



Report for Environmental Industries Federation

*Biomass Action Plan for the
North East of England 2003*

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1. Introduction

The proportion of our energy that is provided by renewables will continue to increase and the surreal, iconic image of a wind farm on the horizon will continue to remind us that there is a shift in the balance of energy supply and renewable energy has arrived.

Renewable energy is very different from traditional energy sources. It will not flow from a relatively small number of vast power stations, nor will its contribution be confined to a handful of technologies. Instead it will require a cultural and institutional shift for us to accept small scale, local power generation throughout the country and the adoption of new heat as well as electricity generation technologies.

This new approach will present several advantages over and above reductions in CO2 emissions and increased security of supply. In Particular, energy from biomass offers substantial new opportunities for using existing forestry resources and waste wood, it also presents an opportunity to redefine the role of the countryside as a key contributor to the energy economy.

The generation of significant amounts of energy from biomass will require the full involvement of the farming and forestry sectors and this in turn will require the development of new technologies, skills and processes. There are opportunities to learn from Europe but there is also some groundbreaking to do.

The emerging biomass energy industry has two levels of opportunity one being the relatively small scale local heat or Combined Heat & Power (CHP) production, the other is the provision of feedstock for larger power stations either utilising biomass exclusively or co-firing with other fuels. There is also a substantial emerging export market with current European demands for more than two million tonnes of wood pellets per annum.

Energy from biomass requires new business models. At the smaller scale it needs organisations that minimise bulk transport costs and maximise the utilisation of local resources. At the larger scale it requires the production, processing and transporting of very substantial volumes of feedstock to fuel large installations and supply export markets.

Biomass presents an exciting opportunity for the North East. It offers a route to capitalising on our existing timber resources and sound justification for increasing these to meet a growing demand. It also promises to increase levels of employment, prosperity and productivity in our rural areas and increase the traffic in our ports by servicing the world export market.

This Action Plan has been developed in conjunction with many of the sector's key stakeholders and has their full support as a vehicle to deliver significant positive impact on the region.

2. Executive Summary

This Situational Analysis recommends that the North East Region is justified in committing public resources to the development of a Biomass industry and the Action Plan makes recommendations as to how that industry should be developed.

Investment is justified by the economic benefits associated with the potential to grow a regional demand for wood heat, potential for large scale demand following the co-firing development work being undertaken by several coal fired power stations, the potential establishment of the ETOL biomass fired power station and the growing export market for pellets. A demand for biomass within the region ramping to 250,000 odt¹ per annum in five years time is not unreasonable. Export opportunities over and above local demands could easily amount to 5,000,000 odt per annum. It is understood that the Region can only contribute a fraction of such a huge demand but the objective of the Biomass Action Plan is to ensure the Region capitalises fully on the opportunities.

This document is structured into two parts a concise Strategic Statement and detailed Action Plan and a Situational Analysis.

The Action Plan presents an approach that will assist the development of a local market for wood heat in the short, medium and long term. It also recommends actions to ensure that every assistance is given to any potential large scale user and to any party wishing to supply overseas markets.

Developed by an international team, the Action Plan capitalises on the experiences of Scandinavian countries more experienced in the process of providing energy from Biomass. Activities underway in the UK have also been researched and the resulting Action Plan for the North East Region is felt to be extremely comprehensive and robust.

A key feature of the Biomass development strategy for the North East region is that it will utilise public sector finance to seed activity but will develop as a commercially self sustaining model. A source of medium term (5 years +) income generation will be an Energy Supply Company (ESCO) that will own capital plant, buy feedstock and sell heat to public and private sector non-domestic customers.

The ESCO will partially finance the ongoing operation and development of a regional hub - The Wood Fuel Centre and this will co-ordinate and act as a single point of funding for the development of the region's Biomass activity. The Wood Fuel Centre will have a Board made up of key stakeholders, a financial services provider and a contracted management company. It will provide services funded and delivered as project activities often implemented by existing companies with proven expertise in the region.

The Wood Fuel Centre will provide showroom, training and demonstration facilities and will provide services in relation to training, quality standards, promotion, sales, feasibility studies, policy development, supply chain development, fund raising and R&D.

Two principle types of operation and opportunity will be presented to organisations wishing to play an active role in the activities of The Wood Fuel Centre. The two types of operation to be initiated are point of sale franchises and ESCO Service Companies. The point of sale Franchises will be opportunities for normally small traders to receive funding and regional support to help them develop the biomass market in their area. The ESCO Service Companies will secure contracts to provide installation, maintenance, billing and feedstock delivery services to heat customers.

Those who do not wish to have a direct involvement in the model will also benefit directly from market and supply chain development activity.

¹ odt , oven dried tonnes

The Wood Fuel Centre will initiate activities to develop markets at a regional level by supporting policy development groups, targeting sales activities at building developers and designers and initiating R&D projects.

Supply chain development is also critical if the region is to capitalise on large-scale demands. Currently the North East has little understanding of these requirements and there is a significant shortfall in the processing plant required. The Wood Fuel Centre will establish an Infrastructure Development Group that will bring together and co-ordinate the activities of industry specialists to ensure that the best possible operating conditions are provided to facilitate industry growth.

Smaller scale supply chain work will also be carried out to assist in the development of reliable high quality supplies for smaller users. This will also include assistance in the provision of plant, the training of regional installation and maintenance engineers to support capital plant.

Legislation may result in energy crops such as Short Rotation Coppice and Single Stem Plantations becoming important if the region is to capitalise fully on demand. The Action Plan suggests R&D projects in relation to these and in particular, recommends taking an holistic approach to their use. This will involve planting to improve the visual environment, bio-diversity, land remediation and possibly the treatment of sewage waste. The Action Plan also suggests approaches to taking advantage of the currently untapped resources of forestry residue.

3. Biomass - A Strategic Route Map for the North East

3.1 Objectives - 5 year horizon

- The North East will be a key supplier to the UK and European biomass markets.
- Biomass will be recognised as a commercially realistic option for the heating of buildings.
- Biomass will offer a preferred route to achieving green performance targets.
- The North East will have a £10m sustainable industry based around the use of biomass.
- The North East will lead the UK in capitalising upon its biomass opportunities.

3.2 Strategies

- To build an industry based on commercially & environmentally sustainable business models viewing public sector funding as only a temporary seeding mechanism.
- To take a market led approach to industry development.
- To reduce capital plant and fuel costs.
- To establish an internationally significant regional hub to stimulate and co-ordinate the growth of the industry.
- Employ an ESCO Franchise Model to promote and sell biomass and provide high quality, full support to biomass users in the region.
- Capitalise on existing resources and businesses to establish a high quality sales, feedstock and service provision.
- To anticipate and prepare to capitalise on the growth in demand for biomass that will be stimulated by coal fired power stations co-firing.

3.3 Influential factors in developing of the Action Plan

Enablers	Barriers
Forestry resources Good distribution of forestry Ports Experience of the paper industry Existing wood processing NaREC Existing initiatives Some existing expertise - transferable Some limited experience Rural economy Spare capacity Investors Renewables track record and image Commitment Existing businesses Enthusiasm Relationships with Scandinavia	Relative costs of fuels Relative costs of plant Cultural heritage Lack of existing markets Lack of supply chains Misinformation Lack of experience ROC legislation Local Authority Budgets Lack of feedstock Lack of consistency within fuels, technologies and standards Emissions legislation Building regulations Infrastructure
Opportunities	Threats
Renewables trend Insecurity of oil and gas Depletion of fossil fuel resources Renewables are the only non nuclear option Co-firing of power stations European markets Low timber prices Public funding Emerging investors ETOL power station Anglo Scandinavian Partnership Increases in the prices of oil and gas Medium/long term government commitment	Imported feedstock Alternative feedstocks Legislation Policy Relative fuel prices Fuel shortages Nuclear ROC prices Increases in timber prices Disjointed approach to sector development.

