

MSc Environmental conservation and Management.

ACBA7004 – Environmental policy &
planning



The Brynwhilach solar farm

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1 Introduction

In this report, the process of producing an Environmental impact assessment (EIA) will be discussed within the context of current legislation in place in Wales and the UK and with reference to the changes that have taken place in Wales since the implementation of the Environment Act (Wales) 2016. The process of producing an EIA and the strength of previous legislation relevant to 2014 and before the UK left the European union will be discussed in the context of a case study. The case study refers to a completed Solar farm project constructed in Swansea, Wales and under the planning authority of Swansea Council.

1.1 The Environmental Impact Assessment (EIA) process.

EIAs have been part of the planning process in the UK since 1988, following a European Community directive in 1985 (Environmental Impact Assessment Directive (85/337/EEC). Implementation was accelerated across Europe and the world and has been a major growth area in planning practice since. (Glasson et al., 2012)

The introduction of the EIA into the UK was met with some resistance; developers claimed that they already considered the environmental impacts, and this was just “another costly and time consuming constraint on development” (Glasson et al, 2012). In the UK’s initial legislation, the word ‘Impact’ was dropped as it was seen as politically sensitive. Since then, the process has continued to evolve into the legislation in place today at UK level and further into the devolved legislation covering developments taking place in Wales. (Glasson et al, 2012)

1.1.2 Current planning legislation in Wales

The relevant legislation in Wales is covered under: -

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

This sets out the legal requirement that anyone seeking planning permission must first determine whether an EIA is required - this is done through a screening opinion request to the relevant planning authority. This applies to public bodies as well as private enterprises.

The lists of project types requiring an EIA are closely aligned to the EC directive 85/337 list and can be further split into Schedule 1 and 2 developments. Any Schedule 1 developments are required to have an EIA. Schedule 2 projects may need an EIA if it is decided that the development is “likely to have significant effects on the environment by virtue of factors such as its nature, size or location” (The Town and Country Planning (Environmental Impact Assessment) Regulations 2017). This is decided by the Local Planning authority during the ‘screening’ process. In Wales and the UK an EIA is required to be carried out as part of the process of preparing an Environmental Statement (ES). This must be completed by the person who is applying for the planning permission and must include copies of any required consultations, publications, and notifications. The legislation clearly states in Part 3 that: “A relevant planning authority or the Welsh Ministers or an inspector must not grant planning permission or subsequent consent for EIA development unless an environmental impact assessment has been carried out in

respect of that development”. (*The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017*)

The relevant Welsh Government legislation is shown in Figure 1 and describes the scope any ES must take.

<i>The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017</i>
Section 4 (2) The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of proposed development on the following— (a) population and human health. (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC (1) and Directive 2009/147/EC(2); (c) land, soil, water, air and climate. (d) material assets, cultural heritage and the landscape; and (e) the interaction between the factors listed in sub-paragraphs (a) to (d). (3) The effects referred to in paragraph (2) on the factors set out in that paragraph must include— (a) the operational effects of the proposed development, where the proposed development will have operational effects; and (b) the expected effects deriving from the vulnerability of the proposed development to risks of major accidents and disasters that are relevant to that development. (4) The relevant planning authority or the Welsh Ministers, as the case may be, must ensure that they have, or have access as necessary to, sufficient expertise to examine the environmental statement.

Figure 1 – Section 4 guidance on completing an EIA (*The Town and Country Planning (Environmental Impact Assessment) (Wales) 2017*)

Significantly, it states in Section 4 of the Act that a planning authority should at least have access to “sufficient expertise to examine the environmental statement” (*The Town and Country Planning (Environmental Impact Assessment) (Wales) 2017*). Many planning authorities have employed Planning Ecologists to aid the planning process and the discharge of their duties under this legislation. In Wales, every local planning authority (LPA) has access to a designated Planning Ecologist or Ecology team (Sharp, 2023), whereas in England as many as 26% of local planning authorities in England do not have any access to ecological expertise (Snell and Oxford, 2021) This could severely impact the ability of a planning authority to examine an ES and going forward assesses any mitigation and enhancements named under subsequent conditions attached to the planning permission.

1.2 The relevant planning legislation in place in 2014

The case study discussed in this report was submitted in 2014 under the:

Town and country planning (Environmental impact assessment) England and Wales Regulations 1999

The key part of this legislation shown in *figure 2* will form the basis of the critique of the Case study in Section 2 of this report.

