solar equipment.

6.7 While not appropriate for inclusion in the proposed Regulations, good practice in the design and installation of solar panels can help avoid or minimise local environmental effects. The following aspects of should be considered:

- Ensure design of solar panels on and around buildings are responsive to the local conditions – when installing

⁴⁷ Sino Voltaics (undated) Anti-reflective coating: usage for solar panels. [online] Available at: <https://sinovoltaics.com/learning-center/solar-cells/anti-reflective-coating-for-solar-panels/>

⁴⁸ Science Daily (2014) Scientists come up with method of reducing solar panel glare. [online] Available at:

<https://www.sciencedaily.com/releases/2014/04/140415084419.htm>

⁴⁹ Alim, A., Tao, Z., Rahman, A. (2019) We can make rooftiles with built-in solar cells – now the challenge is to make them cheaper. [online] Available at:

[https://www.researchgate.net/publication/335990895 We can make roof tiles with built-in solar cells - now the challenge is to make them cheaper/link/5d89b151299bf1996f9e28e2/download](https://www.researchgate.net/publication/335990895>We_can_make_roof_tiles_with_built-in_solar_cells_-_now_the_challenge_is_to_make_them_cheaper/link/5d89b151299bf1996f9e28e2/download)

⁵⁰ Sprint Energy (undated) Solar PV Knowledge Bank. [online] Available at: <https://www.spiritenergy.co.uk/kb-pv-solar-tiles>

⁵¹ U.S. Department of Energy (undated) Perovskite Solar Cells. [online] Available at: <https://www.energy.gov/eere/solar/perovskite-solar-cells>

⁵² Futurism (2017) A New 'Solar Paint' Lets You Transform Your Entire House Into a Source of Clean Energy. [online] Available at: <https://futurism.com/a-new-solar-paint-lets-you-transform-your-entire-house-into-a-source-of-clean-energy>

⁵³ Green Match (2021) The Opportunities of Solar Panel Recycling [online] Available at: <https://www.greenmatch.co.uk/blog/2017/10/the-opportunities-of-solar-panel-recycling>

⁵⁴ PV Magazine (2020) Recycling PV Panels: Why can't we hit 100%? [online] Available at: <https://www.pv-magazine.com/2020/08/26/recycling-pv-panels-why-cant-we-hit-100/>

⁵⁵ Chen, C. (2019) Solar energy is green. Solar Panels are not. AI revolutionise their design. Energy Post EU. [online] Available at: <https://energypost.eu/solar-energy-is-green-solar-panels-are-not-ai-can-revolutionise-their-design/>

solar panels, the following should be considered, in line with international best practice⁵⁶:

- Colour and contrast – panel colour, reflectance and finish should complement the building and surrounding. Generally, a match of panel and roof colour works best.
 - Framing - Frameless or black-framed panels can be used where frames would detract from the building. Untreated or natural finished metal panel frames can draw attention to the system unnecessarily.
 - Size – Give thought to the size of the components and matching the solar system to other building components such as windows and building stones can complement the building.
 - Symmetry in panel layout – create a symmetrical layout, even if this requires the removal of roof furniture. Panels in differing orientations are less aesthetically pleasing.
 - Coverage – Where possible (and subject to maintenance requirements), an ‘edge to edge’ installation covering the whole roof is often most desirable.
 - Complementing features - Solar PV should be positioned in proportion to the building and its style, including in-roof features such as windows.
 - Mounting setting – in-roof systems have an advantage over on-roof systems in that the mounting system is not visible.
 - Roof positioning - responsive design and siting are still relevant in terms of choosing to place the system where it will have minimal visual impact (e.g. in the valley of a roof).
 - Neighbouring solar roofs – create a standardised approach to design when houses of the same type nearby also have solar panels, to help reduce cumulative effects.
 - Planning designations - the more harmoniously the solar PV system matches the building, the better it fits into the designated area where the building is located
- Ensure that the panels are designed to last – ensure component warranties are appropriate for installation

(each part has a similar warranty length), understand potential failure points and eliminate them as possible, and follow the construction code to ensure that the system is built appropriately for the geographical location of Ireland (aspects such as peak energy demands in different seasons and the sun facing location need to be adjusted to allow for best result specific to the location).

- Ensure that the system can be maintained easily over its lifetime, allowing for enough room to perform work safely (ensure an easy access to inverters, which normally have a lifetime of 10 years, so they need to be changed at least once).
- Ensure that the design reflect the local environment (elements of the roof/area, wind, orientation and sun levels) – residential and commercial buildings often have obstructions (chimneys, parapets, air conditioning units, etc.) that can block some sunlight. These need to be mapped out before installation. In terms of the roof, its structural integrity needs to be checked whether it can withstand additional weight from the solar PV system. Accordingly, understanding seasonal wind maximums is essential to ensure that an installation will be robust. It is important to understand how the wind will behave and how to best mount the panels to reduce the chance of damage or vibration from the wind. Lastly, it is important to understand the electricity demand of a given area and the sun levels. As it is important to maximise the solar energy production in during the peak energy times.
- Ensure that the solar system is properly labelled, as their requirements can vary depending on the system’s configuration. There are a range of different systems including: standalone systems interconnected systems, back-fed overcurrent protection devices, solidly grounded system and systems with rapid shutdown switches⁵⁷.

⁵⁶ BRE and CPRE (2016) Ensuring place-responsive design for solar photovoltaics on buildings - A good practice guide for designers, manufacturers, and installers. Eds J. Williams and K. Hagen [Online] Available at: <https://www.bre.co.uk/filelibrary/nsc/Documents%20Library/BRE/BRE-CPRE-Responsive-Design-Guide.pdf>

⁵⁷ Graphic Products (undated) 5 solar installations best practices you need to know. [online] Available at: <https://www.graphicproducts.com/articles/5-solar-installation-best-practices-you-need-to-know/>

Chapter 7

Monitoring

This chapter presents the Monitoring Programme for monitoring the significant environmental effects of implementing the proposed regulations.

7.1 Article 17 of the SEA Regulations requires that the competent authority (in this case DHLGH) monitors the significant environmental effects of implementing the proposed regulations in order to identify, at an early stage, any unforeseen adverse effects due to the implementation of the proposed regulations and to take remedial action.

7.2 Monitoring is carried out by reporting on a set of indicators, which enable positive and negative impacts on the environment to be measured. The environmental indicators of relevance to the proposed regulations were identified from the SEA process. These are intended to be used to identify unforeseen adverse effects from implementation of the proposed regulations. Reference has been made to the EPA's Guidance on Strategic Environmental Assessment Statements and Monitoring in devising the environmental monitoring programme.

7.3 Monitoring has focused on the aspects of the environment that are likely to be significantly impacted by the proposed regulations and from the identification of the key trends and issue areas. Where possible, indicators have been chosen based on the availability of the necessary information and to show changes that would be attributable to implementation of the proposed regulations.

7.4 It is the responsibility of DHLGH to coordinate the monitoring of the proposed regulations. It is, however, recognised that DHLGH will, to a large extent, rely on existing monitoring programmes managed by other Government departments and agencies and the expertise of these partners in interpreting data trends. DHLGH should, therefore, liaise with these data holders in order to secure their advice on the cycle of monitoring, the significance of any positive or negative data trends and the extent to which they are likely to be attributed to the Regulations once implemented. A system of annual RAG rating reporting could be used to flag any issues

arising (noting that some indicators are collected on more or less frequent timescales). It is suggested that monitoring over a 10-year period should be sufficient to detect and address any adverse effects resulting from the change in regulations, though this should be reviewed at the end of the period in the light of identified trends. Remediation of any unforeseen

effects is likely to require an integrated response across agencies, departments and other authorities to fully establish the correct response/actions should such effects be identified.

Table 7.1 presents the proposed Environmental Monitoring Programme.

Table 7.1: Monitoring Programme

Indicator	Target/ Threshold	Monitoring frequency	Monitored by
Biodiversity	Integrity of habitats and conservation status of species as per the requirements of the EU Habitats Directive (92/43/EEC)	Routine monitoring programmes are in place for specific species/ habitats Article 17 reporting every six years	NPWS and National Biodiversity Data Centre https://www.npws.ie
Climate	EU GHG emission targets	Routine monitoring programmes are in place for GHG emissions (sectoral and regional)	EPA, Office of Public Works, National Roads Authority, DCCA https://www.climateireland.ie
	Number of planning applications for rooftop solar developments	Annually	Local authorities
Air Quality	Defined hourly/daily/monthly and annual thresholds, as set in the various EU air quality directives (e.g. CAFE Directive 2008/50/EC)	Real time at monitoring stations	EPA www.epa.ie
Water Quality	Drinking Water Directive (98/83/EC) and WFD (2000/60/EC)	Typically, quarterly surveillance monitoring and monthly operational monitoring	EPA and River Basin Districts www.catchments.ie https://wfd.edenireland.ie/
Land use / land cover	Not applicable	Updated every six years, including information about changes over the past six years	European CORINE project https://land.copernicus.eu/pa/neuropean/corine-land-cover www.epa.ie
Cultural Heritage	Number of heritage assets positively or adversely effected by climate change and solar energy developments	Annually	National Monuments Service

Chapter 8

Conclusion and next steps

The proposed regulations and the reasonable alternatives have been subject to a detailed appraisal against the SEA Environmental Protection Objectives which were developed at the Scoping stage of the SEA process.

8.1 The proposed regulations are expected to have a wide range of positive and significant positive effects on the SEA objectives, particularly in relation to climatic factors and air, as they promote the uptake of renewable energy technologies which will increase Ireland's installed renewable energy capacity, reduce reliance on traditional fossil fuels, and will help to achieve net zero emissions by 2050.

PV electricity contributes 96% to 98% less greenhouse gases than electricity generated from 100% coal and 92% to 96% less greenhouse gases than the European electricity mix. [...] Compared with electricity from coal, PV electricity over its lifetime uses 86 to 89% less water, occupies or transforms over 80% less land, presents approximately 95% lower toxicity to humans, contributes 92 to 97% less to acid rain, and 97 to 98% less to marine eutrophication."

Carol Olson, researcher at the Energy Research Centre in the Netherlands

8.2 The assessment has also identified a number of possible mixed effects (positive effects combined with negative effects) from the proposed regulations. These are in relation to biodiversity, population and human health, cultural heritage, landscape and material assets. Mixed effects, however, pose opportunities for mitigation measures and enhancement of activities in order to avoid potential significant negative effects and ensure that solar panel installations will be suitable for longer timescales.

8.3 In light of the Irish Government's progress with achieving its carbon reduction targets and also the knock-on effects of

the current international energy situation, this piece of policy may play an important role in ensuring higher uptake of solar panels that can further help reduce GHG emissions and enhance Irish energy security in the longer term.

Next steps

Public consultation will be carried out on this Environmental Report for a four-week period from Wednesday 15 June 2022 to Wednesday 13 July 2022.

8.4 The Environmental Report and associated Non-Technical Summary will be published on DHLGH's website for consultation. Following the consultation, the submissions and observations received during the public consultation period will be reviewed and considered during the finalisation of the proposed regulations. If the proposed regulations are further revised, these revisions will be subject to further assessment. If there are no further alterations to the proposed regulations, a Final Environmental Report will be prepared and made available on DHLGH's website. An SEA Statement will be prepared identifying how each of the requirements in article 16 of the SEA Regulations have been met during the SEA process. The finalised SEA Statement will be published after the Minister of State signs the regulations into law.

LUC

June 2022

Appendix A

Consultation responses

Screening Report consultation responses

Environmental Protection Agency

Table A.1: EPA Screening Report consultation response

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
Environmental Protection Agency Response dated 15 June 2021	<p>Proposed SEA Determination</p> <p>We note your screening report and the conclusion that the Regulations as currently drafted are likely to have significant effects on the environment and therefore require further assessment in the form of an SEA. The criteria set out in Annex II of Directive 2001/ 42/EC on the assessment of the effects of certain plans and programmes on the environment (The SEA Directive) and in Schedule 1 of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I No. 435 of 2004) has been taken into account as part of the screening report.</p> <p>We note the intention to publish the screening report along with the proposed screening determination on the government website in due course.</p> <p>DHLGH is obliged to take the relevant criteria set out in Schedule 1 into account in making its determination as to whether the Regulations would be likely to have significant effects on the environment.</p> <p>Guidance on the SEA process, including an SEA pack and checklist are available on our website. We recommend that you take the available guidance into account in making your SEA Screening Determination and incorporate the relevant recommendations as relevant and appropriate to the Regulations.</p>	<p>The Screening Report was prepared in accordance with Schedule 1 of the SEA Regulations. The SEA guidance documents available on the EPA's website will be used to inform the preparation of reports during the SEA process.</p>
	<p>Policy Context</p> <p>We welcome the policy context in which the Regulations are set in relation to commitments to increased use of renewable energy sources in the national Climate Action Plan 2019 and the subsequent Interim Climate Actions 2021. You may be aware that the Climate Action Plan 2021 is currently under preparation and we advise that the Regulations should be aligned with relevant aspects of the new Climate Action Plan.</p>	<p>Noted with thanks. We will ensure that the proposed regulations will be aligned with the Interim Climate Actions and subsequently the Climate Action Plan 2021.</p>
	<p>Environmental Sensitivity Mapping (ESM) WebTool</p> <p>This new tool was launched recently by the EPA. It is a new decision support tool to assist SEA and planning processes in Ireland. It is available at www.enviromap.ie. The tool brings together over 100 datasets and allows users</p>	<p>Noted with thanks. We will use the ESM WebTool to identify environmental sensitivities.</p>

Appendix A
 Consultation responses

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<p>to create plan-specific environmental sensitivity maps. These maps can help planners examine environmental considerations, anticipate potential land-use conflicts, and help identify suitable development locations while also protecting the environment.</p>	
	<p>State of the Environment Report – Ireland’s Environment 2020</p> <p>In finalising the Regulations and associated SEA screening, the recommendations, key issues and challenges described in our State of the Environment Report Ireland’s Environment – An Integrated Assessment 2020 (EPA, 2020) should be considered, as relevant and appropriate to the Regulations. This should also be taken into account, in preparing the Regulations.</p>	<p>Noted with thanks. The 2020 State of the Environment Report will be used as one of the primary sources of information to inform the baseline and to identify key pressures and challenges.</p>
	<p>Available Guidance & Resources</p> <p>Our website contains various SEA resources and guidance, including:</p> <ul style="list-style-type: none"> - SEA process guidance and checklists - Inventory of spatial datasets relevant to SEA - Topic specific SEA guidance (including Good practice note on Cumulative Effects Assessment (EPA, 2020), Guidance on SEA Statements and Monitoring (EPA, 2020), Integrating climatic factors into SEA (EPA, 2019), Developing and Assessing Alternatives in SEA (EPA, 2015), Guidance note for the energy sector (2021) and Integrated Biodiversity Impact Assessment (EPA, 2012)) 	<p>Noted with thanks. The SEA guidance documents available on the EPA's website will be used to inform the preparation of reports during the SEA process.</p>
	<p>EPA SEA WebGIS Tool</p> <p>Our SEA WebGIS Tool has been updated recently and is now publicly available at https://gis.epa.ie/EPAMaps/SEA . It allows public authorities to produce an indicative report on key aspects of the environment in a specific geographic area It is intended to assist public authorities in SEA screening and scoping exercises.</p>	<p>Noted with thanks.</p>
	<p>EPA WFD Application</p> <p>Our WFD Application provides access to water quality and catchment data from the national WFD monitoring programme and is available through EPA Maps. It is also publicly available data can be accessed via the www.catchments.ie website.</p>	<p>Noted with thanks. We will use the WFD Application to inform the baseline information relating to water quality.</p>
	<p>EPA AA GeoTool</p>	<p>Noted with thanks.</p>

Appendix A
 Consultation responses

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<p>Our AA GeoTool application has been developed in partnership with the NPWS. It allows users to select a location, specify a search area and gather available information for each European Site within the area. It is available at: https://gis.epa.ie/EPAMaps/AAGeoTool</p>	
	<p>Future amendments to the Regulations</p> <p>Where changes to the Regulations are made prior to finalisation, or where modifications to the Regulations are proposed following its adoption, these should be screened for potential for likely significant effects in accordance with the criteria set out in Schedule 1 of the SEA Regulations (S.I. No. 435 of 2004).</p>	<p>Noted with thanks. Any revisions to the proposed regulations will be subject to screening for potential likely significant effects in accordance with Schedule 1 of the SEA Regulations.</p>
	<p>Appropriate Assessment</p> <p>You should ensure that the Regulations comply with the requirements of the Habitats Directive where relevant. Where Appropriate Assessment is required, the key findings and recommendations should be incorporated into the SEA and the Regulations.</p>	<p>Noted with thanks. An AA Screening Report was prepared in March 2022. It concluded that the proposed regulations are not likely to have significant effects on any European site. An overview of how the AA and SEA processes are linked is outlined in Chapter 1.</p>
	<p>Environmental Authorities</p> <p>Under the SEA Regulations (S.I. 435 of 2004, as amended), prior to making your SEA determination you should consult with the relevant statutory environmental authorities:</p> <ul style="list-style-type: none"> • Environmental Protection Agency; • Minister for Housing, Local Government and Heritage; • Minister for Tourism, Culture, Arts, Gaeltacht, Sport and Media; • Minister for Environment, Climate and Communications; and, • Minister for Agriculture, Food and the Marine. 	<p>Noted with thanks. The SEA Screening Report was issued to the relevant Environmental Authorities and their responses have been incorporated in the final SEA determination.</p>
	<p>SEA Determination</p> <p>As soon as practicable after making your determination as to whether SEA is required or not, you should make a copy of your decision, including, as appropriate, the reasons for not requiring an environmental assessment, available for</p>	<p>Noted with thanks. The final SEA Screening Determination will be available on the DHLGH's website and</p>

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	public inspection in your offices and on your website. You should also send a copy of your determination to the relevant environmental authorities consulted.	will be issued to the relevant Environmental Authorities.

Scoping Report consultation responses

Environmental Protection Agency

Table A.2: EPA Scoping Report consultation response

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
Environmental Protection Agency Response dated 05 May 2022	<p>State of the Environment Report</p> <p>Our State of Environment Report, <i>Ireland's Environment - An Integrated Assessment 2020</i> (SOER2020) identifies thirteen Key Messages for Ireland. Delivering Ireland's long-term sustainable development and environmental protection goals will require a concerted effort by government departments to address these key actions. The report recognises the need for full implementation of existing environmental legislation and review of governance/coordination on environmental protection across public bodies.</p> <p><u>Chapter 2</u> of the SOER2020 relates to Climate and highlights the clear need for systemic change in Ireland to ensure the country will become the climate neutral and climate resilient society it aspires to be. The report states that more urgency is needed to deliver actions on climate mitigation and adaptation and to ensure that Ireland meets its international obligations to reduce greenhouse gas (GHG) emissions. While Ireland's GHG emissions, with full implementation of the Climate Action Plan, are projected to decrease by an annual average reduction of 3% between 2021 and 2030, further measures are required to meet national and EU ambitions to keep the global temperature increase to 1.5°C (EPA, 2020). These measures will contribute to Ireland achieving climate neutrality by 2050.</p> <p>Environmental challenges are complex, interconnected and require sustained techno-sociological solutions. It is key that the SEA acknowledges the complex and cross cutting nature of climate issues and includes targets and measures that can tackle Ireland's climate crisis as part of an integrated approach to tackling environmental problems. We acknowledge the Regulations look to provide a more streamlined process to encourage greater</p>	Noted with thanks. The 2020 State of the Environment Report has been used as one of the primary sources of information to inform the baseline and to identify key pressures and challenges.

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<p>uptake of solar energy infrastructure through exemptions for planning permission, while still providing for “solar safeguarding” zones around airports, aerodromes and helipads.</p> <p>We acknowledge that the Regulations will help support the new Climate Action and Low Carbon Development (Amendment) Bill, to progress efforts to help Ireland achieve climate neutrality by 2050. We welcome that <i>Table 4.1-Baseline Data sources</i> of the Scoping Report sets out the relevant chapters of the SOER (including those related to <u>climate change</u> and <u>energy</u>) will be considered, in preparing the SEA environmental report.</p> <p>The SOER2020 messages are also linked to a number of the UN’s Sustainable Development Goals, in particular Climate Action, Life on Land and Life below Water. Addressing and implementing these actions will be important in delivering environmental protection and promoting sustainable development in Ireland. In finalising the Regulations and integrating the findings of the SEA into the Regulations, the relevant recommendations, key issues and challenges described in the EPAs SOER2020 should be taken into account.</p>	
	<p>Scope of the SEA</p> <p>The SEA environmental report should clearly set out the scope, remit and implementation related elements of the new legislation. It is important to note that where it is envisaged that measures proposed in the Regulations will be implemented via strategies and plans, which themselves have been or may be subject to SEA, this should be explained in the SEA Environmental Report and taken into account in the assessment.</p>	<p>Noted with thanks. The Environmental Report clearly sets out the scope, remit and implementation related elements of the proposed regulations (see Chapter 1).</p>
	<p>Integration of SEA and the Regulations</p> <p>The integration of the SEA process into the Regulations should reflect the overall objective of the SEA Directive “<i>to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes</i>”. In <i>Figure 1.2-Links between SEA, AA and Regulation-making processes</i>, the linkages between the different processes could be clarified. Currently, the figure shows them as parallel processes without any linkages between them.</p> <p>All recommendations from the SEA, including mitigation measures, should be integrated into the Regulations. Updating Figure 1.2 as suggested above, would help indicate where the recommendations from the SEA process will inform the preparation of the Regulations. Fully integrating the findings and recommendations of the SEA into the Regulations will be key to strengthening its overall positive commitments while ensuring that any significant adverse effects of implementing the Regulations are mitigated.</p> <p>The SEA Environmental Report should include a chapter outlining how the recommendations and mitigation measures from the SEA have been incorporated into the Regulations. We recommend that, the SEA Environmental Report includes summary tables outlining the key findings of the SEA and linking the significant environmental</p>	<p>Noted with thanks. The figure in Chapter 1 has been amended to better show the links between the SEA, AA and Regulation-making processes. Summary tables outlining the key findings of the SEA and linking the significant environmental effects identified to the relevant proposed mitigation measures and monitoring programme are included in the Environmental Report.</p>

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<p>effects identified to the proposed mitigation measures, monitoring programme and, where relevant, Regulations policies/measures.</p> <p>Monitoring, Implementation and Reporting</p> <p>Article 10 of the SEA Directive (2001/42/EC) requires that the significant environmental effects of implementing a plan/programme (the Regulations in this instance) are monitored in order, <i>inter alia</i>, to identify at an early-stage unforeseen adverse effects and to be able to undertake appropriate remedial action. The SEA environmental report must include a description of the measures envisaged concerning monitoring. The Regulations should include a commitment to implement SEA related environmental monitoring requirements and the associated reporting.</p> <p>I refer you to the EPA guidance on SEA Statements and Monitoring, (https://www.epa.ie/pubs/advice/ea/EPA_Guidance_web.pdf), and would draw your attention to the useful high-level monitoring indicators proposed in Table 1 on page 23.</p> <p>The SEA-related monitoring should address positive, negative and cumulative effects where they are likely to occur and should include provision for on-going review to facilitate an early response to any unforeseen environmental issues that may arise. The SEA Environmental Report should specify the monitoring frequency and responsibilities and include provisions for reporting on the monitoring.</p> <p>Integration with other key Plans and Programmes</p> <p>We recommend including schematics in the SEA Environmental Report, showing the links and key inter-relationships between the Regulations and other key relevant national, regional, sectoral and environmental plans/programmes (e.g. the National Planning Framework) and legislation.</p> <p>Environmental Authorities</p> <p>Under the SEA Regulations, you should consult with:</p> <ul style="list-style-type: none"> ■ Environmental Protection Agency; 	<p></p> <p>Noted with thanks.</p> <p>The Monitoring Programme for monitoring the significant environmental effects of implementing the proposed regulations is set out in the Environmental Report (Chapter 7). The SEA Reports (including the SEA Monitoring Programme) will be published alongside the proposed regulations.</p> <p>The Monitoring Programme reflects the monitoring indicators proposed in Table 1 of the EPA's guidance on SEA Statements and Monitoring.</p> <p>The Monitoring Programme addresses positive, negative and cumulative effects and specifies the monitoring frequency and authorities responsible for monitoring.</p> <p>Noted with thanks. A figure showing the links and inter-relationships between the proposed regulations and other plans/programmes and legislation is provided in Chapter 3.</p> <p>Noted with thanks. The SEA Scoping Report was issued to the relevant Environmental Authorities from Thursday 28 April 2022 to Friday 27 May 2022 and their responses have</p>

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<ul style="list-style-type: none"> ■ Minister for Housing, Local Government and Heritage; ■ Minister for Environment, Climate and Communications; ■ Minister for Agriculture, Food and the Marine. 	been addressed in the Final Scoping Report and this Environmental Report.

