

Item 6. Bishop's Castle Biomass Power Plant, draft response to planning application

1. Summary

This paper presents a draft response by the AONB Partnership to consultation on this planning application. The impacts of the proposal on the AONB itself are not felt to be significant enough to warrant an objection on this basis. It is recommended however that the AONB Partnership objects to the application on the basis of real concerns about whether the plant will indeed be a sustainable form of development, especially in relation to efficient use of the biomass fuel source.

2. Background

- 2.1. The Shropshire Hills AONB Partnership has been consulted by South Shropshire District Council on a planning application for a biomass power plant in Bishop's Castle, close to the AONB boundary. The proposal intends to generate electricity through the burning of biomass, which will be sourced within a 20km radius. This supply area takes in a substantial part of the AONB and has the potential directly to affect land management practices. The proposal would also have indirect effects on the AONB visually and through landscape character, as well as noise, traffic generation, drainage and air pollution.
- 2.2. The remit of the AONB limits the Partnership's consideration of impacts to those on the AONB itself, and therefore does not include effects on the town of Bishop's Castle. However, AONB's have a secondary purpose that '*Particular regard should be paid to promoting sustainable forms of social and economic development that in themselves conserve and enhance the environment*'. This consideration is crucial to the Partnership's position on this planning application.
- 2.3. In line with procedures in the AONB's Planning Protocol, this draft response is also being sent to members of the AONB Partnership for comments. Comments should be made to Joy Tetsill, Planning and Policy Officer (see contact details at end), and those received by the 4th December 2007 will be reported to the Management Board meeting on 5th December. The AONB Partnership's formal response to South Shropshire District Council will be made after the meeting by the 10th December, informed by discussion at the Management Board.

3. Details of the proposal

- 3.1. The site is located on the Crowgate Industrial Estate at the junction of the A488 and B4385 to the east of Bishop's Castle (see map). The grid reference is SO 328883 and the application site is around 4.9ha in extent. The AONB boundary lies approximately 500m to the south east of the site.
- 3.2. The proposal is to construct a power plant which will generate 2.5 MW of electricity (enough to power 2,500 homes) for export to the Central Network's substation in Bishop's Castle - part of the national grid. The fuel sources are described as energy crops, non-food crops and biomass. These are further specified as:
 - 1 Woodchip from the local sawmill and wood industry. These supply chains are already in place and the applicants envisage that this will be the dominant initial fuel source.
 - 2 Lop and top, thinnings and brash from commercial forestry operations. The supply chain for this is not yet in place, but the applicants estimate it will take

between 2 to 3 years to develop, and are willing to offer 10 year contracts as a stimulus. The power plant will need the waste forestry products from around 2,000 ha of forestry (out of the 24,000 ha available in Shropshire, 36,000 ha in Herefordshire and 75,000 ha in Powys).

- 3 Energy crops - notably *Miscanthus* and short rotation willow coppice. This fuel source is not currently available but the applicants hope that the contracts they intend to offer to landowners will enable the latter to access grants for energy crop establishment. Energy crops will then displace some of the forestry and wood chip supply.
 - 4 Wood fuel from conservation and biodiversity projects. Again, the supply chain for this is not yet in place. The applicants feel that the small cash payments they can offer for this currently unused resource will support this small sector and have significant conservation benefits.
- 3.3. The application clearly specifies that waste will not be a fuel source and that fuels which have been treated with preservatives or surface coatings will be rejected. The biomass will be burnt to produce steam which is then used to generate electricity via a turbine. The ash residue (about 1% of the input fuel) can be used as a soil conditioner.
 - 3.4. The burning of biomass to generate electricity also produces heat, at a ratio of anything up to 5:1 (i.e. each 1MW of electricity generated may create up to 5 MW of heat, depending on operational details). The applicants propose to use some of the heat to dry the incoming fuel for later combustion and also to manufacture pellets for domestic wood pellet heating systems. It is intended that heat will also be exported via an underground heat main (which will be the subject of a later planning application) to neighbouring facilities such as Bishop's Castle Community College, the leisure centre, church and industrial estate. These premises would need to adapt to their heating systems to use feed from this heat main.
 - 3.5. Fuel will be delivered to the site in four HGVs each day. These will access the site via the A488 or B4385 during daylight hours.
 - 3.6. All processes on the site will take place within a series of three steel framed buildings, the tallest of which is 12m high. The sides will be constructed of pre-cast concrete blocks and coloured in two shades of green. The roof colour is not specified. The cooling plant includes a chimney stack which is 16m in height. This is positioned at the north east corner of the site, and should only produce a visible plume under cold or misty conditions.
 - 3.7. Data provided by the applicants show that noise levels from the plant are expected to be within the noise design limit of 30dB(A) at a 200m radius from the plant. Nitrous oxides are the air pollutants closest to legal emission limits, and these are expected to be well below the National Air Quality Standards limit at a 200m radius.
 - 3.8. The power plant needs water for the generating and cooling process and it is proposed that this is extracted from both shallow and deep aquifers. Run-off from the buildings will be contained by perimeter bunds and collected via a sustainable urban drainage system (SUDS) before being used for cooling purposes. It is assumed (although not explicitly stated in the application) that water used for cooling will also be recycled into the cooling process. There will be no effluent discharge from the site.

