

SPECIAL ISSUE

Wild Land News

Magazine of the Scottish Wild Land Group

Wind farms gone wild

Is the environmental damage justified?

Wind energy Special Issue

WILD LAND NEWS

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Scottish Wild Land Group

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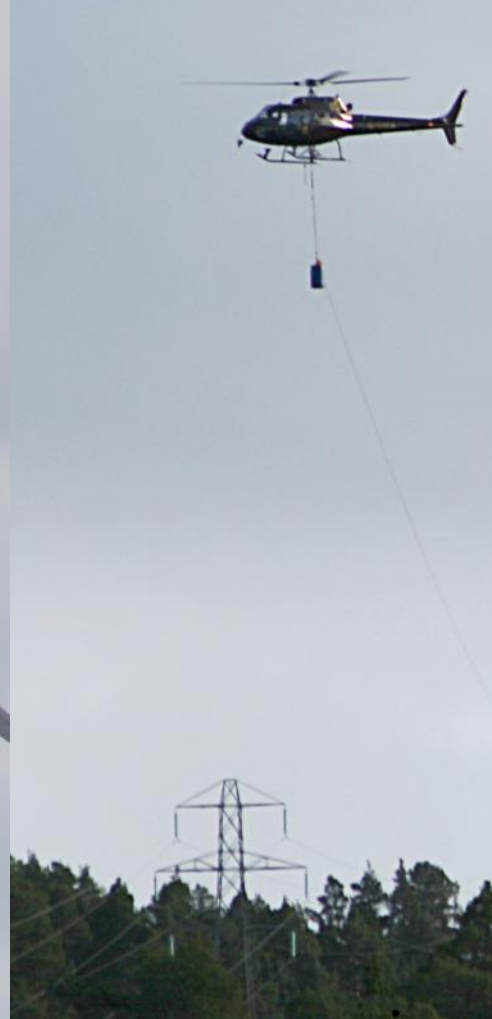
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“the Saudi Arabia of Renewables”

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Editorial

Welcome to this special issue of *Wild Land News*, focusing on wind energy developments in Scotland. The Scottish Wild Land Group has campaigned for the protection of wild land from unjustified development or damage for over 30 years; this has included helping to prevent the use of Knoydart as a Ministry of Defence bombing range, supporting the establishment of National Parks and ecological restoration projects, pushing for planning controls on unregulated hill tracks and, in recent years, opposing the spread of poorly-sited wind farms. The lack of success that we and many other groups and individuals have had in this latter work, and the rapid loss of sensitive environments and landscapes that has occurred as a result, have prompted us to publish this special issue.

We believe that our wild land is uniquely important to Scotland's identity at home and to our reputation abroad. It is a crucial economic, ecological, social and spiritual resource. And so we watch, with alarm, the relentless march of wind turbines across it, with more amassing almost daily, deeply aware that such an incursion is a violation of something of profound importance to us.

This is not a narrow plea for wind farms to be located in areas that we consider 'less wild', however. Almost every aspect of wind energy developments across the UK is the subject of fierce controversy. In considering the justifications for the use of wind power, as the contributors to this magazine do, we have found few that seem genuine and none that is agreed upon. This is not a sound basis on which to pursue policies that affect people's homes and lives, national and international responses to climate change, billions of pounds of public money, rocketing levels of fuel poverty, and the survival of rare species and environments. We are therefore using this special issue to look in detail at some of the issues surrounding wind power developments, many of which are not widely appreciated.

We are frequently told that the problems associated with wind farms are necessary 'collateral damage' as a consequence of our country's essential fight against anthropogenic climate change. While we recognise the urgent need for such a fight, we are not convinced that the tactics being employed are justified or even helpful, making their collateral damage little better than wanton vandalism. Climate change does threaten our wild land and native species but, as Clive Hambler, Sharon Blackie and Ken Brown argue, they face more immediate threats from ineffectual attempts to head it off.

John Constable demonstrates that, while the UK and Scottish Governments are spending vast sums of money on their renewable energy strategies, reductions in CO₂ emissions have been negligible or entirely absent (and recent reports suggest that we are actually *increasing* our carbon emissions by consuming energy-intensive goods produced elsewhere). This is doubly indefensible – not only are we wasting money we can ill-afford, but, as Ken Brown illustrates, we are failing to spend it on meaningful steps to

lower emissions such as reducing energy use and improving efficiency.

It is certainly revealing that the 'achievements' which receive the most emphasis are the number of turbines erected and the percentage of our electricity produced by them, rather than the net volume of CO₂ emission reductions that they are responsible for (another example of the all too common confusion between inputs and outputs by those who have political, financial or ideological interests in failing to distinguish the two). One consequence of this is that it is impossible to judge whether the harm that wind farms cause, relative to other means of power generation, is justified. Jack Ponton, Iain MacLeod and Christine Lovelock all contend here that it is not.

Another consequence of this deliberate opacity is that the public, who pay the huge subsidies for wind farms and many of whom are directly affected by their construction, have no opportunity to take an informed role in debating energy policy. As Frank Hay and Sharon Blackie write, communities are left divided and powerless against the financial interests of multinational corporations and centralised political decisions. This is exacerbated by the arbitrary and deeply undemocratic redistribution of wealth through 'community benefit'.

Helen McDade and Fraser Wallace (formerly) of the John Muir Trust have found that the planning system is also geared against affected individuals and communities, lacking any coherent strategy for rural areas and weighing formal (and expensive) legal arguments over the untrained voices of local people. Even where Public Local Enquiries find in favour of objectors, the government consistently overturns the decision. And so some have sought a fairer system at international levels, using the rights established under the Aarhus Convention to objective environmental information and public participation in environmental decision-making to challenge the imposition of wind farms on an uninformed and largely hostile public. The Government has strongly contested this challenge (and even its consideration), however. Pat Swords and Christine Metcalfe write of their efforts to be heard in this way.

So, what is to be done? Many of our contributors agree that impartial information needs to be made publicly available so that an informed electorate can democratically influence energy policy. In terms of wild land, John Mayhew, Ken Brown and Fraser Wallace agree that statutory protection of Scotland's precious landscapes is long overdue. Time and time again, vested interests have sidestepped existing limitations on their activities, and work ceaselessly for their dilution (a recent example being the attack on Scottish Natural Heritage's wild land mapping programme by the renewable energy industry, and of course Donald Trump's construction of a golf course on an S.S.I., supposedly one of our strongest legal protective designations). The Scottish Government has recently suggested that construction of wind farms may be prevented in National Parks and National Scenic Areas, but this is inadequate by itself (see opposite). If such designations mean anything, it is surely that huge

industrial developments will not occur within them, and the Government's belated acceptance of this principle simply looks like a tactical diversion.

As a result of all of these concerns, the Scottish Wild Land Group believes that the ongoing scramble to construct wind farms in Scotland will:

- Destroy much of our wild land and peatland carbon sinks along with numerous habitats and species;
- Prevent the development of alternative energy sources and investment in energy conservation;
- Impose unacceptable financial demands on those who can little afford them, especially the third of Scottish households already in fuel poverty;
- Divide communities located close to wind farms;
- Distort our resource allocation systems by channelling public money to large energy companies with subsidiaries in tax havens, who arbitrarily pass a tiny fraction on to a few communities;

- Damage Scotland's crucial tourist industry (as suggested by research commissioned by the John Muir Trust);
- Risk our future energy security.

Finally, we fear the potential consequences of allowing those in power to delude the public, and possibly themselves, that the widespread pursuit of wind farming in Scotland will make any meaningful contribution towards combatting climate change, the greatest challenge facing humanity.

In order to partially address these concerns, we call for:

- **A fully independent National Energy Commission to publicly establish the facts about energy generation and carbon emissions;**
- **A robust, statutory wild land designation that respects and preserves the large areas of Scotland with unique environmental and social characteristics, and which is immune to political interference.**

As we went to press, the Scottish Government announced plans to prevent the construction of wind farms in National Parks and National Scenic Areas, and to offer some protection to wild land. The Government has produced three relevant consultation documents simultaneously (on the Scottish Planning Policy and National Planning Framework; see <http://www.scotland.gov.uk/Topics/Built-Environment/planning/NPF3-SPP-Review>). The Scottish Wild Land Group believes that these proposals do not go far enough and offer no meaningful protection or guidance across most of the country (and in fact imply an 'open season' for wind farms outside these isolated areas). Neither do they take account of the issues highlighted in this magazine, which call into question the widespread use of wind energy.

We will respond to all three consultations and urge readers to do likewise. The renewables industry will be lobbying hard to undermine even these inadequate proposals, and a strong response demanding robust protection for all of Scotland's wild land is therefore essential.

Mountains seem to answer an increasing imaginative need in the West. More and more people are discovering a desire for them, and a powerful solace in them. At bottom, mountains, like all wildernesses, challenge our complacent conviction - so easy to lapse into - that the world has been made for humans by humans. Most of us exist for most of the time in worlds which are humanly arranged, themed and controlled. One forgets that there are environments which do not respond to the flick of a switch or the twist of a dial, and which have their own rhythms and orders of existence. Mountains correct this amnesia. By speaking of greater forces than we can possibly invoke, and by confronting us with greater spans of time than we can possibly envisage, mountains refute our excessive trust in the man-made. They pose profound questions about our durability and the importance of our schemes. They induce, I suppose, a modesty in us.

Robert Macfarlane
in *Mountains of the Mind*



Photo:
C Brown

Is wind power a threat to our climate change policy?

John Constable is Director of the Renewable Energy Foundation, an independent UK charity publishing detailed but accessible empirical data on the energy sector (see www.ref.org.uk). Dr Constable is known for his view that current policy targets for renewables are infeasible, unaffordable, and almost certainly counterproductive. In 2011 Civitas published his book *The Green Mirage: Why the low carbon economy may be further off than we think*, and in 2012 he and his co-authors at REF published *Shortfall, Rebound, Backfire: Can we rely on energy efficiency to offset climate change policy costs?*

The United Kingdom's overall climate change policy, like that of the European Union, is largely premised on policies that support the domestic generation of renewable electricity, with a requirement that in 2020 over thirty percent of our demand for electrical energy is met from renewable sources. Those policies are in turn focused on wind-power, which alone seems to offer the scale of deployment needed.

The United Kingdom's Contribution to Mitigating Climate Change

Any consideration of our national climate change policies needs to ground itself in the scale of the United Kingdom's contribution to the problem. In 2010, global emissions of carbon dioxide from the combustion of fossil fuels were, according to International Energy Agency data, about 30 billion tonnes. In the same year, data from the Department for Environment, Food and Rural Affairs (DEFRA) shows that emissions of carbon dioxide from households and the production of goods and services consumed within the United Kingdom amounted to about 500 million tonnes, or approximately 1.7% of the global fossil fuel combustion total. Clearly, the United Kingdom is in itself a small part of the problem, and cannot hope to mitigate climate change by unilateral effort. If we have a role it is to make low carbon energy economically competitive and spontaneously attractive to the developing world, where most of the growth in energy consumption is occurring, not least because these countries are manufacturing goods for our consumption.

However, it has been apparent for some time that the costs of wind-power, on which the UK's policies are dependent, are so high that the technology fails to offer the developing world a viable alternative to coal, and because of this our overall climate change policies lack credibility. Rethinking this position requires governments to admit that little or nothing has been achieved in the last two decades, in spite of vast subsidy expenditure. Such a turnaround will take time, but is inevitable since the prospective costs to consumers imply significant reductions in standards of living and consequently will become politically controversial.

In other words, if our national strategy is not to be a mere gesture, it must ensure that low carbon energy costs fall sharply. Unfortunately, our policies are, in fact, only designed to deploy renewables in arbitrary quantities by arbitrary dates, with the vague and unrealistic hope that these technologies will become cheaper in the process.

Renewable Energy Targets and their Costs

Consider the 2009 European Union Renewables Directive, which requires that 20% of Final Energy Consumption (FEC) in the EU 27, covering electricity, heat, and transport fuel, should come from renewable sources by 2020. The burden sharing agreement entails that the UK must aim

for about 15% of its FEC, rising from the present level of about 3%, which is the largest multiple increase of any major European State. (Interestingly, the government itself has calculated about a quarter of the total cost of the EU Renewables Directive falls on the UK, which hardly seems equitable.)

A little-appreciated point is that the Renewables Directive does not add any additional CO₂ savings over and above those guaranteed by the 2005 EU Emissions Trading Scheme. Indeed, the Directive cuts across the ETS by forcing the markets to substitute emissions abatement by renewable energy for other means that are almost certainly cheaper. In other words, the Directive simply adds cost to our climate policies, not additional emissions savings. This conflict is obviously quite incompatible with the goal of demonstrating economically attractive emissions reductions.

As it happens, the additional costs caused by the Directive are very large indeed, principally because of the role of renewable electricity from wind, and this is particularly true of the United Kingdom's plans. Although the UK government expects that 10% of transport fuels and 12% of heat demand can be met from renewable sources, this leaves a very large burden on the electricity system, and about 120 TWh of electrical energy will have to come from renewables, mostly wind. That is equivalent to more than one third of current electrical energy consumption in the UK, and the growth required to meet the target is dramatic. In 2012 renewables generated about 37 TWh, up from 11 TWh in 2002 (when the Renewables Obligation subsidy mechanism was introduced). Thus, meeting the target requires that we increase the current level by a factor of three in about eight years.

That's a very tall order, but the greatest cause for concern is the subsidy cost of that growth, which we can estimate from current levels. Subsidised renewables have made up the vast majority of the growth so far, going from 7 TWh a year in 2002 to approximately 31 TWh in 2012, and have cost the electricity consumer about £10 billion in subsidy in total over the period. In 2012 the subsidy cost to consumers was about £2 billion a year. This is a great deal for a modest quantity of energy, and implies a very high cost per tonne of CO₂ saved, many times that of the price of carbon in the Emissions Trading Scheme.

Naively we might suppose that the annual cost of the 2020 renewables target would be roughly three times the current level, or about £6 billion, but because many of the cheaper renewable options such as landfill gas have already been developed, we are now moving into the more expensive technologies, particularly offshore wind. Using the Department for Energy and Climate Change's (DECC) predicted renewable fuel mix my colleagues at the Renewable Energy Foundation have calculated that the required subsidies would total about £8 billion a year, with £6 billion being taken by wind-power (£1 billion to onshore and about £5 billion to offshore), and

the rest to biomass. The order of magnitude of these estimates can be confirmed by recalling that the Treasury has set the Levy Control Framework limit on climate change spending at £7.6 billion per annum in 2020, a figure that reflects DECC's view that they can force a reduction in renewables costs, a view that we believe is unduly optimistic. Overall, on our calculations, the subsidy cost to the electricity consumer between 2002 and 2030 would be in the region of £130 billion, the vast bulk of this going to wind-power.

The Economics of Wind Power

The cost estimates we have just reviewed may be puzzling to someone unfamiliar with wind generation and its fundamental properties. Superficially you might think wind power will be cheap, since, as the industry itself likes to say, the wind is free. However, coal and gas are also free in the ground, and their cost comes from the extraction (mining and transport) and conversion (through power stations) and delivery to customers as useable energy. It is essentially no different for wind, but with wind the extraction and conversion costs are concentrated in the cost of the wind turbines and in reliable delivery, and these costs are very high per megawatt hour (MWh) compared to those of fossil fuels. When the capital cost of a wind turbine is combined with the low load factor, of about 27%, the cost per MWh generated is so great that government has had to pass legislation to force the market to pay wind turbine investors income support to provide a viable return on capital. Onshore wind requires a 100% subsidy top-up over and above the market price, and offshore wind a 200% top-up. In other words, subsidy makes up half the annual income of an onshore turbine, and two-thirds of that an offshore turbine.

However, subsidy to investors isn't the only

additional consumer cost caused by wind power; there are the electricity system delivery costs, including additional grid, short term response plant to cope with errors in the wind forecast, and the cost of running an underused conventional fleet equivalent to peak demand (plus a margin) to guarantee security of supply on days when there is little or no wind. These costs are notoriously difficult to analyse, but in work for the Institute of Engineers and Shipbuilders in Scotland (IESIS), Colin Gibson, a former Power Networks Director for National Grid, and one of Britain's most experienced power systems engineers, has provided a range of calculations that allow us to estimate these overall charges. Using his principles we calculate that systems costs would add a further £5 billion a year to the cost of wind in 2020, giving a total of £11 billion a year for what is, even if the target is met, only a minority fraction, less than a third, of our demand for electrical energy.

