Mr Colin Abernethy
Energy Consents Unit
The Scottish Government

25th August 2025

KILMUN COMMUNITY COUNCIL ARGYLL

Formal response to Statkraft's
APPLICATION FOR THE PROPOSED GIANT'S BURN WIND FARM IN THE PLANNING AUTHORITY AREA OF ARGYLL & BUTE COUNCIL.

Ref ECU00005007

In reference to your consultation dated 25 July 2025 requesting comments on the scope of the Environmental Impact Assessment (EIA) for the proposed Giant's Burn Wind Farm we attach an **objection** from Kilmun Community Council.

Kilmun Community Council understand that the ~~P~~roposal will consist of 7 variable pitch (three bladed) wind turbines, 5 with a maximum tip height of up to 200 metres (m) along and 2 with a height of up to 180 m with a battery storage system (BESS). The Proposal will be located on land approximately 1.3km to the north-west of Dunoon and 1.5km south-west of Sandbank in the Argyll & Bute Council area.

In addition, Kilmun Community Council have noted that this proposal is approximately 3.3km southwest from the boundary of Loch Lomond & the Trossachs National Park.

We would also like it to be noted that KILMUN COMMUNITY COUNCIL, as a statutory body, requested an extension to the time given to submit this response as this was sent out to us in the middle of the summer holidays when many of our residents are on holiday, To date we have not received a response to our request and we consider that this is not giving people time to complete the laborious task of preparing a response to this application.

"Appropriate *renewables in appropriate locations"*

In our scoping submission to Energy Consents on 11th June 2024 we stated that Kilmun Community Council held a meeting at the Younger Hall, Kilmun, reorganising their normal meeting, to give our residents an opportunity to discuss their concerns about the proposal from Statkraft to build a wind farm at the Giants Burn on the Cowal Hills.

At the end of the meeting a vote was taken about whether the residents approved or objected to the proposal. Only residents who lived in the catchment area of Kilmun Community Council were entitled to vote. Some residents had indicated they wanted to vote by proxy and a small number were online on zoom

In this community vote to support or object to the location of Giant's Burn Windfarm proposal all residents, in the hall, online and by proxy voted unanimously to object to Statkraft's proposal to build a windfarm at Giant's Burn on the Cowal Hills.

We later received 1 email from a resident who was in support.

Thus, from that point, Kilmun Community Council took the lead from our residents to object to the proposal from by Statkraft to build a wind farm and battery storage facility at Giants Burn

The reasons residents wanted to object to the proposal were as follows:

All points below were made by residents at the meeting. Some residents have a high level of expertise in the areas discussed. The comments can be seen in the transcription of the Kilmun Community Council Meeting of 11th June 2024 which is available on the website of Kilmun Community Council.
https://www.kilmuncc.co.uk

THE ENVIRONMENT AT THE PROPOSED TURBINE LOCATION

WILDLIFE

NEGATIVE VISUAL IMPACT

NOISE / FLICKER

TRANSPORTATION

In addition, since that meeting concerns have been legitimately raised about THE ORIGINAL PLAN BEING EXTENDED.

THE ENVIRONMENT AT THE PROPOSED TURBINE LOCATION

- The area that the windfarm is proposed to be built on is high quality peat (Type A and Type B). This area is on an extensive blanket bog and peatland. Peat is a fragile and complex ecosystem and acts as a crucial carbon sink and hydrological regulator. The level of construction proposed to develop and maintain this site with the construction of turbine bases, access tracks (even those on the surface), and cabling will inevitably lead to the excavation and disturbance of vast quantities of peat.
- Although in Statkraft's EIA submission they refer to peatland restoration. This is a long process and perhaps it would be better not to destroy the peat in the first place. As a local example, the American Base moved from the Holy Loch in 1991-92 and only now, after 30 years, that the loch is recovering from the pollution etc that was created then. From a cost point of view, the Scottish Government has set aside millions of pounds for peatland restoration in the country. KILMUN COMMUNITY COUNCIL are not clear why a developer is potentially going to be allowed to destroy an area of pristine peatland?
- KILMUN COMMUNITY COUNCIL's consultant geologist calculates that for each turbine the foundation will require over 1000 CuM of cement (Pers com Statkraft at public meetings and calculation from Figure 3.3 Chapter 3). The material removed will be set aside and stockpiled (Vol 2 8.7.27). The peat will then start to desiccate, releasing carbon into the atmosphere. In addition, if

the removed material is not stacked carefully then there is a danger of peat destabilisation by solifluction.

- Sources of contamination that may result from this proposed development include:
    - *Concrete and cement leachate.*
    - *Oil, lubricants, fuel, and other chemicals.*
    - *Release of sediment from peat, Alluvium, and bedrock disturbance; and*
    - *Use of cement bound sand.*
- Thus, this proposal would result in this fragile eco system being permanently destroyed for generations to come.
- The soil and root structure of the area would be severely interfered with and will be an issue with concrete and peat-based soil which can kill the sphagnum moss. In addition, attempts to reinstate peat requires a significant time to re-establish and consolidate, meanwhile leaving the area ~~in the~~ severely exposed to erosion.
- As the turbines proposed are to be 200 meters tall this necessitates that the base of the turbine must also cover a wide area, as they must be much bigger at the bottom than the top which results in an increase of the concrete footprint required. In addition, it is not just the turbine base that needs concrete but also for the hardstanding for cranes.
- It is admitted by Statkraft in their plans there will be environmental run off and pollution which would have a negative effect on the rivers as well as a negative impact on the volume of run-off water into a drainage system. This is already over capacity for the volume of water due to forest felling of the proposed site.
- As the Giant's Burn area drains directly into tributaries of the River Eachaig, which then flow straight into the Holy Loch, any pollutants from the heavy rainfall the Cowal area frequently experiences would then be transported into the loch. From research recently undertaken, the head of the Holy Loch is a habitat which is growing in global importance with a developing sea grass area and biota which is of world-wide significance in the recovery of the loch from the pollutants left by the American submarine base which occupied the loch 30 years ago.
- Thus, this proposal would have a negative effect on the growing and developing biodiversity of the area which again would impact on this area for generations in the future.
- Another issue which has been highlighted to KILMUN COMMUNITY COUNCIL, that during the operational phase of this potential windfarm, which is stated to be up to 50 years, microplastic contamination from the erosion of the leading edges of the turbine blades would pollute the surrounding land and water courses which in turn would affect both wildlife and humans. Over time this would potentially increase as the wind turbines structures and plastics age.
- Some elements of wind farm infrastructure such as Pylons, AC transformers gasses and batteries use fluorinated gas which according to the EU has "a very strong warming effect, up to 23,000 times greater than C02. If lithium batteries were to catch fire, given that Dunoon only has a volunteer fire service, considerable pollution could result and there is the potential to create a catastrophic event.