Department of Agriculture, Food and the Marine

Table A.3: Department of Agriculture, Food and the Marine Scoping Report consultation response

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
Department of Agriculture, Food and the Marine Response dated 11 May 2022	These exemptions apply to roofs with a pitch of 20 degrees or more. Most if not all agricultural roofs have a pitch in the range of 12 – 15 degrees. So agricultural buildings will be precluded from these Exempted Development Regulations	Noted with thanks. DHLGH has taken this into account and has revised the proposed regulations to remove the definition of a 'pitched roof'.
	The exemptions are based on the condition that the solar PV or solar thermal installations relate primarily to the provision of electricity or heat for the agricultural holding (no. 15, Column 2: Conditions and Limitations); this condition restricts the opportunity to generate electricity predominantly for export to the grid even in cases where the electricity demand of the holding is already accomplished. This means that the opportunity to use the additional roof capacity present in many holdings is foregone and a lost opportunity for additional renewable electricity generation.	Noted with thanks. DHLGH has taken this into account and has revised the proposed regulations to provide clarity that the electricity generated may be used for the provision of electricity or heating for an agricultural structure; any ancillary building within the curtilage of the agricultural holding; or any ancillary uses within the curtilage of the agricultural holding,
	The definition of a pitched roof proposed in the regulations will define the majority of agricultural buildings as having a flat roof (most agricultural buildings have a slope of between 12 and 15 degrees). Under the flat roof requirements, it is proposed that solar panels must be at least 2.0m from the edge of the roof, while for pitched roofs the solar panels are permitted to be only 50cm from the edge of the roof. This will severely limit the useable surface area of farm buildings for solar installations. Purlin spacing in agricultural buildings is normally between 1.5m and 1.8m. This will mean that in practice solar panels would be between 3.0 and 3.6m from the lower edge of the roof. For agricultural	Noted with thanks. DHLGH has taken this into account and has revised the proposed regulations to remove the definition of a 'pitched roof'.

Appendix A
 Consultation responses

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	buildings, I would recommend that the edge distance is reduced to 1.0m, so that the panels can be supported on the first line of purlins supporting the roof cladding.	
	Environmental assessment/safeguards are provided for the protection of any volant or non-volant mammals (e.g. Bats and Pine marten), along with nesting breeding birds, or other protected species under the Wildlife Act and European Communities (Birds and Habitats) Regulations, or EIA Directive. The scope of any construction works and ancillary works for installations should be given appropriate impact assessment with regards to environmental impacts by the relevant Department.	Noted with thanks. An AA Screening Report has been prepared to accompany the proposed regulations. The Environmental Report considers the impacts on biodiversity, flora and fauna from the installation of solar panels. As outlined in Section 4(4) of the Planning and Development Act, development shall not be exempted if an Appropriate Assessment (AA) of the development is required.
	DAFM would advise Dept of Housing liaise internally regarding ongoing work to incorporate Solar Farms into the Planning and Development Regulations. Our Division has had some bi-laterals on language understanding between the Planning Regs and our EIA Agri Regs recently and understand Dept of Housing are commencing this work shortly.	Noted with thanks. DHLGH will take this into consideration.

Department of Environment, Climate and Communications

Table A.4: Department of Environment, Climate and Communications Scoping Report consultation response

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
Department of Environment, Climate and Communications Response dated 29 th April 2022	The DECC has no observations on the draft proposed regulations or the associated SEA Scoping Report and our Inland Fisheries is satisfied they present no issues of concern.	Noted with thanks.

Development Applications Unit of DHLGH

Table A.5: Development Applications Unit of the DHLGH Scoping Report consultation response

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
Development Applications Unit of DHLGH Response dated 13 May 2022.	<p>SEA Process Detail</p> <p>The Strategic Environmental Assessment Draft Scoping Report, dated April 2022, has been prepared by Land Use Consultants for the Minister of Housing, Local Government and Heritage. The requirements for SEA have been clearly defined in the Scoping Report and its context set out within the SEA process which should facilitate the integration of environmental considerations into the Strategy. The Scoping Report clearly identifies the potential links to other assessment processes, particularly Appropriate Assessment. It is noted that the Ecological Assessment Unit of the DHLGH determined, in accordance with Regulation 42A(8) of the 2011 Regulations, that an Appropriate Assessment of the proposed regulations is not required because it can be excluded, on the basis of objective scientific information following a screening for AA, that the proposed regulations individually or in combination with other plans or projects will have a significant effect on a European site or sites.</p>	Noted with thanks.
	<p>Implications of the proposed Regulations to current practices</p> <p>It is noted that there are existing exemptions for the installation of solar panels and associated equipment, subject to restrictions on size and scale. The proposed Regulations would have the effect of increasing the amount of solar equipment that can be installed on various classes of development (houses, industrial buildings, agricultural buildings, etc.) as well as extending the exemptions to other building types including apartment buildings, educational buildings, hospitals, healthcare centres, places of worship, sports facilities, community facilities and libraries.</p> <p>It is noted that specific measures have been proposed to vary the way the exemptions apply to address risks to aviation safety from glint and glare. These issues are not deemed relevant to nature conservation and biodiversity and therefore we do not offer any comments that apply to these aspects of the proposed Regulations.</p> <p>Whilst it is noted that these proposed Regulations propose changes to existing exemptions, there are issues relating to the protection of biodiversity that are connected to the existing exemptions and should be recognized in the content of the Environmental Report. These are highlighted in the following paragraphs where appropriate.</p>	Noted with thanks.
	<p>Relationship with other plans and programmes</p> <p>The list of legislation and relevant plans and programmes relating to nature conservation and biodiversity would appear to be up to date and relevant.</p>	Noted with thanks.

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<p>Implications of the proposed Regulations for Biodiversity, Flora and Fauna</p> <p>The scope of the Environmental Report and by association, the SEA process itself, should address the effects of the changes that may occur as a result of implementing the Regulations, in combination with the effects of the existing exemptions.</p> <p>Table 3.1 lists potential environmental issues that may be considered in the Environmental Report. The issues listed under “Biodiversity, Flora and Fauna” comprise:</p> <ul style="list-style-type: none"> ■ <i>“Disturbance of and blocking access to bat roosts and bird nests in or on roofs during roof mounted installation work.</i> ■ <i>(Free-standing solar PVs only)</i> <ul style="list-style-type: none"> – <i>Disruption and displacement of ground nesting birds.</i> – <i>Minimal impacts relate to short-term habitat loss during construction; however, land can be reseeded to provide habitat and forage to pollinators, birds and other small species.”</i> <p>We would agree that both of these issues should be considered in the SEA process and that the legal protection afforded to bats and birds and their breeding and resting places be fully explored in the SEA process. In particular, the extension of the exemption to agricultural buildings has the potential to increase the likelihood of disturbance to bird species such as barn owl <i>Tyto alba</i>, barn swallow <i>Hirundo rustica</i>, house martin <i>Delichon urbicum</i> and swift <i>Apus apus</i> and to several species of bat that use agricultural buildings as roosts and resting places.</p> <p>Regard should be had to relevant aspects of the European Commission’s <i>Science for Environment Policy Future Brief: Wind and solar energy and nature conservation (2014)</i>, Future Analytics <i>Planning and Development Guidance Recommendations for Utility Scale Solar Photovoltaic Schemes in Ireland (2016)</i>, DOE’s <i>Planning and Environment Energy Generation – Solar Farms Advice for Planning Officers and Applicants Seeking Planning Permission for Solar Farms which may Impact on Natural Heritage (2015)</i>, Natural England’s Technical Information Note No. 1 <i>Solar Parks Maximising Environmental Benefits (2011)</i> and BRE’s <i>Biodiversity Guidance for Solar Developments (2014)</i>.</p>	<p>Noted with thanks. The potential effects on disturbance to bird species such as barn owls, barn swallows, house martins, swifts and several species of bats from the extension of the proposed regulations to agricultural buildings has been considered during the SEA.</p> <p>The guidance documents recommended have been reviewed and considered during the SEA, and in particular have helped inform the proposed mitigation measures to avoid or mitigate any potential (significant) adverse effects.</p>
	<p>Strategic Environmental Objectives</p> <p>The Environmental Report is required to contain environmental protection objectives. For biodiversity, flora and fauna, these should integrate with the objectives and obligations of other Directives, legislation, plans and policies such as, but not only, the following:</p>	<p>Noted with thanks. The Environmental Protection Objectives have been informed by the objectives of the relevant directives, legislation, plans</p>

Appendix A
 Consultation responses

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<ul style="list-style-type: none"> ■ Birds and Habitats Directives, ■ Water Framework Directive and the Floods Directive, ■ Environmental Liabilities Directive ■ Wildlife Acts, 1976-2018 ■ European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011) and amendments (SI 290 of 2013, SI 499 of 2013, SI 355 of 2015 and SI 293 of 2021) ■ European Union Biodiversity Strategy 2030 ■ National Biodiversity Action Plan 2017-2021 ■ National Peatlands Strategy ■ National Raised Bog SAC Management Plan 2017 - 2022 ■ All-Ireland Pollinator Plan 2021-2025. ■ National Greenway Strategy ■ Climate Action Plan ■ Regional Economic and Spatial Strategies ■ County Development Plans <p>The strategic environmental objectives must be designed so that the impacts of the proposed Regulations on them can be monitored during their implementation. The proposed objectives set out in the Scoping Report appear to be very strategic and may be difficult to monitor in a meaningful way.</p>	<p>and policies, as relevant to the proposed regulations.</p> <p>The Monitoring Programme for monitoring the significant environmental effects of implementing the proposed regulations is set out in Chapter 7. The proposed monitoring indicators are high-level to reflect the strategic nature of the proposed regulations. However, they address positive, negative and cumulative effects and specify the monitoring frequency and authorities responsible for monitoring.</p>
	<p>Data Information Sources</p> <p><i>NPWS website:</i></p>	<p>Noted with thanks. We have used these data sources to inform the baseline presented in the Environmental Report.</p>

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<p>The National Parks and Wildlife Service’s website (www.npws.ie) is a key source of data, information and publications, including GIS datasets, on nature conservation sites and biodiversity issues of relevant to the Strategy and its associated environmental assessments.</p> <p><i>European sites:</i></p> <p>With respect to European sites, the website presents amongst other things:</p> <ul style="list-style-type: none"> ■ maps of site boundaries, ■ site synopses, ■ Standard Data Forms, ■ the qualifying interests (for SACs) and special conservation interests (for SPAs), ■ the conservation objectives for the European sites. <p><i>Conservation Objectives for European Sites:</i></p> <p>Site-specific conservation objectives are available for a number of sites, with associated supporting documents and GIS datasets. The limitations of the data should be taken into account in the assessment, as outlined under the “Notes/Guidelines”. For all other European sites, “generic” conservation objectives are available. Conservation objectives aim for the maintenance or restoration of the qualifying interests/special conservation interests to favourable conservation condition at the site level.</p> <p><i>Natural Heritage Areas:</i></p> <p>For NHAs, features of interest and dates of site designation are listed on the website; site boundaries, site synopses, and SIs are also available.</p> <p><i>Site Boundaries:</i></p> <p>Site boundaries of nature conservation sites may be subject to change, and additional information about sites, habitats and species will become available over time. The most up-to-date data and information available from the website should be accessed and used at each successive stage of the strategy-making process.</p> <p><i>NPWS Datasets and Data Requests:</i></p>	

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<p>GIS datasets are available for download for certain habitats and species arising from various sources, including national surveys. Other NPWS-held data and reports on habitats, species and specific sites may be requested by submitting a “Data Request Form”.</p> <p><i>Other Data Sources:</i></p> <p>Data and information on ecological interests and features in or near the plan area are or may be available from other sources, including:</p> <ul style="list-style-type: none"> ■ The National Biodiversity Data Centre (www.biodiversity ireland.ie) ■ Non-governmental organisations such as BirdWatch Ireland, Bat Conservation Ireland etc. ■ Local Authority (e.g. county or sub-county habitat maps, wetland surveys, hedgerow surveys, Environmental Impact Statements and other assessments of plans and projects within the plan area, Environmental Monitoring Reports required as condition of some consented projects e.g. windfarms) ■ Environmental Protection Agency (e.g. data and information on water quality and SEA Spatial Information Sources 2016). <p><i>Important Publications</i></p> <p>NPWS publishes documents and reports on an ongoing basis and these are made available on the website. The Publications Section of the website should be used to identify key publications that are particularly relevant to the Strategy and the impacts that may arise from it, and will assist in identifying and understanding current environmental condition and problems in the receiving environment. These include conservation assessments, national species survey reports, monitoring reports for various habitats and species, threat response plans for species, national Red Lists and wildlife manuals relating to the conservation management of habitats and species in Ireland.</p> <p>Particularly significant publications in this regard include the following:</p> <ul style="list-style-type: none"> ■ 2007, 2013 and 2019 Report on the Status of EU Protected Habitats and Species (also known as the Article 17 Report) ■ 2013 Article 12 (Birds Directive) Reports: Summary Report for the period 2008-2012 and Ireland’s bird species’ status and trends for the period 2008-2012. 	

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<ul style="list-style-type: none"> ■ 2014 Ireland's Prioritised Action Framework (PAF) for the Implementation of the Birds and Habitats Directive. This framework, which has been approved by Government, identifies a range of actions needed to help improve the status of Ireland's habitats and wildlife. The possible sources of funding for these actions, across the various operational programmes, are also identified. These include short, medium and long term actions, such as conservation management strategies, more focused agri-environment schemes and habitat restoration. Action 6.1.9 of Ireland's 3rd National Biodiversity Action Plan is to "Review and update the Prioritised Action Framework for Natura 2000". This process is underway. ■ Irish Wetland Bird Survey (I-WeBS) Trend Report 2022 https://birdwatchireland.ie/app/uploads/2022/04/iwebs_trends_report.html ■ Department of Housing, Local Government and Heritage (2021) Strict Protection of Animal Species Guidance for Public Authorities on the Application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of a Public Authority National Parks and Wildlife Service Guidance Series 2. 	
	<p>SEA Monitoring</p> <p>The Department welcomes the commitment by the Department to monitoring the impacts of the proposed Regulations. The monitoring programme should be clearly set out and developed in such a manner as to ensure it will identify the effects (both positive and negative) on the environment that are likely to arise, or will arise, and to monitor the effectiveness of any mitigation, if required, on which the assessment relies. Provision should be made to collect sufficient baseline information, as deemed necessary, to devise an appropriate monitoring programme and assess impacts.</p>	<p>Noted with thanks. The Monitoring Programme for monitoring the significant environmental effects of implementing the proposed regulations is set out in Chapter 7. The Monitoring Programme addresses positive, negative and cumulative effects and specifies the monitoring frequency and authorities responsible for monitoring.</p>
	<p>Key Elements of Biodiversity</p> <p>The key elements of biodiversity, flora and fauna of relevance to SEA include the following:</p> <ul style="list-style-type: none"> ■ European sites, including Special Areas of Conservation and Special Protection Areas: these are sites of international importance for nature conservation and form part of Ireland's contribution to the Natura 2000 network within the European Union; 	<p>Noted with thanks. We have identified these key elements of biodiversity in the baseline information presented in the Environmental Report.</p>

Appendix A
 Consultation responses

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<ul style="list-style-type: none"> ■ Natural Heritage Areas (NHA): these are sites of national importance for nature conservation established under the Wildlife (Amendment) Act, 2000, and legally protected under the Wildlife Acts, 1976-2012; ■ Proposed Natural Heritage Areas (pNHAs); these are undesignated sites that are/were known to be of importance for biodiversity but have not yet been fully evaluated. Adopting a precautionary approach, sites not covered by other nature conservation designations should be given recognition in land use plans. They are often afforded a level of protection through policies in Development Plans; ■ Nature Reserves; ■ Refuges for Fauna or Flora; ■ Wetlands of International Importance under the Ramsar Convention; ■ Wildfowl Sanctuaries; ■ National Parks; ■ UNESCO Biosphere Reserves; ■ Biogenetic Reserves; ■ World Heritage Sites designated for biodiversity reasons; ■ Annex IV (Habitats Directive) species of flora and fauna, and their key habitats (i.e. breeding sites and resting places), which are strictly protected wherever they occur, whether inside or outside the above sites, e.g. otter and bats; ■ Other species of flora and fauna and their key habitats which are protected under the Wildlife Acts, 1976-2018, wherever they occur, including species protected under the Flora Protection Order; ■ Birds Directive – Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur), including ‘Protected species and natural habitats’ as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008; ■ Habitats Directive – Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur), including ‘Protected species and natural habitats’ as 	

Appendix A
 Consultation responses

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<p>defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008;</p> <ul style="list-style-type: none"> ■ Stepping stones and ecological corridors including nature conservation sites (other than European sites), habitat areas and species' locations covered by Article 10 of the Habitats Directive; ■ 'Margaritifera Sensitive Areas'; data and information about the implications of these Areas are available from the NPWS website; ■ Areas that are recognised as locally important for biodiversity or nature (e.g. in County Biodiversity and/or Development Plans, semi-natural habitats including wetlands and woodlands) ■ Areas that are considered to be of "high nature value" (e.g. farmland identified as "high nature value farmland"). ■ Watercourses, surface water bodies and associated wetlands, including floodplains and flood risk areas; ■ Other sites that may be of high biodiversity value, high nature value or ecological significance; ■ Ecological mitigation and compensation measures arising from existing plans and programmes which set or contribute to the policy context for this proposed plan/programme e.g. supporting national, regional or "higher-tier" policies; ■ Outputs of relevant monitoring programmes that inform understanding of the current environmental condition. 	

National Monuments Service of DHLGH

Table A.6: National Monuments Service of the DHLGH Scoping Report consultation response

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
<p>National Monuments Service of DHLGH Response dated 25 May 2022</p>	<p>Ireland’s historic, archaeological and cultural heritage occurs in all environments that may be the focus for solar energy and retro-fit developments which may have a direct or indirect impact on those sensitive environments. These include urban and rural, upland and lowland, grassland, tillage and forestry, inland and coastal, dryland, wetland (including peatlands) and underwater (including watercourses, lakes and the sea). Archaeological heritage, in particular, may exist in the form of upstanding or visible remains, or as subsurface features with no surface/visible presentation. Whilst buildings subject to retro-fit projects may form part of the fabric of a medieval urban setting and may incorporate within their structure elements of an earlier building of late medieval provenance. It is important, therefore, to ensure that the current policies and objectives to protect, conserve and enhance the historic, archaeological and cultural environments, including transboundary archaeological landscapes, urban landscapes and underwater archaeological heritage, are not negated or minimised by new regulations and legislation.</p> <p>At the outset the SEA should provide a definition of Cultural Heritage, including Archaeological Heritage. The following is provided by way of assistance in drafting such text:</p> <p><i>“Archaeology is the study of past societies through their material remains and the evidence of their environment. It is not restricted solely to ancient periods; it includes the study of relatively recent societies through, for example, industrial and military sites. Archaeological heritage comprises all material remains of past societies and includes the remains of features such as settlements, monuments, burials, ships and boats and portable objects of all kinds, from the everyday to the very special. It also includes evidence of the environment in which those societies lived”.</i></p>	<p>Noted with thanks.</p> <p>The baseline section for ‘cultural heritage including architectural and archaeological heritage’ has been revised to incorporate the suggested definition of cultural heritage.</p>
	<p>As part of the SEA process the potential effects of solar energy developments and retro-fits developments on the historic, archaeological and cultural environments should be identified. These should not only include possible direct impacts (which are to be avoided in the first instance) but also the effect of such developments on the following:</p> <ul style="list-style-type: none"> ■ The setting and amenity of sites/monuments/historic buildings (with particular regard to the intervisibility of heritage assets and views to-and-from them). ■ Erosion of the character of historic, archaeological and cultural environments. ■ Cumulative impacts from piecemeal and/or varied developments—in particular the scale of development (noting that in certain contexts the clustering of small scale/domestic scale solar energy developments and retro-fit developments can have potential significant cumulative impacts to vulnerable cultural heritage environments). 	<p>The Environmental Report has considered the following potential impacts on the historic environment from the proposed regulations:</p> <ul style="list-style-type: none"> ■ Impact on the setting and amenity of heritage assets, in particular relating to the intervisibility of heritage assets and views to and from these assets.

Appendix A
 Consultation responses

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Environmental Authority	Consultation Comment	Action (how comment has been addressed in this SEA Report)
	<ul style="list-style-type: none"> ■ Possible contribution of solar energy developments and retro-fits developments on the deterioration of an already vulnerable cultural heritage asset and/or its setting. 	<ul style="list-style-type: none"> ■ Direct impacts on buried archaeology from free-standing panels ■ Erosion of the character of historic, archaeological and cultural environments. ■ Cumulative effects from the placing or erection of multiple panels in an area. These cumulative effects could be significant in vulnerable cultural heritage environments. ■ Further deterioration of an already vulnerable heritage asset such as on Listed Buildings.
	<p>In general, the SEA should allow for, include provision of, the appropriate mitigation/amelioration of any identifiable direct or indirect negative impacts on Ireland's historic, archaeological and cultural environments. This may include the strengthening of existing legislation, programmes and policies at a national, regional or local level. Detailed assessment reports should be carried out in advance of the submission of planning permissions for a solar energy developments and retro-fits development. In this regard, as part of overall planning policy the NMS would strongly recommend that detailed analyses such as Building Survey, Field Survey, Cartographic and Photographic Research, Geophysical/LiDAR Survey, Underwater Survey (where applicable), and possibly some localised interventions such as conservation plans/works, and/or test excavations be provided from the earliest possible stage in the process.</p>	<p>Noted with thanks. The Environmental Report outlines potential mitigation measures to avoid or mitigate (significant) adverse effects.</p> <p>The subsequent comment relating to detailed assessment reports being carried out in advance of the submission of planning permissions is not applicable to the proposed regulations as the revisions to the regulations seek to remove the requirement for planning permission for the installation of solar panels where specified criteria are met.</p>

Appendix B

Relevant plans and programmes

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

International - Relevant policy and legislation

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
2030 Agenda for Sustainable Development (2015) ⁵⁸	<p>The 2030 Agenda is a plan of action for people, planet and prosperity. It seeks to strengthen universal peace in larger freedom and eradicate poverty in all its forms and dimensions</p> <p>It sets out the 17 Sustainable Development Goals and 169 targets; a collection of interlinked global goals designed to be a blueprint to achieve a better and more sustainable future for all. They were developed as the future global development framework to succeed the Millennium Development Goals which ended in 2015 and are intended to be achieved by the year 2030.</p>	The SEA Framework should include objectives to promote sustainable development.
UN Paris Climate Change Agreement (2015) ⁵⁹	The main aim of the Paris Agreement centres on keeping global temperature rise this century below 2°C above preindustrial levels. Frameworks are to be put in place to help achieve these goals.	The SEA Framework should include objectives to adapt and mitigate climate change.
IPCC's Sixth Assessment Report on Climate Change (2022) ⁶⁰	To limit and/or reduce all greenhouse gas emissions which contribute to climate change.	The SEA Framework should include objectives to support reduction in emissions of greenhouse gases.
The Cancun Agreement (2010) ⁶¹	Shared vision to keep global temperature rise to below two degrees Celsius, with objectives to be reviewed as to whether it needs to be strengthened in future on the basis of the best scientific knowledge available.	The SEA Framework should include objectives support the reduction in greenhouse gas emissions and mitigation to climate change.
Johannesburg Declaration on Sustainable Development (2002) ⁶²	<p>Commitment to building a humane, equitable and caring global society aware of the need for human dignity for all.</p> <p>Areas of focus include:</p>	The SEA Framework should include objectives to enhance the natural environment and promote renewable energy and energy/resource efficiency.

⁵⁸ United Nations (2015) Transforming our world: the 2030 Agenda for Sustainable Development (pdf) Available at: https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

⁵⁹ United Nations (2015) Paris Climate Change Agreement (pdf) Available at: https://unfccc.int/sites/default/files/english_paris_agreement.pdf

⁶⁰ IPCC (2022) Sixth Assessment Report on Climate Change (online) Available at: <https://www.ipcc.ch/report/ar6/wg2/>

⁶¹ United Nations (2010) The Cancun Agreement (online) Available at: <https://unfccc.int/process/conferences/pastconferences/cancun-climate-change-conference-november-2010/statements-and-resources/Agreements>

⁶² United Nations (2002) Johannesburg Declaration of Sustainable Development (online) Available at: https://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POI_PD.htm

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	<ul style="list-style-type: none"> ■ Sustainable consumption and production patterns. ■ Accelerate shift towards sustainable consumption and production – 10-year framework of programmed of action. ■ Reverse trend in loss of natural resources. ■ Renewable energy and energy efficiency. ■ Urgently and substantially increase Global share of renewable energy. ■ Significantly reduce the rate of biodiversity loss by 2010. 	
<p>Florence (European Landscape) Convention (2000)⁶³</p>	<p>The European Landscape Convention is part of the Council of Europe's work on natural and cultural heritage, spatial planning and the environment. The Convention states that:</p> <ul style="list-style-type: none"> ■ The landscape contributes to the formation of local cultures and that it is a basic component of the European natural and cultural heritage, contributing to human well-being and consolidation of the European identity; and ■ That developments in agriculture, forestry, industrial and mineral production techniques and in regional planning, town planning, transport, infrastructure, tourism and recreation and, at a more general level, changes in the world economy are in many cases accelerating the transformation of landscapes. <p>The aims of this Convention are to promote landscape protection, management and planning and to organise European co-operation on landscape issues.</p>	<p>The SEA Framework should include objectives to protect, manage and enhance the landscape.</p>
<p>World Health Organisation (WHO) Air Quality Guidelines (1999)⁶⁴ and Guidelines for Europe (1987)</p>	<p>A comprehensive set of guidelines for air quality. Develops consistent rules for assessing 28 chemical air contaminants. Its primary aim is to provide a basis for protecting public health from adverse effects of air pollution and for eliminating, or reducing to a minimum, those contaminants of air that are known or likely to be hazardous to human health and wellbeing. The guidelines are intended to provide background information and guidance to governments in making risk management decisions, particularly in setting standards, but their use is not restricted to this.</p>	<p>The SEA Framework should include objectives to protect air quality.</p>

⁶³ Council of Europe (2000) *Florence (European Landscape) Convention* (pdf) Available at: <https://rm.coe.int/1680080621>

⁶⁴ WHO (1999) Air quality guidelines for Europe: second edition (pdf) Available at: https://www.euro.who.int/_data/assets/pdf_file/0005/74732/E71922.pdf

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
Aarhus Convention (1998) ⁶⁵	<p>Established a number of rights of the public with regard to the environment. Local authorities should provide for:</p> <ul style="list-style-type: none"> ■ The right of everyone to receive environmental information. ■ The right to participate from an early stage in environmental decision making. ■ The right to challenge in a court of law public decisions that have been made without respecting the two rights above or environmental law in general. 	Ensure that the public are involved and consulted at all relevant stages of SEA production.
Kyoto Protocol to the UNFCCC (1997) ⁶⁶	The Kyoto Protocol to the UNFCCC established the first policy that actively aims to reduce greenhouse gas emissions by industrialised countries.	The SEA Framework should include objectives to reduce greenhouse gas emissions and promote sustainable development.
UN Convention on Biological Diversity (1992) ⁶⁷	<p>The Convention on Biological Diversity is a multilateral treaty dedicated to promoting sustainable development signed by 150 government leaders at the 1992 Rio Earth Summit.</p> <p>The convention has three main goals: the conservation of biological diversity (or biodiversity); the sustainable use of its components; and the fair and equitable sharing of benefits arising from genetic resources. Its objective is to develop national strategies for the conservation and sustainable use of biological diversity, and it is often seen as the key document regarding sustainable development.</p>	The SEA should reflect objectives protecting biodiversity and sustainable use of its components.
<p>European Convention on the Protection of the Archaeological Heritage (Valletta) (1992)⁶⁸</p> <p>Revision of the 1985 Granada Convention</p>	<p>Protection of the archaeological heritage, including any physical evidence of the human past that can be investigated archaeologically both on land and underwater.</p> <p>Creation of archaeological reserves and conservation of excavated sites.</p>	The SEA Framework should include objectives to protect archaeological heritage.