With costs on this scale the United Kingdom is clearly not offering the developing world a persuasive alternative to coal. Indeed, it is hard to avoid the conclusion that our renewables policy is probably counterproductive in its effects, with the ultimate casualty being the climate change strategy. However, there are grounds for optimism. The failure of the present agenda is steadily becoming more obvious, both to those in government, where the Treasury has woken up to the macro-economic threat, and to the general public, many of whom now realize that they are being asked to make economic and environmental sacrifices that are not only pointless but actually delay more constructive action. We are still some way from turning this disenchantment into a new focus on low emissions energy innovation, perhaps supported by a carbon tax, but rapid progress should become possible once voters make it worthwhile for politicians to admit that the mass deployment of existing and inadequate technologies is simply a dead end.

It is hard to avoid the conclusion that our renewables policy is probably counterproductive in its effects, with the ultimate casualty being the climate change strategy

Sharon Blackie

On windfarms, and the preservation of place

I've recently noticed an interesting phenomenon in the world of environmental communications: whenever I post an article which questions the value of windfarms on the *EarthLines* Magazine Facebook page or on Twitter, I instantly lose followers. If you are associated with the 'green' or environmental movement in any way, it automatically seems to follow that you must be a supporter of all forms of renewable energy, including mega-windfarms, because the alternatives (fossil fuels, nuclear power) are unspeakably pernicious. And if you don't think that windfarms are a good idea, then you can't be a 'proper' environmentalist – in fact, you might even be a closet climate sceptic. This attitude has become even more prevalent since the UK government's decision to encourage fracking; many of those who might have been starting to question whether they really want to live in a country teeming with mega-windfarms seem now to be actively arguing for them in a desperate attempt to offer an alternative to a

form of energy production that is more visibly damaging to the environment. The ensuing debates about which is the least malign way to kill the planet would verge on the comical if there wasn't so much at stake. Because what they're really arguing about is how much of the world we have to destroy, and in whichever ways seem more pleasing to us (because these are almost always aesthetic rather than moral judgments), in order to 'save' it.

The idea that there *is* actually something at stake in building windfarms seems to surprise many people. How can that be, they say, when wind energy is *renewable*? The answer, of course, is that wind may be renewable, but the often-fragile ecosystems associated with the hills and moors colonised by windfarms are not. And we live on a small, overcrowded and over-developed island where few genuinely wild places or refuges for wildlife remain. In addition, a curious blindness seems to prevail about the fact that

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there is nothing remotely 'renewable' about the manufacturing processes, transport mechanisms and installation procedures for such developments. There is an enormous difference between 'low-carbon' and 'green', and it's a difference that seems to escape a great many people.

Anyone who has ever objected to a windfarm proposal in a place where they live and which they love has undoubtedly been subjected to a variety of outraged accusations, of which NIMBYism ('Not In My Back Yard', in the unlikely event that you're unfamiliar with the acronym) seems to be the most prevalent. I find it both odd and depressing that to be called a NIMBY is to be assumed to have been insulted. Because the idea that there's something *wrong* with being a NIMBY illustrates more than anything else the extent to which our western Modernist culture has led us to become dislocated, placeless. Cast adrift, both physically and ethically. How can there be something wrong with defending our 'back yards' from people and corporations who plan to despoil them in the name of unending profit and growth? On the contrary: we absolutely must protect our local places. We must stand up for them. NIMBYs aren't the enemy in the mega-windfarm story, they're among the heroes: the defenders of the land; the protectors of place.

You don't have to look very far, especially in countries like Scotland, to see that many of the places in which windfarms are proposed are precious and unique. They may not have fancy designations – they may not be Sites of Special Scientific Interest, or National Scenic Areas; they don't have to have letters after their name to be valuable to the people who are rooted in them, work in them, live and breathe and die in them. It isn't even necessary that outsiders should agree that those places are *beautiful*. A classic case in this respect is a protest by residents and artists on the Isle of Lewis against plans launched in 2004 to build an enormous 234-turbine windfarm which at the time would have been Europe's largest, involving 140km of new roads and a huge number of overhead pylons to take the electricity off the island. Effectively it would have wiped out most of the unique (but assuredly flat and bleak) moorlands that cover the north of the island. The developers, politicians and other supporters said it wouldn't matter because it wasn't a particularly beautiful or useful landscape, and another acronym, MAMBA – 'Miles And Miles of Bugger-All' – was all too often used to describe it.

In an article for the May 2012 issue of *EarthLines*, internationally renowned designer and artist Alice Starmore described the fight for Lewis' moors. The article contains images from her 'MAMBA' exhibition, in which Alice reclaimed the acronym and named the exhibition 'Miles And Miles Of Beauty Astounding' (see www.mamba.org.uk). Her aim, both in the exhibition and in the article, was to raise awareness of the moor – its unique landscape, flora and wildlife; its preciousness to local people, and its relevance to a local culture and inheritance that would have been wiped out once and for all if the proposed windfarm had gone ahead. On that occasion the protesters won the hard battle and the AMEC proposal was refused by the Scottish Executive, but there are similar

developments about to be built and under serious consideration in other fragile wilderness areas of Lewis.

This notion of *beauty* is an interesting one, because it implies that whether or not there should be an unlimited number of massive windfarms in wild places is a simple matter of weighing our aesthetic response to the 'beauty' of the 'countryside' against the moral response or 'justice' inherent in providing unlimited power for the unlimited number of humans who look set to occupy this planet. 'Beauty versus justice', the simplified story goes, and it can be difficult for people with a social conscience to argue with that. But what we're missing here is the fact that the value of such places to people who live in them goes far beyond mere *beauty*, and we're not even beginning to address the philosophically crucial questions that relate not only to the true value of wild places and of all that is *other* than us, but to our assumption that it is our right to destroy them if we choose.

Where did this assumption come from? That much at least is clear: it came from over two thousand years of rationalist, patently anti-ecological western philosophical thought that designated humans as superior to 'nature', and that led to Francis Bacon's call for us to 'establish and extend the power and dominion of the human race itself over the universe.' It came from the age-old assumption that humans are the only rational (and therefore superior) creatures in the world, and that 'nature' is simply a background upon which we have the right (because of this superiority) to act. It came ultimately from the ongoing and deeply rooted belief that our current way of life is acceptable (even *rational*), even though it is ecocidal. From the assumption that *these choices are for us to make*. That our human-centric moral sense is what must prevail. That 'nature' is an ethics-free zone.

The question Alice Starmore raises in her *EarthLines* article is a crucial one: how did our landscapes become so devalued that we now think it is acceptable to destroy them in the name of our unquenchable thirst for more and more power? How is it that we don't find the pain of losing these places intolerable? Because what we are talking about here is indeed *loss*: a loss of their uniqueness, their solitariness, their strangeness, even. We should be looking at these wild and valuable places not in terms of what we can bear to sacrifice in our incessant search for more power and consumption, but in terms of what we *cannot* bear to sacrifice, and what we should and must give up to preserve these places.

But there's another issue that's relevant to this discussion of windfarms, NIMBYism, and preserving our home places. Let's return briefly to the example of the 2004 proposed AMEC windfarm on the Isle of Lewis. That windfarm, if it had gone ahead (just like many others that are now being built) was to provide electricity for towns and cities *on the mainland* – in southern Scotland, and in England. It seemed perfectly acceptable to those supporting the plan that they should destroy a unique landscape with significant importance to the cultural and natural heritage of an Outer Hebridean island purely for the benefit of cities remote from us. NIMBY that I

Many of the places in which wind farms are proposed are precious and unique. They don't have to have fancy designations to be valuable to the people who are rooted in them, work in them, live and breathe and die in them.

clearly am, you'll have to forgive me if I don't find that acceptable. You want more electricity in Glasgow or London? Then build your mega-windfarms in and around Glasgow or London.

Can't do it, you say? Well then, learn to use less electricity. Turn the damn lights off. I don't much care how it's achieved; if the price of our current excessive level of electricity consumption is the permanent non-renewable loss of the pitifully little that is still wild and natural in this country, then it's too high a price to pay.

Mega-windfarms, you see, aren't ever for local benefit. Yes, as well as a NIMBY I'm an avowed *bioregionalist*. What I believe, and strongly, is

The Moor

*It was like a church to me.
I entered it on soft foot,
Breath held like a cap in the hand.
It was quiet.
What God was there made himself felt,
Not listened to, in clean colours
That brought a moistening of the eye,
In a movement of the wind over grass.

There were no prayers said. But stillness
Of the heart's passions – that was praise
Enough; and the mind's cession
Of its kingdom. I walked on,
Simple and poor, while the air crumbled
And broke on me generously as bread.*

RS Thomas

that communities should provide for themselves, according to what their own region can support. If we're talking about two or three wind turbines in carefully sited locations that will serve local communities while preserving their places, then I'm all for it. But appropriating someone else's land, wiping out unique landscapes and ecosystems in order that faraway consumers can be even more profligate with their power usage, is simply another form of colonisation. And there's nothing much just or beautiful about that.



Photo:
Mealasbhal
S Blackie

Clive Hambler

Where eagles dare – the wind farms gamble

Scotland has the best wild terrestrial habitats in the British Isles, and many of the most important ones for global conservation. I'd argue the Flow Country is the most important habitat in Britain, followed by the Severn Estuary. Yet both these sites are threatened by renewable energy schemes! Whilst wildlife organisations have helped protect the Severn, they are still promoting wind power in the vicinity of the Flow Country - a region that should be considered as a World Heritage Site. To glimpse the scale of the gamble we are taking with our wildlife, take a look at the maps on the Caithness Windfarm Information Forum website. As a teacher, it's disappointing - to say the least - that wild land can be so threatened, even in a country with a good education system.

I used to take regular holidays in Scotland, but dread to think what's been built there now - and what's coming. Not only is the vital - and healthy - feeling of wilderness being eroded, but the potential of Scotland to be even more important globally is dwindling. Despite visionary efforts at habitat and species restoration, existing and former habitats of many species are being splattered with wind turbines, tracks and cables.

A storm of interesting online comments followed my provocative article in *The Spectator* this January, which have highlighted the scale of

environmental misunderstanding about wind farms. I shall try to clarify some of the arguments here.

'Put the numbers of animal deaths in context', cry some: 'buildings and cats kill far more birds than turbines'. If many people believe this risible argument, it's no wonder so many species are declining! I suspect no amount of 'context' will convince those who can't appreciate the differences between an eagle and a sparrow, but here's a try: of course some things kill more birds than turbines - so what, why kill more? And which species of eagle, bustard or crane are these cats and buildings killing...? This pro-wind argument reveals a basic failure to appreciate what can be called 'species quality'. This is not to say any species is intrinsically more important. But some species are more at risk of being driven extinct by people, and some have big ecological effects - and it is those species we must prioritise in conservation. To educate the public of Central America about the value of birds of prey, conservationists have used the slogan 'Protect Predators - They Balance Nature'.

Moreover, we should never be complacent about common species: the passenger pigeon was once amongst the commonest birds on the planet. 'Tipping-points' may be reached, and species spiral to extinction. Many conservationists

Clive Hambler is a Lecturer in Biological and Human Sciences at Hertford College, University of Oxford. For evidence expanding the general arguments here, see his textbook 'Conservation' (2nd edition) and the references within it.

In California, wind farms are now the leading cause of death of radio-tracked golden eagles, and the population may go extinct as more are attracted in to the killing-fields of the turbines.

campaign against buildings and cats in sensitive locations - but in regions like Europe the numbers of these threats is not anticipated to grow so fast as wind turbines. Moreover, dead individuals are habitat for other important species - so the places birds die are relevant, as well as the numbers that die. Similarly, adding wind farms to the threats from poisoning and shooting will hardly improve the prognosis for raptors.

Another variant of the 'context' argument is that other power sources kill more birds than turbines, per unit energy per year. I've seen it claimed that fossil fuels kill more *individuals* per gigawatt-hour than wind power. One such publication (by B. K Sovacool, 2012) profoundly misunderstands a controversial paper on climate change: he makes the common mistake of confusing species being theoretically 'committed to extinction' at some unknown date (possibly thousands of years from now) with them becoming extinct in the next 38 years! Nor does this argument consider species quality - or likely beneficiaries of a warmer world, or the possibility of rescue before extinction.

Another 'context' argument is that climate change will wipe out these species anyway - so we may as well build a wind farm or a barrage to try to save them. Well, I advise you to wade through the red lists of threatened species, for Britain or globally, to see what really threatens most species. Many hundreds of species are known to be threatened with extinction from Britain this century, and most are at risk from the tried and tested processes of habitat loss and pollution. Under the Convention of Biological Diversity we are legally committed to save known threatened species. The natural extinction rate

Drawing:
K Brown



"The Environmental Impact Assessment DID say 0.5 of an eagle a year..."

was low, so 'rewilding' will be required to save many species, through restoring more naturalness in big, old forests and wetlands. Most British species have survived climates notably warmer than the present (and arguably climate change will help many of them). Some people seem to think huge swathes of Britain will go under water, but you can explore this (using the maps on geology.com), and consider the chance that some species will benefit from 'managed retreat'. Losses due to climate change are vastly more speculative than those due to observable current mortality and habitat loss. Raptors in many areas have been recovering (despite conventional power stations and transmission lines) and like many top predators they have wide global distributions and climatic tolerances. I hope that's enough context for now...

Some proponents of wind farms appear not to understand that numerous small projects have cumulative effects. But even single sites can do regional damage. In California, despite years of debate and attempts to reduce the toll, wind farms are now the leading cause of death of radio-tracked golden eagles, and the population may go extinct as more are attracted in to the killing-fields of the turbines. In Norway, one wind farm killed 9 white-tailed eagles in 10 months, decimating the population and probably slowing recovery of others. In Germany, more than 30 white-tailed eagles have been killed this way. The number of disastrous wind farms on the Role of Shame can be expected to rise: we can reasonably expect news of raptor mortality from South Uist, where white-tailed eagles, golden eagles, hen-harriers, red-throated divers and others have been forced into proximity with a wind farm. At Glenmorie, golden eagle casualties are confidently being predicted and accepted by the RSPB. Already, re-introduction efforts for white-tailed eagle in Ireland have suffered deaths related to wind farms. This subsidised slaughter can be assessed against a total population of about 60 pairs of white-tailed eagle, and 450 pairs of golden eagle, and 180 pairs of osprey in Britain.

What about the legality of killing 'protected' species? National and international legislation seem ineffective. It is argued that killing birds in a wind farm is unpredictable, an unfortunate accidental consequence of a lawful operation. I'd say its effects are becoming about as predictable as firing a shotgun off at random in a city. Take a look at the video in the website below to see how predictable you think the impacts are, bearing in mind that wind farms are often sited in the windy sites where eagles and vultures soar. Some dodgy models and data used by wind farm developers explicitly predict eagle deaths, but, amazingly, some conservation groups and government agencies seem comfortable with that - as with the Glenmorie wind farm proposal.

The ecologically dangerous and often misleading concept of 'mitigation' has been warmly embraced by governments and wind developers, despite evidence that protected habitats and species cannot just be moved to more convenient locations as if they were chess pieces. Displaced individuals are often killed by predators, or starve, and presumably suffer in other ways. For 'mitigation' read 'loophole'.

I'm not the only one who finds it disturbing that it took about eight months for the RSPB to issue a press release about a Scottish hen harrier death at the Griffin / Calliachar wind farm, a note which did not even mention the date of a second death. What does this say about prediction of impacts, monitoring, 'mitigation', communication, or transparency? Why did neither the RSPB, nor Scottish Natural Heritage, formally oppose this wind farm? Consider this quote from December 2006 in *Comment* (the news magazine of highland Perthshire), regarding the proposed wind turbines at Griffin / Calliachar: "The objectors' expert ornithologist witness at the Public Inquiry made it abundantly clear to the Reporter that, if these protected birds are in any way harmed by the development, the Scottish Ministers will be legally responsible and could face prosecution." I expect - and hope - that debates are building within generally worthy conservation organisations, and the core mission - to protect wildlife - will prevail. In Spain, SEO/Birdlife (the equivalent organisation to RSPB) appears to have changed its tune after a change in staff.

I am surprised that the typically powerful animal welfare and rights lobbies have not taken more interest in wind turbines. The second hen harrier reportedly took two days to die after its encounter with the Griffin / Calliachar wind development. Did it suffer? Whilst the sudden deaths are well documented, what about the near misses, the injuries? You can see footage of an injured vulture on the video below - if you can bear to watch it. What about suffering and survival after release of rescued birds? The death of the red kite (named 'Tweety Pie') at the Fairburn wind project reportedly saddened the children of Aviemore, who were tracking it. How many bats suffer with damaged lungs?

