

Yorkshire and Humber Vision for Biomass

Summary Spring 2008

Contents

Executive Summary	03
Regional Action Plan	07
Raising awareness	08
Development of markets	09
Development of fuel supply chains	11
General support for biomass fuel development	12
Biomass energy in regeneration schemes	14
Regulations, planning and other public issues	15
Funding support	16
List of Consultees	17
Abbreviations	18

Acknowledgments

This report has been developed by AEA Energy and Environment on behalf of the Yorkshire and Humber Assembly, Yorkshire Forward and Government Office for Yorkshire and the Humber.

Executive summary

This report provides a Vision for Biomass for the Yorkshire and Humber region and an Action Plan to achieve this Vision.





The Vision for Biomass has been produced in response to a number of regional targets, developments and aspirations that are driving bioenergy in the region. The need for a Vision for Biomass to act as a focus for enabling bioenergy to develop in a sustainable manner in the area is outlined in the Regional Energy Infrastructure Strategy:

“Among the primary developments the region would like to see is an extensive regional bioenergy infrastructure that includes the widespread production and use of biomass and biofuels”

In addition, the Vision for Biomass can contribute to a number of important targets that have been set for the region:

- The Regional Economic Strategy sets a target to reduce greenhouse gas (GHG) emissions by 20-25% by 2016 from a 1990 baseline – biomass energy can make a significant contribution to assisting the region’s move towards a low carbon economy
- The Draft Regional Spatial Strategy sets the target that 10% of energy required for sizeable new developments must come from on-site renewable energy sources - biomass is an ideal technology to provide heat to such developments
- The Regional Economic Strategy, Climate Change Action Plan and Vision for Coal all target the development of new technology and an increased role for biomass as an important resource for reducing emissions and achieving regional energy and climate change targets
- There are renewable electricity targets provided in the Regional Spatial Strategy to which biomass can make an important contribution
- The Regional Forestry Strategy – ‘The Value of Trees in Our Changing Region’ provides a Strategic Framework for the future management of trees and woodlands in the Yorkshire and the Humber region. The strategy contains a specific theme on climate change, which includes details of the role and value of biomass as a key source of renewable energy.

Achieving these targets would benefit from the establishment of an extensive regional bioenergy infrastructure that includes biomass energy.

The Regional Energy Infrastructure Strategy called for the development of a biomass action plan. The remit of the action plan is to cover all aspects of biomass, including fuel types, supply chain issues, energy generation systems and cofiring.

The Vision for Biomass and the Action Plan have been developed at an opportune time, with the publication of the Government’s Energy White Paper: Meeting the Energy Challenge, the launch of the UK Biomass Strategy and the Forestry Commission’s Wood Fuel Strategy for England. It places the region in a position to take advantage of the initiatives outlined in the Government’s strategy.

The region is not new to biomass. There are already key developments that provide a solid foundation on which to build biomass in the future. Current biomass experience and aspirations within the region include:

- Development of small scale heat clusters in South Yorkshire, centred on initiatives to procure biomass technology, refurbish/replace coal boilers with biomass boilers, and support woodland management and wood fuel supply chains to supply these schemes. There are initiatives to replicate and expand this biomass use across the region.
- Cofiring of biomass at the region’s three large coal power stations in response to support through the Renewables Obligation and the requirements of the EU Emissions Trading Scheme. Cofiring has stimulated the import of large quantities of biomass fuels through the Humber ports.
- Proposals to develop biofuels in the Humber port area, including biodiesel and bioethanol plants that would use locally produced crops and imported feedstocks
- Proposals for medium to large scale, stand-alone biomass generation on feedstocks such as straw and the residues from biofuels production
- Proposals for development of secure biomass supply through the development of a wood pellet plant in the region

Biomass addressed in this report

For the purposes of the Vision for Biomass, the following definition of biomass has been used:

Biomass derived from plant or animal matter, including residue materials from agricultural and forestry practice and co-products from sawmills, but not biomass derived from mixed or municipal wastes. This is because the region is currently developing a waste strategy and inclusion of biomass from mixed wastes in this Vision for Biomass would pre-empt that strategy.

The application of biomass fuels considered within the Vision for Biomass is:

Heat and power generated from biomass, but not transport fuels. This is because transport fuels are currently being considered in a separate study.

Development of the Vision for Biomass

The Yorkshire and the Humber region is fortunate in that it has a number of organisations that have considerable experience of biomass in the UK, able to discuss the technology from first-hand experience and are widely respected for this knowledge. This provides credibility to actions taken within the region and has contributed to the success of biomass to date. The Vision for Biomass was developed through an iterative process of consultation with such key stakeholders, together with others involved in procurement, research and the power and oil industry. This consultation was used to define the needs of the biomass sector in the area, based on past and current experience, and to define the aspirations for biomass in the area, based on realistic expectations of what could be achieved. The contribution of these stakeholders has been valuable and helped to shape the Vision and the Action Plan.