⁶⁵ United Nations (1998) *Aarhus Convention* (pdf) Available at: <https://unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf>

⁶⁶ United Nations (1997) *Kyoto Protocol* (pdf) Available at: <https://unfccc.int/resource/docs/convkp/kpeng.pdf>

⁶⁷ United Nations (1992) UN Convention on Biological Diversity (pdf) Available at: <https://www.cbd.int/doc/legal/cbd-en.pdf>

⁶⁸ Council of Europe (1992) *European Convention on the Protection of the Archaeological Heritage (Valletta)* (pdf) Available at: <https://rm.coe.int/168007bd25>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
Grenada Convention for the Protection of the Architectural Heritage of Europe (1985) ⁶⁹	The main purpose of the Convention is to reinforce and promote policies for the conservation and enhancement of Europe's heritage. It also affirms the need for European solidarity with regard to heritage conservation and is designed to foster practical co-operation among the Parties.	
Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979) ⁷⁰	<p>The Convention is an intergovernmental treaty under the United Nations Environment Programme. The aim is for contracting parties to work together to conserve terrestrial, marine and avian migratory species and their habitats (on a global scale) by providing strict protection for endangered migratory species.</p> <p>The overarching objectives set for the Parties are:</p> <ul style="list-style-type: none"> ■ Promote, co-operate in and support research relating to migratory species ■ Endeavour to provide immediate protection for migratory species included in Appendix I ■ Endeavour to conclude Agreements covering the conservation and management of migratory species included in Appendix II 	The SEA Framework should include objectives to protect and enhance biodiversity .
Bern Convention on European Wildlife and Natural Habitats (1979) ⁷¹	The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix III. To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1,000 wild animal species.	
Geneva Convention on Long-range Transboundary Air Pollution (1979) ⁷²	The 1979 Convention on Long-Range Transboundary Air Pollution was the first multilateral agreement addressing transboundary pollution. It created a regional framework applicable to Europe, north America, Russia and former Eastern Bloc	The SEA Framework should include objectives to protect air quality .

⁶⁹ Council of Europe (1985) *Grenada Convention for the Protection of the Architectural Heritage of Europe* (pdf) Available at: <https://rm.coe.int/168007a087>

⁷⁰ United Nations (1979) *Bonn Convention on the Conservation of Migratory Species of Wild Animals* (pdf) Available at: https://www.cms.int/sites/default/files/instrument/CMS-text.en_.PDF

⁷¹ Council of Europe (1979) *Bern Convention on European Wildlife and Natural Habitats* (pdf) Available at: <https://rm.coe.int/1680078aff>

⁷² European Commission (1979) *Geneva Convention on Long-range Transboundary Air Pollution* (pdf) Available at: https://treaties.un.org/doc/Treaties/1979/11/19791113%2004-16%20PM/Ch_XXVII_01p.pdf

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	countries for reducing transboundary air pollution and better understanding air pollution science.	
UNESCO World Heritage Convention (1972) ⁷³	<p>The 1972 World Heritage Convention links together in a single document the concepts of nature conservation and the preservation of cultural properties. The Convention recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two.</p> <p>The Convention defines the kind of natural or cultural sites which can be considered for inscription on the World Heritage List. It also sets out the duties of <u>States Parties</u> in identifying potential sites and their role in protecting and preserving them. By signing the Convention, each country pledged to conserve not only the World Heritage sites situated on its territory, but also to protect its national heritage.</p>	The SEA Framework should include objectives relating to the conservation and enhancement of cultural heritage and natural heritage.
Ramsar Convention – Convention on Wetlands of International Importance (1971) ⁷⁴	To promote the conservation and wise use of all wetlands through local, regional and national actions and international co-operation, as a contribution towards achieving sustainable development throughout the world.	The SEA Framework should include objectives which aim to promote conservation and wise use of wetland areas.

European – Relevant policy and legislation

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
SEA Directive 2001 (2001) ⁷⁵ Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment	Provide for a high level of protection of the environment and contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.	Requirements of the SEA Directive will be met.
European Climate Law (2021) ⁷⁶	The European Climate Law writes into law the goal set out in the European Green Deal for Europe to become climate neutral by 2050. The law also sets the	The SEA Framework should include objectives to reducing GHG emissions and enhancing

⁷³ United Nations (1972) *UNESCO World Heritage Convention* (pdf) Available at: <https://whc.unesco.org/archive/convention-en.pdf>

⁷⁴ United Nations (1971) *Ramsar Convention – Convention on Wetlands of International Importance* (pdf) Available at: https://www.ramsar.org/sites/default/files/documents/library/current_convention_text_e.pdf

⁷⁵ European Commission (2001) *SEA Directive* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042>

⁷⁶ European Commission (2021) *European Climate Law* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1119>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels.	renewable energy production and energy efficiency.
Air Quality Directive (2008) ⁷⁷ Directive 2008/50/EC on ambient air quality and cleaner air for Europe	Avoid, prevent and reduce harmful effects of ambient noise pollution on human health and the environment.	The SEA Framework should include objectives to maintain and enhance air quality.
Renewable Energy Directive (2009, as amended in 2018) ⁷⁸ Directive EU 2009/28/EC (as amended by 2018/2001) on the promotion of the use of energy from renewable sources. Proposal for a Revision of the Renewable Energy Directive ⁷⁹ (RED II) (2021)	The Renewable Energy Directive establishes an overall policy for the production and promotion of energy from renewable sources in the EU. It requires the EU to fulfil at least 32% of its total energy needs with renewable energy by 2030 and builds on the already achieved progress. The Commission proposed a revision to the directive in July 2021 to reduce greenhouse gas emissions by at least 55% in 2030 and to raise the overall renewables target to 40%, in line with the 2030 Climate Target Plan and the EU Climate Law.	The SEA Framework should include objectives to enhance renewable energy production.
Energy Efficiency Directive (2012, as amended in 2018) ⁸⁰ Directive EU 2012/27/EU on energy efficiency targets (as amended by 2018/2002) Proposal for a Recast of Energy Efficiency Directive ⁸¹ (EED II) (2021)	The Directive aims to improve energy efficiency throughout the full energy chain, including energy generation, transmission, distribution and end-use to benefit the environment, improve air quality and public health and reduce greenhouse gas emissions and improve energy security by reducing dependence on energy imports from outside of the Union, cut energy costs for households and companies, help alleviate energy poverty, and lead to increased competitiveness. To meet the new EU 2030 target of reducing greenhouse gas emissions by at least 55% (compared to 1990), the European Commission put forward, in July 2021, a proposal for a new directive on energy efficiency as part of the European Green Deal. The proposal for the revised directive promotes 'energy efficiency first' as an overall principle of EU energy policy.	The SEA Framework should include objectives relating to energy efficiency and emissions reduction.

⁷⁷ European Commission (2008) *The Air Quality Directive* (pdf) Available at: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:152:0001:0044:EN:PDF>

⁷⁸ European Parliament (2018) *Renewable Energy Directive (recast)* (pdf) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001&from=fr>

⁷⁹ European Commission (2021) *Proposal for a Revision of the Renewable Energy Directive* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0557>

⁸⁰ European Commission (2018) *Energy Efficiency Directive* (pdf) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2002&rid=7>

⁸¹ European Commission (2021) *Proposals for a Directive on Energy Efficiency Recast* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0558>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
<p>Effort Sharing Regulation (2018)⁸² Regulation (EU) 2018/842 on binding annual greenhouse gas emissions reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013</p>	<p>The Effort Sharing Regulation establishes emissions reduction targets for the EU and for Member States for sectors not included in the EU ETS (such as transport, buildings, agriculture, waste).</p>	
<p>Emissions Trading System Directive (2003)⁸³ Directive 2003/87/EC on greenhouse gas emission allowance trading within the Community and amending the Directive 96/61/EC</p>	<p>The ETS Directive provides for caps on emissions of certain installations (mainly in power and industry) and sets an EU-wide emissions reduction target.</p>	
<p>National Emission reduction Commitments Directive (2016)⁸⁴ Directive 2016/2284/EU</p>	<p>The NEC Directive sets 2020 and 2030 emission reduction commitments for five main air pollutants (NO_x, NMVOCs, SO₂, NH₃ and PM_{2.5} as well as carbon monoxide (CO)):</p> <ul style="list-style-type: none"> - Ceilings from 2020-2029 - SO₂ (65%); NO_x (49%); NMVOCs (25%); NH₃ (1%); and PM_{2.5} (18%). <p>It also mandates the development of a National Air Pollution Control Programme (NAPCP) for each Member State.</p>	
<p>Birds Directive (2009)⁸⁵ Directive 2009/147/EC is a codified version of Directive 79/409/EEC as amended</p>	<p>The preservation, maintenance, and re-establishment of biotopes and habitats shall include the following measures:</p> <ul style="list-style-type: none"> ■ Creation of protected areas. 	<p>The SEA Framework should include objectives relating to the protection and enhancement of habitats for protected bird species.</p>

⁸² European Parliament (2018) *Effort Sharing Regulation* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018R0842>

⁸³ European Parliament (2003) *Emissions Trading System Directive* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003L0087&from=EN>

⁸⁴ European Parliament (2016) *National Emissions reduction Commitments Directive* (online) available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.344.01.0001.01.ENG&toc=OJ:L:2016:344:TOC

⁸⁵ European Commission (2009) *Birds Directive* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009L0147>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	<ul style="list-style-type: none"> ■ Upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones. ■ Re-establishment of destroyed biotopes. ■ Creation of biotopes. 	
<p>Habitats Directive (1992)⁸⁶ Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora</p>	<p>Promote the maintenance of biodiversity taking account of economic, social, cultural and regional requirements. Conservation of natural habitats and maintain landscape features of importance to wildlife and fauna.</p>	<p>The SEA Framework should include objectives to protect and maintain the natural environment and important landscape features.</p>
<p>Water Framework Directive (2000)⁸⁷ Directive 2000/60/EC establishing a framework for community action in the field of water policy</p>	<p>Protection of inland surface waters, transitional waters, coastal waters and groundwater.</p>	<p>The SEA Framework should include objectives to protect and minimise the impact on water quality.</p>
<p>Floods Directive (2007)⁸⁸ Directive 2007/60/EC on the assessment and management of flood risks</p>	<p>Establish a framework for the assessment and management of flood risks, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage and economic activity associated with floods.</p>	<p>The SEA Framework should include objectives that relate to flood management and reduction of risk.</p>
<p>Drinking Water Directive (1998)⁸⁹ Directive 98/83/EC on the quality of water intended for human consumption</p>	<p>Protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean.</p>	<p>The SEA Framework should include objectives to protect and enhance water quality.</p>

⁸⁶ European Commission (1992) *Habitats Directive* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31992L0043>

⁸⁷ European Commission (2000) *Water Framework Directive* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060>

⁸⁸ European Commission (2007) *Floods Directive* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32007L0060>

⁸⁹ Council of Europe (1998) *Drinking Water Directive* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31998L0083>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

European – Relevant plans and programmes

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
REPowerEU Plan (2022) ⁹⁰	<p>The Plan was produced in response to the Russia’s invasion on Ukraine, and it guides a structural transformation of the EU’s energy system. It sets out actions to tackle the current energy crisis that include:</p> <ul style="list-style-type: none"> ■ Energy savings ■ Diversifying energy imports ■ Smart investment; and ■ Reinforcing preparedness. 	<p>The SEA Framework should include objectives to promote energy efficiency and to reduce greenhouse gas emissions.</p>
EU Solar Energy Strategy (2022) ⁹¹	<p>The Strategy aims to bring over 320 GW of solar photovoltaic by 2025, and almost 600 GW by 2030. The document outlines a comprehensive vision to swiftly reap the benefits of solar energy, and it presents four initiatives to overcome the remaining challenges short-term that include:</p> <ul style="list-style-type: none"> ■ Promoting quick and massive PV deployment via the European Solar Rooftops Initiative. ■ Making permitting procedures shorter and simpler. ■ Ensuring the availability of an abundant skilled workforce. ■ Launching a European Solar PV Industry Alliance. 	<p>The SEA Framework should include objectives to promote energy efficiency and to reduce greenhouse gas emissions.</p>
EU Eighth Environmental Action Programme (2020) ⁹²	<p>The 8th Environment Action Programme will guide European environmental policy until 2030. It aims to accelerate the transition to a climate-neutral, resource-efficient and regenerative economy. It recognises that human wellbeing and prosperity depend on the healthy ecosystems within which we operate.</p> <p>The EAP has six priority objectives:</p>	<p>The SEA Framework should include objectives to protect and enhance the natural environment and promote energy efficiency.</p>

⁹⁰ European Commission (2022) *REPowerEU Plan* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A230%3AFIN&qid=1653033742483#footnoteref16>

⁹¹ European Commission (2022) *EU Solar Energy Strategy* (online) Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A221%3AFIN&qid=1653034500503>

⁹² European Commission (2020) *Eighth Environmental Action Programme* (pdf) Available at: <https://ec.europa.eu/environment/pdf/8EAP/2020/10/8EAP-draft.pdf>

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	<ul style="list-style-type: none"> ■ achieving the 2030 greenhouse gas emission reduction target and climate neutrality by 2050; ■ enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change; ■ advancing towards a regenerative growth model, decoupling economic growth from resource use and environmental degradation, and accelerating the transition to a circular economy; ■ pursuing a zero-pollution ambition, including for air, water and soil and protecting the health and well-being of Europeans; ■ protecting, preserving and restoring biodiversity, and enhancing natural capital (notably air, water, soil, and forest, freshwater, wetland and marine ecosystems); and ■ reducing environmental and climate pressures related to production and consumption (particularly in the areas of energy, industrial development, buildings and infrastructure, mobility and the food system). 	
<p>2030 Climate Target Plan (2020)⁹³</p>	<p>This assessment shows how all sectors of the economy and society can contribute to the EUs ambition of reducing greenhouse gases for the next 10 years and sets out policy actions required to achieve this. Its objectives include:</p> <ul style="list-style-type: none"> ■ Set a more ambitious and cost-effective path to achieving climate neutrality by 2050. ■ Stimulate the creation of green jobs and continue the EU's track record of cutting greenhouse gas emissions whilst growing its economy. ■ Encourage international partners to increase their ambition to limit the rise in global temperature to 1.5°C and avoid the most severe consequences of climate change. 	<p>The SEA Framework should include objectives to reduce greenhouse gas emissions.</p>

⁹³ European Commission (2020) *2030 Climate Target Plan* (online) Available at: https://ec.europa.eu/clima/policies/eu-climate-action/2030_ctp_en

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
2050 Long-Term Strategy (2020) ⁹⁴	<p>The EU aims to be climate-neutral by 2050 – an economy with net-zero greenhouse gas emissions. This objective is at the heart of the European Green Deal and in line with the EU’s commitment to global climate action under the Paris Agreement.</p> <p>EU Member States are required to develop national long-term strategies on how they plan to achieve the greenhouse gas emissions reductions needed to meet their commitments under the Paris Agreement and EU objectives.</p>	<p>The SEA Framework should include objectives to reduce greenhouse gas emissions.</p>
Fit for 55 Package (2021) ⁹⁵ European Green Deal (2019) ⁹⁶	<p>The <u>Fit for 55 Package</u>, published as part of the European Green Deal in 2021, sets out a suite of legislative initiatives across various sections, including energy, transport and buildings, which are intended to keep Europe on track to deliver on its climate targets.</p> <p>The European Green Deal provides an action plan to:</p> <ul style="list-style-type: none"> ■ Boost the efficient use of resources by moving to a clean, circular economy; ■ Restore biodiversity and cut pollution. <p>The Deal aims to ensure:</p> <ul style="list-style-type: none"> ■ No net emissions of greenhouse gases by 2050; ■ Economic growth decoupled from resource use; and ■ No person and no place left behind. 	<p>The SEA Framework should include objectives to promote efficient use of resources and protect and enhance the natural environment.</p>
Clean Energy for All Europeans Package (2019) ⁹⁷	<p>New energy rulebook consisting of 8 new laws, the directives of which EU countries have 1-2 years to convert into national law. Created to help with the move away from fossil fuels towards cleaner energy and deliver on the EU’s Paris Agreement commitments for reducing greenhouse gas emissions. It sets out ambitious energy</p>	<p>The SEA Framework should include objectives to reduce greenhouse gas emissions.</p>

⁹⁴ European Commission (2020) *2050 long-term strategy* (online) Available at: https://ec.europa.eu/clima/policies/strategies/2050_en#tab-0-0

⁹⁵ European Commission (2021) *Fit for 55 Package* (online) Available at: <https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/>

⁹⁶ European Commission (2019) *European Green Deal* (pdf) Available at: https://ec.europa.eu/info/sites/default/files/european-green-deal-communication_en.pdf

⁹⁷ European Commission (2019) *Clean energy for all Europeans* (online) Available at: https://op.europa.eu/en/publication-detail/-/publication/b4e46873-7528-11e9-9f05-01aa75ed71a1/language-en?WT.mc_id=Searchresult&WT.ria_c=null&WT.ria_f=3608&WT.ria_ev=search

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	and climate targets for 2030 and provides a stable legal framework to foster the necessary investment.	
2030 Climate and Energy Framework (2014) ⁹⁸	<p>The Framework sets out targets for climate and energy, including EU-wide targets and policy objectives for the period between 2020 and 2030.</p> <p>These targets aim to help the EU achieve a more competitive, secure and sustainable energy system to meet its long-term 2050 GHG reductions targets. The targets for 2030 include:</p> <ul style="list-style-type: none"> ■ a 40% cut in GHG emissions compared to 1990 levels; ■ at least a 32% share for renewable energy; and ■ at least 32.5% improvement in energy efficiency. 	The SEA Framework should include objectives to reduce emissions from energy production and promote energy efficiency.
EU Biodiversity Strategy for 2030 (2020) ⁹⁹	<p>The European Commission has adopted an ambitious new strategy to halt the loss of biodiversity and ecosystem services in the EU by 2020. The six targets cover:</p> <ul style="list-style-type: none"> ■ Full implementation of EU nature legislation to protect biodiversity ■ Better protection for ecosystems, and more use of green infrastructure ■ More sustainable agriculture and forestry ■ Better management of fish stocks ■ Tighter controls on invasive alien species ■ A bigger EU contribution to averting global biodiversity loss 	The SEA Framework should include objectives to value, protect and enhance biodiversity.
European Spatial Development Perspective (1999) ¹⁰⁰	Economic and social cohesion across the community. Conservation of natural resources and cultural heritage. Balanced competitiveness between different tiers of government.	The SEA Framework should include objectives to conserve natural resources and cultural heritage.

⁹⁸ European Commission (2014) *EU Climate and Energy Framework* (pdf) Available at: <https://data.consilium.europa.eu/doc/document/ST-169-2014-INIT/en/pdf>

⁹⁹ European Commission (2020) *EU Biodiversity strategy for 2030* (pdf) Available at: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/eu-biodiversity-strategy-2030_en#the-business-case-for-biodiversity

¹⁰⁰ European Commission (1999) *European Spatial Development Perspective* (pdf) Available at: https://ec.europa.eu/regional_policy/sources/docoffic/official/reports/pdf/sum_en.pdf

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

National – Relevant policy and legislation

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
Climate Action and Low Carbon Development (Amendment) Act 2021¹⁰¹	<p>The Act commits the Government to transition to a climate resilient, biodiversity rich and climate neutral economy by 2050 and to thereby promote climate justice. The Act set targets for Ireland to deliver up to 80% of electricity from renewables and to reduce greenhouse gas emissions by 51% by 2030 and reach net-zero no later than 2050. The Act also introduces the following requirements:</p> <ul style="list-style-type: none"> ■ To make certain changes to the Climate Change Advisory Council. ■ To provide for carbon budgets and a sectoral emissions ceiling to apply to different sectors of the economy. ■ To provide for reporting by Ministers of the Government to a joint committee of the Houses of the Oireachtas. ■ To provide for local authority climate action plans. ■ To amend the Climate Action and Low Carbon Development Act 2015. ■ To provide that local authorities shall, when making development plans, take account of their climate action plans and, for that purpose to amend the Planning and Development Act 2000. ■ To extend the purposes for which moneys may be paid out of the Climate Action Fund and, for that purpose to amend the National Oil Reserves Agency Act 2007. 	<p>The SEA Framework should include objectives relating to climate action including reducing greenhouse gas emissions and supporting renewable and low carbon development.</p>
Climate Action Plan 2021¹⁰²	<p>The Climate Action Plan 2021 provides a detailed plan of targets and actions to achieve a 51% reducing in overall GHG emissions by 2030 and net zero by no later than 2050. The Plan also aims to increase the proportion of renewable energy to up to 80% by 2030.</p> <p>Emissions reductions by 2030 – by sector:</p>	<p>The SEA Framework should include objectives relating to mitigation of and adaptation to climate change.</p>

¹⁰¹ Government of Ireland (2021) *Climate Action and Low Carbon Development (Amendment) Act 2021* (pdf) Available at: <https://www.irishstatutebook.ie/eli/2021/act/32/section/15/enacted/en/html>

¹⁰² Government of Ireland (2021) *Climate Action Plan 2021* (pdf) Available at: <https://assets.gov.ie/203558/f06a924b-4773-4829-ba59-b0feec978e40.pdf>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	<ul style="list-style-type: none"> ■ Electricity: 62-81% ■ Transport: 42-50% ■ Buildings: 44-56% ■ Industry/Enterprise: 29-41% ■ Agriculture: 22-30% reduction ■ Land Use, Land Use Change and Forestry (LULUCF): 37-58% 	
<p>Project Ireland 2040 National Planning Framework (2018)¹⁰³</p>	<p>National Planning Framework guides high-level strategic planning and development for the country over the next 20+ years. The key objectives of the Framework are to:</p> <ul style="list-style-type: none"> ■ Guide the future development of Ireland, taking into account a projected 1 million increase in our population, the need to create 660,000 additional jobs to achieve full employment and a need for 550,000 more homes by 2040; ■ Enable people to live closer to where they work, moving away from the current unsustainable trends of increased commuting; ■ Regenerate rural Ireland by promoting environmentally sustainable growth patterns; ■ Plan for and implement a better distribution of regional growth, in terms of jobs and prosperity; ■ Transform settlements of all sizes through imaginative urban regeneration and bring life / jobs back into cities, towns and villages; ■ Co-ordinate delivery of infrastructure and services in tandem with growth, through joined-up NPF/National Investment Plan and consistent sectoral plans, which will help to manage this growth and tackle congestion and quality of life issues in Dublin and elsewhere. 	<p>The SEA Framework should include objectives to sustainably guide development.</p>

¹⁰³ Government of Ireland (2018) *Project Ireland 2040 National Planning Framework* (pdf) Available at: <https://assets.gov.ie/100716/f6daba1e-cb06-4eeb-94a7-98fea655517e.pdf>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
<p>National Adaptation Framework (2018)¹⁰⁴ Sectoral Adaptation Plans (various years)¹⁰⁵</p>	<p>National Adaptation Framework was published in 2018 and it sets out the national strategy to reduce the vulnerability of the country to the negative effects of climate change and to avail of positive impacts.</p> <p>Building on the measures outlined in the National Adaptation Framework, the Government has prepared 12 Sectoral Adaptation Plans, including one for Electricity and Gas Networks.</p>	<p>The SEA Framework should include objectives relating to climate adaptation.</p>
<p>National Renewable Electricity Policy and Development Framework (in preparation)¹⁰⁶</p>	<p>The Renewable Electricity Policy and Development Framework is currently being prepared, however it will aim at optimising the opportunities for producing electricity from renewable energy sources in projects of significant scale on land, to serve both the All Island Single Electricity Market (SEM) and any future EU regional market.</p> <p>It is intended that the Renewable Electricity Policy and Development Framework will:</p> <ul style="list-style-type: none"> ■ set out a clear national policy context to facilitate renewable electricity developments at large scale on land; ■ work toward a low carbon future to counter climate change; ■ enhance security of supply; ■ add to competitiveness and growth in the economy; ■ broadly identify a limited number of suitable, strategic areas in Ireland for renewable electricity generation of scale (these can be incorporated into a revised National Spatial Strategy, Regional Guidelines and development plans subsequently) having regard to considerations of amenity, heritage and efficacy; 	<p>The SEA Framework should include objectives to support renewable energy production.</p>