3.4 Summary of Actions

- Wood Fuel Centre - establish a regional one stop shop and co-ordinating body.
- Energy Supply Company (ESCO) - Establish a mechanism to manage capital costs and sell fuel.
- Point of sale franchises - Promote biomass consistently on a local level.
- ESCO Service Contractors - Provide full high quality support to suppliers and customers alike.
- Private Sector Led Policy Group - Encourage adoption of biomass within the public sector and the strategic and charitable agencies.
- Renewable Energy Managers Group - Promote understanding of biomass at an operational level.
- Biomass Specialist - Develop understanding and adoption of biomass at the earliest stages of design and specification.
- Feasibility Advice - Provide comprehensive accurate advice.
- Marketing Strategy - Raise the profile of biomass locally and regionally.
- Funding Pot - Establish and provide easy access to a consolidated source of funding.
- General Advice - Ensure advice provided is comprehensive, readily available accurate and consistent.
- Infrastructure Development Group - Enable the North East to respond rapidly, competently and competitively to large emerging markets.
- Local Fuel Groups - Develop local level supply chain infrastructure.
- Flagship Projects - Use projects to nationally promote activity in the region.
- District Heating Schemes - cost effective utilisation of wood fuel.
- Demonstration Projects - Ensure everyone can witness biomass in action.
- Training - Ensure the region has the skills to start sustainable development.
- Quality Standards - Establish service and feedstock standards to ensure customers are not disappointed.
- Boiler Costing - Work to reduce capital costs.
- Energy Crops - Research and establish opportunities for Energy Crops to provide an economic feed-stock to the industry.
- Waste Wood for Heat - taking advantage of synergise between waste wood producers and nearby heat requirements.
- Renewables & Recyclables Project - promoting biomass for energy, providing information and matching feed stocks with demand.
- Business Link Renewables Officer - providing assistance to project development

4. The Action Plan

This Action Plan makes recommendations for the development of markets and supply chains in relation to four market segments:

Large heat/energy users/producers	Power Stations
Medium commercial users	300 Kw Plus
Small / medium non-domestic users	35 Kw Plus
Domestic users	up to 35Kw

These divisions reflect the different approaches required for market and supply chain development and management.

Actions are defined as specifically as possible at the time of writing though the two most significant potential market opportunities of ETOL and Alcan can still only be viewed as opportunities that subject to economic viability should be encouraged by the Region.

Fundamental to the Action Plan is the view that a North East Biomass Industry should be market driven, it also acknowledges and responds to significant weaknesses in the supply infrastructure. This approach has been taken to assist in the rapid harnessing of existing regional capability and to avoid reinvention and duplication.

Whenever possible cost estimates have been attributed to actions, these are only intended to indicate the order of finance required and potential sources of funding have also been identified.

5. Wood Fuel Centre

The scope for this report requested that the feasibility of setting up a Centre of Excellence for Biomass be explored. The overwhelming feedback from the stakeholders involved in the consultation process has been that a Centre of this nature would be hugely beneficial and as the elements of the Action Plan have developed the value of having a hub has become increasingly evident. As such the Action Plan has incorporated the hub concept as a key element and proposed a business model that will make it sustainable.

The business model described below is intended to be indicative rather than prescriptive. It is the view of the consultants that the overhead should be kept to an absolute minimum so that most value can be provided at the 'coal face'. It is therefore suggested that the core staff should be minimised with most services delivered on a project basis. Similarly demonstration, showroom and training facilities could use some of the existing sites within the region.

5.1 Overview

The Wood Fuel Centre will be the hub of the Region's efforts to develop a biomass industry and in recognition of its diversity of activity it will have several partners. These may include NaREC, the Forestry Commission, ONE NorthEast, British Biogen, and possibly a bank such as Co-op Bank or Smile.

The Wood Fuel Centre and its franchisees* will provide a single point of contact and a comprehensive service to the industry by maintaining the quality of information, feedstock, advice, engineers, research and development related to wood heat in the region.

The Wood Fuel Centre will be a true hub in that it will be a franchiser, providing opportunities for franchisees in appropriate parts of the region and beyond. It will also be a national hub in that it will lead the way in implementing standards and training courses that will be sold outside the region.

In the medium term the Wood Fuel Centre will be partially financed by an attached Energy Supply Company (ESCO) and various other income streams including training courses, equipment hire and delivery of funded projects.

5.2 Detail

5.2.1 Structure

The Wood Fuel Centre will be a limited not for profit company steered by a Board composed of representatives of key stakeholders and employing one full time director.

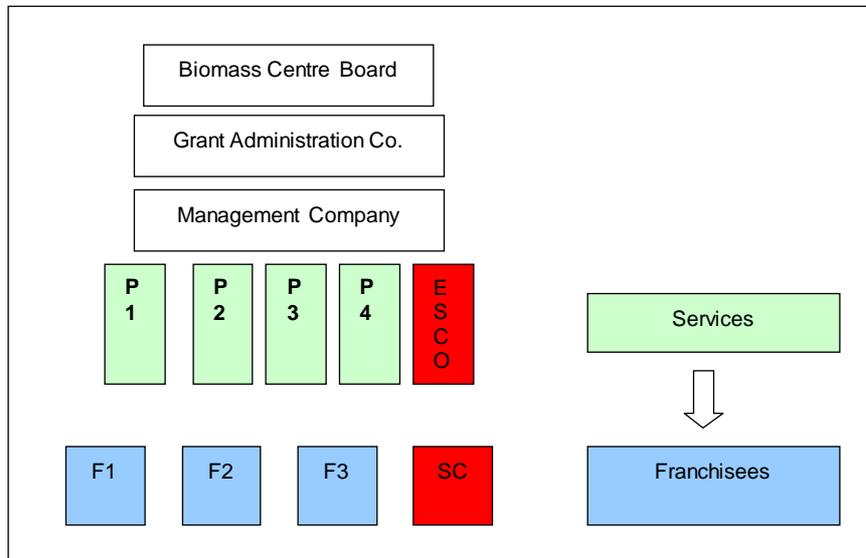
The Board will appoint three providers to the Centre; a management company, a company to run an ESCO on behalf of the Centre (the same company may provide both services) and the North East Community Forest Development Company who will provide a financial management service to the Centre.

The Centre will employ a small team of staff but a management company may be employed in the initial stages to move the project forward quickly. The majority of services will be delivered on a project basis with project based employees.

Projects to provide services will be tendered to existing local companies and initiatives, in this way overheads can be minimised. Services may involve bringing together and increasing the commonalities of existing activities rather than creating new ones. The Centre may grow up to approximately 11 members of staff providing fund raising, administrative, project management, business development and information support.

* A concept developed later in the document

Figure 1 Structure of the Wood Fuel Centre



5.2.2 Co-ordination of Funding

The Wood Fuel Centre will employ a full time fund-raiser and will provide two services in relation to funding:

It will establish its own consolidated fund with allocations for specific activities such as purchasing capital equipment, establishing support roles (technical expertise, sales support, policy development) and the initiation of R&D.

This funding will be managed by the North East Community Forest Development Company which already has systems and protocols in place for the management and allocation of funding. The formulae for allocation will be agreed by the Wood Fuel Centre Board.

The Wood Fuel Centre will also provide expert free guidance and advice to those wishing to make their own applications to funding providers.²

5.2.3 Energy Supply Company ESCO

The Wood Fuel Centre will establish an ESCO (see **Energy Supply Company**) that will sell heat and services to customers in the region. The Wood Fuel Centre will provide part of the seed capital for the ESCO that will subsequently provide a long lasting income stream for the Centre.

² A list of funding providers is included in the Situational Analysis

5.2.4 Stock³

The Wood Fuel Centre will hold stocks of wood fired domestic and smaller commercial stoves, room heaters and boilers. These will be available for potential customers to see and buy, and for installation and maintenance engineers to use during training.

The Centre will also hold a limited stock that will be available to the franchisees⁴.

5.2.5 Training

The Wood Fuel Centre will develop and deliver training courses (see **8.3 Training Schemes**), these will be available at a subsidised rate within the region and will be sold outside the region at commercial rates.

Courses will be recognisable, branded certified courses aimed at design, installation and maintenance engineers, sales-people and feedstock providers⁵.

5.2.6 Approved Service Providers

The Centre will train and certify design, installation and maintenance engineers as approved service providers and recommend them to enquiring customers.

5.2.7 Demonstration

The Wood Fuel Centre will house various systems in operation so they can be demonstrated and used as training aids. These will include several heater and boiler types, various biomass storage and handling systems and access to larger scale installations around the region (see 6.9 Demonstration Projects).⁶

5.2.8 Sales

The Wood Fuel Centre will provide a 'car showroom' type environment for people to see systems in action and purchase them with the confidence of having received excellent, reliable advice and the back up of approved installers, service personnel and fuel supply.

5.2.9 Feasibility Assessment

The Wood Fuel Centre will provide a basic feasibility service whereby a domestic or commercial enquiry will, depending on the size of potential installation be entitled to a free basic feasibility study⁷.