Aims and Objectives for the Vision for Biomass

Primary aim of Vision for Biomass

To enable the region to realise the benefits of reduced GHG emissions; increased security of energy supplies for heat, power and transport; and regional environmental improvements through the development of a strong and sustainable biomass industry.

Vision for Biomass: Objectives

- Enable biomass to make a contribution to the region's target to reduce GHG emissions by 20-25% by 2016
- Ensure that increased biomass production and use enhances the region's biodiversity and contributes positively to other environmental targets (e.g. air quality)
- Help deliver biomass for cofiring 15-20% biomass at the three coal-fired power stations in the region by facilitating expansion of the region's capacity to supply biomass fuel by 2020
- Facilitate and support initiatives to encourage the use of biomass-based local heat and power supply
- Support initiatives that will encourage owners of under managed woods to maximise their economic potential and social benefits, while enhancing their biodiversity value through sustainable woodland management. This should include appropriate support for biomass supply chains and the parallel development of generation technology for biomass, in line with the Forestry Commission's Wood Fuel Strategy.
- Contribute to economic regeneration, particularly in rural areas
- Facilitate skills growth in biomass energy technology and in the development of local supply chains

As part of these objectives, the Vision for Biomass outlines an Action Plan to enable the development of:

- An extensive regional bioenergy infrastructure that includes the widespread production and use of biomass and biofuels
- Renewable generation of electricity and heat, mainstreamed throughout the region's communities and built environment
- Support initiatives that will encourage owners of under managed woods to maximise their economic potential, including the production of fuel-grade biomass

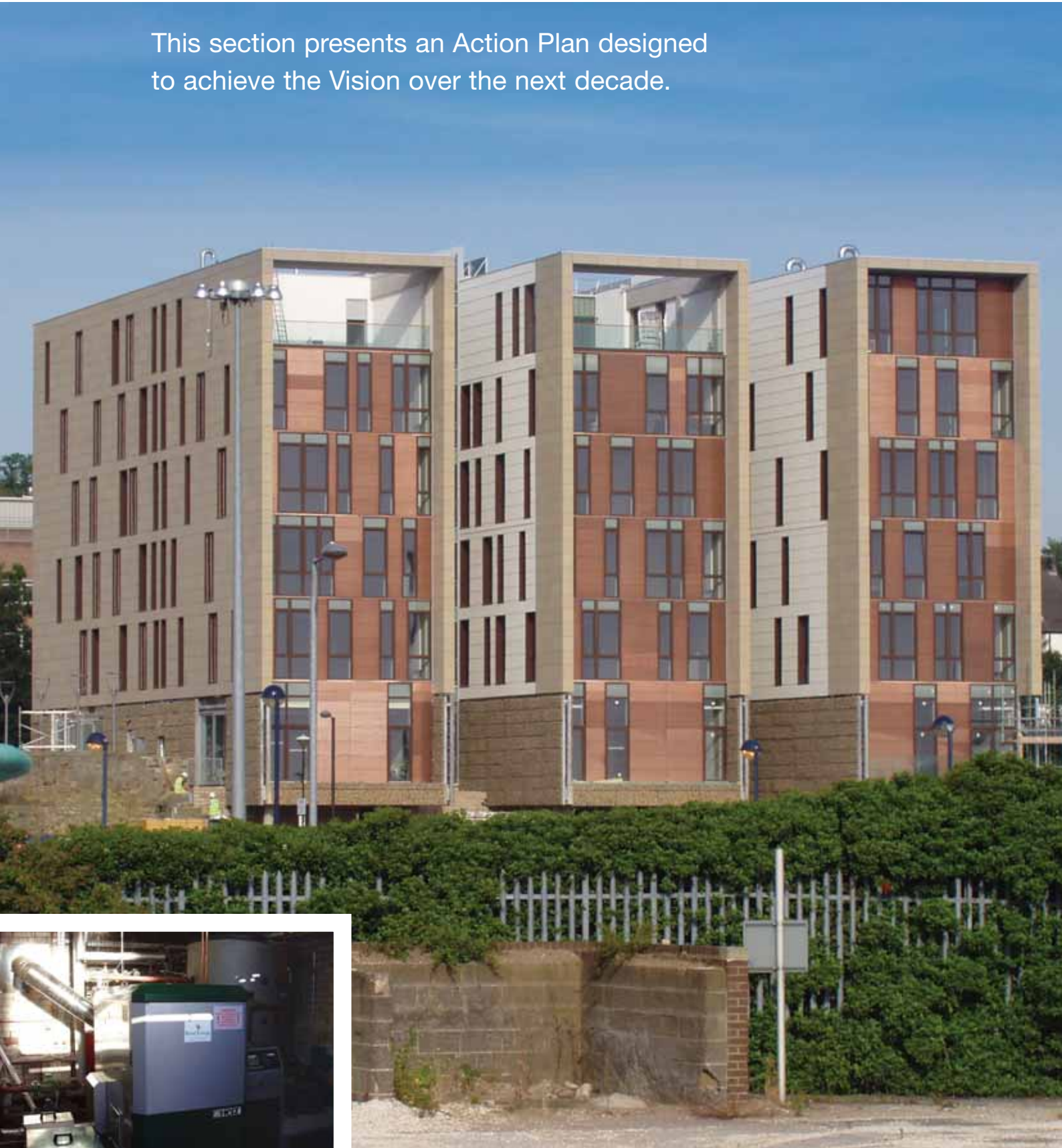
The Action Plan is outlined in the following pages. It has been divided into a series of key Priority Actions:

