
Penderfyniad ar yr Apêl

Gwrandawriad a gynhaliwyd ar 8/06/16
Ymweliad â safle a wnaed ar 8/06/16

**gan Declan Beggan BSc (Hons) MSc
DipTP DipMan MRTPI**

Arolygydd a benodir gan Weinidogion Cymru
Dyddiad: 03/08/16

Appeal Decision

Hearing held on 8/06/16
Site visit made on 8/06/16

**by Declan Beggan BSc (Hons) MSc DipTP
DipMan MRTPI**

an Inspector appointed by the Welsh Ministers
Date: 03/08/16

Appeal Ref: APP/Q6810/X/16/516168

Site address: Afon Clywedog, Brithdir, Dolgellau, Gwynedd.

The Welsh Ministers have transferred the authority to decide this appeal to me as the appointed Inspector.

- This appeal is made under Section 43 of the Water Resources Act 1991 (as amended) and the Water Resources (Abstraction and Impounding) Regulations 2006 against a decision not to grant licences to abstract and impound water.
 - The appeal is made by Mr Jonathan Needle on behalf of Derwent Hydroelectric Power against the decision of Natural Resources Wales (NRW).
 - The licence applications, Serial Numbers: WPC1633 (Abstraction) and WPC1634 (Impoundment) were refused on 18 December 2015.
 - The licences sought relate to the installation and operation of a new hydropower scheme.
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Decision

1. The appeal is dismissed.

Preliminary Matters

2. The application was made against a background of numerous exchanges of correspondence between the appellant and NRW following pre-application advice and previously refused applications for a similar scheme going back to December 2009. The appeal applications were accepted as valid on 13 March 2014.
3. The applications were refused by NRW on 18 December 2015 in the terms set out in a decision statement, which in broad terms related to the fact that following an Appropriate Assessment¹ (AA), NRW were not satisfied that the supporting information provided by the applicant was sufficient to demonstrate beyond reasonable scientific doubt that there would be no adverse impact on the integrity of the Meironnydd Oakwoods and Bat Sites Special Area of Conservation (SAC)².

¹ Regulation 61 (1) of the Conservation of Habitats and Species Regulations 2010 states that a competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which, is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects) and is not directly connected with or necessary to the management of that site, must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.

² A strictly protected site designated under the European Commission Habitats Directive. Article 3 of the Habitats Directive requires the establishment of a European network of important high quality conservation (Natura 2000) sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annex I & II of the

4. NRW maintain that the information submitted does not show sufficient evidence or understanding to conclude that the reduced river levels that would be experienced as a result of the proposed scheme would not reduce relative humidity (RH) in the affected gorge to an extent that would have a detrimental effect on the bryophytes that play a key role in identifying the habitat for which the SAC has been selected.

Background

5. The proposed scheme would be located on the Afon Clywedog at Brithdir, near to Dolgellau. The proposed scheme would return the abstracted water approximately 1.6-1.9³ Km downstream of the abstraction point. The river in the depleted reach⁴ contains a variety of habitats, with riffles predominating in the lower reaches but as the gradient increases upstream the river changes to falls/pools, flowing at the bottom of a deep ravine. The proposed hydropower scheme would utilise the natural head drop to power the proposal.
6. A substantial length of the depleted reach potentially affected by the proposal is known locally as 'Torrent Walk' and is used as a footpath by locals and visitors. The footpath follows the course of the river, through or above the gorge. Woodland covers over the majority of the depleted reach.
7. The relevant reach of the Afon Clywedog forms part of the Coedydd Dyffryn Wnion Site of Special Scientific Interest (SSSI) and is known for its bryophyte rich woodland. The SSSI is also included within the SAC. The SAC contains habitats made up of dry woodland and scrub, with such habitat being a primary reason for the selection of the SAC; it is a large example of 'old sessile' oak woods in North Wales, including an Atlantic flora of bryophytes such as mosses and liverworts which require high humidity levels to sustain them. Old sessile oak woods are one of the habitat types listed in Annex I of the Habitats and Species Directive for which SAC's are designated. The SAC Core Management Plan states, 'a key feature of European importance is the rich Atlantic bryophyte communities that are often well developed within this Annex I type', and also specifically highlights humidity as a key factor governing the condition of this Annex I habitat.