5.2.10 Information

The library will bring together a substantial amount of existing information and create new sources where necessary. Misinformation also exists in the sector and the Wood Fuel Centre will combat this problem. The library will cater for all levels of the industry: developers, architects, design engineers, installation, operation & maintenance engineers, energy managers, commercial and domestic users, fuel growers and providers, fuel processors etc.

5.2.11 Franchise Company Hub

The Wood Fuel Centre will be a franchising company that will develop the support infrastructure to sit behind its franchisees, promote the franchise infrastructure within the region and beyond and have responsibility for ensuring that customer needs are satisfied. (see 6.1 Franchises).

³ The requirement for impartiality to any manufacturer means that suppliers will be required to tender for a supply contract and a combination of perhaps three manufacturers will be chosen.

⁴ Sale or return basis to be negotiated with manufacturers

⁵ Northwoods could play a role in feedstock related training.

⁶ These may include Durham County Council sites and Lee Moor Farm in Northumberland amongst others.

⁷ This could be based on the Action Energy model whereby a customer receives several day's free energy efficiency consultancy depending on the size of their fuel bill.

5.2.12 Quality Control

The Wood Fuel Centre will develop and adopt existing quality standards some of which will be technical and relate to feedstock quality, equipment and performance (these will be developed in conjunction with NaREC, the British Standards Institute and British Biogen)⁸ others will be service standards. (see **8.2 Quality Standards**)

5.2.13 Promotion

The Wood Fuel Centre will hold a substantial marketing budget and will promote the use of biomass regionally as well as giving franchisees access to small local promotional budgets.

5.2.14 International Partnerships

International exchange visits will be held to exchange expertise and commercial opportunities but also to help raise awareness and assist cultural change. International models will inform the development of the Wood Fuel Centre as well as constitute potential partners.

5.2.15 Implementation

There are several options immediately obvious as potential sites for the Wood Fuel Centre.

Stanegate Stoves at Newburn occupies an ideal site for the domestic element of the Wood Fuel Centre. It has an impressive, spacious showroom, substantial in-house expertise and has demonstrated significant commitment to developing the sector in the North East (from Newburn) and North West (from Carlisle). Stanegate are also involved in a national suppliers group that is working towards the development of voluntary quality standards.

The site is linked to a Landrover Dealership and an agricultural equipment supplier. Most importantly, the land is owned by a group interested in developing it for a cluster of mutually beneficial companies.

There is a site adjacent to Egger in Hexham where the North East Forestry Group is considering the development of a cluster of forestry related companies. This site may be suitable for the non-domestic side of the Centre. At a non-domestic level it is important to move away from the rustic, rural image and promote the biomass sector as a new industry. A site next to Egger would present a more commercial image. This site should have larger biomass boilers installed.

The Lafarge Works at Eastgate in Upper Weardale is also being developed around a renewable energy theme. This is an option for either a franchise of the hub office. It is however felt to be important that the Centre is readily accessible and presented in an industrial context and not just as a purely rural option.

NaREC, in conjunction with the land available at Earthbalance presents an ideal research and development facility for the farming of energy crops and provision of training.

⁸ Some of this work is already underway nationally.

6. Market Development

Market development is the most critical element of the Biomass Action Plan since the new industry must be based on a commercial framework. Growth propped up by grant aid will be neither sustainable nor attractive to industry stakeholders.

The level of investment required to install capital plant such as pellet manufacturing plants or grow SRC is substantial and has a high risk attached. The best way to convince investors as to the viability of such ventures is to demonstrate sustainable and growing markets.

The Biomass Action Plan recommends approaches to developing domestic, small to medium non-domestic and large non-domestic markets. It should, however, be recognised at the outset that biomass remains a niche product suited only to certain elements of these markets. Potential markets are off gas areas, buildings with 'green' associations, developers/users with 'green' agendas, areas with abundant fuel resources, organisations chasing ROCs⁹ and organisations with their own fuel supplies including forestry or wood processing waste.

The Action Plan addresses market development on several levels, e.g. the Franchise concept will not only promote biomass uptake on a domestic level, it will also assist in making biomass a culturally acceptable option thereby hastening its adoption in larger installations.

Market development activity will also stimulate the associated supply chains and deliver varied benefits to the region. These include benefits to the forestry sector, diversifying farmers, feedstock processors, waste streams and service providers. Marketing activity will, where appropriate emphasise the rural development benefits of using biomass i.e. creating and securing rural jobs, assisting rural diversification, raising incomes, stimulating new businesses.

It is important to recognise the returns of different markets, smaller scale users of logs and chips will draw from local forestry supplies and add value to local economies. Users of pellets will draw resources from further afield and provide a use for recycled waste wood. The large potential markets of Alcan and ETOL would add huge demands to the system requiring supplies in excess of the region's total current production. This level of demand would assist the Forestry Commission in its objective of increasing the amount of sustainably managed woodland, introduce an opportunity for the economic growth of energy crops and deliver substantial income to the rural economy. In the mean time the establishment of processing plant could open up export opportunities for the north and south of the region through the ports of Blyth and Seaham.

⁹ Renewables Obligation Certificates

6.1 Franchises

6.1.1 Overview

Franchises will present opportunities for local businesses to diversify and/or capitalise on the regional initiative. They will be used as vehicles to establish sales points for smaller non-domestic and domestic Biomass users/potential users and will sell hardware and fuel on the most appropriate commercial basis for their existing business. They will be at the core of efforts to raise the profile of biomass in the region and develop clusters of users that will increase the commercial sustainability of supplies.

They will be based in a range of locations including off-gas rural communities, market towns, in locations convenient for existing users, within clusters of users and within existing stove and boiler show-rooms. They will normally (but not always) be set up in existing businesses.

In some instances the franchises will bridge the gap between the services offered by the fuel providers and the services desired by consumers.

The franchise structure provides the benefit of enabling co-ordinated support to be given to rural businesses and maintaining the quality of services provided to the consumer thereby ensuring that service and product is of an excellent standard meeting customer needs.

6.1.2 Detail

6.1.2.1 Service Level Agreement

A franchisee will contractually commit to providing a level of service predefined by the Wood Fuel Centre. This will include:

- A defined level of in-house expertise.
- An established relationship with at least one approved installer and maintenance company.
- Access to a demonstration site.
- An established relationship with feedstock providers.
- A defined customer response time, protocol for dealing with customers and level of after sales service.
- A feedstock quality guarantee.
- A security of supply guarantee.

6.1.2.2 Approved Installers

A franchisee will be given access to the approved installers who have been trained through the Wood Fuel Centre. He will be encouraged to establish a relationship with an installer in his area thereby enabling future enquiries to be dealt with efficiently.

6.1.2.3 Approved Maintenance Providers

A franchisee will be given access to the approved maintenance providers who have been trained through the Wood Fuel Centre or who are already accredited. He will be encouraged to establish a relationship with a maintenance provider in his area, enabling future enquiries to be dealt with efficiently.

6.1.2.4 Staff Training

Staff working within the franchise will be provided with training so they can provide customers with the range of accurate information they need. Training will be funded and provided by the Wood Fuel Centre.

6.1.2.5 Technical Support

The Franchisees will have access to comprehensive technical expertise in support of their own provided by the Wood Fuel Centre.

6.1.2.6 Hardware Stock

Where practical each Franchisee will hold an item of stock that will be held on a sale or return basis from the Wood Fuel Centre.

6.1.2.7 Feedstock

The Franchisee will hold a limited amount of feedstock and will be able to arrange next day deliveries to all his customers using prearranged contracts with Local Fuel Groups.

6.1.2.8 Strong Branding

Franchises will have strong and consistent branding assuming the brand values of the Forestry Commission¹⁰ and other partners in the Wood Fuel Centre.

6.1.2.9 Marketing Activity

Franchises will be supported by a comprehensive and sustained marketing strategy delivered regionally by the Wood Fuel Centre. This will involve local demonstrations, displays, marketing literature, PR, advertising and mail shots. They will also be given access to a small local marketing budget.

6.1.2.10 Financial Support

Franchises will be financially supported from the Wood Fuel Centre to the extent that they should not to incur any expenses beyond an initial set up cost for the first three years. The initial set up cost will be a nominal sum to secure commitment. The opportunity will be presented as a medium term investment with commission based returns ramping up within three years.

6.1.2.11 Demonstration Site

Each Franchisee will have access to a working demonstration site enabling potential customers to see Biomass boilers in action.