- Raising awareness of the Vision and ensuring that its objectives are met and it remains relevant to developments in the region
- Development of the local market for biomass heat and power, including both cofiring and stand-alone biomass heat and power
- Development of local fuel supply from wood fuels and energy crops
- Inclusion of biomass energy in regeneration schemes
- Regulations, planning and other public issues
- Funding support

Each priority action is detailed separately, together with key actions, tasks and target milestones.

Regional Action Plan

This section presents an Action Plan designed to achieve the Vision over the next decade.





Woodchip storage facility
Silverpower Ltd

The Action Plan has been divided into a series of headings, each relating to specific key Priority Actions:

- Raising awareness of the Vision and ensuring that its objectives are met and it remains relevant to developments in the Region
- Development of the local market for biomass heat and power, including cofiring and stand-alone biomass heat and power
- Development of local fuel supply from wood fuels and energy crops
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- Funding support

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Raising awareness

There are many stakeholders who will need to be active participants in biomass energy for this Vision for Biomass to be achieved. These include the forestry and farming sectors, as well as the biomass fuel and equipment suppliers. However, there are also other important stakeholders who need to be made aware of opportunities and to understand biomass energy and how to develop it. These include planners, architects, developers, builders, local authorities, councillors and the general public. Without the understanding and support of all of these groups, the Vision for Biomass may not achieve its full potential. It is important to publicise the Vision to these stakeholders and to provide appropriate information, training and contact points.

Priority Action 1. Raise awareness of the Vision for Biomass among potential stakeholders

Objectives	Key Tasks	Target Milestones
1.1 Make all relevant stakeholders aware of the Vision for Biomass	1.1.1 Use launch of Vision for Biomass to publicise opportunities for biomass energy to key local stakeholders	Launch of Vision for Biomass Q3 2007 Launch event, Vision on YF website, linked to other key websites, articles in local journals/newsletters Q3 2007
1.2 Ensure that accessible information is available to all decision makers (planners, local councillors, developers, architects, local community groups, etc)	1.2.1 Publicity material, presentations at appropriate meetings, provision of information	Develop and maintain database of key local stakeholders, using trade bodies and other groups where appropriate. Q3 2007 Invite representatives of these groups to launch Q3 2007 Target groups through open days and events (e.g. Great Yorkshire Show), newsletters or other types of information provision. Ongoing Examine potential for establishing a forum for practitioners to meet and exchange information and experiences. Q4 2007 Funded activities to report to Regional Energy Forum (REF) on routine basis, as indicated in contract

Priority Action 2. Monitor Action Plan and report back to the Regional Energy Forum (REF)

2.1 Ensure that progress remains focused on regional needs	2.1.1 Presentations to REF	Funded activities to report to REF on routine basis, as indicated in contract Update action plan every 3-5 years based on progress. This should take changes and challenges into account. First update 2010
2.2 Ensure Action Plan is monitored and targets achieved	2.2.1 Presentations to REF	Report to REF on gaps, key issues, progress, etc on a quarterly basis. Task 2.1 should link to this
2.3 Ensure co-ordination between the Regional Forestry Strategy (RFS) and the Vision for Biomass	2.3.1 Establish good lines of communication between parties responsible for delivery	Inclusion of Regional Forestry Strategy (RFS) delivery manager in meetings of REF

Development of markets

There is a range of markets for biomass heat and power in Yorkshire and Humber. At the large scale, one of the key opportunities is the market for cofiring; at smaller scale there are opportunities for stand-alone heat and power plants. Priority Action 3 details actions for cofiring, Priority Action 4 details actions for smaller scale heat and power plants. Priority Action 3 centres on the three largest coal power stations in South Yorkshire (Drax, Ferrybridge and Eggborough) and presents opportunities for a range of biomass fuels, including energy crops and imported biomass. Within this Vision, actions to maximise the benefit from cofiring for the region are considered together with the infrastructure that is required to smooth supply and minimise impact. The Humber port is the closest port to 11 of the country's power stations. Development of import facilities on the Humber benefits not just this region, but neighbouring regions as well.