The ecological impacts of turbines are not confined to the blades themselves. Densities of Scotland's upland bird species can be suppressed half a kilometre from a wind farm. Reducing the notorious variation in energy supply from wind, using huge pumped water schemes, brings problems similar to hydro-power. Indeed, in Wales it appears that the famous pumped-water storage scheme, so often lauded by greens, wiped out a unique type of fish - the local race of the arctic charr! Destruction of peat bogs, ludicrous also from the perspective of carbon balance, is sacrilege against wildlife. Cables, access roads, bunds, erosion and ditches add to the damage - and reduce alleged carbon benefits. Cables are slashing great bustard populations in Spain, and threaten birds with a large turning circle, including geese and whooper swans.

Despite videos, photographs and ample other evidence from around the world, there are still many who deny turbines, cables or other infrastructure are a serious issue for birds. How often does one hear words to the effect that 'birds are not that stupid, and anyway they'll learn or evolve to avoid turbines'. I suspect mortality per turbine will indeed often fall through the life of a wind farm - as the population declines towards zero. Optimists think that animal population sizes won't be affected, believing the dead will rapidly be replaced by competing individuals, leaving the population the same size. This is the same old

folly of believing there are 'surplus yields' in a fish population - surplus individuals will die, so we may as well eat them! Consider what that attitude has done to fisheries, not to mention the other wildlife that used to eat what humans arrogantly dub 'surplus'. If there are so many animals out there, waiting in the wings to occupy a vacant space we create, why do so many species crash or go extinct?

I find even more people deny that populations might be driven to extinction by renewable energy, let alone whole species. Yet look at the perilous status of whooping crane in America, or orange-bellied parrot in Australia - and the frankly wicked threats from biofuels and dams. The global extinctions are coming - and we could have stopped them.

Will the impacts of climate change be so bad that we should sacrifice so much in the short term through these familiar techniques of habitat destruction and direct mortality? If we go on this way we'll never know: we are not monitoring properly and we are destroying habitats fast. As a precaution I argue we should assume both climate change and wind farms are highly problematic, and most dams and bioenergy are disastrous. You can draw your own conclusions about what energy sources are alternatives, and all are problematic - but I'm confident there are more effective and less damaging ways to tackle climate change than unsustainable 'renewables' deployed in the wrong places. I hope wind farms are stopped in their tracks, but I also dearly hope that dams, big and small, barrages, and wood fuel do not replace them - since these sources are at least as bad locally and globally. Concerns about climate change, and about wildlife, need not be in opposition. I argue that to benefit both wildlife and people we should first and foremost conserve energy; we also need nuclear power (with cooling towers), waste-to-energy digesters, and fossil fuels (with carbon-capture).

There is hope. Scotland has some of the most visionary, pro-active conservationists in the world. Witness Glen Affric and the Trees for Life campaign, and the Alladale Wilderness Reserve. These are globally noteworthy successes, opportunities and experiments in rewilding - which should be rolled-out widely. But it's no good rewilding an area only to dissect it with roads and cables, and it's no good rewilding an area on the ground only to chop up one's predators and insectivores in the sky above it. Instead, I'd say 'dewilding' is what's happening to large areas of Scotland - but an informed democracy can prevent that. We should treasure the joys of our existing wild lands, and can extend them by restoring nature in large areas - having kept the turbines out.

For videos, photos and data on bird and bat mortality, see:

<http://www.epaw.org/multimedia.php?lang=es&article=b6>

<http://www.epaw.org/multimedia.php?lang=en&article=b2>

<http://savetheeaglesinternational.org/>

<http://www.nrel.gov/wind/pdfs/26092.pdf>

http://www.goldeneagle.ie/index.php?option=com_k2&view=item&id=554:white-tailed-eagle-killed-in-collision-in-co-kerry&Itemid=132

<http://news.bbc.co.uk/1/hi/world/europe/5108666.stm>

http://www.abcbirds.org/abcprograms/policy/collisions/pdf/wind_rulemaking_petition.pdf

Destruction of peat bogs, ludicrous also from the perspective of carbon balance, is sacrilege against wildlife. Cables, access roads, bunds, erosion and ditches add to the damage—and reduce alleged carbon benefits.

The aesthetic objection to wind farms

Christine Lovelock is a landscape artist living in Devon. The Artists Against Wind Farms website was set up as a platform for artists who are fighting to save landscapes from industrialisation by wind turbines. Artists from around the world have contributed images of their work to the website.

Last December, in the Financial Times, Greg Barker, the Climate Change minister, described wind turbines as “wonderful” and “majestic.” He said that wind farms could be a tourist attraction, adding that he had no aesthetic objection to them. How can he so miss the point? The aesthetic objection to wind farms is not about the appearance of wind turbines themselves, as artifacts, but about the damage they do to priceless landscapes - such as those of Scotland.

In debates about the relative merits of nuclear, coal or gas energy, the comparative beauty of their power stations is never an issue. They all produce vast amounts of reliable energy for a small take-up of land, so that the impact they make on the landscape is limited - sad, but bearable in aesthetic terms when balanced against the benefits they produce. Wind power stations, in contrast, dominate vast areas of countryside and wilderness for smaller and less reliable returns in energy produced.

One wind turbine, on its own, might indeed be a tourist attraction, just like the Angel of the North, but most people would agree that thousands of Angels of the North, marching across our countryside, would amount to overkill. Once you had seen one, that would be enough. The first telegraph poles must have been objects of interest. Perhaps people even came especially to look at them, but, now they are everywhere, no one would suggest visiting Scotland to see its telegraph poles.

Unlike telegraph poles, old-fashioned windmills, or the Angel of the North (20m high), modern wind turbines are so large (up to 150m, or more, tall) that they are completely out of scale with the natural environment. They diminish the hills, and are so big that they confuse the eye, making mountains that once uplifted the soul look shrunken in size. They depress a mountain view that had once been wild and awe-inspiring, reducing the sublime to the ordinary. They are worse than pylons (that come as well, to transport the electricity the turbines produce) because they move. Their restlessly moving blades compel attention so that serenity and peace are lost, and a wilderness becomes an industrial wasteland.

Most importantly of all from an aesthetic viewpoint, is not the question of whether wind turbines are attractive, but of how much the landscape that they obtrude upon matters *in itself, as it is*. In no place is this more true than in the wild places of Scotland. Their mountains are indeed “majestic” and “wonderful.” *They* are the tourist attractions - wind turbines will turn tourists away.

I set up the *artistsagainstawindfarms.com* website in late 2004 because as an artist I felt a duty to speak out on behalf of the landscapes that inspire me. Not long afterwards, the GLARE group of artists from Dumfries and Galloway made contact, and we launched the website in

February 2005 on the slopes of Blackcraig Hill. I will never forget the words of an elderly lady who braved the cold to sketch with us that day. “The hills will never forgive me if I do not fight to save them,” she said.

Mountains inspire artists of all kinds because of their beauty, but we all know that our greatest efforts pale beside these original works of nature. We can only pay homage to them, we can't reproduce them in all their glory. Our works direct the onlooker back towards the original, while wind turbines distract the onlooker from the landscape, saying “Look at me, instead.”

Scotland's wild lands are special, and all the artists who have joined us understand this, even those who have never been to the Highlands or the Shetlands, where artist Paul Bloomer lives, or the Isle of Lewis, where the first artists who contributed to our website lived a simple life as crofters. Why should we care about places that we may only have seen in photographic reproduction? You might as well ask why we care about the paintings that we have never seen, why we would be distressed if we were told that our favourite Renoirs or Monets had been disfigured with graffiti. Wind farm graffiti will be far, far harder to clean from Scotland's mountains than the daubs from the Mark Rothko at the Tate Modern.

Thousands of tons of concrete dug into mountainsides, peat bogs ripped up, golden eagles killed, all of these matter, but from the aesthetic perspective, the greatest tragedy is that the mountains are disfigured and scarred. Unlike factory produced, clone-like wind turbines, every hill and mountain is unique. Many around the world have become sacred places, revered in differing cultures. To those who love them, they have a personality. We grow to love their very shapes, as individual to us as a human face, and their photographs adorn calendars, cards, tourist brochures. They are filmed, painted, the source of inspiration in music and song and poems, both classical and popular. Scotland's hills and mountains, symbols of Scotland to people across the world, matter to all of us, whether artists from the UK or abroad, backpackers climbing the Munros, or people on budget-coach holidays touring Scotland's scenic routes.

As more and more of us live in crowded cities, and buildings and roads encroach upon their surrounding countryside, we need to know that there are places still where we can go that will lift our spirits, that remind us there is something beyond our own small lives. They bring us back into touch with the earth itself. This is why when we vandalise wild places, we harm ourselves as much as we harm them. Perhaps our aesthetic sense is even more important than we realise, as it is the instinct that reminds us we need to live as sensitive partners with our environment, rather than as arrogant masters of the natural world.

The wind power question

Tom Weir told me this story. A public enquiry was held in Fort William to consider a proposal to dam the Nevis Gorge for a hydroelectric scheme. Tom was one of only two people making objections. The first objector was asked if he really wanted to prevent the poor people of Fort William from getting electricity - to which he did not respond well. They tried the same approach with Tom who told them that the damming of the Nevis Gorge was nothing to do with whether or not the inhabitants of Fort William got electricity. He told them that there were plenty of unexploited sites for hydroelectric generation in Scotland. Therefore there was no need, at that time, to build a dam in an area that is one of the great scenic attractions of Scotland. If it really was essential to have more hydroelectricity and if the Nevis Gorge was one of the last suitable places available for development then a dam there might be acceptable. But this was not the case on either count, and therefore the dam should not be built. He later got the support from the National Trust for this stance and planning permission was not allowed. Let us call this the *Tom Weir Principle* - that one should only take action that will degrade the beauty of the Scottish landscape if (a) the development is shown to be necessary and (b) no more suitable alternative location exists.

The fundamental question is: 'What proportion of wind power in the electricity system is appropriate?' Let us call this the *Wind Power Question*.

Some say that the cost of onshore wind energy is slightly higher than for conventional generation methods but that this will reduce due to economies of scale and improvement in design. Others say that, when calculating the cost, it is necessary to take account of 'extra system costs' including allowances for the effect of back-up to keep the system running when the level of wind energy input is low, for balancing the system due to the intermittent nature of the wind and for the additional transmission costs - and that these costs may increase disproportionately with the amount of wind in the system.

Some people assume that, for example, if the contribution of wind power to an electricity system is 15% of the total, then CO₂ emissions will reduce by 15%. Others say that, from a system perspective, the actual reduction must be less than 15% because of the need to operate thermal generators inefficiently to cater for the intermittency of the wind. Some even suggest that a proportion of wind energy input may be reached at which there will be no net reduction in CO₂ emissions and no net contribution to power input.

Neither the Holyrood nor the Westminster Governments have produced reliable answers to the *Wind Power Question* ('reliable' in this context implies that uncertainty about the answer has been reduced to an appropriate level).

Government policy, across Europe, is based on the principle that market forces will deliver

electricity at a lower cost than if the system were planned centrally. But many, if not most, of the issues that need to be taken into account in the development of an electricity system - such as the effect of facilities on the visual quality of the landscape - are related to the 'common good' that competitive arrangements do not address. This is why it is so important that the Government, in developing policy for the electricity system, takes appropriate account of all relevant issues.

My first excursion into (but not on to) the Scottish hills was when, aged 10, we set off on a fishing trip from the Red Stable on the road between Gairloch and Loch Maree. Loch na h-Oidche is in the deep glen between Baosbheinn and Beinn an Eoin. This is the 'night loch' - supposedly good for fishing at night. We stayed overnight at the Poca Buidhe, a cottage at the south east corner of the loch. At that time it was rather derelict but locked. I, being the smallest in the party - that included my father and 2 other men - was required to make entry via a rear window. The men used flies for fishing but I was allowed to use worms and was the only person to catch any trout.

About 15 years ago I again set off from the Red Stable (now painted grey) with my daughter on another memorable excursion. We had intended to make it a 5 day walk to Glenfinnan but blisters forced us to abandon it at Cluanie. We passed the Poca Buidhe and headed towards Coire Dubh Mór between Liathach and Beinn Eighe with Beinn Dearg on our right. Here is an area of boiler plate slabs of Torridonian sandstone with some boulders and very little vegetation. It feels like a primordial landscape. It is a primordial landscape: altered by the last ice age - yes, but by human hand - no. Here, on a good day, as it was for us, time seems to stand still. For me this is Scottish land at its wildest. There is something magic about that area. It might be argued that it is a good place to have wind turbines. It is very isolated; the turbines would be seen by very few people. But what if turbines were built there and it was later proved that they are ineffective in meeting electricity generation requirements?

As someone to whom the quality of the Scottish landscape is deeply important, I find any wind generator to be visually intrusive. However if their efficacy were demonstrated beyond reasonable doubt, I would follow the logic of Tom Weir's principle and accept the need for them.

But available information that seeks to justify government policy for wind energy does not persuade me that a 'beyond reasonable doubt' condition has been achieved. Questions corresponding to the *Wind Power Question* need to be answered for all electricity generation methods. Having more, or less, than an appropriate proportion of any electricity generation method in the system is not in the public interest. We need to demand that appropriate proportions be identified and that steps be taken to ensure that they are delivered.

Iain MacLeod is a long time mountaineer, hill-walker and yachtsman. He is President of the Institute of Engineers and Shipbuilders in Scotland (IESIS), a multidisciplinary professional engineering body. The views expressed in this article are his own but are based on principles developed by the IESIS Energy Strategy Group which he chairs.

The Shetland Viking wind farm

Frank Hay is a recently retired Maths teacher who has spent most of his life in Shetland. He has lived in Aith, Weisdale and Nesting, and now lives in Voe - all of which would be severely impacted by Viking Energy. He has been on the Sustainable Shetland committee since it was formed and is now the vice-chairman.

The Viking Windfarm on Shetland has been controversial ever since it was first mooted. It is somewhat unusual in that it has been driven forward by the local council under the guise of a community windfarm but is actually strongly opposed by a substantial number of islanders. This windfarm was given planning consent by the Scottish Government in April 2012 but this consent is currently under Judicial Review in an action raised by Sustainable Shetland, a group with 800+ members who oppose the windfarm. The decision to approve the windfarm without a Public Local Inquiry into all the issues surrounding it is being called into question.

The story really starts in the 1970s when a unique deal was brokered with the oil industry over the building of the Sullom Voe oil terminal. This deal has proved to be lucrative for islanders and the money which the oil industry has put into the Shetland economy has led to a range of excellent facilities and a high standard of living for many. A fund set up to administer the oil monies, the Shetland Charitable Trust, still has in the region of £200 million in reserve.

The income from oil has now slowed down as oil reserves have become depleted. A group of Shetland Islands Councillors saw involvement in renewable energy as a possible new income source. At an early stage they entered into a partnership agreement with Scottish and Southern Energy and a group of locals who were already involved in a small 5 turbine windfarm, connected to the local 'grid', called Burradale. This led to the formation of the Viking Energy Partnership (VEP).

Having embraced the wind industry the council now had to convince the Shetland public that this was a good idea. Some carefully stage-managed public meetings were held but it was clear that there was significant opposition. The protest group Sustainable Shetland was set up in 2008 and quickly gathered support. The group is entirely funded through the generosity of its members and supporters. There is an ongoing appeal for funds towards the costs of the Judicial Review. A Protected Costs Order has been granted to the group by the court.

To counter opposition to their plans Viking Energy (the Shetland partners in VEP) engaged a PR company and facilitated the setting up of a Windfarm Supporters Group. Thus a divided community quickly became apparent with many letters to the press and social media both pro and anti-windfarm. The supporters include many who stand to benefit financially if the windfarm comes, together with some who see it as part of the renewable green dream. Understandably, strongest opposition is centered in villages in close proximity to the proposed windfarm site.

The involvement of Shetland Islands Council (SIC) as developers led to accusations of conflicts of interest when planning decisions had to be made. In an attempt to avoid this, the council's share was transferred to Shetland Charitable Trust, whose trustees were the 22 councillors and 2

others. Since the council and the charitable trust were virtually the same group of people, conflicts of interest accusations continued. On the insistence of the Office of the Scottish Charity Regulator (OSCR) the makeup of the charitable trust has now, belatedly, been changed so that there is a minority of councillors as trustees. Before the change councillors acting as trustees had already approved committing more than £10 million to the project from the charitable trust.