- 3.9. The site is well screened by mature trees to the west and the applicants are proposing to plant native hedges, trees and shrubs within the site to provide additional screening. Views of the site from the AONB are strongly influenced by the town of Bishop's Castle.

4. Evaluation of the proposal in relation to the AONB Partnership's response

4.1. Impact on visual amenity of the AONB

- 4.1.1. Visual amenity is one among a range of considerations of a planning proposal in relation to the AONB, and includes the effect on views within the AONB and to an extent, views into and out of the designated area. This development site is outside the AONB boundary so this evaluation focuses on views into and out of the designated area.

- 4.1.2. Views from the site towards the AONB may be interrupted by the 16m stack within the site from certain viewpoints. This is likely marginally to intrude into views of a ridge within the AONB to the east. This is not a significant impact. Views from the AONB towards the site have the town of Bishop's Castle as a backdrop. The low height of the development and its position within an existing industrial estate on the outskirts of the town mean that views of the proposed development will be read against the already developed area. This is unlikely to create a significant adverse impact.

4.2. Impact on landscape character

- 4.2.1. The character of the Shropshire Hills landscape - the sense of place and pattern of the landscape - is nationally valued. Changes to this character arising from planning proposals should be assessed to determine their significance. The effects of this planning proposal on the character of the AONB are indirect, as the site is outside the boundary of the designated area.

- 4.2.2. The position of the application site on a partly developed industrial estate and the outskirts of the town of Bishop's Castle mean that this proposal is unlikely to create a significant adverse change in the landscape character of the AONB. The additional tree and shrub planting within the site will help to mitigate local impacts on character.

4.3. Noise impact on the AONB

- 4.3.1. Tranquillity is one of the defined special qualities of the Shropshire Hills AONB, upon which noise generated by development proposals may have an adverse effect. The noise levels at a distance of 200m from the plant are expected to be less than 30dB(A) - the World Health Organisation threshold for a significant environmental impact and the equivalent to the noise level in a quiet library room. A noise level of 40dB (A) equates to a room with a television on, and the traffic noise on nearby roads is forecast intermittently to reach 50dB (A). The AONB boundary is around 500m from the site, so the noise impact on the AONB from the proposed development is not likely to be significant.

4.4. Impact of airborne pollution on the AONB

- 4.4.1. Clean air is one of the components of environmental quality in the AONB, and therefore a consideration for planning proposals. Air pollution from nitrous oxides is expected to be well below the National Air Quality Standards limit at a 200m radius

from the generating plant. The AONB boundary lies approximately 500m to the south east of the site, and approximately 7km to the north east of the site (the prevailing wind direction). The impact of air pollution on the AONB is thus not likely to be significant.

4.5. Impact on the water resources of the AONB

4.5.1. Clean water is an important element in the Shropshire Hills landscape, and the effect of development proposals on rivers and streams, including indirect effects should be assessed. Water abstractions from aquifers are covered by a separate regulatory framework which should protect the AONB. All run-off from the site will be collected and used for cooling and there will be no effluent discharge. There is thus likely to be no adverse impact on the water resources of the AONB.

4.6. Traffic impact on the AONB

4.6.1. Traffic levels can have an adverse impact on several elements of the AONB. Vehicles generate air pollution, noise levels associated with transport can be significant, and traffic congestion may have an adverse affect on landscape character. Aspects of transport impacts include the numbers, location and timing of vehicle movements.

4.6.2. The site is bounded by two roads, one of which, the A488 to the east, is a relatively major route in the area. The B4385 to the south is quieter. The extra four HGV movements per day in daylight hours are acceptable in this context and the impact on the AONB is not likely to be significant.

4.7. Impact on land management practices within the AONB

4.7.1. Woodlands and agriculture are a very important element within the Shropshire Hills AONB landscape. In recent years it has not been economic for the owners of many small woods to manage them in ways which benefit the landscape. At the same time, the agricultural industry has suffered reduced profitability and in the Shropshire Hills, many landowners are facing an uncertain economic future. Any developments which encourage the management of small woods or support the agricultural industry in ways which conserve and enhance the landscape would be potentially beneficial for the AONB.