Cooling towers at Drax Power Station

Priority Action 3. Help deliver cofiring of 15-20% biomass at the coal-fired power stations in the region by facilitating the expansion of the region's capacity to supply biomass fuel

Objectives	Key Tasks	Target Milestones
3.1 Identify infrastructure needs for importing biomass fuels and regional transport of biomass fuels	3.1.1 Support expansion of infrastructure where there is a good case for improvement	Consider need for storage facilities at Humber ports. Q4 2007/08 Power stations to conduct feasibility studies for case for development of infrastructure 2007/10. Development of infrastructure for delivery of biomass for cofiring post 2010
3.2 Use secure cofiring market to assist expansion of local sustainable biomass supply	3.2.1 Support the provision of a network to provide information, advice, guidance and training	Expansion of website to include information on sustainable biomass (Q3 2007 and ongoing) Open days and relevant local events to follow on from launch (from Q4 2007/08; Q1-2 2008/09)
	3.2.2 Identify the potential and the issues to be considered for the development of Short Rotation Forestry (SRF) within the region	Identification of the key issues to be considered for the establishment of SRF by Q1 2008/09

The other important biomass market indicated above is for small, medium and large scale heat and power. Biomass heat and power has been proven, regionally and nationally, but there is still need for support. Funding is available at regional, national and EU level to help establish this market, but it also requires political support (the support of the local community and local councils), security of fuel supply and investment in infrastructure. There are a number of important key players supporting small and medium scale heat in the region, and two key opportunities that the Vision aims to replicate - one with local authorities (e.g. the work in South Yorkshire) and one with estates/biomass growers (e.g. the demonstration of heat supply linked to woodland management at Swinton Park).

The concurrent development of biomass supply is required to achieve a stable market for biomass heat and power. Support for biomass supply is proposed in Priority Action 5. Other key issues for the small and medium scale market include: the high capital cost of biomass plant compared with conventional fuels (despite the better lifetime costs for biomass schemes, this is still a major barrier); the need to prepare biomass fuels to an appropriate specification for the plant, and the inexperience of many users, which can lead to mistakes in design of schemes and biomass storage facilities. There is a clear need for information on a regional basis, linked to national information, such as the Biomass Energy Centre. Future Energy Yorkshire (FEY) already provides a website with useful information. This should be maintained and expanded to include information listed in objective 4.5 overleaf.



Sheffield Road flats
Barnsley

Development of markets (continued)

Priority Action 4. Enable sustainable bioenergy to make a significant contribution to the region's target to reduce GHG emissions by 20-25% by 2016, through local heat and power schemes

Objectives	Key Tasks	Target Milestones
4.1 Ensure full use is made of opportunities to influence Government thinking	4.1.1 Co-ordinate responses to consultations on a regional level, using information from this Vision and other regional sources to demonstrate the significance of the region's contribution nationally 4.1.2 Use opportunities outlined in national strategies to ensure continued support from biomass in the region	Comment on consultations as and when relevant Milestones as set by National Biomass Strategy
4.2 Provide support for small and medium business clusters supplying heat and power locally. This should build on the success of the cluster in South Yorkshire and promote the inclusion of bioenergy in urban regeneration schemes	4.2.1 Continue to maintain the momentum in South Yorkshire 4.2.2 Replicate the approach of the SYFP Biomass Pathfinder in other sub-regions including: <ul style="list-style-type: none"> • Equipment to process biomass (e.g. close capital funding "gap" between the cost of gas and biomass plant); • Support for fledgling processors and supplies 	Support continuing outreach work of SYFP, particularly in supporting new clusters (site visits, training, supply of experience and information) 2007/10 Assist local authorities and forestry non-governmental organisations to establish similar programmes in other sub-regions 2007/10
4.3 Build on current work in schools across the region to develop a substantive action plan for the use of biomass in schools	4.3.1 Liaise with procurement for rebuilding and refurbishment in secondary schools to ensure that biomass procurement is included in priorities; continue to push for opportunities for biomass energy in retrofit/boiler replacement in schools	Biomass procurement included as priority for energy provision in secondary schools marked for rebuilding or refurbishment in the region 2007-2010
4.4 Promote web-based info on biomass	4.4.1 FEY is currently consulting on the contents of the website. Issues that could be considered include: case studies of biomass use, good practice guidance, biomass price indices, an interactive map of local contractors, downloadable biomass supply contracts and details of regional facilitators	From Q3 2007
4.5 Support recovery of energy from waste wood	4.5.1 Pursue the use of waste wood fuels at schemes to use the region's significant waste wood resource	By Q1 2008/09, review the amount and availability of the waste wood resource, including: <ul style="list-style-type: none"> • The amount and type of waste wood available in the region • The collection facilities available • The processing facilities available • Established alternative markets • Expansion of existing facilities required to establish a reliable waste wood fuel resource • Potential waste wood users