Without having held a referendum to gauge public opinion it is not possible to state exactly how many people are for or against. What we can say is that the Energy Consents Unit received 2772 individual objections and only 1109 letters in support. A Sustainable Shetland petition to the council against the development gathered 3474 signatures and public consultation meetings in Brae, Aith, Dunrossness and Lerwick found on average that 75% of attendees opposed the project.

Nonetheless councillors (some having declared a conflict of interest and withdrawn from the debate or refused to vote), voted in December 2010, against the recommendation of its planning officers that the windfarm was contrary to the Local Development Plan, to approve the windfarm, in favour of the assumed economic benefits it would bring to Shetland.

The key to large scale renewable developments on Shetland is obtaining an interconnector to mainland Scotland. To be economically viable it has to be about 600 MW capacity and this would need to be used to its maximum potential. The cost of such an interconnector will be high, currently possibly as high as £1 billion since the Western Isles one is now quoted at £700+million. 600 MW is of course far more than Shetland needs for its own use so earning income from exporting surplus energy is the main objective. With wave and tidal renewables very much in their infancy, wind power has an advantage.

When Viking Energy produced its first plans 192 turbines were envisaged to use up the capacity on the possible interconnector. Due to pressure from various agencies the number of turbines has been reduced to 103 in the consented version of the plans, still a very large windfarm, especially in the Shetland context. The reduction in turbine numbers has led to other developers rushing to lodge plans for smaller windfarms in other parts of Shetland to use up spare capacity on the interconnector. Meanwhile the council still has no policy on windfarms of over 20MW capacity, a requirement under Scottish planning policy, which has apparently been ignored at both local and national government level.

This scale of development on a relatively small island group sits uneasily with Shetland's reputation as a tourist destination with unspoiled land and seascapes. Shetland came 3rd equal in a National Geographic Traveller magazine rating of islands to visit worldwide (2007). The magazine commends Shetlanders for their "extremely high integrity in all aspects of heritage and ecology

despite North Sea oil development. Great planning controls and attitude". The windfarm supporters have been quick to dismiss possible negative effects on tourism.

Each of the proposed turbines is 145m high to blade tip and much of the construction site is deep peat. The wisdom of building windfarms on deep peat has been called into question nationally. Most of the hills in the area are about 250-300 metres high and many turbines are proposed to be constructed on tops of ridges. In the opinion of many (including SNH and SIC planning officers) this would mean a windfarm out of proportion to the landscape. Also around 70 turbines would be within 2 km of homes, contrary to the (all too often ignored) Scottish Government recommendation.

Beyond numbers and statistics, there are very real concerns about the impact the project may have on the health, mental wellbeing and daily lives of those who live near – or even in - the windfarm site. Although the community was assured by Viking Energy that a Health Impact

Assessment would be carried out, this was abandoned, and is only now being considered, not by the developer itself, but by Shetland Charitable Trust.

The possible effects on wildlife and the environment in the area, especially bird life, has been the subject of close scrutiny. SEPA, SNH, John Muir Trust and RSPB were all high profile objectors to the plans. Negotiations were conducted with SEPA and SNH in an attempt to address the objections. SEPA subsequently withdrew its objection subject to conditions. SNH and the others maintained their objections. Other objectors included the Mountaineering Council of Scotland, Shetland Amenity Trust and Shetland Bird Club.

The outcome of the Judicial Review will be awaited with great interest locally in a community divided by a so-called community windfarm plan that is causing grave concerns for a large section of the community.

Photos, right:

Lamba Water (top) and hills above Catfirth (bottom). The loch and the house in these photographs will both be dominated by turbines.

M Hay



Photo, below:

Ramnahol Waterfall, on the Burn of Lunklet, is a popular visitor attraction. Would it remain so were the source of the burn, the Loch of Lunklet, be surrounded by wind turbines, the intention of Viking Energy? Ramnahol is a Site of Special Scientific Interest.

M Hay

*This darksome burn, horseback brown,
His rollrock highroad roaring down,
In coop and in comb the fleece of his foam
Flutes and low to the lake falls home.*

*A windpuff-bonnet of fawn-fróth
Turns and twindles over the broth
Of a pool so pitchblack, féll-frówning,
It rounds and rounds Despair to drowning.*

*Degged with dew, dappled with dew
Are the groins of the braes that the brook
treads through,
Wiry heathpacks, fitches of fern,
And the beadbonny ash that sits over the burn.*

*What would the world be, once bereft
Of wet and of wilderness? Let them be left,
O let them be left, wildness and wet;
Long live the weeds and the wilderness yet.*

'Inversnaid'
Gerard Manley Hopkins



On-shore Windfarms in Scotland (August 2012)

Key to footprints:

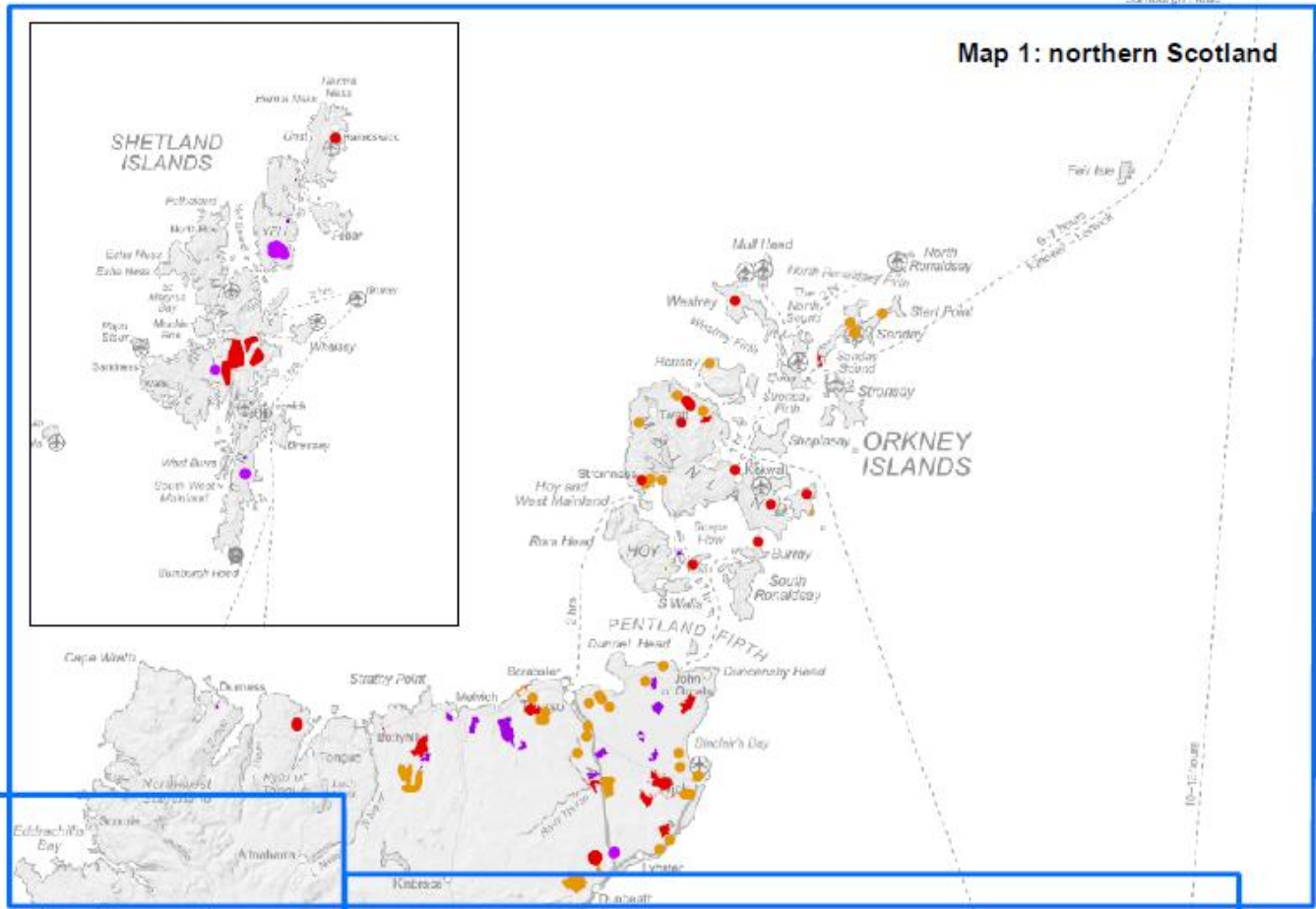
- Installed or Approved
- Scoping
- Application

Note: this is not necessarily a comprehensive dataset of all wind farm schemes in the public domain and there may be some errors in the information supplied on this map.

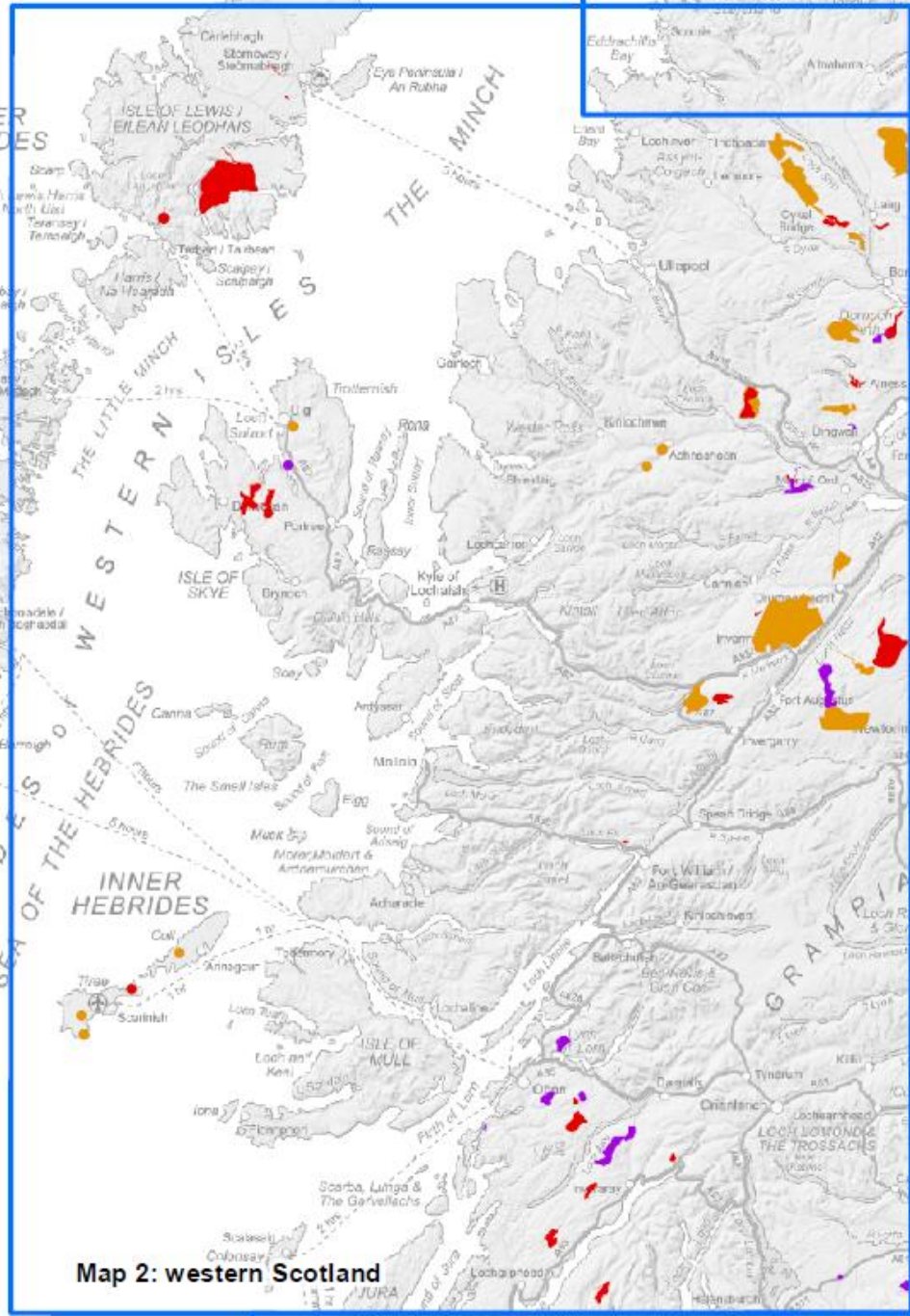
 Scottish Natural Heritage
Dutchies Nàdarra h-Alba

Produced by Geographic Information Group, SNH Job id 50337
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Ordnance Survey Licence number SNH 100017908.