¹⁰⁴ Government of Ireland (2018) *National Adaptation Framework (pdf)* Available at: <https://assets.gov.ie/76430/d35c3843-29c7-419a-b48b-ad5db2bfb118.pdf>

¹⁰⁵ Nine Climate Change Sectoral Adaptation Plans have been prepared under the National Adaptation Framework for the following sectors: Agriculture, Forestry and Seafood; Biodiversity; Built and Archaeological Heritage; Transport Infrastructure; Electricity and Gas Networks; Communications Networks; Flood Risk Management; Water Quality and Water Services Infrastructure; and Health. Available at: <https://www.gov.ie/en/collection/51df3-sectoral-adaptation-planning/>

¹⁰⁶ Government of Ireland (in preparation) *National Renewable Electricity Policy and Development Framework (pdf)* Available at: <https://www.iudodesign.com/wp-content/uploads/2016/02/Renewable-Electricity-SEA-Report-web-Eng.pdf>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	<ul style="list-style-type: none"> ■ provide guidance to planning authorities, including An Bord Pleanála, when considering proposals for renewable electricity generation, supplementing the guidance contained in the existing Wind Energy Development Guidelines for Planning Authorities, 2006; ■ in consultation with the Department of Environment, Community and Local Government, include guidance in relation to community engagement; and ■ set out Government policy in relation to any future trading of renewable electricity within the EU regional market. 	
<p>European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. No. 435 of 2004)¹⁰⁷</p> <p>European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011 (S.I. No. 200 of 2011)¹⁰⁸</p>	<p>These Regulations carry into effect in Ireland Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment insofar as the Directive relates to plans and programmes in all of the sectors listed in article 3(2) of the Directive except land-use planning.</p> <ul style="list-style-type: none"> ■ They concern the consideration of the likely significant effects on the environment of such plans and programmes. ■ They prescribe procedures and contents of environmental reporting, monitoring and assessment in relation to all plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications and tourism. ■ Aims to set the framework for future development consent of projects listed in Annexes I and II to the Environmental Impact Assessment Directive. ■ Considers transboundary environmental effects in specified cases. 	<p>Requirements of the SEA Regulations will be met.</p>
<p>The Wildlife Act 1976 and Wildlife (Amendment) Act 2000¹⁰⁹</p>	<p>The main objectives of the Wildlife (Amendment) Act, 2000 are to:</p> <ul style="list-style-type: none"> ■ provide a mechanism to give statutory protection to NHAs; 	<p>The SEA Framework should include objectives relating to the protection of wildlife.</p>

¹⁰⁷ Irish Ministers (2004) *European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004* (online) Available at: <http://www.irishstatutebook.ie/eli/2004/si/435/made/en/print>

¹⁰⁸ Irish Ministers (2011) *European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011* (online) Available at: <http://www.irishstatutebook.ie/eli/2011/si/200/made/en/print>

¹⁰⁹ Irish Ministers (2000) *The Wildlife Act 1976 and Wildlife (Amendment) Act 2000* (online) Available at: <http://www.irishstatutebook.ie/eli/2000/act/38/enacted/en/print>

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	<ul style="list-style-type: none"> ■ provide for statutory protection for important geological and geomorphological sites, including fossil sites by designation as NHAs; ■ improve some existing measures, and introduce new ones, to enhance the conservation of wildlife species and their habitats; ■ enhance a number of existing controls in respect of hunting, which are designed to serve the interests of wildlife conservation; ■ broaden the scope of the Wildlife Acts to include most species, including the majority of fish and aquatic invertebrate species which were excluded from the 1976 Act; ■ introduce new provisions to enable regulation of the business of commercial shoot operators; ■ ensure or strengthen compliance with international agreements and, in particular, enable Ireland to ratify the Convention on International Trade in Endangered Species (CITES) and the African-Eurasian Migratory Waterbirds Agreement (AEWA). ■ increase substantially the level of fines for contravention of the Wildlife Acts and to allow for the imposition of prison sentences; ■ provide mechanisms to allow the Minister to act independently of forestry legislation, for example, in relation to the acquisition of land by agreement; ■ strengthen the provisions relating to the cutting of hedgerows during the critical bird-nesting period and include a requirement that hedgerows may only be cut during that period by public bodies, including local authorities, for reasons of public health or safety; ■ strengthen the protective regime for Special Areas of Conservation (SACs) by removing any doubt that protection will in all cases apply from the time of notification of proposed sites; ■ and give specific statutory recognition to the Minister's responsibilities in regard to promoting the conservation of biological diversity, in light of Ireland's commitment to the UN Convention on Biological Diversity. 	

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
<p>European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011 as amended)¹¹⁰</p>	<p>The European Communities (Birds and Natural Habitats) Regulations 2011 (S. I. No. 477 of 2011) transpose the Habitats Directive and the Birds Directive.</p> <p>Previously, the Birds and Habitats Directives had been transposed into Irish law through inter alia the Wildlife Act 1976 and the European Communities (Natural Habitats) Regulations, 1997. However, two judgments of the Court of Justice of the EU (CJEU) – notably cases C-418/04 and C-183/05 - found that Ireland had not adequately transposed the two Directives. Therefore, the 2011 Regulations consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats)(Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in CJEU judgments.</p>	<p>The SEA Framework should include objectives relating to the protection of birds and natural habitats.</p>

National – Relevant plans and programmes

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
<p>National Energy and Climate Plan 2021-2030 (2020)¹¹¹</p>	<p>The National Energy and Climate Plan 2021-2030 was published in 2020 in accordance with the Governance of the Energy Union and Climate Action Regulation. The key objectives of the Plan include:</p> <ul style="list-style-type: none"> ■ Reduce emissions from sectors outside the EU's Emissions Trading System by 30% (relative to 2005 levels by 2030). ■ Achieving a 34% share of renewable energy in energy consumption by 2030. ■ Increase electricity generated from renewable sources to 70%. ■ At least 3.5 GW of offshore renewable energy. ■ Up to 1.5GW of grid scale solar energy. 	<p>The SEA Framework should include objectives relating to enhancing renewable energy production and action on climate change.</p>

¹¹⁰ Irish Ministers (2011) *European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011 as amended)* (online) Available at: <http://www.irishstatutebook.ie/eli/2011/si/477/made/en/print>

¹¹¹ Government of Ireland (2020) *National Energy and Climate Plan 2021-2030* (online) available at: <https://www.gov.ie/en/publication/0015c-irelands-national-energy-climate-plan-2021-2030/>

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
	<ul style="list-style-type: none"> ■ Onshore wind capacity of up to 8.2GW. ■ Contribute towards the EU wide target of achieving at least 32.5% improvement in energy efficiency by 2030. ■ Maintain the security of the energy system in the most cost-effective manner. ■ Continue to deepen the integration of IRL's wholesale electricity market, and its regulation, with the EU internal energy market (IEM), building on well-known ongoing plans, programmes and actions in this regard. ■ Continue to develop Ireland's natural gas market in line with European energy policy. ■ Develop further interconnection to facilitate Ireland's 2030 target of 70% renewable electricity. ■ Ensure that the best scientific evidence and advice is available to underpin Government policy and support the objectives, policies and measures in Ireland's NECP. <p>Given the level of Ireland's ambition regarding reduction of greenhouse gas emissions new technologies must be developed and deployed in the coming years.</p>	
<p>Programme for Government: Our Shared Future (2020)¹¹²</p>	<p>The Programme for Government sets out actions over the next five years with an objective to positively contribute towards a wider global response t the post-COVID recovery is shaped and become an exemplar in decarbonising of the economy.</p> <p>The Programme specifically encourages expanding and incentivising micro generation, including roof-top solar energy. It also aims to develop a Solar Energy Strategy for rooftop and ground-based photovoltaics, to ensure that a greater share of the electricity is met through solar energy.</p>	<p>The SEA Framework should include objectives reflecting the objectives of the Programme for Government.</p>
<p>National Clean Air Strategy (in preparation)</p>	<p>This consultation document aims to inform the development of a national clean air strategy in order to address the challenges and impacts of air pollution. It provides a background to the national, EU and international approaches to improving air quality and seeks to set out the main sectoral issues in relation to air quality which are of</p>	<p>The SEA Framework should include objectives to maintain and enhance air quality.</p>

¹¹² Government of Ireland (2020) *Programme for Government: Our Shared Future* (pdf) Available at: <https://assets.gov.ie/130911/fe93e24e-dfe0-40ff-9934-def2b44b7b52.pdf>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
Cleaning Our Air: Public Consultation to inform the development of a National Clean Air Strategy ¹¹³	<p>relevance, and for which further actions could be considered in a national clean air strategy.</p> <p>The main issues are identified, based on the overall importance of the emission sources, the consequential public exposure to air pollution, and the resulting health and environment impacts.</p>	
National Landscape Strategy 2015-2020 (2015) ¹¹⁴	<p>The National Landscape Strategy was introduced in 2020 and it is used to ensure compliance with the European Landscape Convention and to establish principles for protecting and enhancing it while positively managing its change. It is a high-level policy framework to achieve balance between the protection, management and planning of the landscape by way of supporting actions.</p> <p>The key objectives of the Strategy include:</p> <ul style="list-style-type: none"> ■ implement the European Landscape Convention by integrating landscape into our approach to sustainable development; ■ establish and embed a public process of gathering, sharing and interpreting scientific, technical and cultural information in order to carry out evidence-based identification and description of the character, resources and processes of the landscape; ■ provide a policy framework, which will put in place measures at national, sectoral - including agriculture, tourism, energy, transport and marine - and local level, together with civil society, to protect, manage and properly plan through high quality design for the sustainable stewardship of our landscape; ■ ensure that we take advantage of opportunities to implement policies relating to landscape use that are complementary and mutually reinforcing and that conflicting policy objectives are avoided in as far as possible. 	<p>The SEA Framework should include objectives relating to landscape management and protection.</p>

¹¹³ Government of Ireland (2017) *Cleaning Our Air: Public Consultation to inform the development of a National Clean Air Strategy* (pdf) available at: <https://assets.gov.ie/94852/74f00e21-439b-4aa1-9ef8-88399d8b0458.pdf>

¹¹⁴ Government of Ireland (2015) *National Landscape Strategy for Ireland 2015 – 2025* (pdf) Available at: <https://assets.gov.ie/95852/388d4758-50c1-42bd-9adc-0bdfe1291765.pdf>

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
 June 2022

Plan, Policy, Programme or Environmental Protection Objective	Key objectives	Implications for SEA
Heritage Ireland 2030 ¹¹⁵ (2021)	Heritage Ireland 2030 is Ireland's new national heritage plan. It sets out values, principles, strategic priorities to guide and inform the heritage sector over the next decade.	The SEA Framework should include objectives to protect cultural and natural heritage assets .
National Biodiversity Plan 2017-2021 (2017) ¹¹⁶ <i>(Although the Plan is out of date it is still the most relevant national plan relating to biodiversity)</i>	The National Biodiversity Plan is the third such plan for Ireland. Its key objectives include: <ul style="list-style-type: none"> ■ Mainstream biodiversity into decision-making across all sectors; ■ Strengthen the knowledge base for conservation, management and sustainable use of biodiversity; ■ Increase awareness and appreciation of biodiversity and ecosystems services; ■ Conserve and restore biodiversity and ecosystem services in the wider countryside; ■ Conserve and restore biodiversity and ecosystem services in the marine environment; ■ Expand and improve management of protected areas and species; ■ Strengthen international governance for biodiversity and ecosystem services. 	The SEA Framework should include objectives relating to the protection and restoration of biodiversity .
Regional Spatial and Economic Strategies ¹¹⁷	The Regional Spatial and Economic Strategy provides the roadmap for effective regional development. It introduces the concept of a Growth Framework to achieve this integration. It also provides a high-level development framework for the northern and Western Region that supports the implementation of the National Planning Framework and the relevant economic policies and objectives of Government. It provides a 12-year strategy to deliver the transformational change that is necessary to achieve the objectives and vision of the Regional Assembly.	The SEA Framework should include objectives that align with the Regional Spatial and Economic Strategies .

¹¹⁵ Government of Ireland (2021) *Heritage Ireland 2030* (online) Available at: <https://www.gov.ie/en/publication/778b8-heritage-ireland-2030/>

¹¹⁶ Department of Culture, Heritage and the Gaeltacht (2017) National Biodiversity Action Plan 2017-2021 (pdf) Available at: <https://www.npws.ie/sites/default/files/publications/pdf/National%20Biodiversity%20Action%20Plan%20English.pdf>

¹¹⁷ Regional Assemblies (2020) *Regional Spatial and Economic Strategies* (pdf) Available at: <https://www.nwra.ie/pdfs/NWRA-RSES-2020-2032.pdf>

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Regulations relating to houses

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
<p>Class 2 of Part 1 of Schedule 2</p> <p>The placing or erection on a roof of a house, or within the curtilage of a house, or on a roof of any ancillary buildings within the curtilage of a house (this class does not include apartments), of a solar photo-voltaic and/ or a solar thermal collector installation.</p> <p>Note: the exemption of wall mounted installations has been removed from the Principal Regulations.</p>	The distance between the plane of the wall or a pitched roof and the panel shall not exceed 15 centimetres.	<p>1. The distance between the plane of the roof and the solar photo-voltaic or solar thermal collector installation shall not exceed:</p> <p>a. 15cm in the case of a pitched roof, or</p> <p>b. 50cm in the case of a flat roof.</p>	<p>Wall mounted panels are no longer exempted.</p> <p>No change proposed for roofs.</p>
	The distance between the plane of a flat roof and the panel shall not exceed 50 centimetres.		
	The solar panel shall be a minimum of 50cm from any edge of the wall or roof on which it is mounted.	2. The solar photo-voltaic or solar thermal collector installation shall be a minimum of 50cm from the edge of a roof on which it is mounted.	No longer allowed on walls.
	A free-standing solar array shall not be placed on or forward of the front wall of a house.	3. Any free-standing solar photo-voltaic or solar thermal collector installation shall not be placed or erected forward of the front wall of the house.	No change proposed.
	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.	4. The total aperture area of any free-standing solar photo-voltaic and/ or solar thermal collector installations taken together with any other such existing free-standing installations, shall not exceed 25 square metres.	<p>Removal of 12 square metre / 50% of the total roof area limit.</p> <p>New separate limit for free-standing installations – Total area of free-standing solar installation shall not exceed 25 square metres.</p>
	The erection of any free-standing solar array shall not reduce the area of private open space, reserved	5. The placing or erection of any free-standing solar photo-voltaic or solar thermal collector installation	No change proposed.

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
	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.	shall not reduce the remaining 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 height of a free-standing solar array shall not exceed 2 metres, at its highest point, above ground level.	6. The height of any free-standing solar photo-voltaic or solar thermal collector installation shall not exceed 2.5 metres, at its highest point, above ground level.	Height limit increased from 2 metres to 2.5 metres.
	N/A	7. The placing or erection of a solar photo-voltaic or solar thermal collector installation on any wall shall not be exempted development.	New condition – Exemption does not apply to the placing of solar panels on walls.
	N/A	8. The placing or erection of a solar photo-voltaic or solar thermal collector installation on a pitched roof on an elevation facing a road, or the placing or erection of any free-standing solar photo-voltaic or solar thermal collector installation, shall not be exempted development where the house is a proposed protected structure, protected structure or located within an Architectural Conservation Area.	New condition – Exemption does not apply where the installation is on a pitched roof of a house facing a road and is classed as a protected structure, proposed protected structure or is located within an Architectural Conservation Area.

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Regulations relating to industrial buildings

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
<p>Class 56 of Part 1 of Schedule 2</p> <p>The placing or erection on a roof or wall of an industrial building, or within the curtilage of an industrial building, or on a roof or wall of any ancillary buildings within the curtilage of an industrial building, of a solar photo-voltaic and/ or a solar thermal collector installation.</p>	N/A	<p>1. Where such development is located within a solar safeguarding zone, the total aperture area of any solar photo-voltaic panels and/ or solar thermal collector panels, taken together with any other such panels previously placed on a roof, shall not exceed 60 square metres.</p>	<p>New condition – The total area of roof mounted solar installations in solar safeguarding zones shall not exceed 60 square metres.</p>
	The distance between the plane of the wall or a pitched roof and the panel shall not exceed 1 metre.	<p>2. The distance between the plane of the roof and the solar photo-voltaic or solar thermal collector installation shall not exceed:</p> <p>a. 1.2 metres in the case of a pitched roof, or</p> <p>b. 2 metres in the case of a flat roof.</p>	<p>Distance between the plane of the roof and solar installation for pitched roofs is increased from 1 metre to 1.2 metres.</p> <p>Condition relating to flat roofs remains unchanged.</p>
	The distance between the plane of a flat roof and the panel shall not exceed 2 metres.		
	The solar panel shall be a minimum of 50cm from the edge of the wall or roof on which it is mounted.	<p>3. The solar photo-voltaic or solar thermal collector installation shall be a minimum of:</p> <p>a. 50cm from the edge of a pitched roof on which it is mounted ,or</p> <p>b. 2 metres from the edge of a flat roof on which it is mounted.</p>	<p>New condition – Installation must be 2 metres from the edge of a flat roof on which it is mounted. This aligns with the agriculture limitation.</p> <p>Condition relating to pitched roofs remains unchanged.</p>
N/A	<p>4. Development shall not be exempted development where the highest part of the solar photo-voltaic or</p>	<p>New condition – Solar panels must not exceed the highest</p>	

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
		solar thermal installation exceeds the highest part of a pitched roof (excluding any chimney).	part of a pitched roof (excluding any chimney).
	Any equipment associated with the panels, including water tanks, shall be located within the roof space of the building.	5. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a roof, including inverters and water tanks, shall not be placed or erected on a wall or pitched roof.	<p>Specification that ancillary equipment such as water tanks to be located within the roof space of the building is removed.</p> <p>New condition - Ancillary equipment must not be erected on a wall or pitched roof.</p>
	N/A	6. The height of any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a flat roof, including inverters and water tanks, shall not exceed 1.6 metres above roof level.	<p>New condition – Height of ancillary equipment on a flat roof must not exceed 1.6 metres above roof level.</p>
	N/A	7. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a flat roof, including inverters and water tanks, shall be a minimum of 2 metres from the edge of the roof on which it is mounted.	<p>New condition - Ancillary equipment must be a minimum of 2 metres from the edge of a flat roof on which it is mounted.</p>
The total aperture area of any wall mounted panel, or free-standing solar array shall not exceed 50 square metres.	8. The total aperture area of any wall mounted solar photo-voltaic and solar thermal collector installations taken together with any other such existing wall mounted installations, shall not exceed 60 square metres.	Wall mounted exemptions increased to a maximum of 60 square metres from 50 square metres. This is separate to the limitation for free-standing in condition 12.	

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
	N/A	9. The distance between the plane of the wall and the solar photo-voltaic or solar thermal collector installation shall not exceed 15cm.	New condition – Distance between the plane of a wall and installation must not exceed 15cm.
	The solar panel shall be a minimum of 50cm from the edge of the wall or roof on which it is mounted.	10. The solar photo-voltaic or solar thermal collector installation shall be a minimum of 50cm from the edge of the wall on which it is mounted.	Condition re roofs is in condition 3. Condition re walls remains unchanged.
	N/A	11. Any free-standing solar photo-voltaic or solar thermal collector installation shall not be placed or erected forward of the front wall of the building or premises.	New condition – Free-standing installations must not be on the front wall of the building or premises.
	The total aperture area of any wall mounted panel, or free-standing solar array shall not exceed 50 square metres.	12. The total aperture area of any free-standing solar photo-voltaic and solar thermal collector installations taken together with any other such existing free-standing installations, shall not exceed 60 square metres.	New separate limit for free-standing installations – In addition to condition 8, the total area of free-standing installations must not exceed 60 square metres.
	The height of a free-standing solar array shall not exceed 2 metres, at its highest point, above ground level.	13. The height of any free-standing solar photo-voltaic or solar thermal collector installation shall not exceed 2.5 metres, at its highest point, above ground level.	Height limit increased from 2 metres to 2.5 metres.
	N/A	14. The placing or erection of a solar photo-voltaic or solar thermal collector installation on any wall, or on a pitched roof on an elevation facing a road, or the placing or erection of any free-standing solar photo-	New condition – Exemption does not apply where the installation is on a pitched roof of an industrial building facing

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
		voltaic or solar thermal collector installation shall not be exempted development where the building is a proposed protected structure, protected structure or located within an Architectural Conservation Area.	a road and is classed as a protected structure, proposed protected structure or is located within an Architectural Conservation Area.
	No sign, advertisement or object, not required for the functioning or safety of the panel shall be attached to or exhibited on the panels.	15. No sign, advertisement or object, not required for the functioning or safety of the solar photo-voltaic or solar thermal collector installation shall be attached to or exhibited on such installation.	No change proposed.
	N/A	16. The placing or erection of a solar photo-voltaic and/or solar thermal collector installation shall only be exempted development where the installation is primarily to be used for the provision of electricity or heating for: <ul style="list-style-type: none"> a. the industrial building, or b. any ancillary buildings within the curtilage of the industrial building, or c. any ancillary uses within the curtilage of the industrial building. 	New condition – Exemption only applies where the installation relates primarily to the provision of electricity or heating for the building, or any ancillary buildings/uses within the curtilage of the building.

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Regulations relating to business premises or light industrial buildings

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change	
<p>Class 56 of Part 1 of Schedule 2</p> <p>The placing or erection on a roof of a business premises or light industrial building or within the curtilage of, a business premises or light industrial building, or on a roof of any ancillary buildings within the curtilage of such premises or buildings, of a solar photo-voltaic and/ or solar thermal collector installation.</p>	<p>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 50 square metres or 50% of the total roof area, whichever is the lesser.</p>	<p>1. Where such development is located within a solar safeguarding zone, the total aperture area of any solar photo-voltaic panels and/ or solar thermal collector panels, taken together with any other such panels previously placed on a roof, shall not exceed 60 square metres.</p>	<p>Restriction limiting solar installations to 50% of the total roof area is removed for all areas except Solar Safeguarding Zones.</p> <p>New condition – The total area of roof mounted solar installations in solar safeguarding zones shall not exceed 60 square metres.</p>	
	<p>The distance between the plane of a pitched roof and the panel shall not exceed: (a) 50cm in the case of a light industrial building. (b) 15cm in the case of a business premises.</p>	<p>2. The distance between the plane of the roof and the solar photo-voltaic or solar thermal collector installation shall not exceed:</p>	<p>a. 50cm in the case of a pitched roof on a light industrial building.</p> <p>b. 2 metres in the case of a flat roof on a light industrial building.</p> <p>c. 15cm in the case of a pitched roof on a business premises.</p>	<p>No change proposed for pitched roofs.</p> <p>Distance between the plane of the roof and solar installation for flat roofs on a business premises is increased from 1 metre to 1.2 metres. Condition relating to flat roofs in light industrial buildings remains unchanged.</p>
	<p>The distance between the plane of a flat roof and the panel shall not exceed: (a) 2 metres in the case of a light industrial building. (b) 1 metre in the case of a business premises.</p>			

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
		<p>d. 1.2 metres in the case of a flat roof on a business premises.</p>	
	<p>The solar panel shall be a minimum of 50cm from the edge of the roof on which it is mounted, or 2 metres in the case of a flat roof.</p>	<p>3. The solar photo-voltaic or solar thermal collector installation shall be a minimum of:</p> <p>a. 50cm from the edge of a pitched roof on which it is mounted ,or</p> <p>b. 2 metres from the edge of a flat roof on which it is mounted.</p>	<p>No change proposed.</p>
	<p>N/A</p>	<p>4. Development shall not be exempted development where the highest part of the solar photo-voltaic or solar thermal installation exceeds the highest part of a pitched roof (excluding any chimney).</p>	<p>New condition – Solar panels must not exceed the highest part of a pitched roof (excluding any chimney).</p>
	<p>Any equipment associated with the panels, including water tanks, shall be located within the roof space of the building.</p>	<p>5. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a roof, including inverters and water tanks, shall not be placed or erected on a wall or pitched roof.</p>	<p>Specification that ancillary equipment such as water tanks to be located within the roof space of the building is removed</p> <p>New condition - Ancillary equipment must not be erected on a wall or pitched roof.</p>
	<p>N/A</p>	<p>6. The height of any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a flat roof, including inverters and water tanks, shall not exceed 1.6 metres above roof level.</p>	<p>New condition – Height of ancillary equipment on a flat roof must not exceed 1.6 metres above roof level.</p>
	<p>N/A</p>	<p>7. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation</p>	<p>New condition - Ancillary equipment must be a minimum</p>

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
		on a flat roof, including inverters and water tanks, shall be a minimum of 2 metres from the edge of the roof on which it is mounted.	of 2 metres from the edge of a flat roof on which it is mounted.
	A free-standing solar array shall not be located forward of the front wall of the building or premises.	8. Any free-standing solar photo-voltaic or solar thermal collector installation shall not be placed or erected forward of the front wall of the premises or building.	No change proposed.
	The total aperture area of any free-standing solar array shall not exceed 25 square metres.	9. The total aperture area of any free-standing solar photo-voltaic and solar thermal collector installations taken together with any other such existing free-standing installations, shall not exceed 60 square metres.	Area limit increased from 25 square metres to 60 square metres.
	The height of a free-standing solar array shall not exceed 2 metres, at its highest point, above ground level.	10. The height of any free-standing solar photo-voltaic or solar thermal collector installation shall not exceed 2.5 metres, at its highest point, above ground level.	Height limit increased from 2 metres to 2.5 metres.
	Such a solar panel may not be installed or erected on a wall of such a premises or building	11. The placing or erection of a solar photo-voltaic or solar thermal collector installation on any wall shall not be exempted development.	No change proposed
	N/A	12. The placing or erection of a solar photo-voltaic or solar thermal collector installation, or on a pitched roof on an elevation facing a road, or the placing or erection of any free-standing solar photo-voltaic or solar thermal collector installation shall not be exempted development where the premises or building is a proposed protected structure,	New condition – Exemption does not apply where the installation is on a pitched roof of a business premises / light industrial building facing a road and is classed as a protected structure, proposed protected structure or is located within an Architectural Conservation Area.