Main Issue

8. From all the evidence and submissions made, and from my visit to the site, I consider the main issue is whether there is sufficient information to demonstrate what the proposal's likely impact would be on the ecology of the depleted reach of the Afon Clywedog, during times when abstraction would take place with particular regard to the integrity of the SAC.

Reasons

Impact on the ecology of the SAC

9. Central to this issue is whether sufficient evidence has been provided to conclude that any reduction in river levels as a result of the proposed scheme, would not reduce RH

Directive (as amended). The listed habitats and species are those considered to be most in need of conservation at a European level (excluding birds).

³ The parties do not agree on the length of the depleted reach with the appellant referring to a figure of 1.6 Km and NRW referring to 1.9 Km, however both parties accepted at the Hearing that the difference in length has no material bearing to the outcome of the appeal.

⁴ The length of river between the point of abstraction and the point water is returned, with reduced flows resulting from the abstraction.

in the gorge to an extent that would have a detrimental effect on bryophytes contained within the SAC.

10. The SAC is a designation derived from the European Commission Habitats Directive. The Habitats Directive (HD) seeks to ensure the conservation of a wide range of rare, threatened or endemic animal and plant species. Some 189 rare and characteristic habitat types are targeted for conservation in their own right with the listed habitats and species identified at Annex I & II considered to be most in need of conservation at a European level. The HD has been transposed into British law via 'The Conservation of Habitats and Species Regulations 2010'.
11. It is the UK Government policy that the NRW follows a precautionary approach with respect to the HD. Amongst other documents, the government publication, 'Securing the Future'⁵, states that there will be instances where decisions on managing natural resources will have to be taken on the basis of partial information. In these instances where there is a risk of significant adverse effects and mitigation measures seem unlikely to safeguard against them, the precautionary principle will be adopted.
12. Both parties agree that the primary influence on RH is rainfall and also that river flow/levels are not the primary driver in determining relative humidity. The appellant's submitted humidity assessment and subsequent later analysis considered a number of variables such as water level, rainfall, temperature, time of day, and vertical and horizontal distance from the river. Linear multiple regression models were then run including a variety of combinations of variables. The appellant contends that their analysis of data collected at the site, including the findings of an additional 'Technical Note' submitted at the Hearing indicate there is no link between river flow and humidity.
13. NRW argue the appellant has not undertaken an appropriate statistical analysis of the data they collected in order to determine the significance of river flow/levels with regards to humidity. NRW argue a multivariate analysis is required, rather than analysis comparing just two variables such as RH against flow or relative humidity against temperature. The appellant's original humidity assessment stated that ideally a multivariate modelling approach could be used to investigate the influence of each of the variables on RH, but that because the data are a time series this makes such modelling complex as each data point is related to and influenced by the one before i.e. the data is often auto-correlated. The appellant maintains that in order to try to remove autocorrelation from the data, it was sampled and linear regression models were run again. In addition it is maintained a general additive model that would allow for more complex relationships between the variables to be studied was not pursued with the reason given being 'due to the large number of data points in the study period the computer was not powerful enough'. The appellant augmented previous humidity assessments with an additional technical advice note handed in during the course of the Hearing, which contended that this further analysis employed more than one variable e.g. RH, depth and temperature.
14. Whilst I would concur with the appellant that the primary driver of RH is rainfall, nonetheless, there are other factors that may have an influence such as wind, cloud cover, aspect, topography, and time of the year. In particular NRW highlight the role of mist zones in the confined space around the bottom of the gorge, with their view being that such mists are put into the atmosphere by moving water and any reduction in flows is likely to impact on these mist flows, irrespective of the imposition of a

⁵ Securing the Future – Delivering UK Sustainable Development Strategy

hands off flow condition. In addition NRW argue that changes to medium range flows which generate mist zones around cascades and waterfalls are likely to have a significant ecological effect. The effects of some of these other variables could potentially be swamped by the effect of rain due to its dominance in regards to RH. Whilst I note the contents of the appellant's additional technical advice note, nonetheless, this additional analysis does not contain the type of data related to other factors that may be influential in regards to RH within the gorge. To my mind the sensitivity of the site demands that a precautionary approach be adopted especially where a number of those affected species are desiccant intolerant.