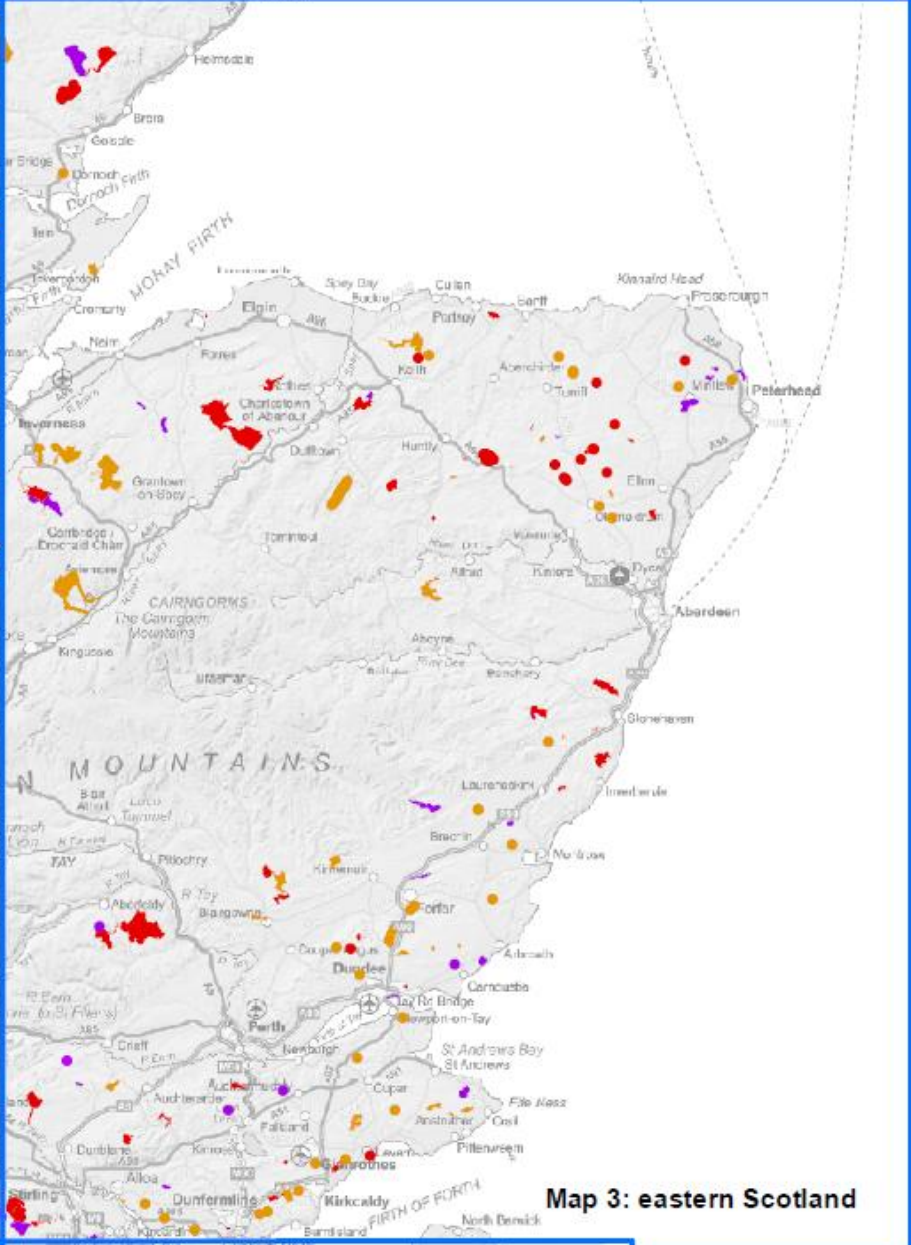
Map 1: northern Scotland



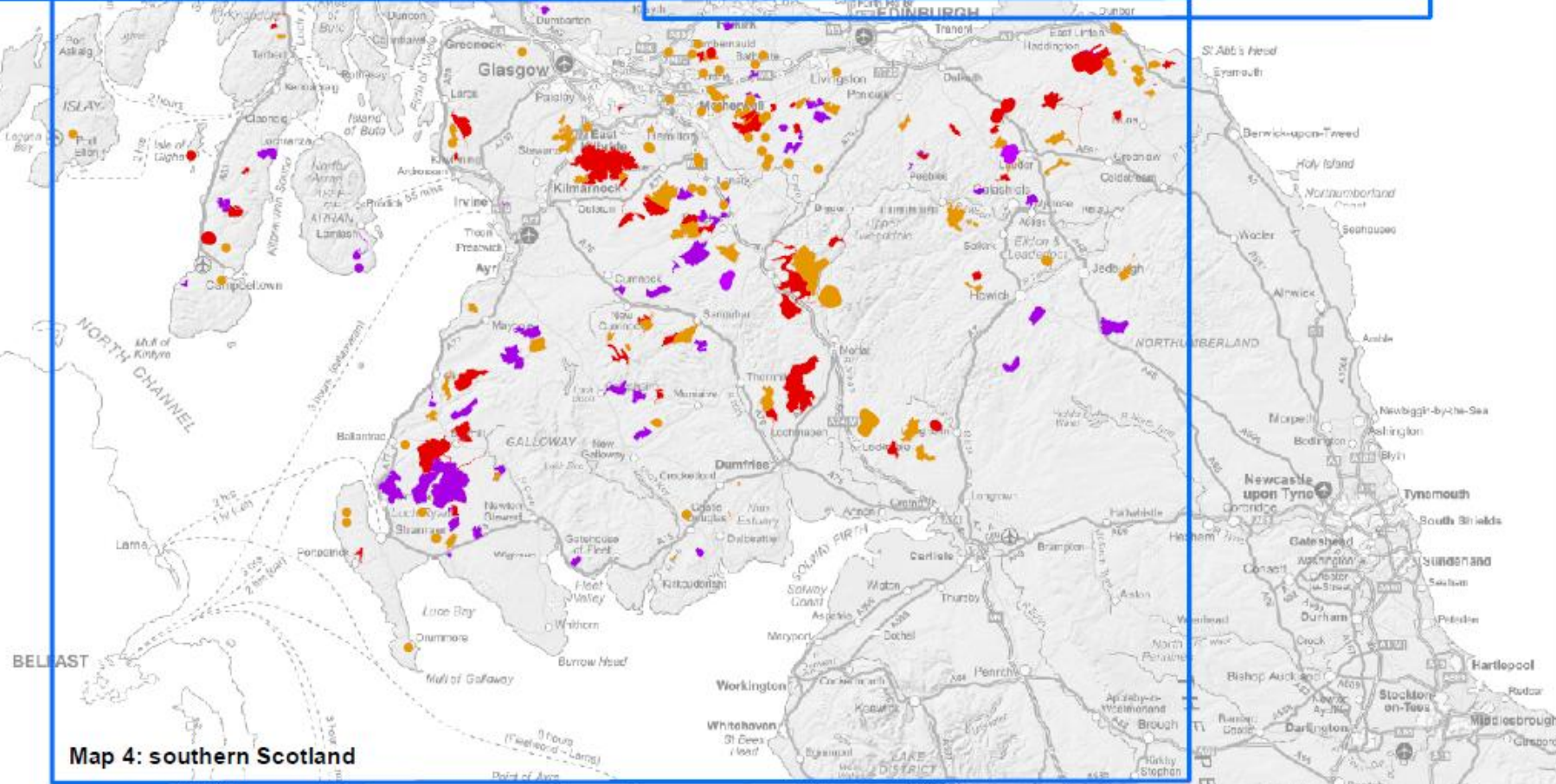
Map 2: western Scotland



Map 3: eastern Scotland

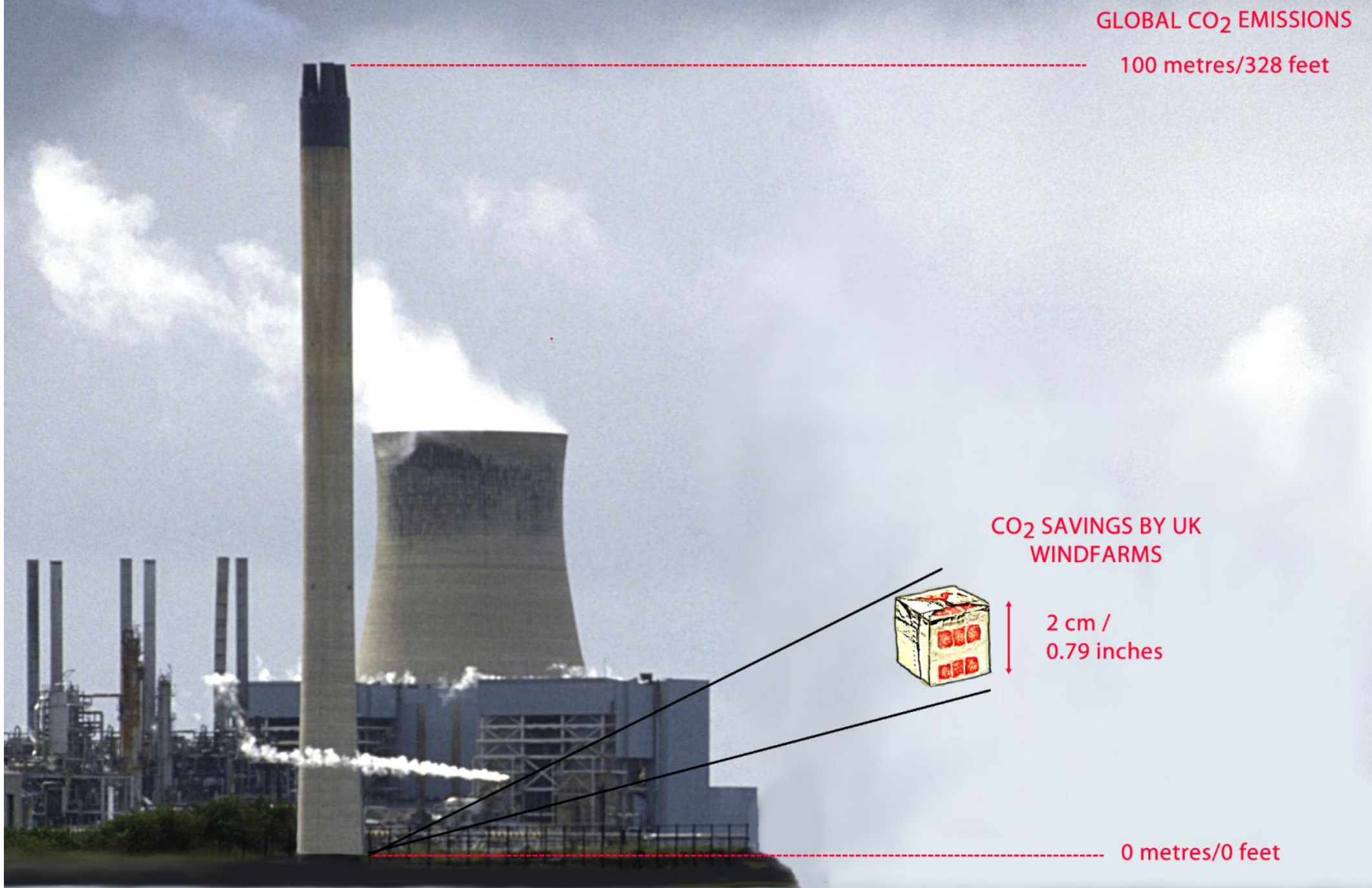


Map 4: southern Scotland



Map of wind farms in Scotland, August 2012. Reproduced by permission of SNH

Annual global Carbon Dioxide (CO₂) emissions (2012) v. CO₂ savings by all UK windfarms



Estimate for carbon dioxide savings due to ALL windfarms in Britain (2012) by Scottish Renewables = 10.9 million tonnes for 18 months, or 7.3 million tonnes for one year.

Global carbon dioxide emissions in 2012 (*Nature Climate Change*) = 35,600,000,000 (35.6 billion) tonnes.

Carbon dioxide saving by all UK windfarms, estimated by Scottish Renewables/National Grid is 1/5000th of global emissions: 2cm on this scale, i.e. equivalent to a stock cube.

The threat to rural Scotland from wind turbines

Jack Ponton is an emertitus professor of engineering and a fellow of the Royal Academy of Engineering. His research work has covered a wide variety of topics based on advanced mathematical modelling, including renewable and alternative energy and environmental health and safety. He lives in the Borders and currently chairs a group campaigning to protect Lauderdale from further damaging wind turbine development.

I am pleased to have the opportunity to write this article for Wild Land News. However I should warn readers in advance that I may say things with which some will disagree, and that I will criticise one of the Scottish Wild Land Group's stated policies.

Firstly, my own background. I am a chemical engineer but my work in universities and industry has involved collaboration with all other branches of engineering. One of my, admittedly minor, research interests has been alternative and renewable energy technologies. These have included wave power, biofuels, hydrogen and carbon capture. Until recently I have not concerned myself with wind power. The reason for this is of relevance. When I first became interested in this subject nearly forty years ago, a colleague and I did some simple arithmetic on the efficiency of wind power. We concluded that, to get significant amounts of energy one would have to cover most of Scotland with turbines. We assumed that no one would consider doing anything so stupid.

Let me repeat these calculations in the light of our knowledge of modern turbines and the SNP's "ambitious" renewables targets. There were, as of autumn 2012, about 1400 wind turbines operational in Scotland. According to the Scottish government, in 2011 they produced about 20% of Scotland's electricity. Hydro produced a similar amount. Since in practice there is little scope for further hydro generation, to produce the fabled "100% of Scotland's electricity from renewables by 2020" will require about four times the current number of turbines, i.e. 5,600. Large turbines have to be spaced 400-600m apart which means that you can only get four turbines per square kilometre. So we are looking at around 1,400 square kilometres covered in 450' turbines. The combined area of Edinburgh and greater Glasgow is 627 square kilometres. Despite much hype for offshore wind power, this is still an undeveloped technology and is unlikely to make much of a contribution by 2020.

I find it hard to believe that these simple calculations can have been carried out by the SNP government. I cannot believe that even Mr Salmond would have contemplated industrialising more than twice the area of Scotland's two largest cities. If this came to pass, it is hard to see how much of our wild lands could escape the impact.

I love Scotland's wilder countryside and have been an enthusiastic hill walker, although now, in my seventieth year, I indulge in less strenuous cycling in the rolling Borders country. However, I may upset some of you by saying that it is not the impact on our wild lands that most concerns me. I am more worried about the impact on people.

In an appropriate setting, I, and others, find turbines at a distance visually unobjectionable. Some people even find them impressive. However, I have never met anyone living with large turbines 800-1,500m away from their windows who finds the effect other than overpowering and oppressive.

Visual impact is the least of it. Wind power is not a benign technology. Big turbines are hideously noisy, generating noise levels comparable to a jet liner on take-off. Even so-called domestic turbines can make as much noise as an unsilenced pneumatic drill. Anyone forced to live less than 1000m from a large turbine will regularly find the noise interrupting their sleep and making outdoor activities unbearable. The noise of a wind power complex can be heard more than 3km away and under certain weather conditions can be disturbing at that distance.

People forced to live near large turbines have had their lives destroyed by the noise.

Thanks to Mr Salmond's enthusiasm for turbines (he recently claimed that tourists will come here just to see them) Scotland's countryside is carrying the main burden of the UK's wind energy programme. In England there is one wind turbine per 20,000 people. In Scotland there is one per 3,750. If you live, as I do, in the Scottish Borders, there is one turbine for every 440 people. Lauderdale, the valley that runs from the south side of Soutra Hill down to the Tweed at Leaderfoot viaduct, currently contains 43 operational turbines and has a population of about 2,500, so there is currently one turbine for every 60 of us. This is what I find so offensive. A small section of the population is being forced to carry the burden of the policies of politicians, most of whom live in cities and will never see, let alone hear, a turbine.

Finally, we really have to ask the basic question, why are we doing this? I notice from the Scottish Wild Land Group's website that the Group "supports renewable energy". I would urge you all to ask yourselves why you believe this to be a good policy.

You probably believe that renewable energy is a) going to reduce carbon dioxide emissions and thus b) mitigate climate change. Without getting into the argument about whether climate change is happening or whether it is being caused by manmade CO₂ (personally I believe the answers to be "yes" and "yes" although the case is by no means clear) it is sensible to ask whether UK renewable energy policy is actually going to have any effect. And I'm afraid that the answer to that is a clear "no".

Firstly, have renewables significantly reduced emissions from countries where they have already been deployed? The European country with the largest amount of renewable power generation is Germany. Between 1990 when the EU started collating statistics and 1999, Germany's annual CO₂ emissions due to power generation fell from 336 to 296 million tonnes (Mte). However, this was before the major deployment of renewables, whose contribution to generation rose from about 3% to 5% of the total supply, mostly in the form of hydro power, which is the one form of renewable energy that does unarguably reduce emissions. However, emissions then rose again reaching 346Mte, i.e. above the 1990 level, in 2007, when wind generation had increased nearly eightfold.

The reason that wind generation in particular does not automatically reduce emissions lies in its intermittent or stop-go nature. When the wind drops or stops, the turbines stop generating. However, people cannot just stop using electricity, particularly as low wind periods often occur during the coldest days of winter. So controllable forms of generation have to take over. There is only one type of generation that can literally be turned on and off like a tap and that is hydro. Norway, with a smaller population than Scotland, has the capacity to produce about three times Scotland's electricity consumption from hydro. We have the capacity to produce only about 20% of ours, and no prospect of increasing this significantly. Instead we have to use gas fired power stations, the next most flexible, for backup. Even these cannot just be switched on and so must be kept running continuously at low output and very low efficiency, and so produce a significant amount of CO₂.

The solution to this problem would be large scale energy storage. The only method currently available for this is pumped storage which requires two freshwater lochs at significantly different levels. We have one substantial scheme in Scotland, at Cruachan, and no opportunity for any others on the same scale.

Secondly, suppose we could solve this problem and somehow supply all of the UK's energy requirements – electricity, heating, transport, manufacturing – from renewables, totally eliminating the country's 500Mte of so of annual emissions. How would this affect global emissions and impact on probable climate change?

We'd have covered the country with turbines, filled all our high level lochs with sea water to create pumped storage. Parks and gardens would be yellow with oil seed rape for biodiesel. Naturally every roof would be covered with solar panels and we've still have had to build about a dozen nuclear power stations. And the rest of the world would never notice, because our 500Mte total annual emissions represent only six months of China's 1000Mte annual increase.

The problem with renewables is that they just won't work in Britain. This country is too cold for

biofuels; in the tropics they can get three crops a year of sugarcane. Too cloudy for solar; Germany's solar panels, for which electricity consumers pay about 10 billion euros a year in subsidies, operate at only 9% of their rated capacity. And we are too crowded, as I have shown, for wind. The fundamental problem with *all* renewable energy technologies is how much space they take up. Only a country like Norway, with a rather smaller population than Scotland but with more than five times the land area, much of it mountainous, can have enough hydro power, the only reliable and generally benign renewable technology, to supply itself and indeed to export at a profit.

There are places where renewables can be appropriate. In sunny countries solar is a sensible technology. If solar panels become cheap enough they could even be sensible in Europe, but at present the subsidies which are being paid for them are ridiculous. There are plenty of uninhabited windy areas in the US, Canada and Australia where wind turbines would upset no one. It is quite disgraceful that in these countries turbines are also being put right next to habitation to save the developers the cost of running longer power lines.

In summary, the EU, UK and, especially Scottish government renewables policies are a pointless fraud which will neither alleviate climate change nor provide energy security. I have not gone in to how much they are costing consumers, but they are at best an economic nonsense and for Scotland a potential economic disaster. Nor have I talked about how they poison communities, pitting landowners who expect to collect large sums in rent – the Duke of Roxburghe is rumoured to be receiving £2.2M a year from Fallago Rig in the Lammermuirs – against other residents whose once quiet surroundings are devastated by turbine noise and who see the value of their homes diminished or even destroyed.

A final comment. The public have been led to believe that so-called “renewable” energy is user friendly and consumes no resources. Anyone who has been forced to live near a turbine will confirm that the first is a straightforward lie. The second is also untrue; wind turbines consume two irreplaceable resources – land and peoples' lives.

Nearly forty years ago, a colleague and I did some simple arithmetic on the efficiency of wind power. We concluded that, to get significant amounts of energy, one would have to cover most of Scotland with turbines. We assumed that no one would consider doing anything so stupid.

Helen McDade

Are Public Local Inquiries fair, democratic and delivering the right result?