WILDLIFE

Concerns were raised by residents about the effect the wind turbines would have on the wildlife not only on the land on which the windfarm would be built, but also in the wider environment surrounding the construction.

- As the Giant's Burn site has been largely undisturbed by human activity, and is as stated previously, on pristine peatlands, it is recognised to be home to a large variety of birds, insects, amphibians and mammals, many of which are protected and a significant number endangered.
- The proposed area contains marginal habitats (trees to open areas) where birds can shelter in the woodland and hunt in the open. Golden eagles, white-tailed eagles, ospreys, buzzards, barn owls, long-eared owls and other protected raptors have been regularly spotted hunting in the area and surrounds of the proposed site.
- There are red squirrels (and pine martens) in the area which can be easily displaced
- Cetaceans (dolphins, porpoises) and seals (resident) and visiting whales which are in the Clyde Estuary are very susceptible to the kind of sounds that come from a windfarm. A resident said they would not be surprised if the cetaceans were chased away from the whole of the Upper Clyde area by the noise from the windfarm. It is recognised that long wave sound will travel 10 times further under water than if it was on land.
- Infrasound is regarded a potentially detrimental to physical and mental health.

In conclusion, concerns were being raised, not only about the turbines, but the impact of the whole building and construction process.

NEGATIVE VISUAL IMPACT

- Residents at our community meeting in June 2024 observed that this would be the first thing tourists would see when they visit the area, and the first view they would have as they travelled by Western Ferries. The windfarm would have an extremely negative impact of the visual appearance of the landscape from the Loch Lomond and Trossachs National Park which is the Gateway to the Highlands.
- The Cowal area is a holiday destination because of its natural beauty and has many scenic walks. There are several holiday homes and self-catering properties who contribute highly to the local economy and questions were raised by the audience about the detrimental effect the proposed wind farm could have on these businesses and visitors.
- In 2009 when a windfarm was proposed in the same area as the proposed Giants Burn windfarm the reporter turned down the development "***because of its conspicuous position on the spine of a peninsula the wind farm would have unacceptable adverse impacts on visual amenity for places on coasts of the Firth of Clyde, most markedly on Bute and on the eastern side between Gourock and Largs, and on important tourist routes on the coasts and on the waters of the firth***". Has anything changed since then? The residents in the Kilmun Community Council area do not think so and the

effects of a large, tall windfarm on the Cowal hills would still have the same impact as in 2009.

- At the Kilmun Community Council public meeting in June 2024 the audience considered that, as the area proposed by Statkraft is on the border of the Loch Lomond and Trossachs National Park (Kilmun Community Council boundaries fall within the National Park) all the outdoor activities the Cowal area is famous for would be affected. As much of Cowal's tourism is based on walking, hiking, running and biking, it would be affected by, not only the sight of the windfarm, but also what would be involved with the construction and potentially with all of the area being out of bounds for some time.
- *This comment from the 2009 reporter's report still is true in 2025! The wind farm* ***"would also have an unacceptably high risk of causing significant deterrence to tourism, which is of exceptional economic importance to Cowal and the Firth of Clyde islands, contrary to the criterion of 'no significant adverse effect on local communities."*** *The situation has not changed today.*
- It was stated that people have moved here because of the unspoiled natural beauty and residents are unhappy with the possible visual destruction of their landscape by a foreign state-owned company to produce electricity which will be exported, as Scotland already produces enough for its domestic market. In addition, profits generated would not stay in Scotland.
- Most residents were in favour of renewables but depending on their location. As previous windfarm planning applications were rejected then this is **not** a suitable site for the Giant's Burn windfarm, or any other windfarm on the Cowal Hills. The difference before and now is that these proposed turbines would be even higher. It has been stated by the Scottish Government that they want "***Appropriate renewables in appropriate locations***" and the consensus of **our** community is that the **proposed location is not appropriate.**

NOISE / FLICKER

- Many questions were posed regarding potential noise. What will the noise be like? Are we likely to hear the sound over here (in Kilmun) as well as in Sandbank? What will it be like at night as sound travels more at night when the temperatures are colder.
- The problem of low frequency sounds was raised and how this can affect the body and the possibility of infrasound (below human hearing) which could be injurious. This was considered to be an aspect of the windfarm that needs to be investigated.
- Concern is about the flicker effect not only for here but from Gourock looking across. This has been an issue in other areas. It can be affected by certain times of the year when the sun is going down and can be seen from several miles away.
- As the proposed turbines are to be very high there were concerns raised about the flickering lights on the turbines which will shine through the night, and a low booming sound

1. **Noise**

Noise during the construction and decommissioning phases of the windfarm will be extremely disruptive to wildlife – especially badgers, red squirrels, pine martens, otters, bird life and not to mention the nearby residential properties and tourist accommodation. Ongoing noise during the operation of the windfarm is likely to have a detrimental effect on wildlife and the nearest residential properties.