Town and country planning (Environmental impact assessment) England and Wales Regulations 1999	
SCHEDULE 4	
INFORMATION FOR INCLUSION IN ENVIRONMENTAL STATEMENTS	
PART I	
1. Description of the development, including in particular—	
	(a) a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;
	(b) a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used;
	(c) an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.
2. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.	
3. A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.	
4. A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:	
	(a) the existence of the development;
	(b) the use of natural resources;
	(c) the emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant of the forecasting methods used to assess the effects on the environment.
5. A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.	
6. A non-technical summary of the information provided under paragraphs 1 to 5 of this Part.	
7. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.	
PART II	
1. A description of the development comprising information on the site, design and size of the development.	
2. A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.	
3. The data required to identify and assess the main effects which the development is likely to have on the environment.	
4. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.	
5. A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.	

Figure 2 - *The Town and Country Planning (Environmental Impact Assessment) Regulations 1999*

The 1999 regulations were less detailed than those currently in place and there was less clarity as to the direction of focus that an ES should cover. The direction was expected to come from the scoping document, which must be requested by the applicant and provided within 5 weeks by the relevant planning authority as seen in the legislation extract in figure 3 below:

10.— (1) A person who is minded to make an EIA application may ask the relevant planning authority to state in writing their opinion as to the information to be provided in the environmental statement (a “scoping opinion”).

(4) An authority shall not adopt a scoping opinion in response to a request under paragraph (1) until they have consulted the person who made the request and the consultation bodies, but shall, subject to paragraph (5), within five weeks beginning with the date of receipt of that request or such longer period as may be agreed in writing with the person making the request, adopt a scoping opinion and send a copy to the person who made the request.

Figure 3 – Guidance to applicants on requesting a scoping opinion. (*The Town and Country planning (environment Impact Assessment) Regulations 1999*).

1.3 The development of Solar farms in the context of the decarbonisation of the energy sector.

The publication of the 2012 Climate Change Committee (CCC) 4th Carbon budget stated that by 2030 97% of UK was from low-Carbon sources. It also recommended that the UK power sector should aim to decarbonise completely by 2050. (Climate Change Committee, 2012). Photovoltaic installations were cited as one of the fastest growing green energy technologies and 2013 saw global operating capacity reach the milestone on 100GW. This led to a “fairly stable market” prior to the planning of this development. (REN21, 2013). In the UK, Solar farm developments were bolstered by the *Climate Change Act*, 2008 which committed the UK to reducing its GHG emission by 34% by 2020. This was instigated by EU legislation which bound the UK to commit to ensuring that at least 15% of its Energy would be from renewable sources by 2020. (DECC, 2011)

At the time of the planning permission being sought, the UK had approximately 2.7GW of solar energy production capacity. However, in May 2014 the UK Government announced it was withdrawing the feed-in tariffs and subsidies to large solar farms such as Brynwhilach. (Harvey, 2014). The UK government then revised its 2012 target of 20GW by the end of 2020 down to 10-12GW by the end of 2020. (DECC, 2011)

2 The Brynwhilach solar farm

The Brynwhilach solar farm is a Schedule 2 development located north of Swansea and was completed in March 2022. Planning permission was originally sought from the local planning authority - Swansea Council - in 2014 and the environmental statement was completed in June 2014. The development was completed by Good Energy, a company based in Cornwall and specialising in green energy projects. The Environmental statement was prepared following a screening report by Swansea Council in 2014. A scoping report was requested by Good Energy but wasn't received prior to the commencement of the ES and its publication in June 2014.

Legislation states that Scoping requests should be responded to within 5 weeks by the relevant planning authority. I was unable to source any scoping document. (*The Town and Country Planning Environmental Impact Assessment Regulations 1999*) The scope of the EIA and ES document was determined by the applicant.

The Solar farm was planned to create a facility that could produce 12.69MW of electricity, consisting of 47,000 solar panels, underground cabling, eight inverter and transformer stations and 2 on site substations, and it was predicted that the facility would supply 2629 - 3061 homes. The location is shown in figure 4 below. The land was used as grazing mainly for cows, sheep and horses. National grid pylons and substations were located within the vicinity and the intention was to connect the facility directly to the National grid. The plans changed as the development progressed as the site proposed for the substation was not suitable and the local capacity of the grid was not sufficient.