Why the John Muir Trust has attended planning Public Local Inquiries (PLIs)

The John Muir Trust exists to protect and enhance wild land. In the absence of government information on the loss of wild land in the last few years, a proxy figure that can be used to assess the extent of wild land loss is the Scottish Natural Heritage (SNH) N3 “Visual Indicator” figure which shows that in 2002, there was “no visual influence from built development” in 41% of Scotland. By the end of 2009, the figure had dropped to 28% and SNH stated that that decline was mostly due to the visual impact

of energy developments. At the time of writing this (Feb 2013), the Trust has a Freedom of Information request in to try and get an updated figure (which was due in the summer of 2012). We expect another severe decline in Scotland's natural landscape.

It is in the context of this catastrophic impact from energy developments that the Trust has objected to about twenty-four energy developments in key wild land areas and been a key objector at four Public Local Inquiry (PLIs). So do PLIs do the job they were designed to do?



Helen McDade is Head of Policy for the John Muir Trust. She is responsible for the Trust's public affairs advocacy, which focuses on strategic public policy issues that impact on the Trust's aims of increased protection and enhancement of wild land and increased public awareness of wild land's value. She also heads up the Trust's Wild Land Campaign for better statutory protection for wild land throughout the UK and, due to the rapid increase of proposed energy developments which would impact on wild areas, a National Energy Commission to bring forward a National Energy Strategy (covering both UK and devolved energy production and consumption).

What happened?

The results of the first two of those Inquiries at which the Trust was an active objector (the Beaulieu Denny 220kV transmission line and the Calliachar wind development, Highland Perthshire) were Reports recommending Scottish Government approval, which was granted. In the case of the third Inquiry - a major south Lewis wind development in one of the UK's wildest areas, Muaitheabhal in Eisein - despite a Report recommending against the proposal which had been considered at Inquiry, an altered development was given approval by the Scottish Government without further public input. These decisions led the Trust to conclude that PLIs were not delivering reasonable decisions on energy and, indeed, even if the Reporter decides such evidence is admissible, PLIs are not the place for a lot of the strategic technical, economic and global environmental arguments which should be considered.

Our experience led the Trust to start a Wild Land campaign seeking strategic solutions through policy change, by advocating a Wild Land designation in Scotland, strategic energy policy change, and a National Energy Strategy at both UK and Scottish level. The Trust is a UK-wide organisation but does not currently have enough staff resources to respond at individual application level to address similar Welsh landscape impacts. It is notable, though, that Scotland and Wales face a different level of impact from England. Recently, the fourth largest wind development onshore in England was approved - Heckington Fen in Lincolnshire - with 22 industrial-scale turbines.

Highland Council will have considered six developments bigger than this between February and June this year. For several of these developments, in wild land areas, the Council planners have recommended "no objection".

Through our Wild Land campaign we try to highlight issues that apply across the UK, rather than hope that one country's loss might stave off another's.

Where should concerned communities put their efforts?

When members of a community first become aware of a planning proposal, it is often the first time they've had to understand the complex process of Scottish planning process. Some people have a life, I suppose! As a rule of thumb, for large developments a Local Authority objection will generally trigger a PLI. Very often, if a local group is set up to object to an intrusive development, and once they understand the process, they are heartened if they can get a decision by the Council planning committee to object, thus triggering a Public Local Inquiry. By then, they often have a lot of evidence of the impacts and perhaps about the strategic facts which place doubt on the development delivering the electricity supply and greenhouse gas emissions reductions which are claimed. So the community reasonably considers they have a good chance of winning the decision.

Certainly, it is essential to get the right decision from the local council. However, for those of us, and this includes the John Muir Trust and SWLG, who believe that many energy developments being put forward are NOT "the right development in the right place", the results of PLIs into industrial-scale energy developments make pretty sober reading.

The Scottish Government has now determined 78 energy applications since May 2007. Of these, 55 have been consents for renewable developments (31 onshore wind, 1 offshore wind, 19 hydro, 4 wave and tidal) and 17 consents for non-renewable projects. The Scottish Government has rejected 6 energy applications since May 2007, all of which were onshore wind farms.

It is my impression that the 6 out of 78 applications which the Scottish Government rejected include an over-representation of independently owned schemes, as opposed to ones put forward by the big six energy companies e.g. Scottish and Southern Energy.

The numbers don't tell the whole story

Although it is obvious from the facts - only six out of 78 applications turned down - that there is very little chance of winning at PLIs in the current regime, maybe that is because the developments coming forward are "the right development in the right place"? That isn't our experience.

One of the problems with PLIs is in the name -

Public - it's supposed to be a non-legal forum where the public can have their say.

Local - it is supposed to investigate local issues - local environment; local impacts.

Inquiry - it is supposed to be unbiased, led by an inquiring mind - the Reporter.

So what is the reality.

For the **Public**. Giving evidence is an incredibly stressful experience for people plucked from a different culture. There is invariably at least one QC (advocate or barrister) for the Applicant, along with a legal and technical team. The questioning of witnesses either from the community or other objectors can be very aggressive despite rhetoric about the new planning system. At the Allt Duine PLI, for which the result is unknown, I interrupted questioning of a professional witness by the Applicant's QC to ask, "what level of rudeness is acceptable because this would be unacceptable at a public meeting?" I didn't get a reply. I have concluded that a legal process would be better because at least there would be legal standards of procedure. The current process often seems to depend on the whim of the Reporter.

About a **Local** issue. The truth is that this process was designed to deal with local impacts of a scheme (e.g. a supermarket). It could never have been envisaged PLIs would be used for developments which have impacts for a 20 - 30km radius. The "first come, first permission" system means a poor scheme might be given Approval, and the cumulative effect then might mean the system potentially is "choosing" the poor development over another better scheme

which is less advanced and subsequently rejected. This is one reason the Trust is campaigning for a National Energy Strategy which would have a spatial element. Although some parts of the energy industry now say they want a spatial plan, they fought hard against it when revisions of Scottish Government planning policy for the natural environment was discussed in 2005 – 2006. However, better late than never. The current government thinking appears to be to leave this to local authorities but this is national energy and planning policy impacting on national resources – such as, wild land.

How much of an **Inquiry** is it? I have rarely met an objector who has gone to public inquiry and thought it was a fair fight. Of course, some may say, “well, you would say that because you lost”. However, even when the Reporter appears to be trying to take a fair and balanced approach, the remit he or she is given and the fact that a lot of the decision-making is about balancing local impacts (or even national environmental ones such as impacts on designated landscapes) against national and international targets makes it an almost impossible task. The Reporter is never going to be able to judge these reasonably. The Beaulieu Denny PLI is a case in point. There was a technical Reporter who was only present for a few days out of eleven months of the Inquiry. There is no doubt in my mind that the technical experts advising the Beaulieu Denny Landscape Group (which included the John Muir Trust and the Scottish Wild Land Group) were substantively correct – with much of their evidence having come true subsequently. However, a lot of the evidence they tried to bring forward was ruled out as inadmissible.

Pat Swords

The Aarhus Convention – one man’s journey

Barely 21 years of age when graduating in 1986 in Dublin as a Chemical Engineer, I never in my wildest imagination thought that some 25 years later, I would have appeared not once, but twice before the UN’s legal tribunal on Human and Environmental Rights: in the first instance the Aarhus Convention Compliance Committee finding in my favour and ruling that the EU’s 20% renewable energy by 2020 programme had by-passed the necessary steps of environmental assessment and democratic accountability: in the second case, supporting Christine Metcalfe and her Community Council in their Communication over the Scottish renewable energy programme and the failures of the EU and UK to comply with the Convention. Indeed, currently following the Irish administration’s refusal to comply with the UN recommendations, I am engaged in Judicial Review in the Irish High Court to declare the renewable energy programme there as unlawful until such time as the proper legal procedures are complied with.

How did this happen? The 1990s and early 2000s were characterised by the rapid growth in the Irish high technology manufacturing sector. Not only was I in the thick of it, working on the initial design phase and regulatory compliance of industrial projects, but this coincided with the

What are the lessons learned?

The Scottish Government’s Energy Consents and Deployment Unit is currently considering another 46 applications for generating stations of over 50MW capacity, including 43 renewables: 2 Hydro, 3 Biomass, 38 Onshore wind, plus 2 non-renewable Hydro. In addition to this there are 11 active applications for overhead lines. So, for onshore wind, there is a bigger capacity under government consideration than is already consented.

Scotland’s wild land is already severely impacted by consented developments. But the newer applications encroach further and further into wild land. It will not be saved by a bit by bit, “in the trenches” approach to objecting. Yes, it is vital that we all continue to put evidence forward and lodge objections. But there has been a tendency for some environmental groups to prefer to stay within their comfort zone, arguing the local environmental case. It is the Trust view that this fight will be won or lost at the level of national debate, taking on the economic and social aspects; international and national as well as local environmental issues. So it’s great to see SWLG bringing some of those arguments more into public debate. Of course, we don’t need to do this alone. There are allies out there but they may not be our usual ones. There is increasing concern from some of the social and economic interests - we need to bring them up to speed with the facts we’ve all learned along the way, because we’re the ones who’ve been gathering the evidence for some time. I detect a change in the wind – if you’ll pardon the pun.

introduction of new environmental legislation in the areas of Environmental Impact Assessment, Integrated Pollution Control, Control of Major Accident Hazards, etc. One had to learn by doing, often from first principles as this legislation was introduced. Neither was money always readily available, particularly in the early 1990s. Cost benefit was important; it had to work.

From 2000 on I was increasingly engaged on EU technical assistance projects in Central and Eastern Europe, training the administration, industry and even citizens in this new environmental legislation. Many months were spent in the Ukraine, Romania, Croatia, Macedonia, etc. Not only did I see the nascent Orange Revolution unfold in front of the office window in Kiev, but there were times in public meetings when I would be asked pointedly; “why was it different now with Brussels than when the man in Moscow decided?” I had to explain how there was a system of procedural rights, for the citizen to be informed, to participate in environmental decision-making and to challenge acts and omissions of the authorities in the Courts, namely the provisions of the Aarhus Convention. That was the truth; it may not have been the reality, as I was to find out myself.

While one could most certainly not take the

Pat Swords is a Fellow of the Institution of Chemical Engineers and a Chartered Environmentalist. Pat has worked in developing the high technology manufacturing industry in Ireland, and on projects in over a dozen other countries throughout Europe and North America. Since 1999 he has worked extensively on EU Technical Aid Projects in Central and Eastern Europe helping to implement EU Industrial Pollution Control and Control of Major Accident Hazards legislation.

latest environmental standards from Germany and directly apply them to the emerging economies of Eastern Europe, unless one wanted to shut the place down, there was equally no doubt that the original basis of this legislation was based on costs and benefits. Poor air quality has adverse health impacts, water quality needs to be protected, industrial risk minimised. However, by the late 2000s, this all went out the window, the legal basis of proceeding with care, based on assessment, consideration of cost, benefits and alternatives, proper public participation, etc., was gone. Instead we now had a planetary emergency; it had to be Green and Renewable – full stop.

In times to come people will look back at how the EU and its Member States failed to complete any technical, economic and environmental assessments, broke its rules in relation to State Aid for Environmental Protection and subverted the democratic rights of its Citizens, all to deliver the projects of the wind energy industry. Who in turn, as purveyors of a technology that was obsolete in the 1770s when James Watt invented the steam engine, must be in a position where they cannot believe their luck.

So began in 2008 a journey in my private time on a pro bono basis. I wasn't prepared to see Ireland disfigured by some 4,000 turbines, not to mention what was left of its economic viability wrecked. I knew better than anybody what the legal basis was and the Rights of the Citizens, neither of which were even being remotely respected. Others didn't have that knowledge and experience.

So a new learning curve began, which continues. What has been learnt? Firstly how utterly absurd it is, to even contemplate that we have a system of governance which is remotely rational, sensible, legally compliant or in our best interests. We may listen, watch, read about it, talk about it, write about it, even campaign in relation to it, but the decisions are taken behind closed doors. We may well contribute in relation to direct and indirect taxation some three days a week or more of our labour to it, but any thoughts we have that we can influence how that money is spent and those decisions made is pure illusion. The currency of decision-making simply panders to current public opinion, whatever that is perceived to be; the latest gig in town being Green.

As the British philosopher and Nobel laureate Bertrand Russell explained: "The fact that an opinion has been widely held is no evidence whatever that it is not utterly absurd; indeed, in view of the silliness of the majority of mankind, a wide-spread belief is more likely to be foolish than sensible". Indeed a century beforehand the French philosopher Voltaire famously stated: "The history of human opinion is scarcely anything more than the history of human errors".

So how does one prevent these excesses, if we let decisions be taken by a system, which is unaccountable to reason or logic and panders instead to whatever ideology is in vogue? This was a factor which characterised those in Eastern Europe, who like myself had seen the environmental problems left behind by unaccountable governance and an ideologically planned economy. This had contributed to the development of the Aarhus Convention. The

environment was important, it didn't belong to the State; it directly affected the Citizen, who had to be given procedural rights in the decision-making. This decision making had to be conducted in a transparent and fair manner; accurate and comprehensive environmental information had to be available and environmental considerations integrated into the decision-making.

So that was the theory, Rights were bestowed on the Citizen and obligations placed on the authorities. The reality was very different; it may well have been part of Community legal order since 2005, but it is becoming increasingly clear in the EU that this planetary emergency with its politicised 'scientific reports' of appalling quality, takes preference over the rule of law, which is being replaced by one of rule by diktat.

In Ireland, the State is point blank refusing to accept the findings and recommendations of the UN legal tribunal, despite the compliance mechanisms being an integral part of the Convention. As far as it is concerned, it can bypass the legal procedures related to environmental assessment and democratic accountability and if nobody brings it straight into the Courts to contest it, it then has legitimacy to proceed indefinitely. As regards the Citizen's Right to access to justice, which is fair, equitable, timely and not prohibitively expensive, it has refused to adopt these measures required both by the Convention and European law and is now actively seeking to recover its costs from me in relation to the upcoming Judicial Review. Ireland has become a sham democracy, unless you consider democracy once every five years ticking marks on a list of candidates, who if elected will just do their own thing for five years, in the same manner as the State Administration does year in year out. This is what political scientists officially classify as a 'weak democracy'. In a weak democracy, citizens have no role, no real part in decision-making between elections. If the citizen disengages from this decision making, which is going on around him or her, is it any wonder the State apparatus will become unaccountable and self-serving?

As Albert Einstein stated: "The state exists for man, not man for the state. The same may be said of science. These are old phrases, coined by people who saw in human individuality the highest human value. I would hesitate to repeat them, were it not for the ever recurring danger that they may be forgotten, especially in these days of organisation and stereotypes".

The Citizen has to re-engage with the decisions being made around him, which have direct effect on him or her. It is not adequate that there is an illusion of engagement, through talking about it – there has to be a transparent and accountable structure, with feedback and adequate and effective means of redress. After all, "dissent protects democracy, secrecy promotes tyranny".

Furthermore, as the Romans knew only too well: "Quis custodiet ipsos custodes?" Who watches the watchman? The concerned citizen has to, particularly as the State is not a benevolent structure. History repeats itself, this is a truism. In Ireland, it may not be as 'in your face' as it was in the past in Eastern Europe, but the scars are the same. The country's finances have already collapsed, primarily due to reckless and negligent

In times to come people will look back at how the EU and its Member States failed to complete any technical, economic and environmental assessments, broke its rules in relation to State Aid for Environmental Protection and subverted the democratic rights of its Citizens, all to deliver the projects of the wind energy industry.

governance, while its unique landscape is increasingly being disfigured by countless turbines, the scale of which to come is simply staggering. This is the legacy, which the next generation will have to cope with. In Scotland, things are little different, the highlands are to be

Christine Metcalfe

Observations of an Aarhus hearing

In the Autumn 2012 issue of Wild Land News, Christine Metcalfe of the Avich and Kilchrenan Community Council wrote as follows

"...at an unusually well attended meeting of the Community Council it was agreed to challenge the Government's and EU's imposition of wind power technology without proper public oversight. These efforts included a complaint to the United Nations Economic Commission for Europe's Aarhus Convention Compliance Committee (what a mouthful!), which has now been accepted as valid for consideration. (Complaint Ref. ACCC/C/20/12/68.)

"Briefly, our complaint was based on a question: what is the justification for all this financial cost and environmental intrusion? We believe that there is no supporting data for the claims of the authorities, and that they are both; (a) disseminating false and inaccurate data and; (b) by-passing proper environmental and economic assessments and legally-binding procedures related to democratic accountability."

The foregoing led to a Hearing in Geneva on 12th December. Christine again takes up the story.