2. Light pollution

The turbines will have red night lights which will cause nighttime pollution in an area where there is no existing light pollution.

TRANSPORTATION AND ROAD DISRUPTION

- Concern was raised by the community about the feasibility of transporting large turbines via the road network available to the proposed location. This concern was emphasised within the EIA statement from the Statkraft which describes the proposed delivery route from Glasgow via A82 and A83, thereafter along the A815 along Loch Eck, passing Benmore Botanic Gardens (within Loch Lomond & Trossachs National Park) to the B836 to the proposed site access point. In reality this route necessitates the traffic to use the busy main route to Oban and Fort William alongside Loch Lomond which is often very busy with tourist traffic but is also a crucial route to the West Highlands. Then this route travels over the hills passing the extremely problematic 'Rest and be Thankful'. Many of our residents consider this suggestion to be ludicrous because of the frequent occasions this route is completely closed, and traffic has to use the Old Military Road. This section of road, apart from being crucial to communication to the Cowal Peninsula is also the main transport link to Inverary and the Kintyre Peninsula. After this the route turns into the Cowal Peninsula past the settlement of Strachur. It then goes alongside Loch Eck, which is a windy, fairly narrow road with many tight corners. In the EIA it states that signs and vegetation may need to be removed but a lot of this road is lined with trees of the endangered temperate rain forest habitat. This in itself is concerning, as Loch Eck is one of the most iconic scenic areas in the country, but we would question whether the extremely long turbine blades would actually be able to manoeuvre round the corners and tight pinch points on this road.
- Thus, we question the feasibility of transporting all the materials, including the blades, to a site that does not have the infrastructure to do that. This proposal will have the effect of adding slow and heavy traffic onto roads which are not wide enough, with the potential to affect tourism and the day-to-day life of the residents of Cowal living along its route. In addition, it also had the potential of also being extremely dangerous as it could seriously affect the emergency services being able to protect the wellbeing of our residents
- One of our residents, when discussing the difficulties of using this route described by Statkraft in their EIA, suggested that Statkraft could change this aspect of their application and raise the possibility of using a sea route and one of the piers around Dunoon. KILMUN COMMUNITY COUNCIL would like a reassurance that if this were to happen then a new application would be made to energy consents by Statkraft so that the residents along the coast e.g., Sandbank, Hunter's Quay, Kirn and Dunoon could evaluate this hypothetical proposition for the impact on their communities

THE ORIGINAL PLAN BEING EXTENDED.

- Residents raised about how often windfarms are being extended after they have been built. At the beginning of 2025 this was realised when KILMUN COMMUNITY COUNCIL received another request from Energy Consents for a further windfarm at Inverchaolain for a further 13 wind turbines also 200ft in height. The double danger is that if one such windfarm gains approval, others could rapidly follow.

KEY REASONS FOR OBJECTION ARE:

- ***Improper site selection and design, with no justification for locating turbines and BESS infrastructure in a sensitive upland area adjacent to residential zones and panoramic viewpoints.***
- ***Excessive landscape and visual harm, including skyline breach and visual domination,***
- ***Failure to protect biodiversity and carbon-rich peatland, with no credible enhancement strategy,***
- ***Incomplete assessment of hydrology, flood risk, and peat disturbance,***
- ***Unresolved and serious public health hazards from noise, shadow flicker, and low-frequency sound.***
- ***High-risk, unregulated BESS component with no fire control or emergency response plan,***
- ***Unfeasible and unsafe transport access, placing public infrastructure and road safety at risk.***

Kilmun Community Council have been fortunate to be able to draw on the extensive knowledge and advice from 2 local experts, Dr. Neil Hammatt (APPENDIX 1) and Gordon Holm BSc FGS (APPENDIX 2) on the environments affected by this application from Statkraft, a Norwegian government backed company.

APPENDIX 1 Objection to the proposal from Dr Neil Hammatt

Formal Objection to the Giants Burn Wind Farm Proposal: A Comprehensive Ecological Assessment

Re: Planning Application for Giants Burn Wind Farm, Developer: Statkraft UK Ltd.

This objection is submitted by Dr. Neil Hammatt, ecologist for the Holy Loch Nature Reserve. It is my professional opinion, informed by extensive on-site research and local observations, that the proposed mitigation is demonstrably inadequate and based on a flawed, outdated understanding of local hydrology and climate risks. This assessment establishes a powerful and unassailable link between the Giant's Burn wind farm and the Holy Loch's protected habitats.

Part 1: A Failure of Due Diligence

The developer, Statkraft UK Ltd., failed to conduct an adequate site-specific assessment of the Holy Loch Nature Reserve and its adjacent habitats. The comments in the Environmental Impact Assessment (EIA) regarding the reserve were cursory and based on incorrect, rudimentary information, rather than a proper on-site inspection or engagement with local experts. This constitutes a severe lapse in professional due diligence and invalidates the core of their risk assessment.

While the developer's assessment correctly identified the site as a Local Nature Reserve (LNR), it critically failed to acknowledge the existence of the **separate but adjacent Nature Conservation Site (NCS)**. This shows a fundamental lack of understanding of the area's recognized ecological importance and the full range of planning policies that protect it.

Part 2: The Source of Unmitigated Risk - Peatland Disturbance

The Giants Burn wind farm is proposed for a site on extensive blanket bog and peatland. Peat is a fragile and complex ecosystem, acting as a crucial carbon sink and hydrological regulator. The developer's Peat Management Plan (PMP) is the source of the flaw, not just the disturbed peat itself.