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
		protected structure or located within an Architectural Conservation Area.	
	No sign, advertisement or object, not required for the functioning or safety of the panel shall be attached to or exhibited on the panels.	13. No sign, advertisement or object, not required for the functioning or safety of the solar photo-voltaic or solar thermal collector installation shall be attached to or exhibited on such installation.	No change proposed.
	N/A	14. The placing or erection of a solar photo-voltaic and/or solar thermal collector installation shall only be exempted development where the installation is primarily to be used for the provision of electricity or heating for: <ul style="list-style-type: none"> a. the business premises or light industrial building, or b. any ancillary buildings within the curtilage of a business premises or light industrial building, or c. any ancillary uses within the curtilage of a business premises or light industrial building. 	New condition – Exemption only applies where the installation relates primarily to the provision of electricity or heating for the operational building, or any ancillary buildings/uses within the curtilage of such premises or buildings.

Regulations relating to apartment buildings

Description of development in proposed regulations	Proposed Conditions and Limitations
<p>Class 60</p> <p>The placing or erection on a roof of a building comprising apartments, or on a roof of any ancillary buildings within the curtilage of a building comprising apartments, of a solar photo-voltaic and/ or solar thermal collector installation.</p>	<ol style="list-style-type: none"> 1. Where such development is located within a solar safeguarding zone, the total aperture area of any solar photo-voltaic panels and/ or solar thermal collector panels, taken together with any other such panels previously placed on a roof, shall not exceed 60 square metres. 2. The distance between the plane of the roof and the solar photo-voltaic or solar thermal collector installation shall not exceed: <ol style="list-style-type: none"> a. 15cm in the case of a pitched roof, or b. 1.2 metres in the case of a flat roof. 3. The solar photo-voltaic or solar thermal collector installation shall be a minimum of: <ol style="list-style-type: none"> a. 50cm from the edge of a pitched roof on which it is mounted ,or b. 2 metres from the edge of a flat roof on which it is mounted. 4. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a roof, including inverters and water tanks, shall not be erected on a wall or pitched roof. 5. The height of any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a flat roof, including inverters and water tanks, shall not exceed 1.6 metres above roof level. 6. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a flat roof, including inverters and water tanks, shall be a minimum of 2 metres from the edge of the roof on which it is mounted. 7. The placing or erection of a solar photo-voltaic or solar thermal collector installation on any wall or the placing of any free-standing solar photo-voltaic or solar thermal collector installation shall not be exempted development.

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Description of development in proposed regulations	Proposed Conditions and Limitations
	<p>8. The placing or erection of a solar photo-voltaic or solar thermal collector installation on a pitched roof on an elevation facing a road shall not be exempted development where the building is a proposed protected structure, protected structure or located within an Architectural Conservation Area.</p> <p>9. No sign, advertisement, or object, not required for the functioning or safety of the solar photo-voltaic or solar thermal collector installation shall be attached to or exhibited on such installation.</p> <p>10. The placing or erection of a solar photo-voltaic and/or solar thermal collector installation shall only be exempted development where the installation is primarily to be used for the provision of electricity or heating for:</p> <ul style="list-style-type: none"> a. the building comprising apartments, or b. any ancillary buildings within the curtilage of the building comprising apartments, or c. any ancillary uses within the curtilage of the building comprising apartments

Regulations relating to educational facilities, health care facilities, sports facilities, community facilities, places of worship and libraries

Description of development in proposed regulations	Proposed Conditions and Limitations
<p>Class 61</p> <p>The placing or erection on the roof of, or within the curtilage of, or on a roof of any ancillary buildings within the curtilage of the following buildings or premises, of a solar photo-voltaic and/ or solar thermal collector installation:</p> <p>(i) an educational building,</p> <p>(ii) health centre or hospital,</p> <p>(iii) recreational or sports facility,</p> <p>(iv) place of worship,</p> <p>(v) community facility or centre,</p> <p>(vi) library.</p>	<ol style="list-style-type: none"> 1. Where such development is located within a solar safeguarding zone, the total aperture area of any solar photo-voltaic panels and/ or solar thermal collector panels, taken together with any other such panels previously placed on a roof, shall not exceed 60 square metres. 2. The distance between the plane of the roof and the solar photo-voltaic or solar thermal collector installation shall not exceed: <ol style="list-style-type: none"> a. 15cm in the case of a pitched roof, or b. 1.2 metres in the case of a flat roof. 3. The solar photo-voltaic or solar thermal collector installation shall be a minimum of: <ol style="list-style-type: none"> a. 50cm from the edge of a pitched roof on which it is mounted ,or b. 2 metres from the edge of a flat roof on which it is mounted. 4. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a roof, including inverters and water tanks, shall not be placed or erected on a wall or pitched roof. 5. The height of any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a flat roof, including inverters and water tanks, shall not exceed 1.6 metres above roof level. 6. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a flat roof, including inverters and water tanks, shall be a minimum of 2 metres from the edge of the roof on which it is mounted. 7. Any free-standing solar photo-voltaic or solar thermal collector installation shall not be placed or erected forward of the front wall of the building or premises. 8. The total aperture area of any free-standing solar photo-voltaic and solar thermal collector installations taken together with any other such existing free-standing installations, shall not exceed 60 square metres.

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

Description of development in proposed regulations	Proposed Conditions and Limitations
	<p>9. The height of any free-standing solar photo-voltaic or solar thermal collector installation shall not exceed 2.5 metres, at its highest point, above ground level.</p> <p>10. The placing or erection of a solar photo-voltaic or solar thermal collector installation on any wall shall not be exempted development.</p> <p>11. The placing or erection of a solar photo-voltaic or solar thermal collector installation on a pitched roof on an elevation facing a road, or the placing or erection of any free-standing solar photo-voltaic or solar thermal collector installation, shall not be exempted development where the building or premises is a proposed protected structure, protected structure or located within an Architectural Conservation Area.</p> <p>12. No sign, advertisement or object, not required for the functioning or safety of the solar photo-voltaic or solar thermal collector installation shall be attached to or exhibited on such installation.</p> <p>13. The placing or erection of a solar photo-voltaic and/or solar thermal collector installation shall only be exempted development where the installation is primarily to be used for the provision of electricity or heating for:</p> <ul style="list-style-type: none"> a. the building or premises, or b. any ancillary buildings within the curtilage of such building or premises, or c. any ancillary uses within the curtilage of such building or premises.

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

Regulations relating to agricultural structures

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
<p>Class 18 of Part 3 of Schedule 2</p> <p>The placing or erection on a roof or wall of an agricultural structure, or within the curtilage of an agricultural holding, or on a roof or wall of any ancillary buildings within the curtilage of an agricultural holding, of a solar photo-voltaic and/ or solar thermal collector installation.</p>	<p>The total aperture area of any such panel, taken together with any other such panel previously placed on or within the said holding, shall not exceed 50 square metres or 50% of the total roof area, whichever is the lesser.</p>	<p>1. Where such development is located within a solar safeguarding zone, the total aperture area of any solar photo-voltaic panels and/ or solar thermal collector panels, taken together with any other such panels previously placed on a roof, shall not exceed 60 square metres.</p>	<p>Restriction limiting solar installations to 50% of the total roof area is removed.</p> <p>New condition – The total area of roof mounted solar installations in solar safeguarding zones shall not exceed 60 square metres.</p>
	<p>The distance between the plane of a pitched roof and the panel shall not exceed 50cm.</p>	<p>2. The distance between the plane of the roof and the solar photo-voltaic or solar thermal collector installation shall not exceed:</p> <p>a. 1.2 metres in the case of a pitched roof, or</p> <p>b. 2 metres in the case of a flat roof.</p>	<p>Distance between the plane of the roof and solar installation for pitched roofs is increased from 50cm to 1.2 metres.</p> <p>Condition relating to flat roofs remains unchanged.</p>
	<p>The distance between the plane of a flat roof and the panel shall not exceed 2 metres.</p>		
<p>The solar panel shall be a minimum of 50cm from the edge of the wall or roof on which it is mounted, or 2 metres in the case of a flat roof.</p>	<p>3. The solar photo-voltaic or solar thermal collector installation shall be a minimum of:</p> <p>a. 50cm from the edge of a pitched roof on which it is mounted ,or</p>	<p>No change proposed.</p>	

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
		<p>b. 2 metres from the edge of a flat roof on which it is mounted.</p>	
	N/A	<p>4. Development shall not be exempted development where the highest part of the solar photo-voltaic or solar thermal installation exceeds the highest part of a pitched roof (excluding any chimney).</p>	<p>New condition – Solar panels must not exceed the highest part of a pitched roof (excluding any chimney).</p>
	Any equipment associated with the panels, including water tanks, shall be located within the roof space of the building.	<p>5. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a roof, including inverters and water tanks, shall not be placed or erected on a wall or pitched roof.</p>	<p>Specification that ancillary equipment such as water tanks to be located within the roof space of the building is removed.</p> <p>New condition - Ancillary equipment must not be erected on a wall or pitched roof.</p>
	N/A	<p>6. The height of any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a flat roof, including inverters and water tanks, shall not exceed 1.6 metres above roof level.</p>	<p>New condition – Height of ancillary equipment on a flat roof must not exceed 1.6 metres above roof level.</p>
	N/A	<p>7. Any ancillary equipment associated with a solar photo-voltaic or solar thermal collector installation on a flat roof, including inverters and water tanks, shall be a minimum of 2 metres from the edge of the roof on which it is mounted.</p>	<p>New condition - Ancillary equipment must be a minimum of 2 metres from the edge of a flat roof on which it is mounted.</p>

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
	The total aperture area of any wall-mounted panel or free-standing solar array shall not exceed 25 square metres.	8. The total aperture area of any wall mounted solar photo-voltaic and solar thermal collector installations taken together with any other such existing wall mounted installations, shall not exceed 60 square metres.	Wall mounted exemptions increased to a maximum of 60 square metres from 25 square metres. This is now a separate limit to the free-standing limit in condition 12.
	The distance between the plane of the wall and the panel shall not exceed 15cm.	9. The distance between the plane of the wall and the solar photo-voltaic or solar thermal collector installation shall not exceed 15cm.	No change proposed.
	N/A	10. The solar photo-voltaic or solar thermal collector installation shall be a minimum of 50cm from the edge of the wall on which it is mounted.	New condition – Installation must be a minimum of 50cm from the edge of the wall on which it is mounted.
	N/A	11. Any free-standing solar photo-voltaic or solar thermal collector installation shall not be placed or erected forward of the front wall of the nearest agricultural structure within the agricultural holding to a public road.	New condition – Free-standing installations must not be on the front wall of the nearest agricultural structure within the agricultural holding to a public road.
	The total aperture area of any wall-mounted panel or free-standing solar array shall not exceed 25 square metres.	12. The total aperture area of any free-standing solar photo-voltaic and solar thermal collector installations taken together with any other such existing free-standing installations, shall not exceed 60 square metres.	New separate free-standing limitation – Total area of free-standing installations must not exceed 60 square metres. This is in addition to the wall limitation in condition 8.
	The height of a free-standing solar array shall not exceed 2 metres, at its highest point, above ground level.	13. The height of any free-standing solar photo-voltaic or solar thermal collector installation shall not	Height limit increased from 2 metres to 2.5 metres.

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
	N/A	<p>exceed 2.5 metres, at its highest point, above ground level.</p> <p>14. The placing or erection of a solar photo-voltaic or solar thermal collector installation on any wall, or on a pitched roof on an elevation facing a road, or the placing or erection of any free-standing solar photo-voltaic or solar thermal collector installation shall not be exempted development where an agricultural structure, or the curtilage of an agricultural holding, is a proposed protected structure, protected structure or located within an Architectural Conservation Area.</p>	<p>New condition – Exemption does not apply where the installation is on a pitched roof of an agriculture structure facing a road and is classed as a protected structure, proposed protected structure or is located within an Architectural Conservation Area.</p>
	No sign, advertisement or object, not required for the functioning or safety of the panel shall be attached to or exhibited on the panels.	<p>15. No sign, advertisement or object, not required for the functioning or safety of the solar photo-voltaic or solar thermal collector installation shall be attached to or exhibited on such installation.</p>	No change proposed.
	N/A	<p>16. The placing or erection of a solar photo-voltaic and/or solar thermal collector installation shall only be exempted development where the installation is primarily to be used for the provision of electricity or heating for:</p> <ul style="list-style-type: none"> a. an agricultural structure within the agricultural holding, or b. any ancillary buildings within the curtilage of the agricultural holding, or 	<p>New condition – Exemption only applies where the installation relates primarily to the provision of electricity or heating for the agricultural structure, or any ancillary buildings/uses within the curtilage of the agricultural holding.</p>

Appendix C

Comparison between proposed regulations and principal regulations

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022

June 2022

Description of development in proposed regulations	Current Conditions and Limitations	Proposed Conditions and Limitations	Proposed change
		c. any ancillary uses within the curtilage of the agricultural holding.	

Appendix D

SEA matrices

Appendix D
SEA matrices

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Reasonable alternatives

The 'do-nothing' scenario

Likely Environmental Effects
Under the current regulations, planning permission is not required for solar PV and solar thermal collector installations on or within the curtilage of houses, agricultural buildings, business premises, light industrial and industrial buildings, or on any other buildings within the curtilage of these buildings. Conditions and limitations apply.
Biodiversity, Flora and Fauna
+/-
<p>Under the current regulations, the installation of solar PV and solar thermal collector installations may result in minor negative impacts on biodiversity, flora and fauna. Such installations could disturb bats and birds nesting in or on roofs. The installation of solar panels is unlikely to block access to bat roosts and bird nests as the current regulations require the installations to be minimum of 50cm from the edge of a roof on which it is mounted. Free-standing solar installations could disturb and displace ground nesting birds during installation; however, impacts are likely to be short-term as land can be reseeded to provide habitat and forage to pollinators, birds and other small species. Furthermore, glint and glare from solar panels may disturb birds and bats, particularly where multiple panels are installed in the same area. However, the current regulations restrict the total aperture area of solar panels on houses to 12 square metres which is likely to reduce the significance of the impact.</p> <p>The significance of the effects is further reduced as the Wildlife Act 1976 (and Wildlife (Amendment) Act 2000) and European Communities (Birds and Habitats) Regulations 2011 protect certain species of volant (e.g. bats and pine marten) and non-volant mammals, along with nesting breeding birds, and their habitats (breeding sites and resting places). Furthermore, Section 4(4) of the Planning and Development Act provides that development shall not be exempted if an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA) of the development is required.</p> <p>The longer-term effects of reducing GHG emissions and the effects of climate change may have positive effects on biodiversity by reducing habitat loss and the spread of invasive species and improving food availability. Furthermore, when compared to electricity from coal, solar PV electricity contributes 92-97% less to acid rain and 97-98% less to marine eutrophication, which may have further benefits for habitats and wildlife¹.</p> <p>Overall, mixed effects (minor positive / minor negative) are expected for biodiversity, flora and fauna.</p>
Population and Human Health
+/-
<p>Associated benefits linked to the health and wellbeing of the population, including a reduction in premature deaths, are experienced under the current regulations due to air quality improvements as a result of the reduction in toxic emissions from the combustion of fossil fuels. Furthermore, the uptake of renewable energy reduces the future effects of climate change, including extreme weather events such as drought, storms, and flooding which has positive effects on the population's health and wellbeing. However, Solar Safeguarding Zones are not defined under the current regulations and there is potential for adverse effects to arise as a result of glint and glare from cumulative developments which could have health and safety implications for aircrafts, and to a lesser extent, road users.</p> <p>Overall, mixed (minor positive and minor negative) effects are expected in relation to population and human health.</p>
Climatic Factors and Air

¹ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects
--/+
<p>Exempted development of solar PV and solar thermal collector installations currently extends to the domestic, agricultural, business and industrial sectors, which encourages the uptake of renewable energy technologies, increasing Ireland's installed renewable energy capacity, helping to achieve net zero emissions by 2050. However, as highlighted by the latest EPA's projections on greenhouse gas emissions, "<i>urgent implementation of <u>all climate plans and policies, plus further new measures, are needed for Ireland to meet the 51 per cent emissions reduction target and put Ireland on track for climate neutrality by 2050</u></i>". Therefore, the current regulations are not sufficient to support the widespread uptake of solar PVs. Furthermore, the current regulations do not extend to other sectors such as educational, healthcare and community facilities, or places of worship. These sectors may therefore remain more reliant on traditional fossil fuelled energy.</p> <p>Therefore, mixed effects are expected for climatic factors and air quality - significant negative / minor positive for climatic factors and air.</p>
Soil
+
<p>Exempted development currently extends to free-standing solar installations (subject to conditions). Although the installation of free-standing solar panels within the curtilage of a building may have adverse effects on soil quality from the loss of soil resources, this is unlikely to be significant. A minor positive effect is expected for soil as the uptake of renewable energy is displacing the use of fossil fuels, including peat.</p>
Water
+
<p>Reducing the use of fossil fuels and the release of GHG emissions has several positive effects on the water environment. For example, mitigating against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Further positive effects for water are expected as the use of solar energy for electricity significantly reduces the consumption of water that would be used by conventional power generation plants to generate electricity. When compared to electricity from coal, solar PV uses 86-89% less water². Therefore, an overall minor positive effect is identified for water.</p>
Cultural Heritage and Landscape
--/+
<p>The current regulations do not contain exemptions relating to proposed protected structures, protected structures or structures within an ACA, which could adversely affect the setting, amenity and character of these heritage assets. There is also potential for adverse effects where there is intervisibility to heritage assets. Furthermore, there may be direct, negative impacts on buried archaeology from the installation of free-standing panels. Significant negative effects could also arise in relation to landscape and the historic environment as a result of an increase in cumulative solar developments, which could affect the appearance of the streetscape and landscape, adversely affecting the overall character / visual amenity of the area, particularly in vulnerable cultural heritage environments.</p> <p>However, mitigation is provided in the existing restrictions set out within the Principal Regulations and Planning and Development Act, as amended:</p> <ul style="list-style-type: none"> • Conditions in Principal Regulations

² Ibid

Likely Environmental Effects

- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to the “[...] excavation, alteration or demolition...of places [...] of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan [...]”.
- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to developments that “consist of or comprise the excavation, alteration or demolition of any archaeological monument included in the Record of Monuments and Places [...]”.
- Article 9(1)(a)(xii) of the Principal Regulations also includes restrictions on developments that “[...] consist of or comprise the carrying out of works to the exterior of a structure, where the structure concerned is located within an architectural conservation area or an area specified as an architectural conservation area [...]”.
- Article 9(1)(a)(vi) of the Principal Regulations restricts exempted development where it would “interfere with the character of a landscape, or a view or prospect of special amenity value or special interest”.
- **Conditions in the Planning and Development Act, as amended:**
 - Article 57 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of: (a) the structure, or (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest”
 - Article 82 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to the exterior of a structure located in an architectural conservation area shall be exempted development only if those works would not materially affect the character of the area”.

The mitigation provided in the Principal Regulations and Planning and Development Act, as amended, is likely to reduce the significance of the adverse effects. However, the cumulative effect of solar installations may adversely affect the character and visual amenity of an area, particularly in vulnerable cultural heritage environments. Therefore, a precautionary significant negative effect is identified. The negative effect is mixed with a positive effect as reducing the effects of climate change may minimise the degradation of historic buildings and reduce the risk of drought, flooding and erosion, which could otherwise alter landscape character.

Overall, **mixed effects (minor positive / significant negative)** are expected for **cultural heritage** and **landscape**.

Material Assets

+/-

The use of flexible and responsive renewable energy technologies such as solar power has minor positive effects on material assets, by improving reliability and security of electricity supply, and potentially reducing electricity rates across the various industries. For domestic properties, this helps to reduce fuel poverty across Ireland, particularly in more rural areas. The positive effects identified in relation to material assets are enhanced as the use of solar panels and thermal solar equipment is a sustainable use of natural resources (solar energy) and promotes economic growth in the green energy sector. However, there may be negative effects on Ireland's material assets as scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.

The removal of limitations on solar PV or solar thermal collector installations on protected structures, proposed protected structures, and structures in Architectural Conservation Areas

Likely Environmental Effects
Biodiversity, Flora and Fauna
+/-
<p>The greater uptake of solar PV and solar thermal collector installations on proposed protected structures, protected structures, or structures in Architectural Conservation Areas (ACAs) may result in minor negative impacts on biodiversity, flora and fauna. Such installations could disturb bats and birds nesting in or on roofs. Free-standing solar installations within the curtilage of these structures could disturb and displace ground nesting birds during installation; however, impacts are likely to be short-term as land can be reseeded to provide habitat and forage to pollinators, birds and other small species. Furthermore, glint and glare from solar panels may disturb birds and bats, particularly where multiple panels are installed in the same area.</p> <p>However, the significance of the effects is reduced as the Wildlife Act 1976 (and Wildlife (Amendment) Act 2000) and European Communities (Birds and Habitats) Regulations 2011 protect certain species of volant (e.g. bats and pine marten) and non-volant mammals, along with nesting breeding birds, and their habitats (breeding sites and resting places). Furthermore, Section 4(4) of the Planning and Development Act provides that development shall not be exempted if an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA) of the development is required.</p> <p>The longer-term effects of reducing GHG emissions and the effects of climate change may have positive effects on biodiversity by reducing habitat loss and the spread of invasive species and improving food availability. Furthermore, when compared to electricity from coal, solar PV electricity contributes 92-97% less to acid rain and 97-98% less to marine eutrophication, which may have further benefits for habitats and wildlife³.</p> <p>Overall, mixed effects (minor positive / minor negative) are expected for biodiversity, flora and fauna.</p>
Population and Human Health
+
<p>Associated benefits linked to health and wellbeing of the population will also arise due to air quality improvements. Furthermore, the greater uptake of renewable energy will reduce the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have minor positive effects in relation to population and human health.</p> <p>Associated benefits linked to the health and wellbeing of the population, including a reduction in premature deaths, will arise due to air quality improvements as a result of the reduction in toxic emissions from the combustion of fossil fuels. Furthermore, the greater uptake of renewable energy will reduce the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have positive effects on the population's health and wellbeing. The greater uptake of solar PV and solar thermal collector installations will encourage investment in the solar energy sector which could create additional jobs and new start-ups. Further positive effects are expected for population and human health by reducing fuel poverty across Ireland as self-generated electricity protects citizens from the volatility of fossil fuel prices.</p> <p>However, the installation of solar panels, particularly roof-mounted panels could increase the risk of fire resulting from electrical faults which could result in adverse effects on residents.</p> <p>Overall, mixed (minor positive and minor negative) effects are expected in relation to population and human health.</p>

³ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects
Climatic Factors and Air
++/-
<p>Extending solar panel exemptions to proposed protected structures, protected structures, and structures within ACAs will promote the uptake of renewable energy technologies, increasing Ireland's installed renewable energy capacity, helping to achieve net zero emissions by 2050. This will reduce domestic GHG emissions by reducing reliance on traditional fossil fuels as solar PV electricity/heating contributes 96-98% less GHGs than electricity from coal, and 92-96% less GHGs than the European electricity mix⁴.</p> <p>However, the production of solar PV and solar thermal collector installations is energy intensive which releases GHG emissions, including carbon dioxide (CO₂), nitrogen dioxide (NO_x) and sulphur dioxide (SO₂), during the processing, manufacturing, and transportation stages of solar panels⁵. The average lifespan of solar panels is 20-30 years (depending on a number of factors⁶) and it takes approximately 6 years for the carbon produced during manufacturing to be offset⁷.</p> <p>Therefore, mixed effects are expected for climatic factors and air quality - significant positive / minor negative for climatic factors and minor positive / minor negative for air.</p>
Soil
+
<p>Although the installation of free-standing solar panels within the curtilage of a proposed protected structure, protected structure or structure within an ACA may have adverse effects on soil quality from the loss of soil resources, this is unlikely to be significant. A minor positive effect is expected for soil as the uptake of renewable energy will displace the use of peat as a fossil fuel. Furthermore, mitigating against the effects of climate change may reduce extreme weather such as flooding and drought, which also affects soil quality.</p>
Water
+
<p>Reducing the use of fossil fuels and the release of GHG emissions will have several positive effects on the water environment. For example, mitigating against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Further positive effects for water are expected as the use of solar energy for electricity significantly reduces the consumption of water that would be used by conventional power generation plants to generate electricity. When compared to electricity from coal, solar PV uses 86-89% less water⁸. Therefore, an overall minor positive effect is identified for water.</p>
Cultural Heritage and Landscape

⁴The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

⁵ Cool Effect (2021) Carbon Footprint of Solar Panel Manufacturing [Online] Available at: <https://www.cooleffect.org/solar-carbon-footprint>

⁶ The lifespan can last longer however the generating capacity reduces by 1% each year. <https://www.greenmatch.co.uk/blog/2015/01/the-lifespan-of-solar-panels>

⁷ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

⁸ Ibid

Likely Environmental Effects

--/+

The installation of solar PV and solar thermal collector installations on proposed protected structures or protected structures or within their curtilage, or structures within an ACA, could adversely affect the setting, amenity and character of these heritage assets. There is also potential for adverse effects where there is intervisibility to heritage assets. Furthermore, there may be direct, negative impacts on buried archaeology from the installation of free-standing panels. Significant negative effects could also arise in relation to landscape and the historic environment as a result of an increase in cumulative solar developments, which could affect the appearance of the streetscape and landscape, adversely affecting the overall character / visual amenity of the area, particularly in vulnerable cultural heritage environments.