6.1.2.12 Income Generation

Franchises will develop income through commission on sales.

6.1.2.13 Contractual Obligation

Franchisees will be under a contractual obligation to adhere to the Franchise Agreement and trade under the Franchise Agreement for a minimum of three years. This is essential to presenting the product as enduring and not a fad.

6.1.3 Implementation

It is proposed that opportunities for franchisees be offered to businesses in areas such as:

- Barnard Castle
- Bellingham
- Wooler
- Alnwick
- Morpeth
- Newburn

¹⁰ The Forestry Commission has been consulted and has expressed an interest in this association.

- Hexham
- Eastgate - Upper Weardale

Generally, established businesses will be sought to introduce a franchise into their building and there are clearly criteria that will need to be fulfilled in terms of available space, public access, visibility, staffing etc.¹¹ The general rule will be that the franchise business will be set up so that it can be accommodated by the willing entrepreneur.

6.1.4 Funding

The project could be funded using the Carbon Trust Market Diffusion Fund.

¹¹ As a result of the consultation process several businesses have already expressed and interest.

6.2 Private Sector Led Policy Group

6.2.1 Overview

The Private Sector Led Policy Group will be a cross-region and cross-organisation group with the remit of raising the profile of renewables and influencing policy to increase the uptake of renewable energy technologies. The relatively small Group will be lead by a Director of the Wood Fuel Centre and include several key stakeholders of the sector¹². Among its initial objectives will be to demonstrate the benefits of the ESCO model and engender commitment from the public sector¹³.

The potential to stimulate a biomass industry will be brought to the attention of stakeholder groups and their commitment will be sought.

Biomass is extremely well suited to some niche developments (such as tourism, farm diversification and building regeneration) and particularly those set in a rural environment.

Although at a low level, many of these are part-funded by various rural (and non rural) development organisations such as the National Trust, Countryside Commission, English Heritage, DEFRA, Northumberland National Parks, ONE North East, Forestry Commission, the Market Towns Initiative etc.

6.2.2 Detail

6.2.2.1 Aimed at the County Council Treasuries

Within the public sector the adoption of biomass as a fuel supply must be viewed as a commitment to the environmental agenda and therefore as a strategic step for any public sector body. Discussions will be held with Treasuries to explore the potential for additional allowances to support the adoption of biomass technologies.

6.2.2.2 Aimed at the planners

Planning departments could be instrumental in the adoption of renewables technologies in new build structures by making the consideration / adoption of renewable energy technologies a stated preference on new-build properties.

6.2.2.3 Aimed at Building Services Managers

Building Services Managers will be encouraged to train a nominal number of installation and service staff in how to use biomass plant. Thereby taking advantage of the courses run by the Wood Fuel Centre and creating in-house capability.

6.2.2.4 Local Agenda 21 groups

Contacted to ensure that biomass is understood and promoted as and when appropriate.

6.2.2.5 Community and Housing Departments

Educated in the benefits of utilising biomass and district heating systems.

6.2.2.6 Regional Economic Development Teams

Educated as to the socio-economic benefits of utilising locally sourced biomass and encouraged to promote the sector in economic development plans.

¹² This Group may simply be an extension of the board of the Biomass Centre or an extension of the Board's duties.

¹³ In the East Midlands, Nottingham County Council has committed 10 buildings to using an ESCO.

6.2.2.7 ONE NorthEast

ONE NorthEast must to lead by example.

6.2.2.8 Government Office for the North East

GONE will be encouraged to use policy change to stimulate the development of the region's biomass industry.

6.2.2.9 Agencies

Agencies will be lobbied to encourage them to:

- Insist on the consideration of renewables as an option.
- Provide preferential funding to developments employing renewables.
- Promote renewables within their literature.

6.4 Renewable Energy Managers Group

6.4.1 Overview

The Renewable Energy Managers Group will influence those operating under the guidance of the policy makers and will deal with more operational issues.

There is already a successful Energy Managers Group¹⁴ that has been operating in the region for 25 years and has in excess of 250 members spanning the public and private sectors. The Group meets quarterly to attend seminars and discuss technologies and energy issues. A sub group looking specifically at renewables technologies would create a critical mass of people key to the use of energy in the region.

6.4.2 Detail

A Renewable Energy Managers Group will meet quarterly and meetings will centre upon a renewables related issue with practical implications on the role of the group members. Membership will remain free and the annual program will include, seminars, site visits and mailouts.

Biomass related subjects for meetings are likely to include:

- The practicalities of converting existing plant to biomass.
- The economics of biomass as a fuel.
- Biomass Technologies.
- Co-firing with biomass.
- Biomass CHP

The above would sit within a series of activities covering the broader renewables spectrum.

6.4.3 Funding

fundinhg would be sought from Carbon Trust, EST, NaREC and the Institute of Energy.

¹⁴ This has been set up by GONE and run by TNEI with support from organisations such as the Carbon Trust, the Institute of Energy

6.5 Biomass Advice

6.5.1 Overview

The Wood Fuel Centre will provide two levels of advice in relation to biomass. It will provide basic level broad advice answering telephone calls and general questions in relation to technologies, feedstocks, economics, suppliers and the services of the Centre. It will also provide more specific and detailed advice including carrying out feasibility and design studies.

6.5.2 Detail

The Wood Fuel Centre will employ an individual to provide assistance to domestic customers and will set up projects to provide services to commercial customers.

The projects will be put out to tender in the region and delivered by existing experts in the field. This approach will keep the overhead of the Centre relatively low and ensure that expertise is used and developed rather than duplicated.

Public funding will enable feasibility studies to be carried out free of charge or at least at a reduced rate, influenced by potential savings.

6.5.3 Implementation

Projects will be developed and applications made immediately to ensure that assistance can be given as soon as possible. Some provision is already available through REALL and soon through North Energy Associates Energy for Enterprise Scheme. Any subsequent projects should build on these.

6.6 Biomass Specialist¹⁵

6.6.1 Overview

The Biomass Specialist will be an independent technical specialist promoting the use of biomass systems to specifiers within the region.

Generally the new build sector lacks an understanding of renewable energy options and this is particularly problematic at the specifier level where renewables are not being considered when the designs, drawings and bills of quantities are being produced.

Under a number of circumstances biomass can be an attractive option in terms of running costs, however the initial investment in capital plant tends to be higher or significantly higher. There are however, grants available to reduce this differential.

The Biomass Specialist will work closely with local planning departments to ensure all appropriate new developments are approached at an early stage to consider the potential for biomass.

The Wood Fuel Centre will assist in the process of applying for grants to increase financial viability.

6.6.2 Detail

The Biomass Specialist will promote the use of biomass technologies to developers, architects and engineers.

The Biomass Specialist will be technically knowledgeable with a broad knowledge of renewable energy technologies, suppliers and costs. The post holder would however refer specifiers to manufacturers and suppliers for specific details.

¹⁵ It may be the case that this individual focuses on the broader field of renewables rather than just biomass.

The Biomass Specialist will liaise with the Royal Institute of British Architects and the Institute of Civil Engineers to include renewables talks in the Continuing Professional Development timetables. Possibly assessing the feasibility of setting up a renewables group.

The Biomass Specialist will be based at the Wood Fuel Centre but will spend the majority of their time in front of specifiers.

6.6.3 Funding sources

An application for funding would be made to the Carbon Trust with an approach to ONE NorthEast to provide match funding. An ERDF project would also be set up to provide long term funded support.

6.7 District Heating Schemes

6.7.1 Overview

The Biomass Specialist will promote the development of biomass led District Heating Schemes and of high priority will be new-build and properties undergoing major refurbishment.

District Heating Schemes¹⁶ represent a cost-effective approach to the use of biomass in terms of capital costs and fuel supply, and is a very energy efficient method of heating multiple properties. Larger schemes of this nature will be important in developing the demand for wood chip in particular and will be the most significant customers of the ESCO.

District Heating Schemes where heat rather than fuel is purchased by the consumer represent a cultural change within the housing sector and demonstration projects are required to prove feasibility and influence public perception.

6.7.2 Detail

Housing Association properties, sheltered housing schemes, small industrial estates, new build private housing estates all represent important opportunities for District Heating Schemes. The two first options are likely to offer less opposition since they do not involve consumers taking risks and the ESCO can provide cash flow and operational benefits to the developer.

The Wood Fuel Centre will provide assistance in attracting funding to carry out feasibility work for District Heating Schemes.