Development of fuel supply chains

One of the key priorities required to build up biomass use in the region is the development of a secure, stable biomass supply. There are many opportunities to develop this from the current supply - local woodland is under managed and could provide a much greater resource of wood fuel, local arboricultural wood supplies are under utilised, there is a great potential to develop the sustainable supply of energy crops locally and the current successful import market could be expanded. These issues are addressed under three priority actions below.

Forestry and other residual wood fuels

The key priorities for forest and residual wood fuels are to increase the volume of wood fuel and improve the infrastructure to access and store it. A number of actions are needed to establish increased wood fuel supply. These include: supporting the Forestry Commission in its work to improve management of current under managed woodland in the Region; continuing support for initiatives such as those undertaken by SYFP, Yorwoods and the White Rose Forest Partnership; and replicating their success throughout the region. As part of this, there will be a need to build additional infrastructure to enable wood fuel resources to be accessed and stored, and to provide support for local forestry contracting businesses that are too small to qualify for grant aid on an individual basis at present.

The region could also access a significant additional wood fuel resource from urban tree management. There have been successful initiatives to support and demonstrate the use of this resource. Additional support is required to replicate this success and increase the use of this potential wood fuel.

The Forestry Commission (FC) has identified a need for training as part of its strategy to bring under managed woodland back into use. The region can support the Forestry Commission in this area (e.g. by building on the general training already undertaken by Yorwoods).

Energy crops: short rotation coppice (SRC) and other energy crops

A further significant source of biomass fuel can be supplied from energy crops grown in the region, but expansion of energy crops and their markets has been slower than hoped nationally. There are already a number of organisations in Yorkshire and the Humber that are growing SRC, making the region a leader in this area in the UK. These suppliers need assistance in establishing a stable market for their fuel, establishing contracts and assisting the region too expand its energy crops resource (e.g. through the promotion of SRC to other farmers).

Planting of miscanthus is also increasing locally. However, with the increases come concerns that large plantations of energy crops could result in impacts on the biodiversity and character of the region. These need to be addressed through the application of good practice (under the right circumstances biodiversity can be improved) and guidelines should be made widely available and applied locally.

Conventional crops, such as wheat and oil seed rape, are also being planted for the purpose of being used as feedstock for liquid transport biofuels. It is not clear how this could impact on the potential for growing energy crops for heat and power. This is a situation that should be monitored, particularly if strategies for biomass fuel supply for heat and power rely on the planting of large quantities of energy crops.

There are a number of key issues for energy crops that need to be addressed:

- The novelty of some crops (like SRC) means that farmers are not certain of the crop, how to grow/harvest it and what it will do to their land in the long term. Although some of the current growers provide support and training, more resources are needed to do this on a wider scale.
- Farmers need to see other local growers having success to provide them with the confidence of growing energy crops on their own land
- For long term crops like SRC, there is confusion over ownership for farmers who lease land. As the crop grows for 20-25 years, but the major costs are in the up-front establishment, who owns the crop in the long term? This contractual issue is a barrier to growing SRC.
- Some energy crops (e.g. SRC and miscanthus grass) require novel establishment techniques and equipment. Rhizomes for miscanthus and cuttings for SRC are not always readily available and equipment for establishment and harvesting is limited. Strategies for large scale planting need to take this into account.



Planting of miscanthus is on the increase



Woodchip boiler
Carwood Close
Burngreave, Sheffield

Development of fuel supply chains (continued)

General support for biomass fuel development

In addition to growing and harvesting biomass fuel, it is important that it is produced to an appropriate specification for the energy conversion plant. This involves drying, storing, chopping, chipping or pelleting the fuel appropriately. One priority is to support the region's biomass sector develop appropriate fuels to the appropriate specification.