However, mitigation is provided in the existing restrictions set out within the Principal Regulations and Planning and Development Act, as amended:

- **Conditions in Principal Regulations**

- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to the “[...] excavation, alteration or demolition...of places [...] of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan [...]”.
- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to developments that “consist of or comprise the excavation, alteration or demolition of any archaeological monument included in the Record of Monuments and Places [...]”.
- Article 9(1)(a)(xii) of the Principal Regulations also includes restrictions on developments that “[...] consist of or comprise the carrying out of works to the exterior of a structure, where the structure concerned is located within an architectural conservation area or an area specified as an architectural conservation area [...]”.
- Article 9(1)(a)(vi) of the Principal Regulations restricts exempted development where it would “interfere with the character of a landscape, or a view or prospect of special amenity value or special interest”.

- **Conditions in the Planning and Development Act, as amended:**

- Article 57 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of: (a) the structure, or (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest”
- Article 82 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to the exterior of a structure located in an architectural conservation area shall be exempted development only if those works would not materially affect the character of the area”.

The mitigation provided in the Principal Regulations and Planning and Development Act, as amended, is likely to reduce the significance of the adverse effects. However, the cumulative effect of the extension of exempted development to proposed protected structures, protected structures and structures within an ACA may adversely affect the character and visual amenity of an area, particularly in vulnerable cultural heritage environments. Therefore, a precautionary significant negative effect is identified. The negative effect is mixed with a positive effect as reducing the effects of climate change may minimise the degradation of historic buildings and reduce the risk of drought, flooding and erosion, which could otherwise alter landscape character.

Overall, **mixed effects (minor positive / significant negative)** are expected for **cultural heritage** and **landscape**.

Material Assets

+/-

Likely Environmental Effects

The use of flexible and responsive renewable energy technologies such as solar power will have minor positive effects on population and human health and material assets, by improving the reliability, diversity, and security of electricity supply, and potentially reducing electricity rates, thus helping to reduce fuel poverty across Ireland, particularly in more rural areas. Additionally, the greater uptake of solar will also reduce national dependency on fuel imports. The positive effects identified in relation to material assets are further enhanced as the use of solar PV and solar thermal collector installations is a sustainable use of natural resources (solar energy) and will promote economic growth in the green energy sector.

There may be negative effects on material assets as scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). However, as set out in the Waste From Electrical and Electronic Equipment (WEEE) Directive, end of life solar panels in Ireland must be recycled. This will help reduce the negative effects associated with use of scarce resources.

Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.

The restriction of solar PV or solar thermal collector installations in relation to houses within Solar Safeguarding Zones

Likely Environmental Effects

Biodiversity, Flora and Fauna

+/-

The restriction of exempted development in Solar Safeguarding Zones may result in minor positive effects on **biodiversity**. The installation of such equipment could disturb and block access to bat roosts and bird nests in or on roofs, and therefore by discouraging such development, there is less likely to be disturbance to biodiversity. Likewise, the exempted development restrictions in the Solar Safeguarding Zones for the installation of free-mounted solar PVs within the curtilage of a house could result in less disturbance and displacement of ground nesting birds. However, the longer term effects of restricting renewable energy generation in Solar Safeguarding Zones will result in increased use of fossil fuel derived energy, and associated GHG emissions. This could increase the effects of climate change and may have negative effects on biodiversity by increasing habitat loss and spread of invasive species. Overall, **mixed effects (minor positive / minor negative)** are expected for **biodiversity, flora and fauna**.

Population and Human Health

+/-

The restriction of exempted development in Solar Safeguarding Zones could have negative effects on the health and wellbeing of the population due to air quality deterioration arising from greater reliance on fossil fuels. Furthermore, the potential reduced uptake of renewable energy will increase the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have negative effects on the population's health and wellbeing. However, these are mixed with minor positive effects, as reducing exempted development within Solar Safeguarding Zones will reduce the occurrence of glint and glare, which has health and safety implications for aircraft, particularly as a result of cumulative developments. Therefore, **mixed effects (minor positive and minor negative)** are identified in relation to **population and human health**.

Climatic Factors and Air

Likely Environmental Effects
+/-
<p>The restriction of exempted development in Solar Safeguarding Zones could discourage the uptake of renewable energy technologies in domestic properties. This will potentially reduce the installed renewable energy capacity in Ireland, thereby reducing the contribution towards achieving net zero emissions by 2050 and potentially increasing GHG emissions by increasing reliance on traditional fossil fuels.</p> <p>However, the potential reduced demand for solar installations could result in less production of solar PV and thermal collector equipment which is an energy intensive process that releases GHG emissions during manufacturing.</p> <p>Overall, mixed effects are expected for climatic factors and air quality – minor positive / minor negative for climatic factors and minor positive / minor negative for air.</p>
Soil
-
<p>Although the installation of free-standing solar panels within the curtilage of a house may have adverse effects on soil quality from the loss of soil resources, this is unlikely to be significant. A minor negative effect is expected for soil as the reduced uptake of renewable energy within Solar Safeguarding Zones may extend the reliance on the use of peat as a fossil fuel.</p>
Water
-
<p>The restriction of exempted development in Solar Safeguarding Zones may increase the use of fossil fuels. The potential increased release of GHG emissions will have negative effects on a number of SEA topics. For example, increasing the effects of climate change (by increasing use of fossil fuels) will increase the chances of deterioration in water quality due to higher temperatures, such as algal blooms etc, resulting in a minor negative effect for water. Further negative effects for water are expected as the operation of conventional power generation plants to generate electricity require extensive water supply.</p>
Cultural Heritage and Landscape
+/-
<p>By restricting exempted development in Solar Safeguarding Zones there is potential to minimise the effects of solar PV and solar thermal collector installations on heritage assets and their settings if these assets are located within a Solar Safeguarding Zone. The potential for adverse effects on the landscape and streetscape character, and visual amenity of the area is also reduced. A minor positive effect is therefore identified. However, the minor positive effect is mixed with a minor negative effect as although the character of the landscape or historic environment would be protected, reducing the uptake of renewable technologies may increase the future effects of climate change, including the degradation of historic buildings, and risk of drought, flooding and erosion, which could alter landscape character.</p> <p>Overall, mixed effects (minor negative / minor positive) are identified in relation to cultural heritage and landscape.</p>
Material Assets

Likely Environmental Effects

+/-

The reduced use of flexible and responsive renewable energy technologies such as solar power will have minor negative effects on material assets. This is due to reducing reliability and security of electricity supply, and potentially increasing fossil fuel derived electricity rates, thus contributing to fuel poverty across Ireland, particularly in more rural areas. The negative effects identified in relation to material assets are further heightened as the increased use of fossil fuel for energy is not a sustainable use of natural and finite resources. However, there may be positive effects on Ireland's material assets as scarce, finite materials and/or toxic materials (such as lead, cadmium, silicon tetrachloride and hexafluoroethane) may not need to be used in the same quantities to manufacture solar panels as there may be less demand for such development. Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.

The restriction of solar PV or solar thermal collector installations on roofs and walls facing roads

Likely Environmental Effects	
Biodiversity, Flora and Fauna	
+/-	
<p>The restriction of exempted development of solar PV and solar thermal collector installations on roofs and walls facing roads may result in minor positive effects on biodiversity. The installation of roof and wall mounted solar panels facing roads could disturb and block access to bat roosts and bird nests in or on roofs, and therefore by discouraging such development, there is less likely to be disturbance to biodiversity. However, the longer terms effects of restricting solar installations on roofs and walls facing roads will result in increased use of fossil fuel derived energy, and associated GHG emissions. This could increase the effects of climate change and may have negative effects on biodiversity by increasing habitat loss and spread of invasive species. Overall, mixed effects (minor positive / minor negative) are expected for biodiversity, flora and fauna.</p>	
Population and Human Health	
-	
<p>The restriction of exempted development of solar PV and solar thermal collector installations on roofs and walls facing roads could have negative effects on the health and wellbeing of the population due to air quality deterioration arising from greater reliance on fossil fuels. Furthermore, the potential reduced uptake of renewable energy will increase the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have negative effects on the population's health and wellbeing. Overall, minor negative effects are identified in relation to population and human health.</p>	
Climatic Factors and Air	
+/-	
<p>The restriction of exempted development of solar PV and solar thermal collector installations on roofs and walls facing roads could discourage the uptake of renewable energy technologies. This will potentially reduce the installed renewable energy capacity in Ireland, thereby reducing the contribution towards achieving net zero emissions by 2050 and potentially increasing GHG emissions by increasing reliance on traditional fossil fuels.</p> <p>However, the potential reduced demand for solar installations could result in less production of solar PV and thermal collector equipment which is an energy intensive process that releases GHG emissions during manufacturing.</p> <p>Overall, mixed effects are expected for climatic factors and air quality – minor positive/ minor negative for climatic factors and minor positive / minor negative for air.</p>	
Soil	
-	

Likely Environmental Effects

The restriction of exempted development of solar PV and solar thermal collector installations on roofs and walls facing roads could extend the reliance on the use of peat as a fossil fuel. A **minor negative** effect is expected for **soil** as the reduced uptake of solar PV and solar thermal collector installations on roofs and walls facing roads may extend the reliance on the use of peat as a fossil fuel.

Water

The restriction of exempted developments may increase the use of fossil fuels. The potential increased release of GHG emissions will have negative effects on a number of SEA topics. For example, increasing the effects of climate change (by increasing use of fossil fuels) will increase the chances of deterioration in water quality due to higher temperatures, such as algal blooms etc, resulting in a **minor negative** effect for **water**. Further negative effects for water are expected as the operation of conventional power generation plants to generate electricity require extensive water supply.

Cultural Heritage and Landscape

++/-

The restriction of exempted development of solar PV and solar thermal collector installations on roofs and walls facing roads could minimise the effects of solar development on heritage assets and their settings. The potential for adverse effects on the landscape and streetscape character, and visual amenity of the area would also be reduced. However, the positive effect is **mixed** with a minor negative effect, as although the impact on the character / setting / visual amenity of the landscape or historic environment would be minimised, reducing the uptake of renewable technologies may increase the future effects of climate change, including the degradation of historic buildings, and risk of drought, flooding and erosion, which could alter landscape character.

Overall, **mixed effects (minor negative / significant positive)** are identified in relation to **cultural heritage** and **landscape**.

Material Assets

+/-

The reduced use of flexible and responsive renewable energy technologies such as solar power will have minor negative effects on material assets. This is due to reducing reliability and security of electricity supply, and potentially increasing fossil fuel derived electricity rates, thus contributing to fuel poverty across Ireland, particularly in more rural areas. The negative effects identified in relation to material assets are further heightened as the increased use of fossil fuel for energy is not a sustainable use of natural and finite resources. However, there may be positive effects on Ireland's material assets as scarce, finite materials and/or toxic materials (such as lead, cadmium, silicon tetrachloride and hexafluoroethane) may not need to be used in the same quantities to manufacture solar panels as there may be less demand for such development. Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.

Appendix D
SEA matrices

SEA of the proposed Planning and Development Act 2000 (Exempted Development) (No. 3) Regulations 2022 and the proposed Planning and Development (Solar Safeguarding Zone) Regulations 2022
June 2022

Proposed regulations

Amendment of Part 1 of Schedule 2 to the Principal Regulations

Houses

Class 2 (c): The placing or erection on a roof of a house or within the curtilage of a house, or on a roof of any ancillary buildings within the curtilage of a house (this class does not include apartments), of a solar photo-voltaic and/ or a solar thermal collector installation.

Likely Environmental Effects
<p>Description of proposed regulations</p> <p>The proposed paragraph (c) of Class 2 of Part 1 ('Exempted Development – General') of Schedule 2 to the Principal Regulations (Planning and Development Regulations 2001 (S.I. No. 600 of 2001), as amended by S.I. No 83 of 2007) permits the installation of solar PV or solar thermal collector installations t on a roof of a house or within the curtilage of a house, or on a roof of any ancillary buildings within the curtilage of a house, subject to conditions and limitations. This exemption is subject to the eight conditions and limitations.</p>
<p>Biodiversity, Flora and Fauna</p> <p style="text-align: center;">+/-</p> <p>The greater uptake of solar PV and solar thermal collector installations may result in minor negative impacts on biodiversity, flora and fauna. Such installations could disturb bats and birds nesting in or on roofs. The installation of solar panels is unlikely to block access to bat roosts and bird nests as the proposed regulations require the installations to be minimum of 50cm from the edge of a roof on which it is mounted. Free-standing solar installations could disturb and displace ground nesting birds during installation; however, impacts are likely to be short-term as land can be reseeded to provide habitat and forage to pollinators, birds and other small species. Furthermore, glint and glare from solar panels may disturb birds and bats, particularly where multiple panels are installed in the same area.</p> <p>However, the significance of the effects is reduced as the Wildlife Act 1976 (and Wildlife (Amendment) Act 2000) and European Communities (Birds and Habitats) Regulations 2011 protect certain species of volant (e.g. bats and pine marten) and non-volant mammals, along with nesting breeding birds, and their habitats (breeding sites and resting places). Furthermore, Section 4(4) of the Planning and Development Act provides that development shall not be exempted if an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA) of the development is required.</p> <p>The longer-term effects of reducing GHG emissions and the effects of climate change may have positive effects on biodiversity by reducing habitat loss and the spread of invasive species and improving food availability. Furthermore, when compared to electricity from coal, solar PV electricity contributes 92-97% less to acid rain and 97-98% less to marine eutrophication, which may have further benefits for habitats and wildlife¹.</p> <p>Overall, mixed effects (minor positive / minor negative) are expected for biodiversity, flora and fauna.</p>
<p>Population and Human Health</p> <p style="text-align: center;">+/-</p>

¹ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

Associated benefits linked to the health and wellbeing of the population, including a reduction in premature deaths, will arise due to air quality improvements as a result of the reduction in toxic emissions from the combustion of fossil fuels. Furthermore, the greater uptake of renewable energy will reduce the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have positive effects on the population's health and wellbeing. Free-standing solar installations are not classed as exempted development where the remaining area of private open space within the curtilage of a property is reduced to less than 25 square metres (Condition 5) which ensures that occupants have sufficient outdoor space for recreation and relaxation. The greater uptake of solar PV and solar thermal collector installations will encourage investment in the solar energy sector which could create additional jobs and new start-ups. Further positive effects are expected for population and human health by reducing fuel poverty across Ireland as self-generated electricity protects citizens from the volatility of fossil fuel prices.

However, as the conditions and limitations of exempted development in Solar Safeguarding Zones do not apply to houses, there is potential for adverse effects to arise as a result of glint and glare from cumulative developments which could have health and safety implications for aircrafts, and to a lesser extent, road users. Furthermore, the installation of solar panels, particularly roof-mounted panels could increase the risk of fire resulting from electrical faults which could result in adverse effects on residents.

Overall, **mixed (minor positive and minor negative) effects** are expected in relation to **population and human health**.

Climatic Factors and Air

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Extending solar panel exemptions will promote the uptake of renewable energy technologies, increasing Ireland's installed renewable energy capacity, helping to achieve net zero emissions by 2050. This will reduce domestic GHG emissions by reducing reliance on traditional fossil fuels as solar PV electricity/heating contributes 96-98% less GHGs than electricity from coal, and 92-96% less GHGs than the European electricity mix².

However, the production of solar PV and solar thermal collector installations is energy intensive which releases GHG emissions, including carbon dioxide (CO₂), nitrogen dioxide (NO_x) and sulphur dioxide (SO₂), during the processing, manufacturing, and transportation stages of solar panels³. The average lifespan of solar panels is 20-30 years (depending on a number of factors⁴) and it takes approximately 6 years for the carbon produced during manufacturing to be offset⁵.

Therefore, **mixed effects** are expected for climatic factors and air quality - **significant positive / minor negative** for **climatic factors** and **minor positive / minor negative** for **air**.

Soil

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Although the installation of free-standing solar panels within the curtilage of a property may have adverse effects on soil quality from the loss of soil resources, this is unlikely to be significant. Condition 4 provides a 25 square metre limitation on the area that solar installations can cover which will help limit the area of soil disturbed or degraded.

²The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

³Cool Effect (2021) Carbon Footprint of Solar Panel Manufacturing [Online] Available at: <https://www.cooleffect.org/solar-carbon-footprint>

⁴The lifespan can last longer however the generating capacity reduces by 1% each year. <https://www.greenmatch.co.uk/blog/2015/01/the-lifespan-of-solar-panels>

⁵The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

An overall **minor positive** effect is expected for **soil** as the uptake of renewable energy will displace the use of peat as a fossil fuel, thereby protecting and conserving carbon-rich soils. Furthermore, mitigating against the effects of climate change may reduce extreme weather events such as flooding and drought which also affect soil quality.

Water

+

Reducing the use of fossil fuels and the release of GHG emissions will have several positive effects on the water environment. For example, mitigating against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Further positive effects for water are expected as the use of solar energy for electricity significantly reduces the consumption of water that would be used by conventional power generation plants to generate electricity. When compared to electricity from coal, solar PV uses 86-89% less water⁶. Therefore, an overall minor positive effect is identified for **water**.

Cultural Heritage and Landscape

+/-?

The installation of solar PV and solar thermal collector installations on proposed protected structures or protected structures or within their curtilage, or structures within an ACA, could adversely affect the setting, amenity and character of these heritage assets. There is also potential for adverse effects where there is intervisibility to heritage assets. Furthermore, there may be direct, negative impacts on buried archaeology from the installation of free-standing panels. Significant negative effects could also arise in relation to landscape and the historic environment as a result of an increase in cumulative solar developments, which could affect the appearance of the streetscape and landscape, adversely affecting the overall character / visual amenity of the area, particularly in vulnerable cultural heritage environments. Significant negative effects on landscape may also arise due to there being no limits on the area in which solar panels can cover a roof, and except for proposed protected structures, protected structures and houses within an Architectural Conservation Area, there are no limitations on roof-mounted solar panels facing roads. Therefore, more solar panels would be visible from public roads which could affect visual amenity of an area.

However, the significance of the effects is reduced due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations and Planning and Development Act, as amended.

- **Conditions in proposed regulations:**

- Condition 8 states that the exemption does not apply where the installation is free-standing or on a pitched roof of a house facing a road that is classed as a proposed protected structure, protected structure or is located within an Architectural Conservation Area (ACA).
- Limitations on the area and dimensions of a solar installation for both free-standing and roof-mounted equipment (Conditions 1-7) (including height of free-standing installations and set back distances from roofs), will also help reduce the effects on landscape character.

- **Conditions in Principal Regulations**

- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to the “[...] excavation, alteration or demolition...of places [...] of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan [...]”.
- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to developments that “consist of or comprise the excavation, alteration or demolition of any archaeological monument included in the Record of Monuments and Places [...]”.

⁶ Ibid

Likely Environmental Effects

- Article 9(1)(a)(xii) of the Principal Regulations also includes restrictions on developments that “[...] consist of or comprise the carrying out of works to the exterior of a structure, where the structure concerned is located within an architectural conservation area or an area specified as an architectural conservation area [...]”.
- Article 9(1)(a)(vi) of the Principal Regulations restricts exempted development where it would “interfere with the character of a landscape, or a view or prospect of special amenity value or special interest”.
- **Conditions in the Planning and Development Act, as amended:**
 - Article 57 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of: (a) the structure, or (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest”
 - Article 82 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to the exterior of a structure located in an architectural conservation area shall be exempted development only if those works would not materially affect the character of the area”.

Therefore, minor rather than significant adverse effects on the landscape, heritage assets and their settings are identified due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations (article 9(1)) and Planning and Development Act, as amended (articles 57 and 82). The minor negative effects are mixed with positive effects as reducing the effects of climate change may minimise the degradation of historic buildings and reduce the risk of drought, flooding and erosion, which could otherwise alter landscape character.

Overall, **mixed effects (minor positive / minor negative)** are expected for **cultural heritage** and **landscape**.

Material Assets

+/-

The use of flexible and responsive renewable energy technologies such as solar power will have minor positive effects on population and human health and material assets, by improving the reliability, diversity, and security of electricity supply, and potentially reducing electricity rates, thus helping to reduce fuel poverty across Ireland, particularly in more rural areas. Additionally, the greater uptake of solar will also reduce national dependency on fuel imports. The positive effects identified in relation to material assets are further enhanced as the use of solar PV and solar thermal collector installations is a sustainable use of natural resources (solar energy) and will promote economic growth in the green energy sector.

There may be negative effects on material assets as scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). However, as set out in the Waste From Electrical and Electronic Equipment (WEEE) Directive, end of life solar panels in Ireland must be recycled. This will help reduce the negative effects associated with use of scarce resources.

Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.

Industrial buildings

Class 56 (d): The placing or erection on a roof or wall of an industrial building, or within the curtilage of an industrial building, or on a roof or a wall of any ancillary buildings within the curtilage of an industrial building, of a solar photo-voltaic and/ or a solar thermal collector installation.

Likely Environmental Effects
<p>Description of development</p> <p>The proposed paragraph (d) of Class 56 of Part 1 ('Exempted Development – General') of Schedule 2 to the Principal Regulations (Planning and Development Regulations 2001 (S.I. No. 600 of 2001), as amended by S.I. No 235/2008), permits the placing or erection on a roof or wall of an industrial building, or within the curtilage of an industrial building, or on a roof or a wall of any ancillary buildings within the curtilage of an industrial building, of a solar photo-voltaic and/ or a solar thermal collector installation. This regulation is subject to 16 conditions and limitations.</p>
<p>Biodiversity, Flora and Fauna</p> <p style="text-align: center;">+/-</p> <p>The greater uptake of solar PV and solar thermal collector installations may result in minor negative impacts on biodiversity, flora and fauna. Such installations could disturb bats and birds nesting in or on roofs. The installation of solar panels is unlikely to block access to bat roosts and bird nests as the proposed regulations require the installations to be minimum of 50cm from the edge of a pitched roof and 2 metres from the edge of a flat roof on which it is mounted. Free-standing solar installations could disturb and displace ground nesting birds during installation; however, impacts are likely to be short-term as land can be reseeded to provide habitat and forage to pollinators, birds and other small species. Furthermore, glint and glare from roof mounted, free-standing, and wall-mounted solar panels may disturb birds and bats, particularly where multiple panels are installed in the same area.</p> <p>However, the significance of the effects is reduced as the Wildlife Act 1976 (and Wildlife (Amendment) Act 2000) and European Communities (Birds and Habitats) Regulations 2011 protect certain species of volant (e.g. bats and pine marten) and non-volant mammals, along with nesting breeding birds, and their habitats (breeding sites and resting places). Furthermore, Section 4(4) of the Planning and Development Act provides that development shall not be exempted if an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA) of the development is required.</p> <p>The longer-term effects of reducing GHG emissions and the effects of climate change may have positive effects on biodiversity by reducing habitat loss and the spread of invasive species and improving food availability. Furthermore, when compared to electricity from coal, solar PV electricity contributes 92-97% less to acid rain and 97-98% less to marine eutrophication, which may have further benefits for habitats and wildlife⁷.</p> <p>Overall, mixed effects (minor positive / minor negative) are expected for biodiversity, flora and fauna.</p>
<p>Population and Human Health</p> <p style="text-align: center;">+/-</p> <p>Associated benefits linked to the health and wellbeing of the population, including a reduction in premature deaths, will arise due to air quality improvements as a result of the reduction in toxic emissions from the combustion of fossil fuels. Furthermore, the greater uptake of renewable energy will reduce the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have positive effects on the population's health and wellbeing. Furthermore, the</p>

⁷ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

greater uptake of solar PV and solar thermal collector installations will encourage investment in the solar energy sector which could create additional jobs and new start-ups.

The installation of solar panels, particularly roof-mounted panels could increase the risk of fire resulting from electrical faults which could result in adverse effects on users of the building. The installation of roof-mounted solar panels on industrial buildings within Solar Safeguarding Zones has the potential to result in adverse effects as a result of glint and glare from cumulative developments which could have health and safety implications for aircrafts, and to a lesser extent, road users. However, the installation of roof-mounted solar panels within Solar Safeguarding Zones is subject to conditions relating to the total aperture area (i.e. a 60 square metre area limit, an increase on the current limit of 50 square metres) which is likely to reduce the scale of the impact.

Overall, **mixed (minor positive and minor negative) effects** are expected in relation to **population and human health**.

Climatic Factors and Air

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Extending solar panel exemptions applicable to industrial buildings, including within Solar Safeguarding Zones (subject to conditions on total area), will promote the uptake of renewable energy technologies, increasing Ireland's installed renewable energy capacity, helping to achieve net zero emissions by 2050. This will reduce GHG emissions by reducing reliance on traditional fossil fuels as solar PV electricity/heating contributes 96-98% less GHGs than electricity from coal, and 92-96% less GHGs than the European electricity mix⁸.

However, the production of solar PV and solar thermal collector installations is energy intensive which releases GHG emissions, including carbon dioxide (CO₂), nitrogen dioxide (NOx) and sulphur dioxide (SO₂), during the processing, manufacturing, and transportation stages of solar panels⁹. The average lifespan of solar panels is 20-30 years (depending on a number of factors¹⁰) and it takes approximately 6 years for the carbon produced during manufacturing to be offset¹¹.