15. NRW's stance in regards to the potential effects of other variables on RH when related to bryophytes such as mosses and liverworts is informed by a number of sources⁶, including the British Bryological Society, who state that, 'The flora in ravines is sensitive to reductions in humidity and it is probable that reduced flow as a result of an HEP scheme will have some effect, particularly by increasing the length of drier conditions. The reduced frequency of spray from waterfalls, the lowering of the mean level of water and the reduction in maximum flow rates must all produce a response in the plant communities over time'. In addition NRW drew attention to mist zones generated on the appeal site adjacent to cascades and waterfalls which made areas with desiccation sensitive liverworts damp and humid whereas other rocks at a similar distance from the river were dry and their mosses dry. NRW argue that observations on other water courses show that on low flows the extent of mist zones can be reduced dramatically, with mist zones intrinsically linked to the watercourse. Whilst I appreciate the appellant's stance that this does not prove that flows make mist zones which in turn make the bryophytes damp, however, the observations of NRW at this site did indicate other rocks at a similar distance from the river were dry and their mosses dry without the effects of a mist zone; in addition observations made elsewhere⁷ have shown regular occurrences of desiccation sensitive bryophytes in mist zones.
16. The appellant questions the relevance of NRW's evidence base due to it not specifically relating to the site, nonetheless, the submitted information provides a useful indication as to the possible effects of water abstraction on desiccate intolerant species, and also included site specific observations carried out during flow rates that were estimated to be in the range proposed for the scheme.
17. NRW maintain that reductions in humidity and any detrimental impacts on mist zones could not be excluded and therefore consequent impacts on desiccation sensitive species could not be excluded either. Whilst the appellant's analysis appears to indicate no relationship between flow and RH, nonetheless, previous study on the potential effects of other variables on RH when related to bryophytes indicates there is a complex relationship at hand and that maybe these other factors play a more central role in regulating RH, particularly the effects of reduced flows on humidity, and the role that mist zones play.
18. In my opinion, without more robust data in the form of multivariate analysis as suggested by NRW, and based on the sensitivity to changes in RH on the European protected species found at the site, I consider a precautionary approach as advocated by Government policy, should be adopted. In the absence of a multivariate approach,

⁶ Refer to paras 7.1.1-4 of NRW Statement of Case & Annex T & U to NRW statement of case

⁷ Within Wales, Scotland and Ireland refer to paragraph 20 of NRW's nine week comments

I cannot conclude beyond all reasonable scientific doubt that desiccant intolerant bryophyte species would not be detrimentally affected.

Proposed Mitigation Measures

19. Whilst the appellant maintains the proposed scheme would not be detrimental to bryophytes, nonetheless, they argue a key mitigation measure to safeguard bryophytes on the site, should it be deemed to be required, is that the humidity of the site could be constantly monitored via 'SMART' technology, with data fed to a control system such that deviations in humidity from the natural envelope could be used to trigger a turbine shutdown, thus removing the risk of artificially prolonged periods of low humidity being caused by water abstraction. Despite the appellant's assurances that the 'SMART' technology would allow for the mitigation to be effective, little in the way of detail has been submitted as to how such mitigation would be managed, and the nature of the technology to be employed. In addition at this stage the appellant has not identified and set the appropriate trigger levels over the course of the varying seasons to achieve the desired effect. During the course of the Hearing the appellant was not able to confirm where such technology has been employed on any previous hydro-power schemes. In the absence of this information, the proposed mitigation measure cannot be adequately assessed to determine that there would be no detriment to bryophytes along the depleted reach.