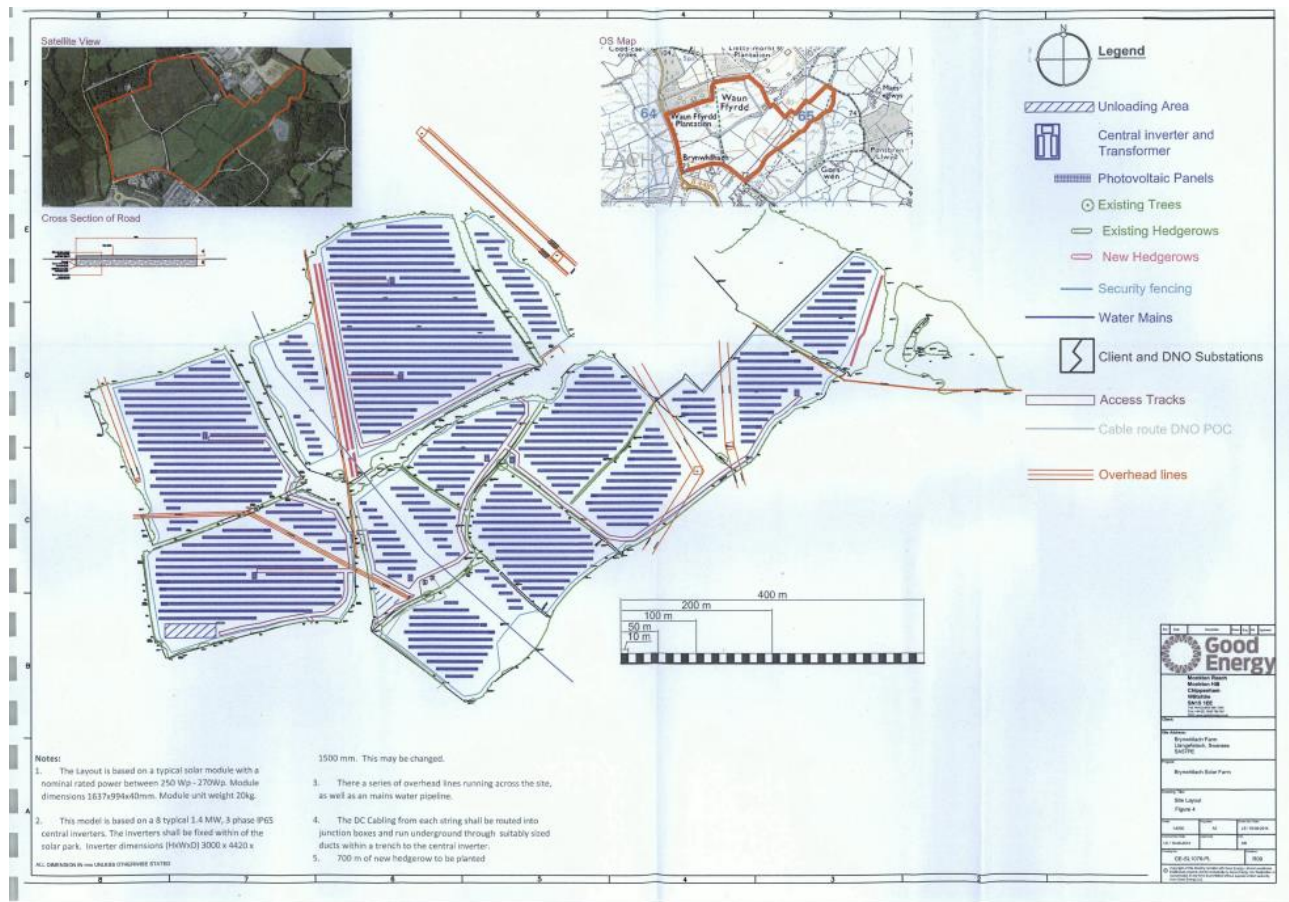


Figure 4- A diagram showing the location of the proposed Solar farm at Brynwhilach, Swansea included in the Environmental Statement submitted to Swansea Council planning authority 2014. (Good Energy, 2014)

The extra capacity needed for the development was 'borrowed' from another nearby renewable energy project not due to come online until 2020 to allow the project to be finished. There was pressure on the development to be completed before the UK Government withdrew subsidies and buy back schemes in 2015. (Good Energy, 2017). Further developments and delays were overcome and following a grant from Welsh government, the whole project was completed in March 2022. The Welsh Government grant enabled 10,000 panels to be owned and used solely by the Swansea University Health Board. A 2 mile long cable was laid to connect the solar farm to the nearby Morriston Hospital. In March 2022, it was stated that the Brynwhilach solar farm was now providing Morriston hospital with enough power for all its energy needs as well as surplus energy which it was able to sell back to create extra income. (Morris, 2022).