Project Vulnerability: The construction of turbine bases, access tracks (even those on the surface), and cabling will inevitably lead to the excavation and disturbance of vast quantities of peat.

Failed Mitigation: The PMP's reliance on standard mitigation measures, such as peat reinstatement, is insufficient. Empirical evidence from the region shows that reinstated peat requires a significant period to re-establish and consolidate, leaving it critically exposed to erosion.

Part 3: The Failure of Mitigation in a New Climate Paradigm

The project's environmental assessments fail to account for the new paradigm of extreme weather events that have become a documented reality for this region.

3.1: Climate and Hydrological Forecasts

Met Office Projections: The UK Climate Projections (UKCP18) from the Met Office forecast an increase in the frequency and intensity of heavy rainfall events in Scotland [2]. This means that a storm delivering 150 mm of rainfall in 24 hours, which is sufficient to overwhelm standard drainage systems, is a foreseeable event.

Inadequacy of Design: The proposed mitigation measures, including sedimentation basins, are designed for a predictable, historic hydrological model. They lack the capacity to contain the volume and velocity of water generated by a modern extreme rainfall event.

3.2: Empirical and Real-World Evidence

The theoretical inadequacy of the mitigation is confirmed by documented local events.

> **October 7, 2023, Storm:** The severe rainfall event that impacted the Cowal Peninsula provides irrefutable evidence of the region's vulnerability [4]. This storm led to:
>
> > **Landslides** on the A83 and other artery roads on Cowal, causing significant infrastructure disruption.
> >
> > **Widespread flooding**, which caused severe damage to Strath Eck Holiday Park.
> >
> > A massive influx of sediment into the Loch Eck SSSI, which local reports noted turned the loch's waters "brown," highlighting the scale of land-based erosion.
> >
> > It is highly likely these events were seriously exacerbated by landscape-scale human, (in this case forestry-related) destabilisation of hillsides, similar to that proposed at Giants Burn.
>
> **Local Observation:** Professional observation of a private water supply being contaminated by peat after moderate rainfall and frosty spells provides crucial micro-level evidence, confirming that the peat's stability is compromised under conditions far less severe than those considered in the developer's models. **This underscores the freeze-thaw cycle as an additional and unmitigated risk factor.**

Part 4: The Direct Causal Pathway

The hydrological pathway is a known and direct route for contamination.

Surface Water Route: The Giants Burn area drains directly into tributaries of the River Eachaig, which flows straight into the Holy Loch. Any peat mobilized at the wind farm site would be transported via this pathway.

Scientific Principles: According to Stokes' Law, the settling velocity of fine peat particles (under 20 microns) is extremely slow. This means that even if water were to pool, the finest particles would remain in suspension and be transported all the way to the Holy Loch.

Tidal Amplification: This risk is compounded by spring tides, which would push peat-laden water from the River Eachaig across a wider area of the Holy Loch Nature Reserve, distributing the pollution further into sensitive habitats.

Groundwater Route: Disturbance of the peatland at the Giants Burn site will also alter the hydrological regime, potentially creating new pathways for contaminated water to infiltrate the ground. This water, carrying fine peat particles and dissolved organic carbon, could then reach the Holy Loch separately from known current watercourses. Studies show that peatland disturbance and drainage can create fissures and alter flow paths, providing a direct route for surface contaminants to enter groundwater systems [7].

Part 5: Impact on Protected Ecological Assets

The project poses a direct and unacceptable threat to core, protected ecological assets. This objection is supported by a separate **Biodiversity Assessment Report** for the Holy Loch Nature Reserve. This report, based on a comprehensive ecological study, provides irrefutable evidence of the site's immense and irreplaceable ecological value, demonstrating that the proposed wind farm's impacts are far greater than the developer's cursory assessment suggests.

The following table provides a summary of the species of conservation concern that were documented at the site.

Scientific Name	Common Name	Conservation Status
Lepidoptera		
Coenonympha pamphilus	Small Heath	UK Priority Species
Acronicta rumicis	Knot Grass	UK Priority Species
Acronicta psi	Grey Dagger	UK Priority Species
Xylena vetusta	Red Sword-grass	UK Priority Species
Diptera		
Phaeonia rufiventris	A fly	UK Priority Species
Xylota jakutorum	A hoverfly	UK Priority Species
Agromyza albipennis	A fly	Nationally Scarce
Tipula montium	A crane fly	Nationally Scarce
Xylophagus ater	A fly	UK Red Data Book
Pegoplata infirma	A fly	Data Deficient (DD)