The 60 square metre limit of roof-mounted solar panel installations within the 43 Solar Safeguarding Zones around airports (5km zone), aerodromes (3km zone) and helipads (3km zone) restricts the extent of solar panel installations which will be classed as exempted development in these areas, potentially resulting in less electricity/heating being generated from solar energy. However, planning permission may still be sought for installations which go beyond the exemptions in these areas.

Condition 16 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition restricts the energy generated primarily to self-consumption with limited options to sell excess renewable energy to the grid. This may limit the amount of renewable energy generated in Ireland and facilitate the continued reliance on energy generated from fossil fuels and their associated GHG emissions.

Therefore, **mixed effects** are expected for climatic factors and air quality - **significant positive / minor negative** for **climatic factors** and **minor positive / minor negative** for **air**.

Soil

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⁸The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

⁹ Cool Effect (2021) Carbon Footprint of Solar Panel Manufacturing [Online] Available at: <https://www.cooleffect.org/solar-carbon-footprint>

¹⁰ The lifespan can last longer however the generating capacity reduces by 1% each year. <https://www.greenmatch.co.uk/blog/2015/01/the-lifespan-of-solar-panels>

¹¹ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

Although the installation of free-standing solar panels within the curtilage of an industrial building may have adverse effects on soil quality from the loss of soil resources, this is unlikely to be significant. Condition 12 provides a 60 square metre limitation on the area that solar installations can cover which will help limit the area of soil disturbed or degraded.

An overall **minor positive** effect is expected for **soil** as the uptake of renewable energy will displace the use of peat as a fossil fuel, thereby protecting and conserving carbon-rich soils. Furthermore, mitigating against the effects of climate change may reduce extreme weather events such as flooding and drought which also affect soil quality.

Water

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Reducing the use of fossil fuels and the release of GHG emissions will have several positive effects on the water environment. For example, mitigating against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Further positive effects for water are expected as the use of solar energy for electricity significantly reduces the consumption of water that would be used by conventional power generation plants to generate electricity. When compared to electricity from coal, solar PV uses 86-89% less water¹². Therefore, an overall minor positive effect is identified for **water**.

Cultural Heritage and Landscape

+/-?

The installation of solar PV and solar thermal collector installations on proposed protected structures or protected structures or within their curtilage, or structures within an ACA, could adversely affect the setting, amenity and character of these heritage assets. There is also potential for adverse effects where there is intervisibility to heritage assets. Furthermore, there may be direct, negative impacts on buried archaeology from the installation of free-standing panels. Significant negative effects could arise in relation to landscape and the historic environment as a result of an increase in cumulative solar developments, which could affect the appearance of the streetscape and landscape, adversely affecting the overall character / visual amenity of the area, particularly in vulnerable cultural heritage environments. Significant negative effects on cultural heritage and landscape may also arise due to there being no limits on the area in which solar panels can cover a roof (except within Solar Safeguarding Zones). Additionally, with the exception of proposed protected structures, protected structures and structures within an Architectural Conservation Area, there are no limitations on roof-mounted solar panels facing roads. Therefore, more solar panels would be visible from public roads which could affect visual amenity of an area.

However, the significance of the effects is reduced due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations and Planning and Development Act, as amended.

- **Conditions in proposed regulations:**

- Condition 14 states that the exemption does not apply where the installation is on any wall, or is free-standing, or on a pitched roof of an elevation facing a road that is classed as a proposed protected structure, protected structure or is located within an Architectural Conservation Area (ACA).
- Condition 15 outlines that solar equipment should not be used to display signage or advertisements (excluding those required for safety purposes), which could prevent adverse effects on cultural heritage assets, ACAs and landscape character.
- Limitations on the area and dimensions of a solar installation for free-standing and, wall and roof-mounted equipment (Conditions 1-13) (including height of free-standing installations and set back distances from roofs), will also help reduce the effects on landscape character. Notably, Condition 11 outlines that free-standing solar equipment should not be located forward of the front wall of the building while Condition 4 requires roof-mounted installations not

¹² Ibid

Likely Environmental Effects

to exceed the highest part of a pitched roof (excluding any chimney). This is likely to further prevent negative effects on cultural heritage assets, landscape and streetscape character.

- **Conditions in Principal Regulations**

- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to the “[...] excavation, alteration or demolition...of places [...] of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan [...]”.
- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to developments that “consist of or comprise the excavation, alteration or demolition of any archaeological monument included in the Record of Monuments and Places [...]”.
- Article 9(1)(a)(xii) of the Principal Regulations also includes restrictions on developments that “[...] consist of or comprise the carrying out of works to the exterior of a structure, where the structure concerned is located within an architectural conservation area or an area specified as an architectural conservation area [...]”.
- Article 9(1)(a)(vi) of the Principal Regulations restricts exempted development where it would “interfere with the character of a landscape, or a view or prospect of special amenity value or special interest”.

- **Conditions in the Planning and Development Act, as amended:**

- Article 57 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of: (a) the structure, or (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest”
- Article 82 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to the exterior of a structure located in an architectural conservation area shall be exempted development only if those works would not materially affect the character of the area”.

Therefore, minor rather than significant adverse effects on the landscape, heritage assets and their settings are identified due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations (article 9(1)) and Planning and Development Act, as amended (articles 57 and 82). The minor negative effects are mixed with positive effects as reducing the effects of climate change may minimise the degradation of historic buildings and reduce the risk of drought, flooding and erosion, which could otherwise alter landscape character.

Overall, **mixed effects (minor positive / minor negative)** are expected for **cultural heritage** and **landscape**.

Material Assets

+/-?

The use of flexible and responsive renewable energy technologies such as solar power will have minor positive effects on population and human health and material assets, by improving the reliability, diversity and security of electricity supply, and potentially reducing electricity rates. Additionally, the greater uptake of solar will also reduce national dependency on fuel imports. The positive effects identified in relation to material assets are further enhanced as the use of solar PV and solar thermal collector installations is a sustainable use of natural resources (solar energy) and will promote economic growth in the green energy sector.

There may be negative effects on material assets as scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). However, as set out in the Waste From Electrical and Electronic Equipment (WEEE) Directive, end of life solar panels in Ireland must be recycled. This will help reduce the negative effects associated with use of scarce resources.

Condition 16 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition therefore limits energy generated primarily to self-consumption with limited option to sell

Likely Environmental Effects

excess renewable energy to the grid which may limit the amount of renewable energy generated in Ireland. Conversely, limiting the energy generated primarily for self-consumption may reduce reliance on energy generated from fossil fuels.

Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.

Business premises or light industrial buildings

Class 56 (e): The placing or erection on a roof of a business premises or light industrial building, or within the curtilage of a business premises or light industrial building, or on a roof of any ancillary buildings within the curtilage of a business premises or light industrial building, of a solar photo-voltaic and/ or solar thermal collector installation.

Likely Environmental Effects
<p>Description of Development</p> <p>The proposed paragraph (e) of Class 56 of Part 1 ('Exempted Development – General') of Schedule 2 to the Principal Regulations (Planning and Development Regulations 2001 (S.I. No. 600 of 2001), as amended by S.I. No 235/2008), permits the placing or erection on a roof of a business premises or light industrial building, or within the curtilage of a business premises or light industrial building, or on a roof of any ancillary buildings within the curtilage of a business premises or light industrial building, of a solar photo-voltaic and/ or solar thermal collector installation. This regulation is subject to 14 conditions and limitations.</p>
<p>Biodiversity, Flora and Fauna</p> <p style="text-align: center;">+/-</p> <p>The greater uptake of solar PV and solar thermal collector installations may result in minor negative impacts on biodiversity, flora and fauna. The installation of such equipment could disturb bats and birds nesting in or on roofs. The installation of solar panels is unlikely to block access to bat roosts and bird nests as the proposed regulations require the installations to be minimum of 50cm from the edge of a pitched roof and 2 metres from the edge of a flat roof on which it is mounted. Free-standing solar installations could disturb and displace ground nesting birds during installation; however, impacts are likely to be short-term as land can be reseeded to provide habitat and forage to pollinators, birds and other small species. Furthermore, glint and glare from roof mounted and free-standing solar panels may disturb birds and bats, particularly where multiple panels are installed in the same area.</p> <p>However, the significance of the effects is reduced as the Wildlife Act 1976 (and Wildlife (Amendment) Act 2000) and European Communities (Birds and Habitats) Regulations 2011 protect certain species of volant (e.g. bats and pine marten) and non-volant mammals, along with nesting breeding birds, and their habitats (breeding sites and resting places). Furthermore, Section 4(4) of the Planning and Development Act provides that development shall not be exempted if an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA) of the development is required.</p> <p>The longer-term effects of reducing GHG emissions and the effects of climate change may have positive effects on biodiversity by reducing habitat loss and the spread of invasive species and improving food availability. Furthermore, when compared to electricity from coal, solar PV electricity contributes 92-97% less to acid rain and 97-98% less to marine eutrophication, which may have further benefits for habitats and wildlife¹³.</p> <p>Overall, mixed effects (minor positive / minor negative) are expected for biodiversity, flora and fauna.</p>
<p>Population and Human Health</p> <p style="text-align: center;">+/-</p>

¹³ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

Associated benefits linked to the health and wellbeing of the population, including a reduction in premature deaths, will arise due to air quality improvements as a result of the reduction in toxic emissions from the combustion of fossil fuels. Furthermore, the greater uptake of renewable energy will reduce the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have positive effects on the population's health and wellbeing. Furthermore, the greater uptake of solar PV and solar thermal collector installations will encourage investment in the solar energy sector which could create additional jobs and new start-ups.

The installation of solar panels, particularly roof-mounted panels could increase the risk of fire resulting from electrical faults which could result in adverse effects on users of the building. The installation of roof-mounted solar panels on business premises or light industrial buildings within Solar Safeguarding Zones has the potential to result in adverse effects as a result of glint and glare from cumulative developments which could have health and safety implications for aircrafts, and to a lesser extent, road users. However, the installation of roof-mounted solar panels within Solar Safeguarding Zones is subject to conditions relating to the total aperture area (i.e. a 60 square metre area limit, an increase on the current limit of 50 square metres) which is likely to reduce the scale of the impact.

Overall, **mixed (minor positive and minor negative) effects** are expected in relation to **population and human health**.

Climatic Factors and Air

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Extending solar panel exemptions applicable to business premises and light industrial buildings, including within Solar Safeguarding Zones (subject to conditions on total area), will promote the uptake of renewable energy technologies, increasing Ireland's installed renewable energy capacity, helping to achieve net zero emissions by 2050. This will reduce GHG emissions by reducing reliance on traditional fossil fuels as solar PV electricity/heating contributes 96-98% less GHGs than electricity from coal, and 92-96% less GHGs than the European electricity mix¹⁴.

However, the production of solar PV and solar thermal collector installations is energy intensive which releases GHG emissions, including carbon dioxide (CO₂), nitrogen dioxide (NO_x) and sulphur dioxide (SO₂), during the processing, manufacturing, and transportation stages of solar panels¹⁵. The average lifespan of solar panels is 20-30 years (depending on a number of factors¹⁶) and it takes approximately 6 years for the carbon produced during manufacturing to be offset¹⁷.

The 60 square metre limit of roof-mounted solar panel installations within the 43 Solar Safeguarding Zones around airports (5km zone), aerodromes (3km zone) and helipads (3km zone) restricts the extent of solar panel installations which will be classed as exempted development in these areas, potentially resulting in less electricity/heating being generated from solar energy. However, planning permission may still be sought for installations which go beyond the exemptions in these areas.

Condition 14 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition restricts the energy generated primarily to self-consumption with limited options to sell excess renewable energy to the grid. This may limit the amount of renewable energy generated in Ireland and facilitate the continued reliance on energy generated from fossil fuels and their associated GHG emissions.

Therefore, **mixed effects** are expected for climatic factors and air quality - **significant positive / minor negative** for **climatic factors** and **minor positive / minor negative** for **air**.

Soil

¹⁴The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

¹⁵ Cool Effect (2021) Carbon Footprint of Solar Panel Manufacturing [Online] Available at: <https://www.cooleffect.org/solar-carbon-footprint>

¹⁶ The lifespan can last longer however the generating capacity reduces by 1% each year. <https://www.greenmatch.co.uk/blog/2015/01/the-lifespan-of-solar-panels>

¹⁷ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

+

Although the installation of free-standing solar panels within the curtilage of a business premises or light industrial building may have adverse effects on soil quality from the loss of soil resources, this is unlikely to be significant. Condition 9 provides a 60 square metre limitation on the area that solar installations can cover which will help limit the area of soil disturbed or degraded.

An overall **minor positive** effect is expected for **soil** as the uptake of renewable energy will displace the use of peat as a fossil fuel, thereby protecting and conserving carbon-rich soils. Furthermore, mitigating against the effects of climate change may reduce extreme weather events such as flooding and drought which also affect soil quality.

Water

+

Reducing the use of fossil fuels and the release of GHG emissions will have several positive effects on the water environment. For example, mitigating against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Further positive effects for water are expected as the use of solar energy for electricity significantly reduces the consumption of water that would be used by conventional power generation plants to generate electricity. When compared to electricity from coal, solar PV uses 86-89% less water¹⁸. Therefore, an overall minor positive effect is identified for **water**.

Cultural Heritage and Landscape

+/-?

The installation of solar PV and solar thermal collector installations on proposed protected structures or protected structures or within their curtilage, or structures within an ACA, could adversely affect the setting, amenity and character of these heritage assets. There is also potential for adverse effects where there is intervisibility to heritage assets. Furthermore, there may be direct, negative impacts on buried archaeology from the installation of free-standing panels. Significant negative effects could arise in relation to landscape and the historic environment as a result of an increase in cumulative solar developments, which could affect the appearance of the streetscape and landscape, adversely affecting the overall character / visual amenity of the area, particularly in vulnerable cultural heritage environments. Significant negative effects on cultural heritage and landscape may also arise due to there being no limits on the area in which solar panels can cover a roof (except within Solar Safeguarding Zones). Additionally, with the exception of proposed protected structures, protected structures and structures within an Architectural Conservation Area, there are no limitations on roof-mounted solar panels facing roads. Therefore, more solar panels would be visible from public roads which could affect visual amenity of an area.

However, the significance of the effects is reduced due to the conditions provided in the proposed regulations, and the existing restrictions set out within the Principal Regulations and Planning and Development Act, as amended.

- **Conditions in proposed regulations:**

- Condition 12 states that the exemption does not apply where the installation is free-standing, or on a pitched roof of a building facing a road that is classed as a proposed protected structure, protected structure or is located within an Architectural Conservation Area (ACA).
- Condition 13 outlines that solar equipment should not be used to display signage or advertisements (excluding those required for safety purposes), which could prevent adverse effects on cultural heritage assets, ACAs and landscape character.
- Limitations on the area and dimensions of a solar installation for free-standing and roof-mounted equipment (Conditions 1-11) (including height of free-standing installations and set back distances from roofs), will also help reduce the effects on landscape character. Notably, Condition 8 outlines that free-

¹⁸ Ibid

Likely Environmental Effects

standing solar equipment should not be located forward of the front wall of the building or premises while Condition 4 requires roof-mounted installations not to exceed the highest part of a pitched roof (excluding any chimney). This is likely to further prevent negative effects on cultural heritage assets, landscape and streetscape character.

- **Conditions in Principal Regulations**

- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to the “[...] excavation, alteration or demolition...of places [...] of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan [...]”.
- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to developments that “consist of or comprise the excavation, alteration or demolition of any archaeological monument included in the Record of Monuments and Places [...]”.
- Article 9(1)(a)(xii) of the Principal Regulations also includes restrictions on developments that “[...] consist of or comprise the carrying out of works to the exterior of a structure, where the structure concerned is located within an architectural conservation area or an area specified as an architectural conservation area [...]”.
- Article 9(1)(a)(vi) of the Principal Regulations restricts exempted development where it would “interfere with the character of a landscape, or a view or prospect of special amenity value or special interest”.

- **Conditions in the Planning and Development Act, as amended:**

- Article 57 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of: (a) the structure, or (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest”
- Article 82 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to the exterior of a structure located in an architectural conservation area shall be exempted development only if those works would not materially affect the character of the area”.

Therefore, minor rather than significant adverse effects on the landscape, heritage assets and their settings are identified due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations (article 9(1)) and Planning and Development Act, as amended (articles 57 and 82). The minor negative effects are mixed with positive effects as reducing the effects of climate change may minimise the degradation of historic buildings and reduce the risk of drought, flooding and erosion, which could otherwise alter landscape character.

Overall, **mixed effects (minor positive / minor negative)** are expected for **cultural heritage** and **landscape**.

Material Assets

+/-?

The use of flexible and responsive renewable energy technologies such as solar power will have minor positive effects on population and human health and material assets, by improving the reliability, diversity and security of electricity supply, and potentially reducing electricity rates. Additionally, the greater uptake of solar will also reduce national dependency on fuel imports. The positive effects identified in relation to material assets are further enhanced as the use of solar PV and solar thermal collector installations is a sustainable use of natural resources (solar energy) and will promote economic growth in the green energy sector.

There may be negative effects on material assets as scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). However, as set out in the Waste From Electrical and Electronic Equipment (WEEE) Directive, end of life solar panels in Ireland must be recycled. This will help reduce the negative effects associated with use of scarce resources.

Likely Environmental Effects

Condition 14 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition therefore limits energy generated primarily to self-consumption with limited option to sell excess renewable energy to the grid which may limit the amount of renewable energy generated in Ireland. Conversely, limiting the energy generated primarily for self-consumption may reduce reliance on energy generated from fossil fuels.

Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.

Apartment buildings

Class 60: The placing or erection on a roof of a building comprising apartments, or on a roof of any ancillary buildings within the curtilage of a building comprising apartments, of a solar photo-voltaic and/ or solar thermal collector installation.

Likely Environmental Effects
Description of Development
<p>The proposed insertion of Class 60 (a) of Part 1 ('Exempted Development – General') of Schedule 2 to the Principal Regulations (Planning and Development Regulations 2001 (S.I. No. 600 of 2001), as amended by S.I. No 83 of 2007), permits the placing or erection on a roof of a building comprising apartments, or on a roof of any ancillary buildings within the curtilage of a building comprising apartments, of a solar photo-voltaic and/ or solar thermal collector installation. This exemption is subject to 10 conditions and limitations.</p>
Biodiversity, Flora and Fauna
+/-
<p>The greater uptake of solar PV and solar thermal collector installations may result in minor negative impacts on biodiversity, flora and fauna. Such installations could disturb bats and birds nesting in or on roofs. The installation of solar panels is unlikely to block access to bat roosts and bird nests as the proposed regulations require the installations to be minimum of 50cm from the edge of a pitched roof and 2 metres from the edge of a flat roof on which it is mounted. However, it is possible that glint and glare from roof mounted solar panels may disturb birds and bats, particularly where multiple panels are installed in the same area.</p> <p>The significance of the effects is reduced as the Wildlife Act 1976 (and Wildlife (Amendment) Act 2000) and European Communities (Birds and Habitats) Regulations 2011 protect certain species of volant (e.g. bats and pine marten) and non-volant mammals, along with nesting breeding birds, and their habitats (breeding sites and resting places). Furthermore, Section 4(4) of the Planning and Development Act provides that development shall not be exempted if an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA) of the development is required.</p> <p>The longer-term effects of reducing GHG emissions and the effects of climate change may have positive effects on biodiversity by reducing habitat loss and the spread of invasive species and improving food availability. Furthermore, when compared to electricity from coal, solar PV electricity contributes 92-97% less to acid rain and 97-98% less to marine eutrophication, which may have further benefits for habitats and wildlife¹⁹.</p> <p>Overall, mixed effects (minor positive / minor negative) are expected for biodiversity, flora and fauna.</p>
Population and Human Health
+/-
<p>Associated benefits linked to the health and wellbeing of the population, including a reduction in premature deaths, will arise due to air quality improvements as a result of the reduction in toxic emissions from the combustion of fossil fuels. Furthermore, the greater uptake of renewable energy will reduce the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have positive effects on the population's health and wellbeing. Furthermore, the greater uptake of solar PV and solar thermal collector installations will encourage investment in the solar energy sector which could create additional jobs and new start-ups. Further positive effects are expected for population and human health by reducing fuel poverty across Ireland as self-generated electricity protects citizens from the volatility of fossil fuel prices.</p>

¹⁹ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects
<p>The installation of solar panels, particularly roof-mounted panels could increase the risk of fire resulting from electrical faults which could result in adverse effects on users of the building. The installation of roof-mounted solar panels on apartment buildings within Solar Safeguarding Zones has the potential to result in adverse effects as a result of glint and glare from cumulative developments which could have health and safety implications for aircrafts, and to a lesser extent, road users. However, the installation of roof-mounted solar panels within Solar Safeguarding Zones is subject to conditions relating to the total aperture area (i.e. a 60 square metre area limit, an increase on the current limit of 50 square metres) which is likely to reduce the scale of the impact.</p> <p>Overall, mixed (minor positive and minor negative) effects are expected in relation to population and human health.</p>
Climatic Factors and Air
++/-
<p>Extending solar panel exemptions applicable to apartment buildings, including within Solar Safeguarding Zones (subject to conditions on total area), will promote the uptake of renewable energy technologies, increasing Ireland's installed renewable energy capacity, helping to achieve net zero emissions by 2050. This will reduce GHG emissions by reducing reliance on traditional fossil fuels as solar PV electricity/heating contributes 96-98% less GHGs than electricity from coal, and 92-96% less GHGs than the European electricity mix²⁰.</p> <p>However, the production of solar PV and solar thermal collector installations is energy intensive which releases GHG emissions, including carbon dioxide (CO₂), nitrogen dioxide (NO_x) and sulphur dioxide (SO₂), during the processing, manufacturing, and transportation stages of solar panels²¹. The average lifespan of solar panels is 20-30 years (depending on a number of factors²²) and it takes approximately 6 years for the carbon produced during manufacturing to be offset²³.</p> <p>The 60 square metre limit of roof-mounted solar panel installations within the 43 Solar Safeguarding Zones around airports (5km zone), aerodromes (3km zone) and helipads (3km zone) restricts the extent of solar panel installations which will be classed as exempted development in these areas, potentially resulting in less electricity/heating being generated from solar energy. However, planning permission may still be sought for installations which go beyond the exemptions in these areas.</p> <p>Condition 10 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition restricts the energy generated primarily to self-consumption with limited options to sell excess renewable energy to the grid. This may limit the amount of renewable energy generated in Ireland and facilitate the continued reliance on energy generated from fossil fuels and their associated GHG emissions.</p> <p>Therefore, mixed effects are expected for climatic factors and air quality - significant positive / minor negative for climatic factors and minor positive / minor negative for air.</p>
Soil
+
<p>No likely direct effect on soil resources from the installation of roof-mounted solar panels on apartment buildings. However, a minor positive effect is expected for soil as the uptake of renewable energy will displace the use of peat as a fossil fuel, thereby protecting and conserving carbon-rich soils. Furthermore, mitigating against the effects of climate change may reduce extreme weather events such as flooding and drought which also affect soil quality.</p>

²⁰The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

²¹ Cool Effect (2021) Carbon Footprint of Solar Panel Manufacturing [Online] Available at: <https://www.cooleffect.org/solar-carbon-footprint>

²² The lifespan can last longer however the generating capacity reduces by 1% each year. <https://www.greenmatch.co.uk/blog/2015/01/the-lifespan-of-solar-panels>

²³ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

Water

+

Reducing the use of fossil fuels and the release of GHG emissions will have several positive effects on the water environment. For example, mitigating against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Further positive effects for water are expected as the use of solar energy for electricity significantly reduces the consumption of water that would be used by conventional power generation plants to generate electricity. When compared to electricity from coal, solar PV uses 86-89% less water²⁴. Therefore, an overall minor positive effect is identified for **water**.

Cultural Heritage and Landscape

+/-?

The installation of solar PV and solar thermal collector installations on proposed protected structures or protected structures, or structures within an ACA, could adversely affect the setting, amenity and character of these heritage assets. There is also potential for adverse effects where there is intervisibility to heritage assets. Significant negative effects could arise in relation to landscape and the historic environment as a result of an increase in cumulative solar developments, which could affect the appearance of the streetscape and landscape, adversely affecting the overall character / visual amenity of the area, particularly in vulnerable cultural heritage environments. Significant negative effects on cultural heritage and landscape may also arise due to there being no limits on the area in which solar panels can cover a roof (except within Solar Safeguarding Zones). Additionally, with the exception of proposed protected structures, protected structures and structures within an Architectural Conservation Area, there are no limitations on roof-mounted solar panels facing roads. Therefore, more solar panels would be visible from public roads which could affect visual amenity of an area.

However, the significance of the effects is reduced due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations and Planning and Development Act, as amended.

- **Conditions in proposed regulations:**

- Condition 8 states that the exemption does not apply where the installation is on a pitched roof of a building facing a road that is classed as a proposed protected structure, protected structure or is located within an Architectural Conservation Area (ACA).
- Condition 9 outlines that solar equipment should not be used to display signage or advertisements (excluding those required for safety purposes), which could prevent adverse effects on cultural heritage assets, ACAs and landscape character.
- Limitations on the area and dimensions of a solar installation for roof-mounted equipment (Conditions 1-7), including set back distances from the edge of roofs, will also help reduce the effects on landscape character.

- **Conditions in Principal Regulations**

- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to the “[...] excavation, alteration or demolition...of places [...] of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan [...]”.
- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to developments that “consist of or comprise the excavation, alteration or demolition of any archaeological monument included in the Record of Monuments and Places [...]”.