The Environmental Statement was published by Wardwell Armstrong and prepared by Paul Davies BSc (Hons) Environmental protection and Simon Allen BSc Hons. The latter's expertise was not disclosed. The legislation in place at the time did not stipulate any mandatory qualifications for authors of an EIA.

The Environmental Statement was completed on behalf of Good Energy by Wardell Armstrong working with a project team of specialists shown in figure 3:

Table 1.1: Project Team	
Organisation	Subject area
Good Energy	Public Consultation
Wardell Armstrong	Introduction; Project Description, Flood Consequence Assessment, Planning Policy; Mitigation; Cumulative Impacts.
Pegasus Planning Group	Landscape and Visual Impact Assessment Arboricultural Survey
Cotswold Archaeology	Archaeology and Cultural Heritage
Michael Woods Associates	Ecology
AARDVaRC Ltd	Glint Assessment
Luscombe Maye	Soils and Land Classification

Figure 5 - The project partners listed as part of the project team in compiling the EIA included in the Environmental statement submitted to Swansea council planning authority. (Good Energy, 2014)

None of the contributors to the ES were based within Wales or the local area of Glamorgan. This could impact on the impacts assessment report as a local ecologist or experts may have a greater understanding of local ecology, priority species and habitat as well as culture, history and community knowledge relevant to the local area. “Failure to draw on local expertise and energy... represents a potential lost opportunity for making a good project even better...” (Hughes, 1998, p2). A guide to Biodiversity for the private sector recommends that consultation with local experts is usually required to obtain a full picture of an area and that consultation with conservation organisations and local communities is important to help identify key biodiversity impacts. (IFC, 2004)

2.1 Summary of the survey methodology.

Table 1 shows a summary of the types of survey carried out as part of the EIA process. The majority of the surveys were carried out at a sub optimal time and following heavy rain which could remove any evidence of habitat or commuting such as faeces. (BSG Ecology, 2017).

Table 1 A summary of the Ecological surveys carried out as part of the EIA.

Type of survey		Date of Survey	Optimal time for survey (BSG Ecology, 2023)
Reptile survey		January 2014 June 2014	April/May or September
Tree survey		January 2014	Year round
Dormice (pre-commencement)		December 2016	Apr – Nov (using nesting tubes)
Ecological survey	Ecological survey	January 2014 (1 day)	April - October
	Phase 1		April - October
	Hedgerow		April - October
	Badgers		October - April
	Bats		May – September (Jan + Feb roosts)
	Dormice		April - November
	Amphibians – habitat suitability index		Habitat suitability index used
	Water vole		April - September
	Otter		All year
	Birds Evidence of nesting		April – July (breeding) October – March (Wintering)

Several priority species are noted as having been recorded close to the site including *Bufo bufo* (Common toad), *Sturnus vulgaris* (Starling), and *Euphydryas aurinia* (Marsh fritillary butterfly).

2.2 Analysis of the Environmental Impact Assessment – Brynwhilach Solar farm LTD.

Analysis of the Environmental Impact Assessment		
Relevant legislation (1999)	EIA dated 2014	Critique
1. Description of the development, including in particular—		
(a) a description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;	This is well set out. The individual structures are described but the size and model of solar panels are not defined. The use of a LEMP and CEMP are described, and annual maintenance visits are predicted. A 30 year period of operation is designed with the land being returned to its previous condition following decommission and removal of all construction. The supports for the solar panels will be pile driven and the buildings are prefabricated reducing emissions and noise on site. The report quotes LANDMAP as describing the area as: “rolling farmland mosaic” but states that introduction of hedgerows would diminish any effects negligible or not significant. Animals will be given access for grazing underneath the panels and the public footpath will remain unchanged with enhanced hedgerows to create visual shielding.	The design had to be changed after planning was granted as the National grid did not have the capacity to take the power generated. The angle of the solar panels was altered from 25 degrees to 30 degrees without commissioning an updated Glint and glare assessment. This change in angle may have also affected the height, and planning was subsequently granted for this change. The effect of the local wet climate was not considered during construction thoroughly enough, with mud and unstable ground becoming an issue during construction. This could have caused increased soil erosion and surface water run off not considered in the EIA. The project was not completed until 2022 due to changes in construction and operation. This included the addition of a 3Km cable to directly connect the Solar farm to Morriston hospital.