Scientific Name	Common Name	Conservation Status
Paradelia intersecta	A fly	Data Deficient (DD)
Pegomya flavifrons	A fly	Data Deficient (DD)
Aulagromyza orphana	A fly	Data Deficient (DD)
Phytomyza pastinacae/spondylii agg.	A fly	Data Deficient (DD)
Chirosia betuleti	A fly	Data Deficient (DD)
Phaonia subventa	A fly	Data Deficient (DD)
Hymenoptera		
Formica rufa	Red Wood Ant	UK Priority Species (Near Threatened)
Argogorytes mystaceus	Weasel-headed Digger Wasp	Nationally Scarce
Euura pedunculi	Willow Sawfly	Nationally Scarce
Cimbex femoratus	A sawfly	Nationally Scarce
Amblyjoppa proteus	An Ichneumon Wasp	Data Deficient (DD)
Abia candens	A sawfly	Data Deficient (DD)
Stromboceros delicatulus	A sawfly	Data Deficient (DD)
Coleoptera		
Batrisodes adnexus	A Rove Beetle	Nationally Scarce
Carabus granulatus	Gravel Ground Beetle	Nationally Scarce
Gyrinus substriatus	Diving Beetle	Nationally Scarce
Nicrophorus vespilloides	Burying Beetle	Nationally Scarce
Rhagium bifasciatum	Stag Beetle	Nationally Scarce
Deleaster dichrous	A Rove Beetle	Data Deficient (DD)
Lochmaea caprea	A Weevil	Data Deficient (DD)
Hemiptera		
Cicadella viridis	A Leafhopper	Nationally Scarce
Gerris thoracicus	A Pond Skater	Nationally Scarce
Anoecia corni	An Aphid	Data Deficient (DD)
Asciodema obsoleta	A Plant Bug	Data Deficient (DD)
Cyllecoris histrionius	A Plant Bug	Data Deficient (DD)
Eurhadina concinna	A Leafhopper	Data Deficient (DD)
Tuberolachnus salignus	An Aphid	Data Deficient (DD)
Vertebrates		
Numenius arquata	Eurasian Curlew	UK Red List
Gallinago gallinago	Common Snipe	UK Red List
Somateria mollissima	Common Eider	UK Red List
Alauda arvensis	Skylark	UK Red List
Turdus torquatus	Ring Ouzel	UK Red List
Cuculus canorus	Cuckoo	UK Red List

Scientific Name	Common Name	Conservation Status
Larus fuscus	Lesser Black-backed Gull	UK Red List
Sturnus vulgaris	Starling	UK Red List
Passer domesticus	House Sparrow	UK Red List
Turdus philomelos	Song Thrush	UK Red List
Tyto alba	Barn Owl	UK Amber List
Pandion haliaetus	Osprey	UK Amber List
Melanitta nigra	Common Scoter	UK Amber List
Mareca penelope	Eurasian Wigeon	UK Amber List
Fratercula arctica	Atlantic Puffin	UK Red List
Morus bassanus	Northern Gannet	UK Amber List
Tringa totanus	Redshank	UK Amber List
Falco columbarius	Merlin	UK Amber List
Myotis daubentonii	Daubenton's Bat	Data Deficient (DD)
Neomys fodiens	Water Shrew	Data Deficient (DD)
Sciurus vulgaris	Red Squirrel	Near Threatened
Lutra lutra	European Otter	Near Threatened
Martes martes	Pine Marten	Near Threatened

The biodiversity assessment using Molecular Taxonomic Units (MOTUs) for calculation, showed that the saltmarsh ecotone (scrub to saltmarsh) is a biologically rich and highly productive environment, with an exceptionally high **Shannon Diversity Index of 5.34**. It identified **827 unique species (MOTUs)** from **4,077 individuals**. All MOTUs are generated using Sanger Bioscan methodologies at the Wellcome Sanger Centre, UK, and then via Barcode of Life Database (BOLD) algorithms. Original data can be downloaded at the Bioscan Report Card website.

The mixed species woodland ecotone, while having fewer species, demonstrated an **extraordinarily high Pielou's Evenness Index (J') of 0.90**, which indicates a highly stable and balanced ecosystem. The overall findings confirm the site is a thriving, healthy ecosystem whose ecological value is irrefutable and possibly unique.

In total, I predict from facts already gathered, and considering the many groups of animals so far not surveyed (Fungi, Nematoda, Annelida, Platyhelminthes), that the total number of eukaryotic species on the protected sites at the head of the Holy Loch will exceed 3500 with possibly 10% of these yet to be described by science.

A new, DNA-based survey project is being submitted to the Scottish Nature Restoration Fund. This ambitious project aims to assess the site’s exceptional inventory of species against new eDNA metabarcoding technology. The goal is to develop a major biodiversity metric for Scottish policy, a need that NatureScot has recently identified as a key part of the nation’s biodiversity strategy. Any peat deposits in this experimental area would completely degrade the site's utility for this crucial, policy-led purpose involving so many identifiable species.

Threats to Protected Habitats and Species

***Zostera noltii* Seagrass Beds:** This habitat is a legally protected Priority Marine Feature (PMF) under the Marine (Scotland) Act 2010. A deposit of peat would have two fatal effects: smothering the seagrass and increasing water turbidity, which would prevent light from reaching the plants and kill them.

Saltmarsh Ecotone: The Holy Loch Nature Reserve's saltmarsh is also at severe risk. The saltmarsh is a designated Local Nature Reserve (LNR) and a Local Nature Conservation Site (LNCS) and is included on the Scottish Biodiversity List. It is also a habitat of European importance under the Habitats Directive. A peat deposit would cause direct and widespread harm by smothering vegetation, altering the soil's chemistry, and compromising the entire ecosystem's function.

Biodiversity Evidence from Ecological Research: The saltmarsh ecotone is a biologically rich and highly productive environment, as confirmed by a recent biodiversity assessment using data from the Barcode of Life Data System (BOLD). This research, based on Sanger DNA barcoding of a large sample of primarily Diptera and Hymenoptera, identified 827 unique species (MOTU; Molecular Taxonomic Units or species equivalents) from 4,077 individuals in this habitat, resulting in an **exceptionally high Shannon Diversity Index of 5.34**. Crucially, many of these MOTUs cannot be identified and are likely to be **species unknown to science**. The report's findings confirm that this site is a thriving, healthy ecosystem whose ecological value is irrefutable and possibly unique in Scotland. Because no other Scottish coastal site has been so intensively studied using MOTUs, there is no actual evidence to conclude this; Holy Loch is a first in this respect.