4.7.2. The only fuel source currently available for the power plant is wood processing by-product. The applicants propose to stimulate the production of other fuel sources by offering supply contracts. Such contracts would be up to 10 years for commercial forestry lop, top and thinnings, but the time periods for contract for the other fuel sources are not specified. This creates a measure of uncertainty. It also raises the possibility that biomass may need to be imported to power the plant if woodchip became more expensive - a likely scenario given recent rises in timber prices. Thinnings and brash from small woodland management - the fuel source most likely to have a positive effect on the AONB landscape - appear to be unlikely to be utilised by the plant in any significant quantity.

4.7.3. Energy crops generally require fairly good soil. Within the AONB they would need the same types of soils as cereals and potatoes. Such soils tend to be associated with valley floors and have a limited distribution within the designated area. The lower inputs associated with short rotation willow coppice for example, could have a beneficial effect on biodiversity and soil conservation if it displaces more intensive crops. However, the growing of *Miscanthus* may have an adverse visual impact and the benefits from this crop are less clear cut.

4.8. Overall sustainability impact

- 4.8.1. Biomass is a low calorific value fuel, and in relation to overall energy demand, very limited in availability. For energy generation from biomass sources to be sustainable, it is therefore necessary to have a favourable energy or carbon budget, i.e. to minimise energy inputs associated with fuel supply, and maximise energy utilisation, especially through combined heat and power (CHP) approaches. Since the large majority of energy produced from biomass is heat (up to four times the amount that can be used for electricity generation), best practice for CHP plants is to plan primarily for the uses of heat. This may influence fundamental considerations such as the location and scale of a plant. The heat from such a plant is likely to be low grade (i.e. warm water rather than hot) and therefore suited to a more limited range of heating applications. In addition, the high cost of heat main installation, especially into existing developments rather than new-build, is another reason why planning such a plant principally around use of heat is important.
- 4.8.2. The proposed power plant at Bishop's Castle does not show this good practice. Its primary purpose is electricity generation and it is clear that arrangements have not been secured for efficient and economic uses of most of the available heat. The exact amount of heat likely to be generated is not specified in the application details. Though some heat will be used on site, there is insufficient evidence that the energy output of the plant will be utilised to the optimum extent.
- 4.8.3. The other side of efficient energy generation is in the supply of fuel. The economics of biomass supply and transport do not always coincide with a carbon and energy efficient approach. Imported woodchip material may be available at lower cost than local biomass, but will require much more energy input to transport, possibly even more than the energy content of the fuel itself. Unless efficient local sourcing of fuel is assured, the energy budget of the supply side will not be optimised and the knock-on benefits of the plant to the local area (e.g for land management and business development) will not be realised. The AONB Partnership feels that there is insufficient evidence that these necessary conditions for the fuel supply to the plant have been met.
- 4.8.4. Sustainable development involves consideration of environmental, economic and social factors. Good practice on development of renewable energy proposals therefore includes involvement of the local community (see Regional Spatial Strategy policy below). Inadequate attention has been paid to community involvement in the development of this proposal, resulting in a lack of trust and significantly heightened opposition to the proposal. This is unfortunate given the high priority with which the community of the area regards sustainable energy use and generation.

4.9. Policy background

- 4.9.1. This application must be determined in a framework comprising policies from the Regional Spatial Strategy and Local Plan. Policy EN1 from the Regional Spatial Strategy deals with energy generation and states that (with emphasis of particularly relevant sections added in bold):

Local authorities in their development plans should:

- i) encourage proposals for the use of renewable energy resources, including biomass, onshore wind power, active solar systems, small scale hydro-electricity schemes and energy from waste combustion and landfill gas, subject to an*

assessment of their impact using the criteria in iii) below. Specific policies should be included for technologies most appropriate to the particular area;

- ii) provide locational guidance through supplementary guidance as necessary on the most appropriate locations for each renewable energy technology, having regard to resource potential, the desirability of locating generation sites close to or within areas of demand, and landscape character assessment where appropriate;*
- iii) identify the **environmental and other criteria** that will be applied to determining the acceptability of such proposals including:
 - a) impact on the landscape, visual amenity and areas of ecological or historic importance;*
 - b) impact on surrounding residents and other occupiers;*
 - c) traffic implications, and proximity to transport infrastructure;*
 - d) the environmental impact of any additional transmission requirements;*
 - e) **the extent to which the proposal helps to achieve wider environmental benefits such as reducing harmful emissions to the atmosphere;***
 - f) the way in which the proposal assists in achieving national targets of new electricity generating capacity from renewable energy sources;*
 - g) **the extent to which there has been community involvement in developing the proposal;** and*
 - h) the extent to which the proposal supports other policies in the development plan; and**
- iv) facilitate, where proposals come forward, the construction and upgrading of fossil fuel power stations that incorporate clean coal technology, the dual use of fossil and renewable resources, **good quality combined heat and power** or significant emissions abatement technologies in line with national policies for abatement at source.*