²⁴ Ibid

Likely Environmental Effects

- Article 9(1)(a)(xii) of the Principal Regulations also includes restrictions on developments that “[...] consist of or comprise the carrying out of works to the exterior of a structure, where the structure concerned is located within an architectural conservation area or an area specified as an architectural conservation area [...]”.
- Article 9(1)(a)(vi) of the Principal Regulations restricts exempted development where it would “interfere with the character of a landscape, or a view or prospect of special amenity value or special interest”.
- **Conditions in the Planning and Development Act, as amended:**
 - Article 57 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of: (a) the structure, or (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest”
 - Article 82 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to the exterior of a structure located in an architectural conservation area shall be exempted development only if those works would not materially affect the character of the area”.

Therefore, minor rather than significant adverse effects on the landscape, heritage assets and their settings are identified due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations (article 9(1)) and Planning and Development Act, as amended (articles 57 and 82). The minor negative effects are mixed with positive effects as reducing the effects of climate change may minimise the degradation of historic buildings and reduce the risk of drought, flooding and erosion, which could otherwise alter landscape character.

Overall, **mixed effects (minor positive / minor negative)** are expected for **cultural heritage** and **landscape**.

Material Assets

+/-

The use of flexible and responsive renewable energy technologies such as solar power will have minor positive effects on population and human health and material assets, by improving the reliability, diversity and security of electricity supply, and potentially reducing electricity rates. Additionally, the greater uptake of solar will also reduce national dependency on fuel imports. The positive effects identified in relation to material assets are further enhanced as the use of solar PV and solar thermal collector installations is a sustainable use of natural resources (solar energy) and will promote economic growth in the green energy sector.

There may be negative effects on material assets as scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). However, as set out in the Waste From Electrical and Electronic Equipment (WEEE) Directive, end of life solar panels in Ireland must be recycled. This will help reduce the negative effects associated with use of scarce resources.

Condition 10 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition therefore limits energy generated primarily to self-consumption with limited option to sell excess renewable energy to the grid which may limit the amount of renewable energy generated in Ireland. Conversely, limiting the energy generated primarily for self-consumption may reduce reliance on energy generated from fossil fuels.

Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.

Educational facilities, health care facilities, sports facilities, community facilities, places of worship and libraries

Class 61:

The placing or erection on a roof of, or within the curtilage of, or on a roof of any ancillary buildings within the curtilage of the following buildings or premises of a solar photo-voltaic and/ or solar thermal collector installation:

- (i) an educational building,
- (ii) health centre or hospital,
- (iii) recreational or sports facility,
- (iv) place of worship,
- (v) community facility or centre,
- (vi) library.

Likely Environmental Effects
Description of Development
<p>The proposed insertion of Class 61 paragraph (a) of into Part 1 ('Exempted Development – General') of Schedule 2 to the Principal Regulations (Planning and Development Regulations 2001 (S.I. No. 600 of 2001)), permits the placing or erection on a roof of, or within the curtilage of, or on a roof of any ancillary buildings within the curtilage of the following buildings or premises of a solar photo-voltaic and/ or solar thermal collector installation:</p> <ul style="list-style-type: none"> (i) an educational building, (ii) health centre or hospital, (iii) recreational or sports facility, (iv) place of worship, (v) community facility or centre, (vi) library. <p>This exemption is subject to 13 conditions and limitations.</p>
Biodiversity, Flora and Fauna
+/-

Likely Environmental Effects

The greater uptake of solar PV and solar thermal collector installations may result in minor negative impacts on biodiversity, flora and fauna. Such installations could disturb bats and birds nesting in or on roofs. The installation of solar panels is unlikely to block access to bat roosts and bird nests as the proposed regulations require the installations to be minimum of 50cm from the edge of a pitched roof and 2 metres from the edge of a flat roof on which it is mounted. Free-standing solar installations could disturb and displace ground nesting birds during installation; however, impacts are likely to be short-term as land can be reseeded to provide habitat and forage to pollinators, birds and other small species. Furthermore, glint and glare from roof mounted and free-standing solar panels may disturb birds and bats, particularly where multiple panels are installed in the same area.

However, the significance of the effects is reduced as the Wildlife Act 1976 (and Wildlife (Amendment) Act 2000) and European Communities (Birds and Habitats) Regulations 2011 protect certain species of volant (e.g. bats and pine marten) and non-volant mammals, along with nesting breeding birds, and their habitats (breeding sites and resting places). Furthermore, Section 4(4) of the Planning and Development Act provides that development shall not be exempted if an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA) of the development is required.

The longer-term effects of reducing GHG emissions and the effects of climate change may have positive effects on biodiversity by reducing habitat loss and the spread of invasive species and improving food availability. Furthermore, when compared to electricity from coal, solar PV electricity contributes 92-97% less to acid rain and 97-98% less to marine eutrophication, which may have further benefits for habitats and wildlife²⁵.

Overall, **mixed effects (minor positive / minor negative)** are expected for **biodiversity, flora and fauna**.

Population and Human Health

+/-

Associated benefits linked to the health and wellbeing of the population, including a reduction in premature deaths, will arise due to air quality improvements as a result of the reduction in toxic emissions from the combustion of fossil fuels. Furthermore, the greater uptake of renewable energy will reduce the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have positive effects on the population's health and wellbeing. Furthermore, the greater uptake of solar PV and solar thermal collector installations will encourage investment in the solar energy sector which could create additional jobs and new start-ups.

The installation of solar panels, particularly roof-mounted panels could increase the risk of fire resulting from electrical faults which could result in adverse effects on users of the building. The installation of roof-mounted solar panels on educational / health care, etc. facilities within Solar Safeguarding Zones has the potential to result in adverse effects as a result of glint and glare from cumulative developments which could have health and safety implications for aircrafts, and to a lesser extent, road users. However, the installation of roof-mounted solar panels within Solar Safeguarding Zones is subject to conditions relating to the total aperture area (i.e. a 60 square metre area limit, an increase on the current limit of 50 square metres) which is likely to reduce the scale of the impact.

Overall, **mixed (minor positive and minor negative) effects** are expected in relation to **population and human health**.

Climatic Factors and Air

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Extending solar panel exemptions applicable to educational buildings, health centres or hospitals, recreational or sports facilities, places of worship, community facilities or centres and libraries, including within Solar Safeguarding Zones (subject to conditions on total area), will promote the uptake of renewable energy technologies, increasing

²⁵ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

Ireland's installed renewable energy capacity, helping to achieve net zero emissions by 2050. This will reduce GHG emissions by reducing reliance on traditional fossil fuels as solar PV electricity/heating contributes 96-98% less GHGs than electricity from coal, and 92-96% less GHGs than the European electricity mix²⁶.

However, the production of solar PV and solar thermal collector installations is energy intensive which releases GHG emissions, including carbon dioxide (CO₂), nitrogen dioxide (NO_x) and sulphur dioxide (SO₂), during the processing, manufacturing, and transportation stages of solar panels²⁷. The average lifespan of solar panels is 20-30 years (depending on a number of factors²⁸) and it takes approximately 6 years for the carbon produced during manufacturing to be offset²⁹.

The 60 square metre limit of roof-mounted solar panel installations within the 43 Solar Safeguarding Zones around airports (5km zone), aerodromes (3km zone) and helipads (3km zone) restricts the extent of solar panel installations which will be classed as exempted development in these areas, potentially resulting in less electricity/heating being generated from solar energy. However, planning permission may still be sought for installations which go beyond the exemptions in these areas.

Condition 13 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition restricts the energy generated primarily to self-consumption with limited options to sell excess renewable energy to the grid. This may limit the amount of renewable energy generated in Ireland and facilitate the continued reliance on energy generated from fossil fuels and their associated GHG emissions.

Therefore, **mixed effects** are expected for climatic factors and air quality - **significant positive / minor negative** for **climatic factors** and **minor positive / minor negative** for **air**.

Soil

+

Although the installation of free-standing solar panels within the curtilage of educational / health care, etc. facilities may have adverse effects on soil quality from the loss of soil resources, this is unlikely to be significant. Condition 8 provides a 60 square metre limitation on the area that solar installations can cover which will help limit the area of soil disturbed or degraded.

Water

+

Reducing the use of fossil fuels and the release of GHG emissions will have several positive effects on the water environment. For example, mitigating against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Further positive effects for water are expected as the use of solar energy for electricity significantly reduces the consumption of water that would be used by conventional power generation plants to generate electricity. When compared to electricity from coal, solar PV uses 86-89% less water³⁰. Therefore, an overall minor positive effect is identified for **water**.

Cultural Heritage and Landscape

²⁶The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

²⁷ Cool Effect (2021) Carbon Footprint of Solar Panel Manufacturing [Online] Available at: <https://www.cooleffect.org/solar-carbon-footprint>

²⁸ The lifespan can last longer however the generating capacity reduces by 1% each year. <https://www.greenmatch.co.uk/blog/2015/01/the-lifespan-of-solar-panels>

²⁹ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

³⁰ Ibid

The installation of solar PV and solar thermal collector installations on proposed protected structures or protected structures or within their curtilage, or structures within an ACA, could adversely affect the setting, amenity and character of these heritage assets. There is also potential for adverse effects where there is intervisibility to heritage assets. Furthermore, there may be direct, negative impacts on buried archaeology from the installation of free-standing panels. Significant negative effects could arise in relation to landscape and the historic environment as a result of an increase in cumulative solar developments, which could affect the appearance of the streetscape and landscape, adversely affecting the overall character / visual amenity of the area, particularly in vulnerable cultural heritage environments. Significant negative effects on cultural heritage and landscape may also arise due to there being no limits on the area in which solar panels can cover a roof (except within Solar Safeguarding Zones). Additionally, with the exception of proposed protected structures, protected structures and structures within an Architectural Conservation Area, there are no limitations on roof-mounted solar panels facing roads. Therefore, more solar panels would be visible from public roads which could affect visual amenity of an area.

However, the significance of the effects is reduced due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations and Planning and Development Act, as amended.

- **Conditions in proposed regulations:**

- Condition 11 states that the exemption does not apply where the installation is free-standing, or on a pitched roof of a building facing a road that is classed as a proposed protected structure, protected structure, or is located within an Architectural Conservation Area (ACA).
- Condition 12 outlines that solar equipment should not be used to display signage or advertisements (excluding those required for safety purposes), which could prevent adverse effects on cultural heritage assets, ACAs and landscape character.
- Limitations on the area and dimensions of a solar installation for free-standing and roof-mounted equipment (Conditions 1-11) (including height of free-standing installations and set back distances from roofs), will also help reduce the effects on landscape character. Notably, Condition 7 outlines that free-standing solar equipment should not be located forward of the front wall of the building. This is likely to further prevent negative effects on cultural heritage assets, landscape and streetscape character.

- **Conditions in Principal Regulations**

- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to the “[...] excavation, alteration or demolition...of places [...] of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan [...]”.
- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to developments that “consist of or comprise the excavation, alteration or demolition of any archaeological monument included in the Record of Monuments and Places [...]”.
- Article 9(1)(a)(xii) of the Principal Regulations also includes restrictions on developments that “[...] consist of or comprise the carrying out of works to the exterior of a structure, where the structure concerned is located within an architectural conservation area or an area specified as an architectural conservation area [...]”.
- Article 9(1)(a)(vi) of the Principal Regulations restricts exempted development where it would “interfere with the character of a landscape, or a view or prospect of special amenity value or special interest”.

- **Conditions in the Planning and Development Act, as amended:**

- Article 57 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of: (a) the structure, or (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest”

Likely Environmental Effects

- Article 82 of the Planning and Development Act, as amended, states that “[...] *the carrying out of works to the exterior of a structure located in an architectural conservation area shall be exempted development only if those works would not materially affect the character of the area*”.

Therefore, minor rather than significant adverse effects on the landscape, heritage assets and their settings are identified due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations (article 9(1)) and Planning and Development Act, as amended (articles 57 and 82). The minor negative effects are mixed with positive effects as reducing the effects of climate change may minimise the degradation of historic buildings and reduce the risk of drought, flooding and erosion, which could otherwise alter landscape character.

Overall, **mixed effects (minor positive / minor negative)** are expected for **cultural heritage** and **landscape**.

Material Assets

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The use of flexible and responsive renewable energy technologies such as solar power will have minor positive effects on population and human health and material assets, by improving the reliability, diversity and security of electricity supply, and potentially reducing electricity rates. Additionally, the greater uptake of solar will also reduce national dependency on fuel imports. The positive effects identified in relation to material assets are further enhanced as the use of solar PV and solar thermal collector installations is a sustainable use of natural resources (solar energy) and will promote economic growth in the green energy sector.

There may be negative effects on material assets as scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). However, as set out in the Waste From Electrical and Electronic Equipment (WEEE) Directive, end of life solar panels in Ireland must be recycled. This will help reduce the negative effects associated with use of scarce resources.

Condition 13 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition therefore limits energy generated primarily to self-consumption with limited option to sell excess renewable energy to the grid which may limit the amount of renewable energy generated in Ireland. Conversely, limiting the energy generated primarily for self-consumption may reduce reliance on energy generated from fossil fuels.

Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.

Amendment of Part 3 of Schedule 2 to the Principal Regulations

Agricultural structures

Class 18 (c): The placing or erection on a roof or wall of an agricultural structure, or within the curtilage of an agricultural holding, or on a roof or wall of any ancillary buildings within the curtilage of an agricultural holding, of a solar photo-voltaic and/ or solar thermal collector installation.

Likely Environmental Effects
<p>Description of Development</p> <p>The proposed paragraph (ca) of Class 18 of Part 3 ('Exempted Development – General') of Schedule 2 to the Principal Regulations (Planning and Development Regulations 2001 (S.I. No. 600 of 2001), as amended by S.I. No 235 of 2008), permits the placing or erection on a roof or wall of an agricultural structure, or within the curtilage of an agricultural holding, or on a roof or wall of any ancillary buildings within the curtilage of an agricultural holding, of a solar photo-voltaic and/ or solar thermal collector installation. This exemption is subject to 16 conditions and limitations.</p>
<p>Biodiversity, Flora and Fauna</p> <p style="text-align: center;">+/-</p> <p>The greater uptake of solar PV and solar thermal collector installations may result in minor negative impacts on biodiversity, flora and fauna. Such installations could disturb bats and birds nesting in or on roofs, particularly species commonly associated with agricultural buildings such as barn owl, barn swallow, house martin and swift. The installation of solar panels is unlikely to block access to bat roosts and bird nests as the proposed regulations require the installations to be minimum of 50cm from the edge of a pitched roof and 2 metres from the edge of a flat roof on which it is mounted. Free-standing solar installations could disturb and displace ground nesting birds during installation; however, impacts are likely to be short-term as land can be reseeded to provide habitat and forage to pollinators, birds and other small species. Furthermore, glint and glare from roof mounted, free-standing, and wall-mounted solar panels may disturb birds and bats, particularly where multiple panels are installed in the same area.</p> <p>However, the significance of the effects is reduced as the Wildlife Act 1976 (and Wildlife (Amendment) Act 2000) and European Communities (Birds and Habitats) Regulations 2011 protect certain species of volant (e.g. bats and pine marten) and non-volant mammals, along with nesting breeding birds, and their habitats (breeding sites and resting places). Furthermore, Section 4(4) of the Planning and Development Act provides that development shall not be exempted if an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA) of the development is required.</p> <p>The longer-term effects of reducing GHG emissions and the effects of climate change may have positive effects on biodiversity by reducing habitat loss and the spread of invasive species and improving food availability. Furthermore, when compared to electricity from coal, solar PV electricity contributes 92-97% less to acid rain and 97-98% less to marine eutrophication, which may have further benefits for habitats and wildlife³¹.</p> <p>Overall, mixed effects (minor positive / minor negative) are expected for biodiversity, flora and fauna.</p>
<p>Population and Human Health</p> <p style="text-align: center;">+/-</p>

³¹ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

Associated benefits linked to the health and wellbeing of the population, including a reduction in premature deaths, will arise due to air quality improvements as a result of the reduction in toxic emissions from the combustion of fossil fuels. Furthermore, the greater uptake of renewable energy will reduce the future effects of climate change, including extreme weather events such as drought, storms, and flooding. This could also have positive effects on the population's health and wellbeing. Furthermore, the greater uptake of solar PV and solar thermal collector installations will encourage investment in the solar energy sector which could create additional jobs and new start-ups.

The installation of solar panels, particularly roof-mounted panels could increase the risk of fire resulting from electrical faults which could result in adverse effects on users of the building/livestock. The installation of roof-mounted solar panels on agricultural buildings within Solar Safeguarding Zones has the potential to result in adverse effects as a result of glint and glare from cumulative developments which could have health and safety implications for aircrafts, and to a lesser extent, road users. However, the installation of roof-mounted solar panels within Solar Safeguarding Zones is subject to conditions relating to the total aperture area (i.e. a 60 square metre area limit, an increase on the current limit of 50 square metres) which is likely to reduce the scale of the impact.

Overall, **mixed (minor positive and minor negative) effects** are expected in relation to **population and human health**.

Climatic Factors and Air

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Extending solar panel exemptions applicable to agricultural buildings, including within Solar Safeguarding Zones (subject to conditions on total area), will promote the uptake of renewable energy technologies, increasing Ireland's installed renewable energy capacity, helping to achieve net zero emissions by 2050. This will reduce GHG emissions by reducing reliance on traditional fossil fuels as solar PV electricity/heating contributes 96-98% less GHGs than electricity from coal, and 92-96% less GHGs than the European electricity mix³².

However, the production of solar PV and solar thermal collector installations is energy intensive which releases GHG emissions, including carbon dioxide (CO₂), nitrogen dioxide (NO_x) and sulphur dioxide (SO₂), during the processing, manufacturing, and transportation stages of solar panels³³. The average lifespan of solar panels is 20-30 years (depending on a number of factors³⁴) and it takes approximately 6 years for the carbon produced during manufacturing to be offset³⁵.

The 60 square metre limit of roof-mounted solar panel installations within the 43 Solar Safeguarding Zones around airports (5km zone), aerodromes (3km zone) and helipads (3km zone) restricts the extent of solar panel installations which will be classed as exempted development in these areas, potentially resulting in less electricity/heating being generated from solar energy. However, planning permission may still be sought for installations which go beyond the exemptions in these areas.

Condition 16 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition restricts the energy generated primarily to self-consumption with limited options to sell excess renewable energy to the grid. This may limit the amount of renewable energy generated in Ireland and facilitate the continued reliance on energy generated from fossil fuels and their associated GHG emissions.

Therefore, **mixed effects** are expected for climatic factors and air quality - **significant positive / minor negative** for **climatic factors** and **minor positive / minor negative** for **air**.

Soil

³²The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

³³ Cool Effect (2021) Carbon Footprint of Solar Panel Manufacturing [Online] Available at: <https://www.cooleffect.org/solar-carbon-footprint>

³⁴ The lifespan can last longer however the generating capacity reduces by 1% each year. <https://www.greenmatch.co.uk/blog/2015/01/the-lifespan-of-solar-panels>

³⁵ The Renewable Energy Hub (2022) Solar Photovoltaics – Cradle to Grave Analysis and Environmental Cost [online] Available at: <https://www.renewableenergyhub.co.uk/main/solar-panels/solar-panels-carbon-analysis/>

Likely Environmental Effects

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The installation of free-standing solar panels within the curtilage of an agricultural holding may have adverse effects on soil quality from the loss of soil resources, compaction, and disturbance. Condition 12 provides a 60 square metre limitation on the area that solar installations can cover which will help limit the area of soil disturbed or degraded.

An overall **minor positive** effect is expected for **soil** as the uptake of renewable energy will displace the use of peat as a fossil fuel, thereby protecting and conserving carbon-rich soils. Furthermore, mitigating against the effects of climate change may reduce extreme weather events such as flooding and drought which also affect soil quality.

Water

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Reducing the use of fossil fuels and the release of GHG emissions will have several positive effects on the water environment. For example, mitigating against the effects of climate change will reduce the chances of deterioration in water quality as a result of increased temperatures, such as algal blooms etc. Further positive effects for water are expected as the use of solar energy for electricity significantly reduces the consumption of water that would be used by conventional power generation plants to generate electricity. When compared to electricity from coal, solar PV uses 86-89% less water³⁶. Therefore, an overall minor positive effect is identified for **water**.

Cultural Heritage and Landscape

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The installation of solar PV and solar thermal collector installations on proposed protected structures or protected structures or within their curtilage, or structures within an ACA, could adversely affect the setting, amenity and character of these heritage assets. There is also potential for adverse effects where there is intervisibility to heritage assets. Furthermore, there may be direct, negative impacts on buried archaeology from the installation of free-standing panels. Significant negative effects could arise in relation to landscape and the historic environment as a result of an increase in cumulative solar developments, which could affect the appearance of the rural landscape, adversely affecting the overall character / visual amenity of the area, particularly in vulnerable cultural heritage environments. Significant negative effects on cultural heritage and landscape may also arise due to there being no limits on the area in which solar panels can cover a roof (except within Solar Safeguarding Zones). Additionally, with the exception of proposed protected structures, protected structures and structures within an Architectural Conservation Area, there are no limitations on roof-mounted solar panels facing roads. Therefore, more solar panels would be visible from public roads which could affect visual amenity of an area.

However, the significance of the effects is reduced due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations and Planning and Development Act, as amended.

- **Conditions in proposed regulations:**

- Condition 14 states that the exemption does not apply where the installation is on any wall, or is free-standing, or on a pitched roof of an elevation facing a road that is classed as a proposed protected structure, protected structure or is located within an Architectural Conservation Area (ACA).
- Condition 15 outlines that solar equipment should not be used to display signage or advertisements (excluding those required for safety purposes), which could prevent adverse effects on cultural heritage assets, ACAs and landscape character.
- Limitations on the area and dimensions of a solar installation for free-standing and, wall and roof-mounted equipment (Conditions 1-13) (including height of free-standing installations and set back distances from roofs), will also help reduce the effects on landscape character. Notably, Condition 11 outlines

³⁶ Ibid

Likely Environmental Effects

that free-standing solar equipment should not be located forward of the front wall of the nearest agricultural structure within the agricultural holding to a public road while Condition 4 requires roof-mounted installations not to exceed the highest part of a pitched roof (excluding any chimney). This is likely to further prevent negative effects on cultural heritage assets, landscape and streetscape character.

- **Conditions in Principal Regulations**

- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to the “[...] excavation, alteration or demolition...of places [...] of archaeological, geological, historical, scientific or ecological interest, the preservation, conservation or protection of which is an objective of a development plan [...]”.
- Article 9(1)(a)(vii) of the Principal Regulations includes restrictions relating to developments that “consist of or comprise the excavation, alteration or demolition of any archaeological monument included in the Record of Monuments and Places [...]”.
- Article 9(1)(a)(xii) of the Principal Regulations also includes restrictions on developments that “[...] consist of or comprise the carrying out of works to the exterior of a structure, where the structure concerned is located within an architectural conservation area or an area specified as an architectural conservation area [...]”.
- Article 9(1)(a)(vi) of the Principal Regulations restricts exempted development where it would “interfere with the character of a landscape, or a view or prospect of special amenity value or special interest”.

- **Conditions in the Planning and Development Act, as amended:**

- Article 57 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to a protected structure, or a proposed protected structure, shall be exempted development only if those works would not materially affect the character of: (a) the structure, or (b) any element of the structure which contributes to its special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest”
- Article 82 of the Planning and Development Act, as amended, states that “[...] the carrying out of works to the exterior of a structure located in an architectural conservation area shall be exempted development only if those works would not materially affect the character of the area”.

Therefore, minor rather than significant adverse effects on the landscape, heritage assets and their settings are identified due to the conditions provided in the proposed regulations and the existing restrictions set out within the Principal Regulations (article 9(1)) and Planning and Development Act, as amended (articles 57 and 82). The minor negative effects are mixed with positive effects as reducing the effects of climate change may minimise the degradation of historic buildings and reduce the risk of drought, flooding and erosion, which could otherwise alter landscape character.

Overall, **mixed effects (minor positive / minor negative)** are expected for **cultural heritage** and **landscape**.

Material Assets

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The use of flexible and responsive renewable energy technologies such as solar power will have minor positive effects on population and human health and material assets, by improving the reliability, diversity and security of electricity supply, and potentially reducing electricity rates. Additionally, the greater uptake of solar will also reduce national dependency on fuel imports. The positive effects identified in relation to material assets are further enhanced as the use of solar PV and solar thermal collector installations is a sustainable use of natural resources (solar energy). Greater uptake of solar power will promote economic growth in the green energy sector and more sustainable and environmentally friendly practices within the agricultural sector.

There may be negative effects on material assets as scarce, finite materials and/or toxic materials such as lead, cadmium, silicon tetrachloride and hexafluoroethane, are used during the manufacturing of solar panels (at least until new technologies are discovered). However, as set out in the Waste From Electrical and Electronic Equipment (WEEE) Directive, end of life solar panels in Ireland must be recycled. This will help reduce the negative effects associated with use of scarce resources.

Likely Environmental Effects

The installation of free-standing solar equipment may result in conflicts of land use, as less land is available for agricultural purposes. However, this effect is unlikely to be significant as there is a 60 square metre limit for free-standing solar installations within an agricultural holding.

Condition 16 sets out that solar installations must relate primarily to the provision of electricity or heating for the building; any ancillary building within the curtilage of the building; or any ancillary uses within the curtilage of the building. This condition therefore limits energy generated primarily to self-consumption with limited option to sell excess renewable energy to the grid which may limit the amount of renewable energy generated in Ireland. Conversely, limiting the energy generated primarily for self-consumption may reduce reliance on energy generated from fossil fuels.

Overall, **mixed effects** are expected for **material assets (minor positive / minor negative)**.