(b) a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used;	This was well set out however, the actual solar panels being used was not stated in the EIA. Use of local work force and local services used where possible. Local accommodation services used by any outside staff.	The panels used during construction should have been the panels used for the calculations in the Glint and Glare assessment to ensure that this was an accurate assessment of the possible effects on the local population and aircraft. The main contractor for the installation of the panels was a local South Wales company.
(c) an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.	Water – surface water run off was identified. Plans state only 2.25% of surfaces will be impermeable and no use of concrete so water can run freely off and away from Solar panels. Where there are impermeable surfaces, pipe culverts will be installed to permit passage of surface water and the plans to establish a diverse grass and sward use it for grazing around the panels to reduce surface water run-off. The flood risk assessment was compiled using Welsh government guidance and the Swansea Council strategic Flood consequences assessment, which showed no record of flooding at the site.	Whilst the plans seem thorough and the construction of the solar panels and associated buildings was considered with a reduction of surface run-off in mind, subsequent information during the construction phase shows that the amount of rainfall that the site experiences was not fully considered - this may have led to increased surface run-off into local watercourses, but there is no evidence that this has been detrimental to the environment. No reference to any noise or air pollution is included in the EIA. Vibration and noise from the pile driving was not included.
2. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.	The consideration of alternatives was limited to the equipment and design used and not siting the project elsewhere. The site was described as ideal for a solar farm project.	The site was chosen due to its low value agricultural land and access to both the National grid and M4 access road. There is also reference to the visual impact being minimal due to the presence of sub stations and pylons in the immediate surroundings as well as existing noise for the M4. Follow pre application consultation 1 field was removed from the plan due to potential adverse visual impact on residents.

		One area of the site is designated SINC due to its Marshy grassland characteristics. This area was planned to be 'recreated' in the mitigation and enhancement plan. Enhancement wasn't required under the 1999 legislation however it was considered in the plans and in the LEMP.
3. A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.	Impacts identified were: Construction phase: Loss and fragmentation of habitat. Disturbance Incidental mortality Degradation/damage by dust Operational phase: Loss of habitat and modification of habitat. An Ecological survey Dormouse survey Bat survey Recognition and consideration of the inclusion and proximity of several important ecological site such as Llety Morfil SINC were mentioned. The solar panels are to be arranged to provide gaps between the structures and hedgerows to "allow space for ecology... to provide for access for on-going maintenance" and to reduce shading of panels. The EIA states that "numerous layouts of the panels have been considered and the final design has been selected to preserve the ecological diversity of the site" the layout of the panels in each field was provided in the EIA.	A full ecological survey was carried out during the winter prior to the environmental statement - this was noted as a sub optimal time to carry out such a survey. The regional records centre was consulted, and priority species and priority habitats considered in this survey. Phase 1 Habitat survey was completed and identified important areas of marshy grassland. Individual hedge assessments were carried out and individual surveys of species such as bats, reptiles, birds, migratory birds and badgers were considered. It was recommended in the survey that a repeat survey was conducted in the summer, and it also stated that should construction work be delayed more than three years the full ecological survey would need to be repeated. The actual construction of the solar fan was delayed significantly for over three years and no further ecological surveys were carried out. Following the granting of planning permission one of the conditions of planning condition 12 stated that dormouse survey should be carried out prior to commencement of works. This was carried out in December 2016 and no evidence of dormice were found. This survey notes that dormice are not active in December, and it would be unlikely for them to find any evidence of dormice so the value of this