In Geneva on the 12th December the day dawned cold, but dry and bright. Those due to speak at the Hearing gathered for the short journey to the UN HQ feeling grateful to have been given the chance to address the Committee. Proceedings began at 9.30 a.m. and continued with detailed cross examination for all participants lasting several hours. The Chairman stressed that the proceedings were 'non-adversarial' which helped to make the atmosphere a little less daunting.

One of the Committee (who were all courteous and did their best to make us feel unthreatened by the surroundings) revealed that our submission had attracted more observers in the conference room than they had ever had before for a single case. It was packed with people from Spain, Switzerland, Belgium, France and the UK. People were also permitted to speak after the lengthy main part of the Hearing was completed.

Without exception, all the comments heard highlighted the loss of a transparent and fair framework of assessment and democratic accountability for current policy. This has meant that negative impacts on people and environments are being viewed as acceptable 'collateral damage'. The valuable presence and input of the observers served to enhance the integrity of our submissions.

The usual and predictable attempts to discredit/'shoot the messenger' were made by the UK Government's QC, who is, I am told, noted for her fondness for this approach. It was notable that the UK sought to marginalise and trivialise the complaint by repeatedly professing not to understand what all the 'fuss' was about.

turned into a wind farm hedgehog. There are only two ways to stop this out of control juggernaut; civil disobedience on a massive scale or a Court order. Fortunately, thanks to those who were wise enough to draft the Convention, we have the latter.

We can only hope that the Committee will dismiss that in favour of examining what the UK and the EU have actually been able to produce in defence of their position. Perhaps this ploy will not be appreciated by the Committee - who clearly would not have accepted the Communication/submission as valid for consideration if they had not fully understood it or if they had thought it trivial in nature.

We and other participants have had more written questions to answer for the Committee who will then examine those answers and give their draft decision sometime in June. A long wait, as always in these matters. Whether or not the complaint is upheld, either wholly or in part, we must trust that awareness of the deficiencies in current policy has been raised enough for knowledgeable lay and professional resistance to follow from within our population.

It is clear that the high calibre of those serving on this Committee also means that they have a strong awareness of the dangers of the loss of democracy and rule 'by dictat.' The bottom line for us is that no government should be permitted to inflict policies and technologies that can or do cause physical, environmental or economic harm to the people they are elected to serve.

So that was that, meantime. Or so it seemed. There appeared in The Herald edition of 12th March a story under the heading

"A community councillor who took the UK Government to the United Nations over the building of wind farms has accused civil servants of attempting to gag campaigners."

It transpires that the Department for Environment, Food and Rural Affairs claimed that the status of Scottish Community Councils should have prevented the Avich and Kilchrenan Community Council from lodging a complaint.

Christine's response: "It's extremely important community councils can make complaints. It's easier for governments to ignore an individual, pass him or her from pillar to post or fob them off. Community councils have to be answered."

The response of the Avich and Kilchrenan Community Council itself, as recorded on the UNECE website, was to express the hope 'that the Committee will continue to accept any further submissions from such sources should they also fulfil the same necessary criteria, and will overrule any challenges to this absolute right to be heard.'

Let us hope this particularly unhelpful intervention is no more than an unnecessary storm in a teacup, rather than a sinister attempt to at best delay, or at worst sabotage, the turning of the wheels of democracy, and we can return to waiting patiently for the outcome of the next stage in the process.

Christine Metcalfe has lived for nearly 22 years in a small Argyllshire glen which at one point was threatened by a wind farm application. The engagement with neighbours in successfully resisting this triggered concern for others suffering similar disruption to their lives, and a wish to unearth true facts relating to wind power.

Photo:

Sustainable
Shetland



Ken Brown

Chickens coming home to roost

Ken Brown recently retired as a lecturer in Politics and degree programme leader at the University of the Highlands and Islands. He had previously worked as a campaign organiser and consultant on woodland conservation for statutory countryside agencies, including SNH, in Scotland and Wales.

A rising tide of concern about the fate of Scotland's wild land has prompted the Scottish Government to utter reassurances about a vaguely specified proportion that might possibly be designated as 'wind turbine free'. But that's the problem; it's specified in terms of National Scenic Areas and National Parks and a bit more. But now it needs to be identified with scrupulous care if it is not to end up with so much other government policy as a hasty, ill-considered concession to yet another lobby. The would-be guardians of Scotland's wild land have been caught off-guard. Where are the ecological surveys, the feasibility studies; the meaningful red lines? And where do years of work on this subject by SNH fit into this strategy to split the opposition to a renewables policy - a policy that is unfit for its basic purpose and funded in a manner that places a disproportionately high burden on the poor?

Scottish Natural Heritage's project of mapping Scotland's wild land has been the target of an attack by multinational corporations seeking to expand their activities into regions that, up to now, have enjoyed international fame for their relatively unspoiled naturalness. The umbrella organisation, Scottish Renewables, published a 'discussion document' by one of its members, Jones, Lang, LaSalle (JLL) on 15 February - immediately before Highland Council was due to consider a controversial application by Scottish and Southern Energy for a wind farm at Stronelairg in the Monadhliaths. It was also, apparently, a response to Highland Council's urgent request to the Scottish Government to issue guidelines for the protection of wild land in the face of a tidal wave of wind farm applications encouraged by its own policy. The essence of the JLL document is that wild land policy 'is not mature'; that 'wild land' is, in any case, a 'subjective concept', and that they don't consider that there is any need for a new designation to cover it.

Some of us have been convinced for more than a

generation that wild land in Scotland merited special conservation status. The John Muir Trust, greatly to its credit, recently espoused this important cause. There is, however, a question about what we mean by 'wild land', obvious though the answer might seem to those familiar with the extensive, relatively unspoiled hills, glens and coastlines of Scotland. So the search began for 'objective' criteria that could be plotted onto maps, a task that has occupied Scottish Natural Heritage for over a decade. Unfortunately, this prioritisation of the measurable could be portrayed as a loss of faith in the value judgments that are the ultimate rationale of all conservation initiatives.

Previous issues of *WLN* have debated the pros and cons of wild land mapping. On the one hand we need a credible definition of the concept to support initiatives to protect our steadily diminishing scraps of wildness. On the other, scientifically rigorous identification of those scraps *without* a simultaneous and vigorous political campaign for legislation to protect them raises serious dangers. It creates the possibility that we will be left with an archipelago of isolated fragments - and the spaces between them will invite a free-for-all by irresponsible developers, encouraged by governments addicted to 'sound-bite' policies. Furthermore, each encroachment on wild land will be used as a purported justification for denying that status to adjacent areas - an opportunity seized upon by the deplorable 'discussion document' by Scottish Renewables. The chickens are coming home to roost as a result of the astonishing indifference we have shown for so long to the idea that Scotland's wild land needs special protection.

One advantage of undermining efforts to protect wild land, from the developers' view, is that communities are sparse, isolated and vulnerable to their overtures. This consideration outweighs inconvenient and now well advertised scientific advice that wind farms on peat are unlikely to help to reduce CO₂ emissions, a point once made

rashly by the Scottish Government itself:

"Peatlands are one of Scotland's most important natural assets ... They have the potential to play a role in climate change mitigation... Peatlands can be damaged through a range of land management practices such as draining, burning, overgrazing, pollution, afforestation, extraction, establishment of windfarms and access paths."

http://www.scottish.parliament.uk/ResearchBriefingsAndFactsheets/S4/SB_12-28.pdf

Nevertheless, the scramble is on to invade the peat rich lands of the Highlands. Scottish Renewables rubbishes SNH's map as a mere consultative exercise. They reproduced SNH's limited wild land search map proposal of 2002, referring only very briefly to a further ten years of research that resulted in SNH's Version 2: Interim Phase 1 Map. This encompasses much wider areas than that of 2002 including others of intermediate wildness connecting those of highest value. The 2012 map also extends well beyond the national and international designations included in a composite map in the JLL/Scottish Renewables document - which made much of the absence of legal designations outwith those areas. That obviously does not imply the absence of high conservation values. Nor are descriptions like 'perceived wildness' purely 'subjective' - another tendentious argument in this propaganda exercise. SNH applied objective, measurable criteria such as distance from public roads, distance from settlements and absence of significant human/ industrial artifacts in their definition. To dismiss these as 'subjective' is to challenge judgments about perception on which so many official planning criteria are based.

So the Scottish Government's 'vision' of a 'Scotland...recognized as a world leader in biodiversity conservation' by 2030, is another striking example of Orwellian 'doublespeak', as is their decision to dub 2013 as 'The Year of Natural Scotland'. It doesn't matter if you contradict yourself as long as no-one notices! It is well understood that biodiversity conservation entails areas extensive enough to permit species to migrate, multiply and adapt to varying ecological conditions. The fetish for onshore wind farms threatens massive disruption to natural ecosystems and the parsimonious approach to the mapping of wild land areas in the Scottish Renewables' discussion document promises to isolate and constrain those that remain. The result could be the industrialisation of large stretches of the superb coastlines of Wester Ross and Sutherland, to take just one example.

The attack on SNH, however, was no isolated attempt by commercial interests to browbeat our elected representatives. It was quickly followed by a Scottish Renewables press release on 21 February, immediately before a Scottish Parliamentary debate that included the topic of energy. And it trumpeted the news that:

'Scottish Renewables has highlighted National Grid's response to the Committee's report that showed between April 2011-September 2012 the electricity generated by wind farms in Britain resulted in an estimated 10.9 million tonnes less

CO₂ being emitted' (original underlining).

Sounds like a lot? Well no, not really. We may question the odd choice of that 18 month period, National Grid's ability to disentangle CO₂ reductions from the effects of the recession, reduced demand by fuel-poor consumers and many other factors. Indeed, we may question the 'independence' of National Grid's analysis (according to the press release). It is, after all, a privatised multinational company with numerous subsidiaries in overseas tax havens. But let's leave these issues aside and accept that 10.9 million tonnes in 18 months represents 7.3 million tonnes in one year. We should remember that CO₂ emissions are a global problem. There is broad agreement amongst various authoritative sources that they reached 34 billion tonnes in 2011 - and that the rate of increase is about 3% per year. That puts the current global output of CO₂ at 35 thousand million tons (and still rising). The rest is simple arithmetic:

7.3 million tonnes as a percentage of 35 billion tonnes = 0.02%, or:

All the wind farms currently in Britain, as a whole, reduce worldwide CO₂ emissions by a proportion that amounts to little more than one part in every five thousand. Indeed, they only slow the current rate of increase in CO₂ emissions of 3% by far less than one hundredth!

This is a vanishingly small reward for sacrificing our natural environment. CO₂ is a global problem and UK and Scottish consumers are paying a disproportionately high price for a purely tokenistic response to it. As the 2003 Energy White Paper made clear, consumers bear this burden through their bills; it is not distributed progressively as are subsidies derived from taxation for other forms of energy generation. The poorest bear this unfair burden and *they include more than half of all single pensioners in Scotland according to the Scottish Government's own figures*. Yet with 900,000 Scottish households in fuel poverty or extreme fuel poverty (*Energy Action, Scotland*), the Scottish Government's self-imposed statutory target of eradicating fuel poverty here by 2016 is utterly fatuous. Impending increases in energy bills to consumers threaten to drive that number above one million. Perhaps it is time for the Scottish Government to redefine the concept of fuel poverty or to bury the damning data in the general Scottish Index of Multiple Deprivation! Or have they thought of that already?

In what looks oddly like a change of tactics, the UK Department for Energy and Climate Change estimate that energy efficiency measures could save 41 million tonnes of CO₂ annually. According to Energy Secretary, Ed Davey, this would help to alleviate fuel poverty and help to stimulate the economy by increasing disposable income and creating vast numbers of new jobs (*The Energy Efficiency Strategy: the Energy Efficiency Opportunity in the UK*, 2012). This might be another example of fashionable 'greenwash' by a leading politician, but note that 41 million tonnes is between 5 and 6 times the savings attributed to wind power in Scottish Renewables' press release. This strategy would still only increase the UK contribution to CO₂ savings to about one

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thousandth of rising global output, but it would at least be an equitable response to urgent social and economic problems - provided it is not done on the current basis that the poor pay more.

This brief excursion beyond the immediate issue of wild land is justified because the Renewables policy and its environmental evils are of a piece with its social evils. Our elected representatives at local and national level are confronted by powerful lobbies for whom profit is the bottom line. One test of this is the fact that some of the biggest multinational energy companies locate many of their subsidiaries in overseas tax havens where their liabilities to the UK Exchequer are minimal. Their charitable postures as dispensers of 'community benefit' dissolve into the self-interested assumption that local people can be treated as supplicants, eager for crumbs to fall from the master's table. Unfortunately this has proved to be a viable assumption in too many

cases and it has helped to drive the wind farm juggernaut ever deeper into rural areas once optimistically regarded as sacrosanct. And, of course, the beneficiaries of these community benefit payments are really paying for them through their own electricity bills. The real injustice is that those not receiving them, whether fuel-poor or otherwise, are contributing to other people's 'community benefit'.

Finally, Scottish Renewables argued that climate change is the biggest threat to Scotland's wild land. The absurdly small role of wind generated electricity in reducing global greenhouse gas emissions - now, or in any imaginable future - makes nonsense of their claim that the sacrifice of internationally cherished wild land in this small country could make a demonstrable contribution to stabilizing the Earth's climate. It's not about global warming at all...

It's the money, stupid!

This beautiful land spread before me. I thought of the many ways in which the history of my people in Palestine makes me angry and, without a solution in sight, continues to be a source of fury. Even as I walk I carry so much baggage that wears me out and weighs me down. All along the way in this beautiful glen and up these hills I had been identifying and unburdening myself of one cause of anger after another arising from the effect of living under a foreign occupation in a land that was becoming out of reach to the non-Jewish inhabitants.

Along the path I continued to shed them, so that by the time I reached the top of this hill, panting and short of breath, I felt that I had disposed of so much of the baggage I had been carrying that when I finally paused to rest, breathing deeply, I felt light-headed and unburdened. The long climb had helped chase the angry thoughts away.

As I stood there relieved and refreshed I thought of what Robert Macfarlane wrote in 'The Wild Places': 'We are fallen in mostly broken pieces, but the wild can still return us to ourselves.' Over the years I have returned to the Highlands to do exactly that.

Photo:

Loch Inchar in Sutherland—an area that is vulnerable to wind power developments along with the rest of the north-west Highlands
K Brown

Raja Shehadeh, Palestinian human rights lawyer and author



Wind energy developments – impacts on Scotland’s landscapes

Why are our landscapes important?

The term ‘landscape’ addresses all aspects of the relationships between people and places. It is based on the appreciation of beautiful scenery, but covers all aspects of our experience of land, buildings, water, vegetation and culture. It includes both our personal memories and our shared experience, so it describes all that we value in our surroundings.

Our landscapes enhance our quality of life and well-being; they give us inspiration, refreshment and enjoyment. They contain the record of the achievements of those who went before us; they form a key part of our national, regional and local identity and they will be our legacy to future generations. That is why our landscapes are so important to the people of Scotland and to visitors from near and far.

Scotland’s natural and cultural landscapes are renowned throughout the world, and provide great opportunities for a wide variety of types of outdoor recreation including mountaineering, walking, cycling and canoeing. They are one of the main reasons why people are inspired to visit Scotland, and so are of vital importance to our prosperity. There are therefore powerful social and economic as well as environmental arguments in favour of protecting our landscapes against threats from excessive development.

Scotland’s Landscape Charter (SNH) sets out a shared vision for Scotland’s landscapes. It encourages local communities to promote wider understanding of their local landscape and to make their voice heard in guiding change. It encourages developers to seek views from the community on development proposals at an early stage and to look to incorporate their aspirations for their local landscape.

What are the impacts of wind energy developments?

The current rapid unplanned proliferation of wind energy developments is not the only threat to our landscapes, but in my opinion it is currently the greatest and most pressing such threat. However, we shouldn’t assume that everyone understands why so many people are concerned about these developments. I regularly hear people without direct experience of their impacts dismiss the complex issues involved with simplistic phrases such as ‘I think they’re quite elegant in their own way’ or ‘well I suppose it’s better than nuclear’. So I think it’s important to be clear about what exactly the impacts of large-scale wind energy developments are:

- The industrialisation of many of our rural landscapes by tall white turbines and metal pylons, extensive concrete hardstandings and wide roads
- The major visual impact caused by the increasing size of modern wind turbines, many now over 100m tall, which can dominate most Scottish landscapes and be visible over extensive areas

- The erosion of our particularly precious resource of wild land
- The cumulative impact of large numbers of individual turbines, which are often excessively tall for their domestic context but are encouraged by the current ‘feed-in tariff’ subsidy regime
- Bitter and unnecessary battles between communities, developers and planning authorities across Scotland, exacerbated by payments offered to some communities by developers
- Potential grid instability due to intermittency, need for back-up and mismatch between supply and demand

The cumulative effect of all of this is that the extent of Scotland unaffected by visual impact from built development declined from 41% in 2002 to 28% by 2009 (data from Scottish Natural Heritage), largely due to wind farm and pylon development.