Other Matters

20. The electricity generated⁸ from the proposed scheme would make a small but worthwhile contribution to the provision of renewable energy and thus would contribute to national policies that seek to help reduce carbon emissions; this weighs in its favour. More generally it would provide some economic benefits in terms of providing an income to the landowners⁹, and would offer the potential for short term benefits in the procurement and construction phases; however, given the scale of the scheme, these benefits would be limited. Nonetheless, legislation such as the Water Resources Act 1991 and the Environment Act 1995 require a balanced approach to be taken as regards to sustainable development, and in this instance the benefits do not outweigh the concerns identified.
21. The appellant refers to NRW misapplying the HD in regards to its application of an AA for the scheme, which in turn was central to their rationale in refusing the applications. Both the appellant and NRW drew my attention to established case law¹⁰ in regards to the application of an AA as stated in the HD. To my mind NRW were perfectly entitled to require and undertake an AA, because contrary to the appellant's view, based on the information¹¹ before it, including that submitted by the appellant, there was a likelihood of a significant effect and reasonable scientific doubt remained in regards to the potential adverse impact on the integrity of the SAC; for reasons explained previously I am of a similar opinion.
22. The appellant argues NRW have been inconsistent in their approach to the licensing of hydropower schemes in the SAC and has drawn my attention to other hydropower

⁸ Appellant suggests a maximum power output of 500kW.

⁹ Andrew and Hilary Richards who attended the Hearing and voiced their support for the scheme.

¹⁰ Including, *Smyth v Secretary of State for Communities and Local Government* [2015] EWCA Civ 174, *Waddenzee Case C-127/02*, and *Regina (An Taisce (The National Trust for Ireland)) v Secretary of State for Energy and Climate Change* [2014] EWCA Civ 1111.

¹¹ Including, a report by Sam Bosanquet (Annex T of NRW's statement) & the judgement of the British Bryological Society (Annex U of NRW's statement).

schemes that have been permitted. However, these permitted schemes are not comparable, with a number of the schemes being materially different in ecological terms and the sensitive species present, others are historic having been licensed and installed before the area was designated as a SAC, and some were surveyed with a particular data set that were used to weigh up any likelihood of significant impacts on the SAC. In any event I have considered the proposed scheme on its own merits.

23. Whilst I note the Appellants' concerns regarding NRW's handling of the applications, including the amendment to the abstraction and discharge points, however that does not alter my assessment of the merits of the proposal.

Conclusions

24. The appellant has not provided sufficient information to demonstrate what the proposal's likely impact would be on the ecology of the depleted reach of the Afon Clywedog, during times when abstraction would take place with particular regard to the integrity of the SAC. To permit such a scheme under these circumstances would run contrary to the aims of the Water Resources Act 1991, the Environment Act 1995, and the Conservation of Habitats and Species Regulations 2010, which collectively seek to safeguard ecological interests.
25. For the reasons given, and taking account of all other relevant matters raised, I conclude that the appeal should be dismissed.

Declan Beggan

INSPECTOR

APPEARANCES

FOR THE APPELLANT

Jamie Needle BSc (Hons) Ph.D	Project Manager for Derwent Hydroelectric Power Ltd.
Jonathan Needle	Director of Derwent Hydroelectric Power Ltd.
M. E. Newton BSc (M/C)	Self Employed Bryophyte Consultant
Paul Davison	AMEC Foster Wheeler

FOR NATURAL RESOURCES WALES

Gwion Lewis	Barrister
Breda Cronin	Solicitor
Emma Allcorn BSc (Hons)	Senior Permitting Officer
Gideon Carpenter	Senior Policy Advisor Hydropower
Sam Bosanquet	Non Vascular Plant Ecologist

THIRD PARTIES

Andrew and Hilary Richards	Landowners
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DOCUMENTS SUBMITTED AT THE HEARING

1. Technical Note for Derwent Hydroelectric Power Limited dated May 2016.
2. Extract of an excel spreadsheet indicating the 'Wales Biodiversity Partnership (WBP) Evidence Gaps Register – April 2016.
3. Note indicating existing, planned and proposed hydropower schemes within the SAC.
4. E mail from Jamie Needle dated 7 December 2015.
5. E mail from Sam Bosanquet dated 3 June 2016.
6. Extract from the Encyclopedia of Planning Law and Practice Volume 5 relating to 'The Conservation of Habitats and Species Regulations 2010'.
7. Suggested Draft Licence Conditions in the event the appeal is allowed.