Background

Energy for Nature evolved from the DECC Wetland Biomass to Bioenergy Competition¹ which looked at ways in which to harvest biomass² from wetland nature reserves and convert the material into viable bioenergy products. The management of wetland habitats generates large quantities of surplus biomass which is costly to remove, and limits the quality and extent of the habitat management the RSPB can carry out for wildlife. By converting the material into saleable bioenergy products the cost of management may be reduced or offset. The DECC project provided a wealth of valuable information about the practical end-to-end processes necessary to achieve this but did not consider the economics, markets or business opportunities that ‘conservation biomass to bioenergy’ could afford the RSPB and other land managers. Energy for Nature addressed this knowledge gap.

What is Energy for Nature?

Energy for Nature was one of several projects funded through the third round of Defra's Payments for Ecosystem Services (PES)³ Pilot Scheme between 2014/2015. The project aimed to develop a PES based model that links biomass producers, through intermediaries and markets, to the buyers of bioenergy products, and therefore create a sustainable funding stream to support essential conservation work whilst providing a reliable, and ecologically sustainable, source of energy to local communities.

What did the project aim to achieve?

The project ran from May 2014 to April 2015 and focused on the Somerset Levels and Moors in southwest England. This was one of the locations for the DECC research and is an important wetland area for the RSPB and other organisations (e.g. Natural England, Somerset Wildlife Trust, etc.) due to its significance for wildlife.

Through the project we worked with local stakeholders to:

• Determine the extent of the biomass problem in the area.
• Establish what level of interest there was for developing a PES scheme.
• Determine which bioenergy products stakeholders were most interested in.
• Determine who all the actors in a scheme would be and their associated role.
• Identify possible barriers and challenges to scheme development and implementation.

The data gathered through the stakeholder engagement process was then used to assess the opportunities for developing a scheme based on PES principles and to develop two potential models for delivery.

Economic and market analyses were also carried out and suggestions for possible business models developed based on the results.

¹ Wetland Biomass to Bioenergy Competition
² Unutilised vegetation produced as a by product from habitat management
³ Payment for Ecosystem Services (PES): A form of market based instrument used to help deliver the provision of ecosystem services over and above what would be delivered in the absence of a payment. It is based on the idea of the ‘beneficiary pays principle’, whereby the ecosystem service user (i.e. the beneficiary) pays the service provider to secure the continuation of its supply. Schemes can be varied, operate across a range of spatial scales and involve a variety of stakeholders who are linked together in a variety of different ways. For a full definition see the Defra PES Best Practice Guide (2013)
What were the results?

- Energy for Nature can provide a viable solution to the biomass challenge faced by land managers.
- Implementing Energy for Nature in the project area has the potential to convert the costs of managing vegetation from c. £70,000/year to harvest and remove via contractors into bioenergy products worth £150,000 as wholesale loose biomass, or over £5 million if converted into biochar and sold retail.
- The results show that creating a profitable business is achievable, particularly through the conversion into heat and power via anaerobic digestion (AD). However, the extent to which this will be the case will be heavily dependent on the volumes and types of biomass available.
- Two delivery models were developed based around PES principles: Land Manager Model and Community Model.
- Bioenergy (fuel) is the primary service being delivered with biodiversity as a co-benefit through the funding of habitat management.
- The Land Manager Model is driven by the need of land managers to address their biomass challenges and improve land management for wildlife. The model is most similar to a traditional PES scheme with payments moving directly between buyers of the bioenergy product (e.g. local community) and sellers of the biomass (e.g. RSPB).
- The Community Model is driven by the desire of local communities to reduce their dependence on fossil fuels and diversify rural economies. The model is based on actors subscribing to a cooperative grouping (e.g. community benefit society, land trust, etc.) and receiving payments as a share of profits generated from the sale of bioenergy products.
- Whether the driver is land management or community development Energy for Nature has the potential to increase the opportunities for delivering biodiversity at the landscape scale, whilst helping to promote a low carbon, more sustainable economy through providing communities with greener, locally sourced alternatives to fossil fuels.

What's happening now?

The RSPB is using the research in Energy for Nature to explore how conservation biomass to bioenergy can be implemented on the ground. Work is continuing in the Somerset Levels and Moors case study area to:

- Develop and trial the Land Manager Model, including identifying the administrative structures required to implement on-the-ground to ensure successful delivery.
- Identify key areas in the region where the conversion of conservation biomass into bioenergy could be rolled out for the benefit of nature and people.
- Develop the Community Model, identifying business structures and opportunities to work with local stakeholders to trial in the area.

Where can I find more information?

The full report has been published by Defra and can be accessed online at: [Energy for Nature project report](#)

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