Do we need renewable energy?

But don’t get me wrong. I’m convinced that Scotland, like the rest of the world, needs to generate less of its energy from fossil fuels (mainly coal, gas and oil), for two reasons:

- To reduce carbon emissions and the resultant damaging climate change
- To reduce the rate of depletion of finite fossil fuel resources

But there are many ways in which this can be achieved effectively, including:

- Demand reduction – encouraging people to use less energy in the first place
- Energy conservation – particularly through insulating homes and businesses and promoting efficient appliances
- Energy efficiency – including combined heat and power
- Renewable micro-generation – from genuinely domestic-scale heat pumps, solar and hydro generation as well as wind, for both heat and electricity
- Small-scale community renewables, for both heat and electricity

APRS – along with several other landscape organisations – firmly believes that in order to reduce emissions effectively more funding, policy support, research and development should go into energy reduction, conservation and efficiency. Any public subsidy which is used to support policy change should clearly benefit both the environment and communities and should avoid damaging important environmental assets, particularly our highly-valued landscapes and seascapes.

The other point I’d want to make is that electricity is not the main medium by which we consume energy. We currently use mostly:

- Gas to heat homes and commercial buildings – the heat sector
- Oil (petrol and diesel) to run cars, vans, buses, lorries, trains and planes – the transport sector

John is a Chartered Town Planner, landscape manager and geographer. As well as Director of the Association for the Protection of Rural Scotland (APRS) he is an environmental policy and planning consultant. Brought up in Birmingham, he has spent his entire professional life in Scotland. Before moving to APRS he spent 23 years working for the National Trust for Scotland, latterly as Head of Policy and Planning, and chaired Scottish Environment LINK 2006-09. He lives in Edinburgh with his wife and two sons, and enjoys cycling, telemark skiing, hillwalking and playing the piano.

- Coal, nuclear, hydro and wind to generate electricity – the electricity sector

We need to use less energy, use it more efficiently and generate more of it from renewable sources, not just in the electricity sector but crucially in the heat and transport sectors as well.

Large-scale developments of wind turbines are therefore only one means to the real ends, which are to tackle climate change and to reduce use of finite resources. The Scottish Government has ambitious targets for generating renewable electricity, but even meeting these targets will not necessarily reduce our carbon emissions if demand expands in other sectors. Indeed the Scottish Government has recently failed to meet the first of the ambitious targets, of which it has been so proud, which are set out in the 2009 Climate Change Act. Much better not to use the energy in the first place.

So we do need some wind turbines – although as most readers will know we’ve got a lot already – but there needs to be a limit. So we share the Scottish Government’s vision of a low-carbon future, but we don’t share its vision of installing an unlimited number of wind turbines across Scotland and exporting surplus electricity to the UK and Europe, due to the landscape and other impacts of the turbines and pylons required to do this.

So what needs to happen now?

The impression is often given that the current expansion of wind energy developments stems from the Scottish Government’s highly public support. But this is only part of the story; the real reason for the speed of expansion is the lucrative subsidies available to developers from the UK Government. APRS therefore considers that the UK Government should shift the current level of subsidies away from onshore wind energy into demand reduction, energy conservation and energy efficiency.

The Scottish Government and planning authorities should prepare a national locational strategy which, through a comprehensive planning process, identifies a defined number of specific sites capable of accommodating the major visual impacts generated by the size of modern turbines. In this respect I would contrast the current state of affairs with that in the 1970s,

when it became clear that Scotland would need to allocate land for development associated with the expansion of the oil and gas industry. The then Scottish Office undertook a major exercise to identify a limited number of large sites which would facilitate this development in the national interest, yet would minimise the environmental impacts of doing so by selecting the least unsuitable sites. This is something which is not happening today.

Public subsidy should also be directed more towards emerging renewable technologies, such as tidal and wave power, which have the potential to be more predictable and less obtrusive, whilst naturally taking great care to minimise damage to our precious coastal and marine environment. There may be some scope to expand genuinely offshore wind energy around Scotland, as long as this does not harm important marine habitats and species. However, some proposals are so close to the coast that their landscape impacts are as great as those of onshore developments, and should therefore be subject to the same degree of scrutiny.

The Scottish Government should exclude all large-scale wind energy developments from our World Heritage Sites, National Parks, National Scenic Areas, Search Areas for Wild Land, historic battlefields, historic gardens and designed landscapes and their settings. These developments should also be excluded from substantial buffer zones around designated land, in order to protect views into and out of these protected areas. The internationally-accepted concept of buffer zones is particularly important, in order to avoid our protected areas becoming ringed with wind turbines around their boundaries, something which is already starting to happen. However it is worth noting that this is directly contrary to the current national Scottish Planning Policy, which expressly forbids local planning authorities from establishing additional zones of protection around protected areas.

The Scottish Government should also introduce a strong presumption against large-scale wind energy developments in our Areas of Great Landscape Value, Local Landscape Areas, Special Landscape Areas, Regional Parks and Green Belts, plus substantial buffer zones.

I look forward to continuing to work with the Scottish Wild Land Group to protect Scotland’s cherished landscapes from this and other forms of damaging development.

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Fraser Wallace

Scottish planning policy is failing our national heritage.

Introduction

The Scottish Government acknowledges that ‘a properly functioning planning system is essential to achieving its central purpose’ and states that this purpose is to achieve progress in areas such as economic growth (GDP), increase trade ‘productivity’ and labour market participation, promote population growth, reduce social inequality and improve social cohesion, and to substantially reduce carbon emissions.

Yet not all of these goals are being achieved. For example, carbon emissions are up 2% year-on-year even after the European emissions trading scheme is taken into account. In this respect, Scotland has missed its first target under the Climate Change (Scotland) Act 2009.

It is not as though there are no historic precedents from which we should have learned. For instance, blanket afforestation created such concern in the Flow Country that the need for

more subtle policy, embracing a more holistic view of society's requirements became evident.

Planning and Wind Farming

In relation to wind farming, Scottish planning policy advocates finding 'areas of search' for development, as well as areas where development may be constrained, or require significant consideration. The 'areas of search' consist of everywhere that does not have a local or national designation.

Planning policy further prohibits any additional 'buffer' or 'protective zone' surrounding protected areas. This is particularly problematic, and is a principal reason why wind development planning risks our valuable natural heritage and the benefits our society gain from it. It means that whilst internationally important sites such as RAMSAR sites (classified under the Convention on Wetlands of International Importance) are categorised as less favourable for wind developments, wind turbines will be actively encouraged immediately adjacent to any designation boundary.

Arbitrary lines drawn by man have no meaning for nature. Worse still, the impacts of 'edge effects' are significant; as the Oxford Dictionary of Ecology comments, "Ecologists regard the edge effect as a sign of ecological deterioration. The fragmentation of habitats leads to an increase in edge areas, but a decrease in the internal areas of ecosystems, leading eventually to a loss of species from all affected ecosystems."

These edge effects include a myriad of unpredictable yet potentially severe impacts. For example, birds may be scared by noise carrying across normally quiet glens, and freshwater mussels can be smothered by silt carried from excavation and soil disturbance upstream (as demonstrated by the ecological disaster in Glenlyon in which a colony of protected freshwater pearl mussels was destroyed during the construction of a micro-hydro scheme).

It's not just local environmental impacts that are proving problematic. Whilst the John Muir Trust welcomes the Scottish Government's bold declarations on reducing climate change, it is important that Government policy remains in step with on-going scientific research into the causes of climate change. Regulation needs to be able to achieve desired goals at least cost, and Government needs to get policy right now without having to rectify problems later.

Preserving peat bogs is one of the cheapest ways to mitigate greenhouse gas emissions. Several leading academics have raised concerns about energy developments being located on peat; Dr Jo Smith of Aberdeen University, for example, states that changes in carbon emissions from varying sources of electricity need to be taken into account when calculating how much carbon wind developments have the capacity to save. For example, the Scottish Environmental Protection Agency objected to the Sallachy wind farm citing questionable 'assumptions' behind the applicant's peat calculations (which calculate how much of the valuable resource will be lost due to development).

A second problem for wind turbine planning is the cost to regulatory bodies. Currently, applications of the largest size—over 500MW—pay a 'mere' £50,000 application fee. This is shared by the Scottish Government (who get one third) and the Local Authority (who get the rest). This application, if successful, will result in full planning permission - there are no further fees. The Scottish Government is only considering increasing this fee by 20%.

Given that large scale developments may have serious impacts on, for example, the health of peat bogs, local tourism jobs and bird populations, it seems incredible that an application, with the promise of so much profit, may not always cover the costs for the public authorities assessing them. Planning budgets are already stretched so tight that some councillors have expressed concern over the costs of site visits to wind farm application sites. Local Authorities dread the prospect of being called to a costly Public Local Inquiry.

The highly technical nature of the various 'Impact Assessments' also mean high costs for planning authorities and a technical jumble for the public, who as a consequence have difficulty even identifying errors of fact. The recent Allt Duine Public Local Inquiry found errors in the maps depicting which nearby peaks would have lines of sight to the development. The map, which had been shown to the public, understated the numbers of affected Munros and Corbetts (important for tourists interested in hill-walking) by half!

Benefits of Wild Land

Astute planning policy can assist progress towards other policy targets such as attempting to increase physical activity and improve mental wellbeing. Research indicates that we benefit greatly from interaction with the environment. There are known physiological effects that occur when humans encounter, observe or otherwise positively interact with animals, plants, landscapes or wilderness. Natural environments are restorative and foster recovery from mental fatigue. The majority of places that people consider favourite are natural places, and they do indeed find being in these places recuperative. Having nature in close proximity, or even knowing it exists, is important to people regardless of whether they regularly 'use' it.

The John Muir Trust has recently conducted polling through YouGov highlighting that 43% of people in Britain who visit scenic areas in the UK for their natural heritage and beauty would be 'less likely to visit a scenic area with a large concentration of wind farms'.

The net economic benefit of wildlife tourism is £65 million, and it supports 2,763 Full Time Equivalent jobs in Scotland. Net economic impact is highest in the Highlands and Islands region (£32 million and 1,386 FTE jobs) (Scottish Government, 2010). The wider economic contribution of our natural heritage is huge. The Cairngorms National Park Study into the Economic Impacts of Designation (2010) states that, since designation, more than 250 more people come to live in the

Fraser Wallace was until recently Policy Officer for the John Muir Trust. Fraser grew up in the rural corners of Scotland, with his family moving from The Borders to the Isle of Skye, and onto Dumfries and Galloway. He graduated from the University of St Andrews in 2009 with an M.A. in Sustainable Development. Before joining the John Muir Trust he worked in the Scottish Parliament. His particular aim is to see proper recognition of the contribution our environment makes to our daily lives recognised at the heart of Scottish politics.

Park than leave each year, with most of these new residents being of working age (ranging from their twenties to their fifties), and that numbers of jobs have increased by around 1,000. A smaller proportion of workers in the park are employed in the public sector than the national average.

Germany, considered by many to be Europe's strongest economy, even has an annual limit on the amount of land that can be urbanised! Protecting landscapes, therefore, does not need to impede economic growth. Indeed, protective designations have the capacity to facilitate growth, by allowing areas to retain the special qualities that attract tourists and young professionals looking for a high quality of life.

The Scottish environment is so special that the broadcaster, CNN, recently stated our natural heritage renders Scotland the "place to be" - globally.

Current policy risks such benefits and will particularly hurt rural areas, as most of the benefit from developing a 'wind economy' in Scotland will go to urban areas (such as Leith, where Gamesa has promised to locate some manufacturing jobs). Appropriate policy can redress this unfairness. What should be done?

Wild Land Designation

The Scottish Government needs to equip the planning system with the knowledge of where to protect Wild Land, and the means to do it. These aims are within easy reach in 2013, the 'Year of Natural Scotland'.

Scottish Natural Heritage has recently produced a map depicting Scotland's wild land. This mapping needs to be fine-tuned and brought to a state of 'readiness' to use in the planning process. Highland Councillors have already formally requested the Scottish Government does this, in the wake of their objections to the Dalnessie and Glenmorie proposals.

Wild Land is important because it originates from a non-human source. That doesn't mean humans don't extract value from it, and so our statutory designations need to encompass the goals we

seek to achieve from them. Currently, Scottish Natural Heritage's National Indicators associated with biodiversity and habitat preservation indicate that we are failing. We're not reducing greenhouse gas emissions. We're also not fully achieving the benefits that wild land offers in terms of health, and risking its current contribution to the economy. To change this, the protected areas of Scotland need to become:

- Larger- Habitats need a 'critical mass', and humans need enough space away from modern infrastructure to achieve those true restorative benefits.
- Stronger- currently, the deference to development is risking our habitats
- Better valued- communities need to identify with what is being protected so its value is properly appreciated- and communities need to be listened to.

A Wild Land designation represents a holistic response to the problems threatening our environment, and a shrewd means of achieving many government policy goals.

Wild Land combines the scenic and the ecological. We must continue to value species and habitats, as indicators of environmental health, for their role in the ecological cycle and for their own innate value. But we should not create a disconnect between our own appreciation of that naturalness and the science that observes it. The layperson first connects with nature through their eyes, and maintaining public support for conservation relies on the connection between people and place.

A new Wild Land designation would overlay many existing designations that are intended to protect habitats in the planning system. Some argue that is extra bureaucracy, but regulation is there for a purpose. Other than simply providing a more marketable title than current 'Sites of Special Scientific Interest' or 'Special Areas of Conservation', a Wild Land designation would be an expression of Scotland's determination to protect the numerous benefits we get from our wild land, and our appreciation of it for its own innate value.

Photo, this page:

A Starmore

Photos, opposite page:

C Brown

We dedicate this publication to the young people of Scotland, in particular those of the Outer and Northern Isles whose native moorland is under severe threat, represented by Thomas, the grandson of Alice Starmore to whom we are introduced by Sharon Blackie. This photograph shows Thomas on the summit of Tomnaval against the background of Eisgein, South Lewis, one of the UK's wildest areas nevertheless approved by the Scottish Government as the site of a major wind development, discussed by Helen McDade.





*My aspens dear, whose airy cages quelled,
Quelled or quenched in leaves the leaping sun,
All felled, felled, are all felled;
Of a fresh and following folded rank
Not spared, not one
That dandled a sandalled
Shadow that swam or sank
On meadow and river and wind-wandering
weed-winding bank.*

*O if we but knew what we do
When we delve or hew-
Hack and rack the growing green!
Since country is so tender
To touch, her being so slender,
That, like this sleek and seeing ball
But a prick will make no eye at all,
Where we, even where we mean
To mend her we end her,
When we hew or delve:
After-comers cannot guess the beauty been.
Ten or twelve, only ten or twelve
Strokes of havoc unselfe
The sweet especial scene,
Rural scene, a rural scene,
Sweet especial rural scene.*

Gerard Manley Hopkins
Binsey Poplars



In a land as densely populated as Britain, openness can be hard to find. It is difficult to reach places where the horizon is experienced as a long unbroken line, or where the blue of distance becomes visible. Openness is rare, but its importance is proportionately great. Living constantly among streets and houses induces a sense of enclosure, of short-range sight. The spaces of moors, seas and mountains counteract this.

Robert MacFarlane
in *The Wild Places*



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The Scottish Highlands have no counterpart on this planet...comparisons fail to survive even brief examination. What is their distinction?

First, the astonishing variety of scene...which may owe its skeleton to geological accidents, but shape, flesh and clothing to our maligned Atlantic atmosphere.

This humid climate gives the variety and subtlety of colour.

[Second] the Atlantic and the lochs, of all mountain settings the most brilliant.

The sweep of sea and winding loch...has its counterpart in every glen where a burn storms...and on every moor where water lies at peace in brown pools. The wedding of mountain and water, adorned by untold wealth of growing things from Caledonian pines to sphagnum moss, gives a Highland beauty I have never seen equalled in kind or colour

The outstanding beauty of the Highland scene has been haphazardly expended and no account kept. Are Scots so blind that they cannot prize it for its own sake?

W.H. Murray