Underground Aquifer: The likely freshwater aquifer beneath the saltmarsh (still being investigated) would be a vital and protected hydrological asset. It probably provides a source of freshwater (in addition to rainwater) that mixes with tidal saltwater, influencing the unique balance of the ecotone and supporting the specialized species found there. Contamination from peat particles and dissolved organic carbon from the wind farm site could irreversibly damage the quality of this freshwater source, harming the entire ecosystem that depends on it.

Broader Ecosystem Impact: The impact would not be limited to these habitats. The European eel (*Anguilla anguilla*), listed as Critically Endangered on the IUCN Red List, relies on these healthy aquatic ecosystems for part of its lifecycle. The degradation of these habitats would have a cascading negative effect on all species dependent on them. Eels are seen in the Holy Loch in summer providing definitive evidence of their presence in the Holy Loch catchment.

Part 6: Conclusion and Recommendation

The evidence compiled from official reports, scientific principles, and irrefutable local observations demonstrates that the Giants Burn wind farm's mitigation is fundamentally flawed and inadequate. **This failure is compounded by the developer's documented lack of due diligence in its environmental**

assessment, as it has failed to acknowledge and assess the risks to a site with multiple protective designations. The multiple pathways for contamination, through both surface water and groundwater, pose an unacceptable risk to the protected habitats, species, and the vital freshwater aquifer. To approve this application would be to accept a direct and unmitigated risk to a legally protected ecosystem. It is therefore recommended that this planning application be rejected.

Reference List

On the Giants Burn Wind Farm Proposal: Planning Application for Giants Burn Wind Farm, with associated Environmental Impact Assessment (EIA), Peat Management Plan (PMP), and Hydrology Assessment, as submitted to the relevant planning authority by Statkraft UK Ltd.

On Climate Change Projections: Met Office. (2018). UK Climate Projections (UKCP18). Report from the Met Office Hadley Centre.

On Protected Habitats and Species: Marine (Scotland) Act 2010. Part 5, Section 77 - Marine Protected Areas. The National Archives. NatureScot. (2020). Marine Priority Marine Features in Scotland. NatureScot. International Union for Conservation of Nature (IUCN). The IUCN Red List of Threatened Species: Anguilla anguilla (European Eel). IUCN. Scottish Biodiversity List. (2019). Priority habitats and species in Scotland. Scottish Government. The Freshwater Fish Conservation (Prohibition on Fishing for Eels) (Scotland) Regulations 2008.

On the October 2023 Storm Event: Argyll and Bute Council. (2024). Report on the October 2023 Weather Event. Council Road and Infrastructure Services. News reports from local and national media outlets on flooding and landslides in Argyll and Bute, October 2023. ParksWatchScotland. (2023). Extreme rainfall and land use: more lessons from the flooding and landslips in Cowal and Glen Kinglas.

On Scientific Principles and Best Practice: Stokes' Law as a principle of sedimentology and fluid dynamics. Scottish Environment Protection Agency (SEPA). (2012). Standing Advice for the Water Environment. SEPA.

On Biodiversity Research: (Name/Affiliation). (2025). Biodiversity Assessment Report: Holy Loch Nature Reserve. Barcode of Life Data System (BOLD). (2025). Holy Loch Nature Reserve MOTU Project. Public Data Portal. Data retrieved: August 2025.

On Peatland and Aquifer Hydrology: ResearchGate. (2024). Salt Marsh Hydrogeology: A Review. DOI: 10.3390/w13040543. Frontiers. (2022). Aquifer-Peatland Hydrological Connectivity and Controlling Factors in Boreal Peatlands. DOI: 10.3389/feart.2022.835817.

APPENDIX 2

A Formal Objection from consulting geologist Gordon Holm BSc FGS

This objection is based on the following Factors:

1. Unacceptable degradation of the landscape.
2. The windfarm is located on the only area of Heather/peat bog not forested.
3. The construction of the windfarm will lead to the peat changing from carbon sequestration to a carbon emitter.
4. Increased flood risk as the bog will be draining.
5. Adverse effect on tourism to the Cowal Peninsula.
6. Effects of noise travelling across the water and how this will affect the cetacean population in the Holy Loch and Clyde Estuary:
7. Distracting photomontages of the turbines in the landscape
8. Conclusions

1 Unacceptable degradation of the landscape

In 2009 the reporter rejected an application for a windfarm above Dunoon for following reason regarding the landscape. PPA-130-209

*"1 - "Because of its conspicuous position on the spine of a peninsula the wind farm would have **unacceptable adverse impacts on visual amenity** for places on coasts of the Firth of Clyde, most markedly on Bute and on the eastern side between Gourock and Largs, and on important tourist routes on the coasts and on the waters of the firth". (Summary(S) p 4)"*

*3 "Effects on land and water approaches to the **Kyles of Bute National Scenic Area.** would be contrary to policy STRAT DC8(A)" (S p4)*

6 "Impacts on visual amenity would in sum be so unacceptable that the proposal is not in accord with the relevant policy STRAT RE1 of the ABC Structure Plan, or with Policy LP REN 1" (of the emerging ABC Local Plan) (p 65/ 9.6)."

These conclusions are even more valid today as this windfarm would have 7 turbines, 5 of which would be 200m tall. These would be a blight on the landscape and would be the first thing seen and with flashing red aviation lights, throughout the Clyde Estuary and neighboring areas (Fig. 5.10).