	An archaeological survey was carried out by 'Cotswold archaeology'	survey may be brought into question, and it is possible that hibernating dormice could have been disturbed during the construction works. The most important feature of the site is the marshy grassland area which is part of a SINC. There are no plans to enhance this marshy grassland with planting of priority species such as purple moor grass, Devils bit scabious, or other appropriate species. They do note that the SINC is not currently managed for priority species and that this would be part of their LEMP. In the subsequent planting plan there is no reference to enhancing the marshy grassland and this represents a significant loss of habitat. Mitigation is planned elsewhere on the site however subsequently this area proved inappropriate to create marshy grassland most notably during the consultation phase with the public one field was removed from the planning application due to a complaint of visual impact yet the potential loss of a marshy grassland habitat within a designated sink was not considered for removal and the subsequent mitigation was not successful and this represents a permanent loss of habitat. An extensive fence was planned at the perimeter at the site to keep out Deer but there was no mention of the effect this may have on the Deer population as this represented a habitat loss. There was no mention of mitigation of the fence to allow for movement of other mammals such as Hedgehogs, Rabbits, fox and Badgers.
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		The archaeological survey was carried out by a non-local consultation service which may have not been as familiar with the local culture and history as a local archaeological service. No significant findings were reported on site.
4. A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:		
(a) the existence of the development;	A visual impact assessment and comprehensive Zones of Theoretical Visibility (ZTVs) were included.	These reports were shared as part of the public consultation and appear thorough and comprehensive considering all aspects from different areas of the locality. The photographic evidence was taken in the winter to show true visibility. This information led to concerns and subsequent modification of the planning application during the pre-application phase.
(b) the use of natural resources;	The designated improved grassland was used for grazing and was not considered valuable to local agricultural use. The forestry section is used by a local paintballing business which will remain unaffected.	The loss of agricultural land was not considered a significant impact. The plan was to allow sheep grazing to return to the site once construction was completed. There was no reference to the loss of a cattle grazing resource.
(c) the emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant of the forecasting methods used to assess	The environmental statement claimed this would be kept to a minimum.	No detailed consideration of land take for the construction of the permanent transformer buildings was noted in the environmental statement and the impact of such clearance on the ecology. The ES was compiled by an Ecological consultancy using specialist partners (Figure 5). The individual

the effects on the environment.		contributions include details of the methodologies employed.
5. A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.	Mitigation and enhancement were considered throughout the environmental statement. The effect on the local ecology was recognised.	The subsequent land ecological management plan and construction ecological management plan detailed mitigation policies. Areas of mitigation and enhancement e.g., to the hedgerows which were noted as being species poor were included following initial planning permission. Plans to train construction workers in the mitigation of ecological damage was set out. Construction was planned to minimise disruption to nesting birds and hibernating mammals.
6. A non-technical summary of the information provided under paragraphs 1 to 5 of this Part.	This was produced as part of the ES on July 2014.	The non-technical summary was quite vague in relation to mitigation and enhancement of the existing ecology.
7. An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.	The ES was compiled with the use of expert external consultants.	No recognition of the lack of local consultants was noted or the date the sub optimal dates of the ecological surveys
PART II		
1. A description of the development comprising information on the site, design and size of the development.	A full description of the site, the site layout the and the location of hedgerows and trees were all detailed in the environmental statement.	A thorough description and measurements were provided at time of application.

2. A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.	This was included in the ES, but it was not detailed.	As a condition of planning a full CEMP and a LEMP were requested. Mitigation/compensation sites were planned but subsequent surveys of the soil hydrology reduced the area of the rush pasture compensation site. These compensatory sites are difficult to establish and the quality of the biodiversity loss and or gain must be measured for them to be effective. (Maron et al. 2012) The failure to properly assess the compensation site for suitability to replace the lost rush pasture was a weak point in the EIA. The later survey (April 2018) however suggested that the Rush pasture underneath the solar panels would thrive and had increased due to disturbance allowing for a possible biodiversity gain.
3. The data required to identify and assess the main effects which the development is likely to have on the environment.	Expert consultants working used in the compilation of the ES this included visual impact statements and glinting glare assessment as well as full ecological survey using local data.	The visual impact statement was very thorough looking at the impact from various viewpoints and this led to a change in the planning permission application following community consultation. The ecological survey consulted with the local record centre but not with local ecologists.
4. An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.	There was no reference to con siltation of alternative sites in the environmental statement.	There were other sites nearby which are classed as brownfield sites that may have been more suitable and would have resulted in no loss of habitat fragmentation however these areas were classified under the local development plan for residential development and were therefore not available. The site was classed as low value agricultural land as semi improved grassland and was adjacent to existing powerline substations and residential areas. Although consultation was carried out with the nearby Llangyfelach Community Council no

		consultation with the nearby Felindre village appears to have been carried out. Access to the village is past the construction site and increased vehicles, soil erosion and mud on the highway may have adversely affected residents but they were not considered during the pre-application phase.
5. A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.	This was produced as part of the ES on July 2014.	