The promotion of biomass district heating systems will be one of the most important roles of the Biomass Specialist and the marketing activity of the Wood Fuel Centre.

6.7.3 Funding Sources

As a not for profit organisation the Wood Heat Centre will be able to apply for Clear Skies funding to develop major projects under the Community Stream. These amount to 50% of project cost up to £100,000. It is proposed that a fund is established to match the clear skies project funding and changing the funding structure to require a user to pay the final third of the cost. In the case of an ESCO project the ESCO would pay the final third.

6.7.4 Implementation

These projects will gradually be identified and stimulated at various levels including through the activities of the Wood Fuel Specialist.

¹⁶ A District Heating Scheme involves a centralised boiler house that provides heat via hot water to a large number of properties – some suggest 200 + homes are required to be fully commercial. This approach is the norm in Scandinavia.

6.8 Flagship Projects

6.8.1 Overview

Key projects have already proved themselves to be invaluable in raising the profile of a subject and increasing public awareness. This has been illustrated by the number of people who visit the wind turbines at Blyth, the Angel of the North and the Centre for Life. In relation to renewables, the recently completed BED ZED¹⁷ project has attracted huge media attention and public interest, raising the profile of sustainable living significantly.

The North East must establish projects of this nature and, just as importantly, promote them.

The project teams involved in the Wood Heat Centre will actively attract, seek out and help realise flagship projects initially using the Biomass Specialist to help at the conception and then to provide funding and assistance as the project develops.

6.8.2 Detail

6.8.2.1 Feasibility

Projects will demonstrate the practicality and feasibility of renewable and sustainable technologies and methods.

6.8.2.2 Technologies

Projects will enable the public, developers, engineers and other interested parties to learn about the technologies employed. Projects will also utilise the most appropriate technologies and not simply make cursory gestures towards 'green' technology.

6.8.2.3 Costs

Projects will enable the real costs of renewable technologies and sustainable methods to be illustrated.

6.8.3.4 Marketing

Flagship projects will be promoted intensively within the region and beyond. Experience has proved that huge numbers of people have a real interest in renewables and that this interest can be increased with the use of the right mechanisms to attract their attention.

Given NaREC and other renewable energy related activities in the region, marketing could be used to help establish the North East as a renewables hot spot. The development of honest, costed case studies would be used to provide in depth information about the region's activities.

6.8.3 Funding

The staff of the Wood Fuel Centre will assist in attracting flagship projects to the region partly by identifying and accessing grant aid.

¹⁷ BED ZED – An entirely sustainable and energy efficient building in terms of design, materials used in construction and fuel technologies and supplies employed.

6.9 Demonstration Projects

6.9.1 Overview

Demonstration projects will be part funded and designed to implement technologies that are new to the area, often in an innovative way so that they can be used to raise the profile of a technology and educate stakeholders.

The title "Demonstration Project" is reflective of the way the project will be used to promote the sector and therefore the range of projects should be as broad as possible to reflect varying applications.

6.9.2 Detail

A range of demonstration projects will be scoped and funding applications made to enable several of them to be implemented over the next five years. They will:

- promote the use of biomass as a fuel.
- demonstrate the different types of biomass.
- illustrate the use of various types and scales of biomass technologies.
- demonstrate the use of District Heating Schemes.
- demonstrate the production of SRC, chips and pellets.

The marketing activity and information development of the Wood Fuel Centre will take full advantage of these and capitalise on them at a local, regional and national level.

Many excellent projects are underway in the region and have been developed over the last few years. The intention is not to usurp this activity but to promote a strategic rollout of additional projects throughout the region that will gradually increase awareness, increase demand for feedstock and influence public perceptions of biomass.

6.9.3 Indicative Potential Projects

Fossil Fuel Free Kielder Valley

This will take a community approach to expanding the work already carried out at Kielder to encourage all replacement and new boilers in the area to be biomass supplied from local timber. Work carried out during the biomass fired plant feasibility study has indicated that there is a significant number of people in existing properties who are interested in being connected to the District Heating Scheme. This project can investigate the practicalities of retrofitting the District Heating Scheme to existing properties. It will also identify issues relating to upgrading the biomass fired boiler in the event of increased numbers of properties being connected.

Social housing District Heating Scheme

A project working with local authorities and social housing providers to identify new build or existing housing developments that are due to have their heating systems upgraded. Feasibility studies will be carried out on retirement homes, social housing developments (a number of individual properties and blocks of flats). The work will be focussed on developments that are using oil/or electricity as the heat feedstock. Work will also cover the issues raised by Public Private Finance Initiatives and Best Value practice.

Examples include: Durham PFI Old People Homes and Home Housing developments

Housing Estate District Heating Scheme

Work will be undertaken with volume house builders and small private house builders to identify new private sector housing developments that can adopt biomass as their primary heat source. The size and location of the estates would affect the nature of technology employed but the feedstock could be provided and serviced by the ESCO. The work would focus on both the renovation and creation of prestigious housing complexes and on the new build sector for small and medium housing estates.

Industrial Estate District Heating Scheme

With the growing number of rural industrial estates and the large number of urban fringe industrial developments there may be opportunities to install biomass District Heating Schemes or combined heat and power systems.

Work will be undertaken with regional partners such as One North East, local authorities and private industrial estate owners to identify existing and new developments. Feasibility studies will be undertaken to assess the heat requirements of a number of industrial estates and will provide economic and technical models for the installation of biomass fired District Heating Schemes.

Private Sector biomass fired industrial boiler

There are currently very few private sector wood fired industrial boilers in the region, there may be opportunities to convert off-gas coal or oil fired boilers to wood pellets or wood chips in a similar way to Durham County Council in their public sector buildings. This work could possibly dovetail into the work being identified under Section 7.6 (waste wood).

Short Rotation Coppice

An SRC site needs to be established so that people can see what it looks like and how it is farmed but also so that people can be trained in how it should be grown, managed and harvested. A large scale demonstration project would help stimulate the mass production of energy crops in the region.

North East Community Forests

The North East Community Forests are investigating the development of woodland corridors to provide amenity and leisure facilities, encourage bio-diversity and woodland management and to encourage the diversification of land utilisation. This activity is also an opportunity to adopt a more holistic approach to the growth of energy crops.

The North East Community Forests are investigating the creation of two 'corridors' in the region. These corridors will encourage the establishment of new woodlands, the management of existing woodlands and will investigate growing alternative species such as energy crops and single tree crops alongside existing forms of land-use. These developments will in turn create 'green' corridors for amenity and leisure pursuits. The two corridors being developed are:

- Hexham to Corbridge corridor
- Stockton to Darlington corridor

The majority of this work is currently being funded through the support of the Great North and Tees Community Forests. However, additional funding may be required to look at the potential for energy crops and the production of biomass fuels in these corridors.

6.9.4 Funding

Each of the above will need to be treated as a separate project with bids made to appropriate funding streams and match funding provided where possible from the Wood Fuel Centre.

6.9.5 Implementation

A firm list of demonstration projects will need to be built up by inviting suggestions and bids for match funding. There will then require to be a role out of projects with several new projects getting underway each year.

6.9.6 Current Examples

See section 9.

7. Supply Chain Development

There are four main areas for consideration in relation to supply chain development and these differ greatly:

- Local, small scale supplies of logs, chips and pellets for local communities.
- The supply of heat to ESCO customers
- The supply of significant quantities of feedstock direct to users
- Large scale high specification supply chain development for large scale installations.

At the smaller scale there appear to be no definitive solutions to supplying fuel as the most efficient approach is entirely defined by the local resources and customers. The Wood Fuel Centre will take a role in assisting in the development of supply networks where they do not already exist and this document suggests some approaches that may be taken.

With regard to the ESCO and medium sized users the service does not just require an efficient supply of fuel feedstock but also a well organised group of companies providing efficient services to ensure that the heat supply does not fail and is regularly billed.

At the top end of the scale, the provision of thousands of tonnes of feedstock to a power station will require efficient and effective supply chains with contributions from a large number of suppliers using a variety of delivery routes. Quality is again essential with processing plant required to ensure feedstock is of the right size, water content and calorific value.

The maintenance of high quality standards is essential in all instances, boilers will not function if water content is too high, pellets are too powdery, chips are not the right size or plant is incorrectly set up. Customers will also be short term if standards of service are not high.

7.1 Energy Supply Company ESCO

7.1.1 Overview

The Wood Fuel Centre will access public and private sector funds to establish an Energy Supply Company or ESCO.