4.9.2. Policy SD1 of the South Shropshire Local Plan deals with sustainable development. It states that (with emphasis of particularly relevant sections added in bold):

Sustainable development is development that meets the needs of today without comprising the ability of future generations to meet their own needs. The Council seeks to ensure development will contribute to the principles of sustainable development by:

- 1 developing more vibrant, safer and healthier communities through a sustainable development strategy for the District;*
- 2 promoting a high quality environment by conservation and design;*
- 3 broadening the economic base of the District;*
- 4 increasing access to homes, jobs, services and facilities while reducing the need to travel;*
- 5 **providing for the conservation of natural resources and energy and through the use of renewable resources** and recycling;*
- 6 Ensuring that sufficient land is shown on the proposals map to accommodate 5 times the planned annual provision for housing, on a phased basis to prioritise the development of brown field sites*

4.9.3. The Shropshire Hills AONB Management Plan does not contain specific policies on renewable energy. However a draft position statement considered by the AONB Partnership does contain the following:

The AONB must concern itself with CO2 reduction measures to mitigate climate change and ... AONB policy must give a high priority to providing solutions and means of reducing CO2 emissions, in ways that are compatible with landscape conservation.

Links between the AONB and its surrounding area are particularly relevant regarding energy. ... Supply chains should be kept short where possible. Localisation of energy production will help to improve energy security.

Biomass:

- Existing biomass resource - i.e. woodlands. This area has the greatest overlap of benefits with conservation, as many woods are under-managed. High levels of unplanned or uncontrolled harvesting could however be damaging. Wood energy is especially suited to heating rather than electricity generation. Transport will be an issue for larger scale schemes, but the rural nature of the area also makes the use of very local resources cost effective.

- Specially planted crops - including willow coppice, Miscanthus, and wheat and rape for biofuels. The intensity of management and impact on wildlife are considerations as well as visual impact. The appearance may however be no less natural than any other crop. A major influence is the demand and where the crops are used and processed.

Draft policies:

1. Energy conservation should be given equal or higher priority to renewable energy generation. ... Local authorities should encourage integration of energy efficiency and renewable energy in all development, new or renewal, and of any scale.

2. Scale. Renewable energy developments in the AONB should generally be of a small scale. Wind farms or large scale biomass energy generation facilities are likely to be inappropriate. Larger scale energy developments will be more suitable outside the AONB, e.g. linked to market towns where transport links are better, closer to larger scale demand, etc. These could however have implications for the area, e.g. AONB acts as a source for larger wood chip boilers or biofuel processing plants elsewhere.

3. Location. Locating new developments near to or replacing existing development will generally be preferable to locations in open countryside. The impact on the AONB of larger scale developments outside the boundary is a material planning consideration.

4. Design. Potential impacts of individual proposals can be lessened through appropriate design and landscape schemes.

8. Biomass energy, especially wood energy based on existing resources in the area, is particularly compatible with the AONB and should be strongly supported. There are potential biodiversity benefits through improving management of woodlands, by harvesting appropriate levels of material, e.g. reinstating coppicing cycles.

9. Energy crops should not in general be opposed on visual grounds. Low intensity regimes are likely to be more beneficial to wildlife. The location of processing plants has transport implications.

10. Awareness of energy and climate change issues should be raised and commitment in the community to a low carbon future promoted. Increased community involvement in energy conservation and renewable energy projects should be supported.

11. Renewable energy developments can help the diversification of rural economies where they have genuine links to other activities and businesses in the locality, and business development should be supported.

4.10. Summary of evaluation

4.10.1. The impacts of this planning proposal on the Shropshire Hills AONB in terms of visual amenity, landscape character, noise, air and water quality and traffic are unlikely to be significant. It also appears that any potential positive impacts e.g. on stimulating management of small woodlands, will be very limited.

4.10.2. As outlined above, the AONB Partnership supports the principle of decentralised energy generation and appropriate use of biomass for renewable energy. However, issues centring on the overall energy budget of the plant raise serious concerns, and there is insufficient evidence in the application that this development makes either the most efficient use of a natural resource or that it will produce a net carbon saving. These are not matters of detail, but fundamental to the design and location of the plant. They merit serious consideration in the development control process.

5. RECOMMENDATION:

The Management Board is recommended to endorse an objection by the Shropshire Hills AONB Partnership to this planning application, on the grounds of uncertainty about the overall sustainability of the proposal.

This paper has been prepared by Joy Tetsill, Planning and Policy Officer. For further details contact 01588 674085 or joy.tetsill@shropshire-cc.gov.uk. (Mon -Weds).