2.3 Suggested improvements to the EIA

The legislation in place at the time of planning permission, set out information for inclusion in environmental statements under schedule four of the Town & Country planning act 1999. The information to be included is quite vague and repetitive and could allow for the omission of information and the consideration of different types of impact such as noise air and radiation pollution. Part II of the information for inclusion is very broad ranging, and does not focus on priority species, priority habitats, the importance of local biodiversity and priorities with relation to local designated sites. Following the Environment Act (Wales) 2016 the information to be included in the EIA was clearly set out and emphasised the importance of priority species and habitat as shown in figure 1. The most important development in the legislation around planning and the ES was the stipulation of including enhancements of biodiversity as a consequence of any planning permission being granted. In this case study, enhancement was considered, and this is largely due to the environmentally sympathetic nature of the development. The fulfilment of enhancement requirements are required under Welsh Planning Policy edition 11 (Welsh Government, 2021) and should be subject to monitoring by the local planning authority/Ecologists and guidance is available (Welsh Government, 2019). There are case studies of compensation sites that have been more successful than the original existing habitats - for example the compensation site at Gwent levels created to mitigate Biodiversity loss from the development of the Cardiff Bay barrage where Dunlin and Redshank populations increased and were more successful at the compensation site than the original site. (Murata and Feest, 2015)

Although the requirement for an EIA and ES for all schedule 2 developments is mandatory, there is no method of official sanctions and monitoring due to a lack of resources at the local planning authorities. (Snell and Oxford, 2021)

The 2017 legislation does specify that the ES should be assessed by a qualified ecologist or the planning authority should have access to a qualified ecologist to consult on the quality of the completed environmental statement. To fully assess an environmental statement and the potential impacts on ecology and the environment, the environment impact assessment needs to be assessed by a fully qualified and trained ecologist who is able to recognise the potential biodiversity net loss and gain in any development. Currently there is a lack of resources in the majority of county councils in England. (Snell and Oxford, 2021) Overall the environmental statement created for in the case study was a good example of an environmental impact assessment, especially given the less prescriptive legislation in place at the time.

3 Conclusion

3.1 Improvements to legislation

The legislation in place currently in Wales has robust procedures in place to ensure that environmental impacts and biodiversity impacts are considered thoroughly as part of the planning process. The current legislation complements the Environment Act Wales (2016) and the addition of the requirement for enhancement biodiversity is an important step. As shown in the case study referred to in this report, the legislation is now more detailed and includes a requirement for enhancement biodiversity to be provided with specific reference to priority species and habitat and that information is freely available to planners. There is a possibility that the identified lack of resources in the local planning authorities could allow Environmental Statements to be insufficiently assessed for biodiversity enhancements and mitigation to be substandard and not appropriate due to a lack of rigorous assessment. (Snell and Oxford, 2021)

3.2 Conflicts of interest

A vital part of the planning process is the Screening and Scoping stages which are decided by the LPA. There could be a potential conflict of interest within local authorities when deciding if a development requires an EIA even when following the guidelines set out in legislation.

3.3 Compensation, mitigation, and enhancement

The creation of compensation sites is not always adequate to mitigate against the loss of established habitat in particular priority habitat such as the marshy grassland at the case study site has been shown to be ineffective at times and measuring net loss and gain of biodiversity is difficult (Maron et al. 2012). It is also shown in the case study that it is important to legislate that ecological surveys should be relevant and appropriate i.e. carried out at the correct time of year and have an appropriate expiry date. These ecological surveys and land ecological management plans should be scrutinised by an appropriately trained and qualified ecologist and the resources to follow up the implementation of such plans provided to allow the legislation to be most effective. It is also important to note that approved plans may not be carried out in the agreed way and there are often a lack of resources to check this.

3.4 The practicalities of scrutiny.

The size and scope of Environmental Statements are considerable with many documents exceeding 500 pages and available as multiple download files. The non-technical summary is an important document that must be made available to the public. As shown in the case study, this document can be too vague and important information excluded with an element of bias by the authors.

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