2. The windfarm is located on the only area of Heather/Peat Bog not forested.

This is an area of Blanket Bog with Class 1 and Class 2 Peat, (Vol. 2 Ch. 6) these are (*https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/*). Despite this STATKRAFT states that as the site is surrounded by conifer plantation, it is only **COUNTY SIGNIFICANT** (*Vol. 2 Ch.6 P15*). STATKRAFT have undertaken a survey

of the peat depth in this area and attempted to mitigate the effects by locating turbines on areas where peat is not at its maximum thickness. Even so for each turbine the foundation will require over 1000 CuM of cement (*Pers. Com. STATKRAFT at public meetings and calculation form Figure 3.3 Chapter 3*). The material removed will be set aside and stockpiled (*Vol. 2 - 8.7.27*). The peat will then start to desiccate, releasing carbon into the atmosphere. In addition, if the removed material is not stacked carefully then there is a danger of peat destabilisation by solifluction. At the Viking windfarm on Shetland there was significant landslides of peat after the contact with the peat and the bedrock was lubricated by the changing hydrological regime *(BBC Shetland*). This will result in considerable peat erosion with resultant pollution in the Holy Loch as highlighted by Dr Neil Hammatt. STATKRAFT propose sediment traps (*Vol 2 8.10.3*) to minimise downstream pollution unfortunately these are rarely maintained and in periods of high rainfall are quickly overwhelmed.

The STATKRAFT report recognises that there will be habitat loss because of these works but does not indicate the magnitude of this. The Ornithological Report (*Vol. 2 Ch. 7*) recognises that the boundaries between the conifer forests and the open peatland are perfect for foraging, and this was observed both for birds and bats.

Significant observations of both Golden Eagles and Hen Harriers were made during the ornithological studies prepared for STATKRAFT. The harriers were observed doing mating displays, but no nests were discovered. The Harriers have nested in this area in the past (ARG pers.com). **The presence of the Harriers and the fact that Golden Eagles are recorded as nesting within the site justifies that this application should be rejected.**

3, The construction of the windfarm will lead to the peat changing from carbon sequestration to a carbon emitter.

The importance of peat lands to carbon sequestration has been recognised and the Scottish Government is paying grants to restore these peatlands *https://www.gov.scot/news/record-high-peatland-restoration/*.. "Peat bogs contain twice as much carbon as all the world's trees" *(Secrets in the Peat – BBC*) Typically, this is undertaken by raising the water level, so the peat is no longer oxidising and allows the vegetation to slowly convert to peat. This project would have the opposite effect. Statkraft (*Vol.2 - 8.10.4 states "there are not anticipated to be residual impacts on the peat left in situ*". **This is clearly erroneous as the reduction in the water table will lead to peat desiccation,**

As the peat dries out it no longer acts as a carbon sink but oxidises to generate Carbon Dioxide CO2. It has been reported that drying out peat can release 30 tonnes C02 per hectare (*Secrets in the Peat – BBC*). There has been no attempt in the report to calculate the effect of this, in fact the report indicates the peatland would slowly recover. This is erroneous and misleading. It can be calculated how much CO2 will be emitted by drying of the peat over the tracks alone. The results in 1.75tonnes of per meter of hardcore track. If peat is underlying all the 6.4Km of new tracks (*Figure 2.4*) then a total of 16000tonnes of CO2 will be emitted.

In order to install the turbines a total of 6.4Km of new tracks will be created (Appendix 14.1). These will be floated on the top of the peat but will have gulleys 0.5m deep (Vol.3a – Ch 3- Fig 3.2). This is the very technique which has historically been used to drain peatlands. This area of peatland would drain continuously through the life of the project both by diverting water from rainfall and by Darcy flow from the peat into the drainage channels. The report (Vol.2 - 8.9.14) accepts there will be dewatering with lowering of the water table but does not follow-up with the subsequent drying out of the peat.
"*As the water table depth is increased, greater aeration close to the surface increases decomposition in the unsaturated zone, affecting fundamental changes in the composition and characteristics of the peat profile" (Krause et al., 2021; Tanneberger et al., 2021).*

In the application from STATKRAFT under the heading "Balancing Environmental Considerations and Benefits" it states

"*Section 3.3 addresses peat and carbon rich soils. It highlights that approximately 75% of*
Scotland's peatlands are degraded through drainage, extraction and other actions. It explains that reversing degradation through peatland restoration is central to mitigating and adapting to the linked climate and nature crises.

T**hus, the green benefit of power generated from wind is completely negated by the oxidation of peat with subsequent CO2.**

4. **Increased flood risk as the bog will be draining.**

The Cowal Peninsula is recognised by SEPA as a flood risk area. The area of the peatland currently acts as a sponge absorbing water at times of high rainfall and then slowly releasing it into the Dunoon, Sandbank and Glen Kin catchment areas. When the new tracks, turbine foundation and crane pads are installed the hydrology of this area will be considerably changed.

STATKRAFT states that the tracks will be floated over the peat, this does not stop the expulsion of water. The report (Vol.2- 8.9.14) accepts there will be dewatering with lowering of the water table. The peat can contain up to 50% water and this would be expelled by compaction over the new tracks. STATKRAFT has made no attempt to calculate the volume of water expelled. This is an easy calculation and there will be 5M3 of water expelled per metre of new track. With 6400m of new tracks, we could anticipate expulsion of 45000M^3 of water.

When the tracks with drainage ditches are installed then subsequent rainwater will be released from the hill quicker with the potential for increased flooding downstream into Dunoon and Sandbank.

5. **Adverse effects on tourism to the Cowal Peninsula.**

The Cowal Peninsula is dependent on tourism with little other industry. As a peninsula with access only by ferry or the long way round and sometimes closed '*Rest and be*

Thankful', it is often overlooked. Even the busses bringing tourists from the cruise ships just bypass the peninsula on the way to Inverary Castle. Thus, Cowal has to actively promote itself and various organisation have been working hard at this.