Priority Action 5. Assistance for the development of viable, secure and sustainable biomass supply chains in the region

Objectives	Key Tasks	Target Milestones
5.1 Provide support for growing and producing biomass fuels: forestry and other wood residues	5.1.1 Promotion of forestry residue and other wood residue fuels to encourage the development of biomass supply, targeted at potential local users. Use best practice (e.g. Swinton Park) to demonstrate the difference production of biomass fuels can make	By Q4 2007/08 develop strategy for promotion of biomass, (through FC, CLA, NFU and other local stakeholders) including: <ul style="list-style-type: none"> • Open days • Links to proposed and existing biomass use • Support for existing initiatives to encourage landowners to bring woodlands into management • FEY to provide details of the Bio-energy Infrastructure Scheme through the online funding database • Funding also needs to be made available to micro businesses as well as SMEs
	5.1.2 Support initiatives that encourage and develop sustainable woodland management to deliver fuel grade biomass and deliver the objectives within the Regional Forestry Strategy	<ul style="list-style-type: none"> • Provision of best practice case studies • Invest in infrastructure (e.g. improved access and storage areas) linked producer groups and training (see 3.2.1 and 5.1.6) • Build on the experience of infrastructure assistance provided through the South Yorkshire Forestry Resource Grant • Assist development of market for wood fuels
	5.1.3 Bring woodland into management to produce wood fuel where appropriate	Build on previous experience of woodland management by SYFP and other NGOs. 2007/10 Direct purchase of woodland where appropriate to allow management for community benefits, biodiversity and wood fuel production. 2007/10
	5.1.4 Assist the development of the urban tree management resource into good quality fuel chain	Support sub-regional groups such as White Rose Forest to: <ul style="list-style-type: none"> • Examine the feasibility of setting in place collection systems to provide a viable wood fuel supply from urban wood. Q2 2008/09 • Assist with the purchase of equipment for the processing of wood collected from urban trees. 2007-Q3 2008/09
	5.1.5 Use Intelligent Energy Europe and INTERREG networks/funding to benefit from relevant European experience	Networks and site visits can be used to access support and transferable skills, provided they concentrate on models that are applicable to the Yorkshire and Humber Region and including local schemes. First study tour complete by Q1 2009/10
	5.1.6 Training for the production of biomass fuels from under managed woodlands and the urban woodland resource	Build on and develop Yorwood's Ignite wood fuel training course and Lantra's work on providing skills in the trees and timber sector, to provide more focused courses, not just for woodland management, but also other components of the supply chain. Co-ordinate with Forestry Commission's Wood fuel strategy work. Initial courses Q1 2008/09

Objectives	Key Tasks	Target Milestones
5.2 Provide support for growing and producing biomass fuels: SRC and other energy crops	5.2.1 Establish forum of potential growers and users to provide forum for discussion of key issues that prevent energy crops being realised	Forum for discussing specific requirements of energy crops production, including how the divergent needs of farmers and power station operators can be reconciled to mutual benefit. First meeting held in Q4 2007/08
	5.2.2 Support establishment of exemplar sites to demonstrate possibilities of energy crops and encourage other farmers to grow energy crops	Support pioneer farmers in each sub-region to ensure that they are able to access assistance to overcome problems and to access a ready market. Their success will encourage other local farmers to follow their lead. 2007/10
	5.2.3 Support for infrastructure to enable establishment of energy crops (e.g. planting, harvesting equipment)	Assist with the purchase of appropriate equipment and planting materials to establish energy crops on a sub-regional level. This could be achieved through BEIS, subject to liaison with other forms on infrastructure support. Q3 2008/09
	5.2.4 Training for the production of biomass fuels from energy crops	Information on how and where to grow energy crops, advice on good practice and practical training Q4 2007/08 Provide as workshops at events such as the Great Yorkshire Show (Q2 2008 and each following year) and as part of Defra/NFU information days
	5.2.5 Explore opportunities to trial advanced approaches to biomass planting	See 3.2. Review promising planting regimes for increasing biomass yields in agriculture Q2/3 2008/09
5.3 Support for biomass fuel development	5.3.1 Provide information on key issues for contracts for the provision and use of biomass fuels, such as moisture content, contamination, particle size, etc	FEY to provide sample contracts on website (see 4.4), linked to information on a list of key issues and complexities (e.g. the strength of Government policy (the RO), the demand of fuels for cofiring, the involvement of other companies involved in supply contracts and how a tenant farmer could grow a crop that might be in the ground for 25 years without risking losing initial investment). Include details of CEN standards. Q4 2007/08/Q1 2008/09
	5.3.2 Support the establishment of wood pellet production capacity within the region	Business plan for single mill already developed. Identify site for plant and contract for biomass feedstock Q4, 2007. Construction and commissioning 2008/09





Biomass pellet stove
Settle Railway Station

Biomass energy in regeneration schemes

Biomass energy has the potential to make valuable contributions to rural and urban regeneration schemes. It can provide sustainable, economic heat (on a lifetime basis) and provides an opportunity to link energy supply with the local community and local fuel supply. For these reasons, the Regional Implementation Plan for the Rural Development Plan for England (RDPE) encourages the use of wood fuel. However, there are misconceptions about biomass heat that need to be addressed, such as how dirty it is, the level of carbon savings and the amount of routine maintenance required. There is also a need to clarify the impact of biomass heat on smoke control limits within the Clean Air Act.