The ESCO will sell heat to customers by taking partial/ownership and responsibility for the plant and its upkeep, and simply charging customers for the heat sold in therms and associated services.

The ESCO is intended as a model that can seed projects and demonstrate feasibility so that other private sector businesses can establish ESCOs as demand grows.

7.1.2 Detail

The ESCO will purchase the boiler in an existing property or install the boiler in a new property and take complete responsibility for providing the end users with heat over the duration of a contract period. The ESCO will maintain the boiler and ensure it is fuelled. This approach will be considered for boilers of 50KW+.

In return the customer will buy heat in therms and pay a service fee for the period of the contract.

This model eliminates the capital cost problem of installing biomass boilers as this becomes the responsibility of the ESCO that in turn pays off the capital costs over the period of the contract and structures the payback to include a profit.

This approach means the customer does not have to be convinced about the suitability of wood-fuel since the purchase decision hangs around the price of heat, if the price is right the customer will buy a supply of heat and the ESCO will take care of everything else.

The ESCO heat supply model is currently only commercially viable for 3 MW+ clusters of installations and so will be aimed at new housing and industrial estates, sheltered housing schemes, council and housing association sites, large buildings operating district heating systems and clusters of smaller customers.

Projects of this nature create the demand needed to enable more economic fuel supplies to be provided. Several projects of this nature in the region will help promote sales and act as demonstration projects.

The ESCO will farm out several regionally distributed ESCO Service Contracts. These will be for a business to co-ordinate and take responsibility for the delivery of feedstock, boiler installation and maintenance, and billing. The services are likely to be provided by a group of local businesses.

7.1.3 Funding

In the medium term the ESCO must be a profit centre with a positive balance that will at least partially support the Wood Fuel Centre.

The ESCO will require approximately £1m to establish sufficient plant infrastructure for it to function profitably.

This capital will be seeded by ONE NorthEast and topped up by various grants including Clear Skies and private investors. The Wood Fuel Centre will seek private investors and establish the ESCO.

7.1.4 Implementation

A separate company will be set up to run the ESCO and the initial three year objective will be to establish a cluster of customers amounting to 3 MW so that cost effective supplies can be provided.

The Wood Fuel Centre will take on the role of establishing approved ESCO Service Contract suppliers.

7.2 ESCO Service Contracts

7.2.1 Overview

These will be contracts awarded to companies taking the lead in co-ordinating local groups of companies working together to provide services on behalf of the ESCO. These will be distinct from the Local Fuel Groups (but may incorporate a member of a Local Fuel Group) and will provide the full service capability to an ESCO customer, i.e. installation, maintenance, servicing, inspection and fuel.

7.2.2 Detail

Customers of the ESCO will only buy heat and will expect the ESCO to take full responsibility for ensuring that the supply of heat is maintained. As such there needs to be an infrastructure of service providers who can take a preventative approach, at a local level to ensuring that the heat supply is maintained.

Participating suppliers will be approved by the Wood Fuel Centre and the Centre will contract with a single entity to take responsibility for providing these services in any particular area. This central, co-ordinating role will be contractually responsible to the Centre for ensuring the supply of heat is maintained.

7.2.3 Implementation

As the various infrastructure and supply chain development activities progress regional companies will very soon become approved suppliers to the ESCO and when the ESCO starts to develop customers Service Contracts will be put out to tender.

7.3 Local Fuel Groups

7.3.1 Overview

This is a very non-prescriptive recommendation but responds to the requirement for local, reliable, high quality supplies of feedstock (potentially logs, pellets and chips of different sizes and moisture contents).

Almost everything required for the provision of feedstock is already available in the highly developed and competent local farming and forestry communities. In some areas there is a requirement for existing businesses to bring together the right sets of resources to meet demand. Much local fuel supply capability and expertise already exists and this will develop further but there is a major problem in relation to the lack of equipment such as chipping machines, delivery vehicles, fuel dryers, stores and pellet suppliers.

Various shapes and sizes of Local Fuel Groups will form to provide fuel for the areas around franchisees and ESCO customers and where there is a shortage of equipment help will be given to access the DEFRA Infrastructure Scheme.

7.3.2 Detail

A member of staff from the Wood Fuel Centre will work to co-ordinate and assist in the development of these groups¹⁸. It is envisaged that there will be no normal model for the groups but that they will be set up to fit with local capabilities and personalities.

¹⁸ Northwoods could take on this role.

The groups may be local sub-sets of the existing sub-regional machinery rings and most importantly may already exist.

The objective will be to ensure that a cost effective, sustainable local supply exists around all biomass users and that users are given a high quality of service that will encourage them to promote the concept.

7.3.3 Funding

Funding will be provided by way of assistance from Northwoods and the Wood Fuel Centre Revenue Budget.

7.4 Private Woodland Fuel

7.4.1 Overview

Promotional activity will be undertaken to encourage owners of unmanaged woodland to manage their grounds for the production of biomass. This activity will include the exploration of specific local markets so that costs and benefits can be illustrated to landowners.

7.4.2 Detail

There are approximately 25,000 hectares of unmanaged private woodland in the Region and a significant proportion of this is hardwood which is a more cost effective fuel than softwood in terms of calorific value by volume.

The Wood Fuel Centre will initiate a project that identifies and works with landowners to establish biomass related income streams from their land. The Wood Fuel Centre will identify potential local fuel customers and broker commercial arrangements to establish supplier/customer relationships to benefit all parties.

7.4.3 Funding

The Forestry Commission, with its Woodland Grant Scheme and Northwoods will play important roles in the delivery of this project. In addition, organisations able to carry out hardware feasibility studies will help evaluate the benefits to users and access Clear Skies and ERDF funding.

7.4.4 Implementation

This initiative can start immediately and will focus on specific landowners whose location is close to a market or potential market.

7.5 Infrastructure Development Group

7.5.1 Overview

The Infrastructure Development Group will set up the supply infrastructure for large-scale customers such as power stations.

The objective will be to create a **sustainable** and reliable supply chain that can provide the volume and quality of product at the **lowest possible cost**.

In many areas there is a fundamental misunderstanding of the scale of operation required to feed a large installation and since biomass is relatively new to the region there are also few people who fully understand the processing required. A co-ordinated, strategic approach must be taken to large-scale supply chain development, particularly in terms of the economics and quality of feedstock.

Enthusiasm to supply must be countered by an insistence that business models at all stages of the supply chain are sustainable and that quality standards are met.

7.5.2 Detail

7.5.2.1 Manpower

The Infrastructure Development Group will have one fully committed member of staff from the Wood Fuel Centre who will work with stakeholders and industry specialists some of whom will be contracted to carry out specific projects.

7.5.2.2 Processing Plant Requirements

The Development Group will evaluate and propose plant requirements to feed large operations. It will also identify and seek agreement in relation to the use of appropriate sites. The Development Group will identify existing regional assets and work with owners and potential investors to encourage the distribution of investment to fit with regional growth. If UK investors will not commit to supporting major projects then overseas investors will be sought.

7.5.2.3 Business Funding

The Development Group will identify private investors and funding mechanisms to set up processing businesses at the most cost-effective locations.

7.5.2.4 Feedstock development

The Development Group will work with local forestry, wood processing and wood waste organisations to establish the best approach to providing feedstock.

The Development Group will also work with REFA¹⁹ and other groups of farmers to plan and establish a provision of SRC that can be introduced into the supply chain.

Where necessary the Development Group will also liaise with national and overseas companies to establish interim supplies of feedstock where local resources are insufficient in the short term.

The dynamics of feedstock availability must not be underestimated. The draw on resources from the many power stations who are currently investigating biomass co-firing will lead to shortages in local supply. Robust, commercial, contractual arrangements will be critical to security of supply.

7.5.2.5 Supply chain costing model

The Development Group will operate with the strategic interests of the region in mind and will therefore seek to establish sustainable supply chains with the maximum value being delivered to the region. In order to achieve this a costing model will be produced to illustrate where research & development, supply chain development or funding needs to be focussed. This model will influence the activities of the staff at the Wood Fuel Centre as well as those in the Infrastructure Development Group.

7.5.3 Funding

Funding for this element of the project will come from the Wood Fuel centre revenue budget.

¹⁹ REFA is a DEFRA funded Producer Group

7.6 Waste Wood for Heat

7.6.1 Overview

Waste wood represents a very cheap source of raw material for chips, pellets and unprocessed solid fuel.