In 2009 the Reporter rejected the Corlarch Windfarm. (PPA-130-209) and a significant treason for this was the adverse effect on tourism and the following are direct quotes:

2 - The wind farm "would also have an ***unacceptably high risk of causing significant deterrence to tourism,*** *which is of exceptional economic importance to Cowal and the Firth of Clyde islands, contrary to the criterion of 'no significant adverse effect on local communities'." (S p4)*

4 "The proposal fails under criteria relating to impacts on communities, scenic quality and general amenity, tourist routes, and the ***prime tourist attraction of scenic quality"****. (S p5)*

5 "Crucial objections are limited to visual impacts and impacts on the exceptionally important contribution of tourism to the local economies of Cowal, Bute, Great Cumbrae and Arran". (p65/ 9.3)

5 "A crucial deficiency in the material in support of the appeal scheme has been of adequate attention to the importance to tourism of ***water traffic****, especially but not only the three ferry routes running between the east side of the Firth of Clyde and Cowal and Bute" (p 65/ 9.5)*

7 Re: Surveys: "There remains an unquantifiable but realistic likelihood that placing a wind farm on such a prominently, widely, and persistently visible ridgeline as Corlarach Hill would, in a highly competitive market, deter from visiting or returning enough potential tourists to have a noticeable effect on the economies of Cowal & Bute" (p 65 / 9.7).

These comments are even more valid today as this windfarm will have blade tips of 200m,

As the owner of a holiday home in Strone looking toward the proposed Giant's Burn Windfarm, many of the guests have commented on what a wonderful view of the hills and how peaceful it is. If this project goes ahead the view will be blighted by 200m wind turbines, flashing red lights and continual low-level noise.

6. **Effects of noise travelling across the water and how this will affect the cetacean population in the Holy Loch and Clyde Estuary:**

Volume 3, Figure 11.2 indicates the modelled sound distribution at 35Db and a windspeed of 11m/sec (25mph) The modelling is based on ETSU-R-97 whilst there is no indication that they have looked at the revised guidelines for Turbine noise based on the draft proposals DESNZ *Draft f04-assessment-and-rating-of-wind-turbine*. ETSU-R-97 has been criticised for underestimating the effect of noise created by wind turbines,

Hanning 2015 states "*A large body of evidence, presented below, demonstrates that human sleep and health are adversely affected at wind turbine noise levels permitted by ETSU. There is particular concern for the health of children exposed to excessive wind turbine noise. The inadequate consideration of excessive amplitude modulation (EAM) is a major factor in the failure of ETSU to protect the human population.*"

The semi radius presented by STATKRAFT in sound modelling cannot be accurate. The forest plantations would act as baffles. The sound would be reflected from the hills to the south and east and transmitted across the water of the Holy Loch. This would be most noticeable at times of low wind speed.

The turbines will produce low frequency and ultra-sound, and this is known to travel considerably further than sound in higher frequencies. This is not discussed in the section on Turbine Noise (Vol 1 10). The lower frequencies will be transmitted through the ground to the water of the Holy Loch and Clyde Estuary. Sound travels faster in rock and water than air and would then be heard by the cetacean population of the local waters. There is a resident population Porpoises and Bottle-nosed Dolphins in this area and there are annual visits of larger cetaceans including Humpback Whales. These creatures are very sensitive to low frequency noise and thus would potentially be deterred and move away from the Clyde Estuary. The EIA has not considered the effect of noise on both terrestrial and marine animals.

The following reference describes the adverse effects of wind turbine noise.

Ref: Excessive Amplitude Modulation, Wind Turbine Noise, Sleep and Health
Author: Reviewers: Dr Christopher D Hanning BSc MRCS.MRCP MB BS. FRCA MD
Honorary Consultant
in Sleep Medicine, University Hospitals of Leicester, 2015

7. Distracting photomontages of the turbines in the landscape

The photomontages have been created to show how these 200m turbines would appear in the landscape (Chapter 5). Unfortunately, these have been designed to minimise the view which would be seen. They are typically in a wide format which makes the turbines look smaller than they are in fact. The human eye does not look on a wide angle but focusses in a point. It is especially drawn to movement and lights. Thus, any person looking at the landscape would be drawn in to the rotation of the turbines and the flashing red lights.

The pictures often show white turbines against a white background. Thius is particularly noticeable in the picture purporting to show the Turbines from Gourock. The turbines are almost invisible in this photomontage yet they would dominate the landscape from this viewpoint.

7 Conclusions

A windfarm on this site was rejected in 2009 (PPA-130-209 and **THIS APPLICATION SHOULD SIMILARLY BE REJECTED.** The reasons for previous rejection have not changed:

1. ***"Unacceptable adverse impacts on visual amenities"***
2. ***"Unacceptably high risk of causing significant deterrence to tourism***
3. *Effects on land and water approaches to the **Kyles of Bute National Scenic Area** would be contrary to policy STRAT DC8(A)" (S p4)*
4. *"The proposal fails under criteria relating to impacts on communities, scenic quality and general amenity, tourist routes, and the **prime tourist attraction of scenic quality"**.*
5. *"Inadequate attention to the importance to tourism of **water traffic** would, in a highly competitive market, deter from visiting or returning enough potential tourists to have a noticeable effect on the economies of Cowal & Bute"*
6. *Visualisations, some of which "fall well short of representing how wind turbines would appear **in reality,** in reasonably clear conditions".*

What has changed since 2009 is that the proposed windfarm would have 200m wind turbines and these would be located on peatland. Due to the height of the wind turbines, they would be visible throughout the Clyde Estuary and particularly from the **Trossachs and Loch Lomond National Park** and the viewpoint down the **Kyles of Bute**. The latter is one of the most iconic views found in Scotland.

Locating this windfarm on an area underlain by Class 1 and Class 2 Peat, changes this area from a carbon sink to a carbon emitter due to the lowering of the water table by drainage along the new hard-core track. Thus, the green credentials of this project are severely compromised.