Another technology that could be applied within the region is anaerobic digestion. This technology can be used to treat a wide variety of organic waste streams producing a methane-rich biogas that can be used to generate heat and/or power. It can be undertaken at small scale on farms or much larger centralised plant that treat wastes and slurries from a number of sources. A basic review of the potential of anaerobic digestion within the Yorkshire and the Humber region will allow an assessment of the contribution anaerobic digestion can make and the relative costs of the potential options.

Priority Action 6. Support the inclusion of biomass energy in urban and rural regeneration schemes

Objectives	Key Tasks	Target Milestones
6.1 Information dissemination to challenge misconceptions about biomass heat	<p>6.1.1 Link information dissemination to wider publicity and replication work in South Yorkshire</p> <p>6.1.2 Use open days and site tours/visits to provide information.</p> <p>6.1.3 Information dissemination through GOYH, RICS, RIBA, RTPPI and similar organisations</p>	<p>Link to information dissemination in 1.2, 3.2.1 and 4.4.1</p> <p>Information dissemination through RICS, RIBA and RTPPI should be an ongoing process throughout 2007/10</p>
6.2 Encourage the use of biomass energy in rural renewal programmes	6.2.1 Ensure biomass is included in headline objectives for programmes	Link to Renaissance Market Towns initiative and RDPE
6.3 Investigate the potential for at least one anaerobic digestion scheme	6.3.1 Support study to develop a business plan to develop a centralised anaerobic digester in the region	Study should include review of potential for anaerobic digestion in region. Complete study Q2 2008/09. Identify site Q2 2008/09

Regulations, planning and other public issues

There are a number of other issues that will influence the uptake of biomass energy, which are beyond the control of the biomass grower or plant developer. These include:

Planning and regulatory requirements. Planning can be costly and time consuming. Well planned and informative submissions, open communication and well informed planning officers can all decrease the difficulties faced at the planning stage. Licensing/permitting of plants can be complex and time consuming, particularly for small plant developers who do not have the resources to hire experienced consultancy help. Emissions to air regulated under the Clean Air Act also need to be considered where there are a number of plants within smokeless zones.

Connection to the local energy infrastructure. Connection of electricity generation to the grid can be very expensive, especially where the grid is weak in remote rural areas. For heat plants, expensive local or district heat networks may be needed to extract the full use of the heat available.

Public perception of proposed plants is mixed, part in favour and part against (particularly when the plants will be built locally). Key issues include concerns about biomass production and the impact of the plant. Many of these concerns can be addressed using good practice and providing clear information to the local community at the planning stage, and, as an ongoing process, during the operation of plants. Small scale schemes in South Yorkshire have had a positive reception and experience once in operation, as the users can see that the schemes are cleaner and cheaper than the coal boilers they replaced. Issues about public perception of forestry management and short rotation coppice should be addressed by the environmental impact assessment regulations for forestry.

Standards for biomass fuels are being developed at EU level. These standards will result in the maturity of biomass as a fuel, providing methods for the monitoring of the fuels and for compliance with regulations.



Mercia Energy biomass boiler demonstration unit

Priority Action 7. Identify and clarify areas where regulations, limits in the grid and public perception are limiting biomass energy

Objectives	Key Tasks	Target Milestones
7.1 Clarify local effects of air emissions from biomass heat and power plants, both within and outside smokeless zones under the Clean Air Act	7.1.1 Publicise information on equipment exempt from the Clean Air Act, linked to information provided by Defra/Department for Communities and Local Government on potential air emissions and exempt appliances	Identification of key air emission issues and provision of information and links by Q4 2007/08 Review implications of Clean Air Act on the growth and costs of biomass within the region and disseminate by Q1 2008/09
7.2 The cost of grid connection for biomass power plants can be very high. It is important that developers understand the limits of sites prior to commencing development	7.2.1 Establish suitable protocol for bringing forward biomass project information	Information on how developers and the Distribution Network Operators can work to ensure that grid connection costs are well defined and understood. Q1 2008/09
7.3 Adopt standards for biomass fuels developed within the EU	7.3.1 Examine opportunities to publicise standards that have been developed for biomass fuels locally. Include proposed specifications for fuels and other proposals for monitoring and measuring fuels on websites	Encourage the Renewable Energy Association (REA) to organise a local event to publicise these standards and to discuss their content Event to publicise standards for biomass fuel by end 2008/09