A study will investigate the extent and nature of waste wood within the Teesside, a large urban area with port facilities. The study will compliment the Tree Station work that is being undertaken by the Community Forest in Teesside by working with individual companies to investigate the possibility of using waste wood to fuel on site plant. It will also assess the feasibility of using waste wood to provide heating to neighbouring properties through the installation of small-scale biomass fired District Heating Schemes.

7.6.2 Detail

Work will be undertaken through Renew Tees Valley to identify the nature and extent of waste wood within the region. In parallel with this activity promotional literature and information will be developed to advise companies of the various options open to them with regard to their waste wood.

This activity will predominantly be undertaken by the Renewables and Recyclables Officer (see Section 7.7) and will involve identifying alternative markets for the waste wood, identifying recycling opportunities and in the last instance identifying biomass opportunities.

In addition to this the study will identify R&D possibilities relating to alternative uses for contaminated waste wood.

Once the pilot work has been undertaken the study can be rolled out to other urban and semi-urban areas such as Tyneside and South East Northumberland.

7.6.3 Funding

Funding for the Renewables and Recyclables Officer has already been secured and is in place. In addition to this Renew Tees Valley has also secured funding. Additional funding and roll out funding will be sought from the Landfill Tax Credit Scheme.

7.6.4 Implementation

The majority of the activities outlined above can already be undertaken through the Renewables and Recycling Project in Teesside. Additional work can be co-ordinated through the Wood Fuel Centre and managed by Renew Tees Valley.

7.7 The Renewables and Recyclables Project

7.7.1 Overview

The Renewables and Recyclables Project will appoint an officer to work in four key promotional areas in both the Tees Valley area and in the Tynedale area. The four areas of activity will be the:

- development of the Tree Station
- promotion of biomass for energy
- promotion and information raising
- development of seasonal recycling projects.

7.7.2 Detail

The North East Community Forests, the Tees Forest Partnership, Forestry Commission and ICI Chemicals and Polymers are proposing to investigate the feasibility of establishing a Tree Station in Teesside. Funding has been awarded to develop a Renewables and Recyclables Project based in the Teesside area and working with local initiatives such as Renew Tees Valley and the Countryside Agency Renewables Initiative, REALL (Renewable Energy at a Local Level).

In relation to the Biomass Action Plan and its implementation the Project Officer will work in conjunction with other personnel in the region to investigate the use of biomass for wood heat and the development of the heat market probably using wood chips as an energy fuel. This will look at both the use of arboriculture waste as feedstock and also the promotion of short rotation coppice in the area. The management of existing woodlands will be encouraged to increase their utilisation. The project will also investigate the reduction of wood waste to landfill and the creation of new markets for this waste.

The TreeStation Project has been developed by the Forestry Commission to assess the feasibility of establishing a network of wood processing depots around the UK. The Tree Stations will predominantly be utilising green wood waste from tree surgery activities and from small broadleaved woodlands.

The concept of a Tree Station is that it provides:

- a one point of collection for local timber and green waste wood
- a processing point to add-value to this wood
- a sales outlet for the processed products (possibly also including a woodland management service)

7.7.3 Funding

Funding has been awarded for the period 2003 - 2005. ICI Chemicals and Polymers has provided the project with matched funding and further investment is being sought from the Landfill Tax Credit Scheme and the Sub Regional Partnerships.

7.7.4 Implementation

This project will commence in spring 2003. The Project Officer will be hosted within the Tees Forest Team and will work with Forestry Commission Officers.

It is anticipated that the Project Officer will develop close links into the proposed Wood Fuel Centre. The Wood Fuel Centre will be able to offer support for this post and for the Renewables and Recyclables Project as a whole. It is also proposed that the Project Officer will report on the activities of this project at key stakeholders meetings in the region.

7.8 Wood Pellet Plants

7.8.1 Overview

Several opportunities have been identified to establish wood pellet plants around the region. So long as raw material requirements are sustainable these should be supported as they will be an important strategic element of the growing regional infrastructure.

An ongoing feasibility study has identified potential economic synergies that can be established in relation to site location. These include the benefits of being close to feedstock, having cheaper heating fuel, taking advantage of waste heat. Facilities of this nature will produce lower cost pellets and should be actively sought out.

7.8.2 Detail

One feasibility study has been commissioned by a potential investor and other interested investors are known. The feasibility study and the Action Plan will be used to attract investors and demonstrate the region's commitment to biomass.

Following the study that specifically investigates market opportunity and raw material supply, a business plan will need to be drawn up.

An advantage of having several wood pellet plants in the region is that between them they could economically supply export orders, which in turn means they are not entirely dependent on the development of a UK market.

7.8.3 Implementation

A Northumberland wood pellet plant is likely to be constructed during 2004/5 and additional plants may open 2003/4.

7.9 Business Link Renewables Officer

7.9.1 Overview

Northumberland Business Link is soon to contract a Renewables Officer whose role will be very broad but with the general remit of providing on the ground support to renewables projects. This role will be a huge asset in the development of the biomass industry and other sub-regions will be encouraged to create a similar role.

7.9.2 Detail

The individual will work in conjunction with the normal Business Link support team but with specialist renewables support provided by TNEI.

Hands on support will be provided to an extent and requirements beyond the remit of the advisor will be passed on to the appropriate party.

In relation to biomass, the role will provide important supply chain and market development support as well as raising the profile of the strategy.

7.9.3 Implementation

The Northumberland position commences from July 1st 2003

8. Research & Development

8.1 Cost Engineering of Wood Fired Boilers

8.1.1 Overview

Biomass boilers are substantially (at least 100%) more expensive than their fossil fuel equivalents and whilst the Clear Skies funding can be a significant help costs often remain prohibitive. A significant reduction in capital cost would make biomass boilers more attractive to customers.

There is currently only one manufacturer of biomass boilers in the UK and the project would investigate whether there is opportunity to manufacture a cheaper product without impinging on product quality. The study would investigate whether sales prices are maintained at a high level by market forces, lack of manufacturing volume, expensive designs or real manufacturing costs.

8.1.2 Benefits

If a significant opportunity for cost reduction were identified then there would be a sound argument for initiating the production of alternative boilers in the UK. In the long term a cheaper UK boiler, promoted by the Wood Fuel Centre could achieve significant sales growth and market penetration.

8.1.3 Cost

The cost engineering analysis would constitute a £30,000 study carried out by an organisation such as RCID.

8.1.4 Follow on activity

If a significant cost reduction were identified then a UK design and manufacturer would be sought and sponsored by the Wood Fuel Centre.

8.2 Quality Standards

8.2.1 Overview

The region must adopt quality standards to ensure that all customers are delighted with the service. Unhappy customers in close rural communities telling everyone how disappointed they are with their systems would dramatically slow down adoption whereas delighted, evangelical customers would be a huge asset.

The quality standards will not be bureaucratic and longwinded, they will be concise and clear in describing some basic procedures to ensure consistency and quality of service.

Quality standards / codes of practice will be developed to cover critical elements of the supply chain and will be required to be adopted by any organisation participating in the branded activities co-ordinated by the Wood Fuel Centre.

The standards will also cover how the franchises will function in relation to the Wood Fuel Centre.

8.2.2 Detail

Fuel Quality and Engineering Quality - Standards are currently being centralised and given some uniformity, these will be adopted or developed to feedstock and ensure services provided in relation to capital plant design, installation and maintenance are high and consistent. NaREC will play a role in standard development, implementation and control.

- Service Level Agreements for Franchisees - Covering provision of information, response times, delivery times, information management.

- Service Level Agreements for Installers and maintenance providers - Covering provision of information, response times, information management, charging rates.
- Service Level Agreements for fuel providers - Covering response time and delivery procedures.
- All three of the service level agreements described above will be developed under the supervision of staff at the Wood Fuel Centre.

8.2.3 Funding

Funding for the development of BSI approved quality standards will be sought from NaREC and the DTI.

The development of the Service Level Agreements will be a project funded by the Wood Fuel Centre.

8.3 Training Schemes

8.3.1 Overview

The potential to develop a biomass sector in the UK is limited by skill shortages and there is currently very little suitable training available.

Training courses will be designed in conjunction with experts in the field and equipment manufacturers and delivered from the Wood Fuel Centre.

Substantial funding will be available for North East customers while the courses will serve as an income stream for the Wood Fuel Centre when attended by organisations from outside the region.