Chipping demonstration
at Silvapower Ltd

Funding support

Financing, particularly of capital costs, is an important area for biomass energy. Obtaining finance for relatively small scale projects can be particularly difficult as the level of finance required falls below the limit for venture capital funds. Consequently, the cost of finance can be high. As a result, support through capital grants, low interest loans and other mechanisms can be important in establishing biomass energy. There are a number of sources of funding at national and EU level, which could be used to supplement funding within the region. These funds include national support programmes, such as the Bioenergy Capital Grant Scheme, the Biomass Energy Infrastructure Scheme and the new Energy Crops Scheme (part of the Rural Development Programme for England), which should be in operation in summer 2008. In addition, DBERR, the Carbon Trust and the Energy Saving Trust also support the development of biomass energy.

At a regional level, the National Parks also have a role in helping to develop and fund the biomass agenda. European funding for the region is channelled through ERDF, but the Intelligent Energy Europe programme and INTERREG could both provide useful sources of funding, particularly for dissemination activities, access to information from the Continent and site visits/study tours. The FEY website provides an online database targeted at researchers and developers to provide them with an up-to-date list of potential sources of funding (www.fey.org.uk/site/MarketDevelopments/InformationServices/FundingTool/tabid/58/Default.aspx).

Microgeneration Yorkshire (MY) provides advice on how project developers can obtain funding through the Low Carbon Buildings Programme to support small to medium scale projects.

Priority Action 8. Ensure good access to funds

Objectives	Key Tasks	Target Milestones
8.1 Provision of local advice and assistance on how to obtain funding from various sources	8.1.1 Update FEY on-line funding database to include specific links to biomass funding and support. Link to information provided by Biomass Energy Centre and under Government programmes	Links to Biomass Energy Centre, Q4 2007/08
	8.1.2 Funding information days, focused on small to medium scale biomass energy schemes	Hold sub-regional funding days in 2007/08/09

Consultees

The consultees who assisted in the development of this Vision for Biomass and Key Action Plan are listed below. We would like to acknowledge their contribution and thank them for their support.

Barnsley Metropolitan Borough Council	Microgeneration Yorkshire
Biodiversity International Ltd.	Natural England
British Energy (Eggborough)	National Farmers Union
BP Saltend	National Industrial Symbiosis Programme - Humber
Coppice Resources Ltd.	Regional Energy Forum
Drax Power Ltd.	Renewable Energy Growers Ltd.
Forestry Commission	Renewable Fuels Ltd.
Future Energy Yorkshire	Rix Biodiesel Ltd.
Gideon Richards, Consulting with a Purpose	RSPB
Government Office for Yorkshire and the Humber	Scottish & Southern Energy plc (Ferrybridge)
Greenenergy Ltd.	Silvapower Ltd.
Helius Energy Ltd.	South Yorkshire Forestry Partnership
Humber Chemical Focus	TallOil AB
Kirklees Metropolitan Council	Yorkshire and The Humber Conservancy
Leeds City Council	Yorkshire Forward
National Non-Food Crops Centre	Yorwoods
Manco Energy Ltd.	White Rose Forest



Abbreviations

AD	Anaerobic digestion
BERR	The Department for Business, Enterprise & Regulatory Reform
BIAG	Biomass Implementation Advisory Group
CEN	European Committee for Standardisation
CHP	Combined heat and power
CO ₂	Carbon dioxide
CV	Calorific value
Defra	Department for Environment, Food and Rural Affairs
ERDP	England Rural Development Programme
EU ETS	European Union Emissions Trading Scheme
GHG	Greenhouse gases
GIS	Geographical information system
GJ	Gigajoule
GOYH	Government Office for Yorkshire and the Humber
GW	Gigawatt
Ha	Hectare
MW	Megawatt
MWh	Megawatt hours
MWe	MW electricity
MWth	MW heat generation.
Odt/y	Oven dried tonnes/year
OSR	Oil seed rape
R&D	Research & development
RDPE	Rural Development Programme for England
REF	Regional Energy Forum
RIBA	Royal Institute of British Architects
RICS	Royal Institution of Chartered Surveyors
RO	Renewables Obligation
ROCs	Renewables Obligation Certificates
RSPB	Royal Society for the Protection of Birds
RTPI	Royal Town Planning Institute
SRC	Short-rotation coppice
t	Tonnes
t/year	Tonnes/year
FEY	Future Energy Yorkshire

Microgeneration Yorkshire has supplied a number of images included in this report.

A copy of the full report can be found on the Yorkshire and Humber Assembly web site: www.yhassembly.gov.uk

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