8.3.2 Detail

These skills shortages are in relation to biomass-related technologies and processes, specific areas for training development will be:

- Domestic wood pellet boiler conversion, installation and maintenance.
- Commercial wood pellet boiler conversion, installation and maintenance.
- Commercial wood chip boiler conversion, installation and maintenance.
- Biomass technology general information for sales
- Feasibility studies for biomass systems.
- Feasibility and design of District Heating Schemes.
- Farming SRC and other energy crops.

Courses will be developed in conjunction with both the relevant Sector Skills Councils, British Biogen, CORGI, LANTRA, Learning & Skills Councils and biomass engineers. Funding will be sought to develop the training programme and run pilot courses in the region. Consultation will be carried out with the Energy Savings Trust to assess the feasibility of using the training course as one method of gaining 'accredited installer' status on the Clear Skies programme and any subsequent funding programmes in the biomass energy sector.

In parallel with these activities a skills survey will be undertaken to identify the skills requirements throughout biomass energy the supply chain. This work will enable benchmarking to be introduced regarding quality standards throughout the industry and will also identify areas of skills shortage within the sector.

The establishment of apprenticeships schemes will also be considered.

8.3.3 Funding

European funding can be accessed through the ALTENER programme. A development project will be formulated along the same lines as the existing European Photovoltaic Training and Accreditation project²⁰. Linkages made with other European countries will add value to work carried out within the UK. By assessing the training packages available within Europe and creating a benchmarking exercise the project will be able to introduce a European wide recognised qualification which will enable UK workers to export their skills abroad and vice versa. With this in mind and with business diversification possibilities, Local Business Links and LSCs should be able to provide contributory funding towards training in SMEs. DEFRA will also provide funding for forestry related training.

Up to 50% funding can also be accessed through the Carbon Trust Low Carbon Innovation Programme - Market Diffusion. This finance can be used to assist in the training of personnel and the development of training materials to promote low carbon technologies.

The establishment of apprenticeships schemes will also be considered as a route into the sector and a method of spreading the cost of staff development.

8.3.4 Implementation

In the first instance existing experts in will be utilised to establish a regional training group including representatives from each of the key skills areas will be set up to co-ordinate course develop. Northwoods, who already have funding, will play an important role in arranging appropriate training.

²⁰ TNEI have worked with IT Power using ALTENER funding to develop photovoltaic installation City & Guilds courses. A number of colleges within the region will be hosting the pilots of the training courses in some of its further education colleges.

8.4 Short Rotation Coppice Development Group

8.4.1 Overview

At a regional level there are three key issues in relation to SRC:

At present, as a single income stream SRC is not commercially viable except possibly for anything other than a very large, very local demand.s

Research into the growth of SRC has produced huge variation in yield ranging from 7 to 13.5 odt per year. There is insufficient information specific to the region particularly in relation to estimating crop yields for large-scale farmed supplies.

If a large demand is placed on the region there will certainly be a requirement for SRC if the importation of feedstock is to be avoided/minimised.

SRC also offers opportunities other than as a fuel. It can be used as a land remediation tool, as a mechanism for processing sewage waste (which in itself acts as a fertiliser), as part of a water treatment process and as a component in the visual and physical improvement of the landscape. This diversity of opportunity offers greater benefits and therefore incentives to farmers to grow SRC and is justification in itself for a holistic approach to be taken to its development.

The objective of the SRC Development Group will be to establish whether and under what circumstances SRC is a viable feedstock in the North East.

8.4.2 Details

The SRC Development Group will instigate the test planting of a substantial amount of SRC areas in the region to establish indicative yields. These test areas will also be used in conjunction with the Wood Fuel Centre as training grounds.

The locations of test sites will be influenced by the potential markets for fuel. I.e. in close proximity to the proposed site of the ETOL plant and on land close to the Alcan²¹ power station at Lynemouth, where an opportunity lies to co-fire with wood. In this way the test sites have the potential to act as forerunners to supply future large-scale developments.

The SRC Development Group will use the findings of the test sites to estimate the SRC potential and cost base of the region, an essential factor in determining whether or not the local provision of feedstock for a wood fired power station is a viable option for the region.

Test sites will be set up on former open cast sites to assess the yield available from this type of land.

A holistic test site will be set up on contaminated land using sewage waste pellets as a fertiliser (and at a negative cost). Yield, economics and contamination redistribution will be evaluated.

8.4.3 Funding

A multi-partner research fund could be set up to support research and development into SRC. This may include funding from NaREC, Alcan, ETOL, NFU, DEFRA, ONE NorthEast and possibly contributions from European funding streams.

²¹ Alcan own a very substantial quantity of farmland adjacent to their power station and smelter and have responded positively to suggestions that it could be used to trial large quantities of SRC.

9. Current Demonstration Projects

Kielder Biomass Fired District Heating Scheme

A Feasibility Study has been undertaken to investigate the possible use of a biomass fired District Heating Scheme in Kielder village. This scheme will cover a number of new build properties within the village. Funding will be required to implement this scheme and possibly to carry out additional work on fuel supply issues.

Eco centres

Environmentally sustainable work spaces developed and promoted by Groundwork. Currently one exists at Hebburn but does not utilise biomass, 2 more are being considered and should be encouraged to utilise biomass.

Durham County Council

Conversion of coal fired boilers in public sector buildings to wood pellet. A cheap conversion technique requiring few modifications.

Castle Eden Walkway

Urban corridors with wood fired heating systems in the visitors centres. Currently at the concept stage but could set a trend and would give high levels of exposure. These should be supported.

Teedale Renewable Energy Challenge (TREC)

Practical Partnerships for Achieving 100% Renewable Energy Supply is an ALTENER funded project managed by The Northern Energy Initiative. The project includes European partners from Ireland, Italy and Sweden. Locally the project is known as the Teedale Renewable Energy Challenge (TREC) and its objective is to put Teedale on a pathway towards 100% renewable energy supply.

The project has been extremely successful in raising the profile and awareness of renewables in a rural community and this has, in turn, resulted in significant developments being identified. The project has enabled residents and businesses in the area to make their own decisions about renewable options through an education process. This project is also unique, differing from most projects in that:

It does not focus on a specific technology but seeks to identify the various geophysical, commercial and social aspects of the area and propose renewables solutions that are appropriate to the location.

Central to the project is the principle that any renewables installations should be commercially realistic and following installation the development should be financially sustainable rather than relying on grant aid. As a result the project involved several commercial partners including Amec Wind, the Forestry Commission, Northumberland Water and Glaxo Smith Kline all of whom have identified and plan to implement developments on biomass, hydro-electric and wind respectively.

The TREC biomass developments focus on information and awareness raising to off-gas properties and buildings, the development of local fuel supply chains and the identification of potential mainstream and demonstration biomass heat installations. The model for TREC can be rolled out into other areas of the north east region such as Tynedale or Weardale and into smaller geographical areas i.e. valley developments such as the Kielder area and even down to rural villages.

Four key developments have been identified as requiring future work taken forward following on from TREC.

Pellet and Wood Chip Promotion: A leaflet is being developed to encourage domestic and small scale commercial organisations to consider the use of wood pellets and wood chips for heating. It is hoped that in the future this work would be linked into the work that will be undertaken at the regional level by the Wood Fuel Centre.

Middleton-in-Teesdale: the TREC project identified the potential for a biomass fired District Heating Scheme at Middleton in Teesdale. Here 70 houses and a middle school all currently use oil or coal fired heating systems. Fifty of the properties are owned by the District Council and require boiler upgrades over the next five years. Feasibility funding has been secured from the Energy Savings Trust to investigate the technical, economic and social and political feasibility of installing a biomass fired District Heating Scheme using local biomass. If the results of the feasibility study are positive further funding will be required to carry out detailed design work, fuel supply analysis and to provide capital for equipment and plant.

School and prominent building conversions: Feasibility work has been carried out on nine schools and three large buildings in the Teesdale area to assess their suitability to conversion to biomass. A number of buildings have been identified as being suitable and further work is required to look at the ESCO Franchise to remove the preconception that using biomass is 'inconvenient'.

Fuel Supply Chain development: The Forest Commission has been working with local land agents and owners to encourage their diversification into biomass supply. Many of the larger land owners in the area also have large areas of forest and wood land. Even if commercial timber markets are not exploited these woodlands and forests still require management and the diversification into local fuel supply is being promoted as an opportunity.

10. Financials

The attached numbers are purely indications to give first guidelines as to where funding should be sought and what project values may be.

The breakdown of permanent employees illustrates roles and the cost (purely revenue) of establishing a stand alone centre.