

WhS D27

Impact of Woodheat Solutions on EU RDP/Pre Accession Funding

1. Introduction:

The Woodheat, or 'wood to warmth' supply chain embraces the following stages:

1. Woodland
 - (a) Tree planting and restocking
 - (b) Woodland management/maintenance
 - (c) Harvesting wood
2. Processing
 - (a) seasoning
 - (b) Conversion to logs, chips or pellets
3. Storage
4. Distribution
5. Bunkerage
6. Conversion to heat
7. Distribution of heat

Most member states have set challenging targets for the use of renewable energy and support is available in various forms across most member states. One of the major support mechanisms is the Rural Development Plan (RDP) whose application varies between member states.

The RDP is divided into 3 axes and these are subdivided into measures (or fiches).

In England the majority of RDP support falls under axis 2 and is delivered to woodland through the English Woodland Grant Scheme administered by the Forestry Commission. This includes support for woodland creation (including annual payments for up to 15 years) and woodland management under which the key driver is maintaining and improving the ecological value of the woodland habitat. Effectively this support is available purely for **1 (a) - restocking & (b) – woodland management/maintenance**, above. During the current RDP round (2008-13) support has also been made available from Axis 1 and 3 delivered by the Regional Development Agencies with smaller amounts of grant (up to £50,000) being delivered by local 'Leader' groups, where they exist (and they don't cover the whole region). Potentially this could support small businesses or farm diversification in elements 2 – 7 above. Each member state has agreed its' own RDP package with the EU and hence there are differences in emphasis and budget.

In addition individual member states have their own particular support mechanisms, for instance:

- Finland supports the first thinning of forests to improve the timber quality in that rotation and encourages the use of the arisings as woodfuel;
- Slovenia supports the use of woody biomass in general energy generation and more recently domestic and local use of wood for heat generation;
- Croatia has pre Accession funding through the IPARD Programme which has provided support for biomass fuelled district heating developments; and
- The UK encourages electricity generation (including the use of biomass) with Renewable Obligations Certificates (ROC's) but on 10th March 2011 launched the

Renewable Heat Incentive which we hope will be particularly encouraging in relation to Woodheat.

Woodheat infrastructure (stages 5 to 7 above) inevitably has higher capital costs than the equivalent output gas or oil fired heating system. This is largely due to the costs associated with:

- Burning a solid fuel – bigger and more complex machinery including more complex fuel feed systems; and
- Fuel bunkering – usually requires more space and good access.

Costs also tend to be higher when specifiers, designers and installers are less familiar with the technology, and where the level of competition between installers is limited.

However, we should not under-estimate the value of technical advice provided by each member state in various ways. In an evolving area such as Woodheat, independent advice which is not directly related to the vendor of the installation, is greatly appreciated. In Austria for instance the advice of an independent quality engineer is a requirement of any grant aid for district heating systems.

All WhS partners are either directly (administration of the grant) or indirectly (technical advice to the delivery body) involved with the delivery of support mechanisms. We are all in regular contact with those considering what grants might help them and what problems they are encountering, and it's fair to say that most of us are using what we have learnt through the project on an everyday basis.

In this report we have sought to review how helpful this support is and consider how support might be improved.

2. Support available by country:

2.2 Finland:

Technical measures

Regional forestry centres promote private forestry through guidance to forest owners. Local forestry societies provide expert assistance to forest owners in conjunction with pulpwood and timber sales, and other forest operations. Wood energy advisors at regional forestry centres give advice and information about wood fuel production and look for new outlets for heating enterprises. These experts are specially trained people with a background in forestry. Similar help is available for farmers at regional agricultural centres. (ReAct 2004)

Research organisations, e.g. TTS Institute and VTT, have carried out several studies on heating entrepreneurship and the results have been widely disseminated. The follow up studies at heat enterprises by TTS have been very important to guarantee that the sites are well implemented (right size, right form of entrepreneurship, quality of fuel, etc.). The experiences of the first sites have been widely shared in newspapers, articles and seminars. (ReAct 2004)

Policy measures

The government energy research, development and demonstration funding for renewable energy is about 10 million Euros per annum (ReAct 2004). The support is primarily granted through the National Technology Agency TEKES. The European regional development program is another important source of funding for regional development projects.

Fiscal measures

Taxation is one of the main instruments related to climate change and environmental policy in Finland. Finland was the first to impose a carbon based environment tax in 1990 by

introducing a CO₂ tax on fossil fuels. In heat generation, solid biofuels like woodfuels, biogas and REF are not taxed. Fossil fuels attract tax, which is based on the carbon content of the fuel. (ReAct 2004)

Subsidies granted for energy investments, development projects and energy conservation constitute an important means of implementing the National Energy and Climate Change Strategy. The maximum grant for investments in renewable energy based on conventional technology is 25-30 % and for innovative projects 40 %. Investment grant is allocated for companies and communities, not for private people or state organisations. (ReAct 2004)

The Ministry of Agriculture and Forestry (MAF) launched a campaign in 1997 to promote the tending of young stands (ReAct 2004). The state support is about 50-70 % of the harvesting costs of thinnings from young stands if the harvested wood is used for energy generation in a heat plant that is not owned by the forest owner. However, most of this support is spent in silvicultural tending operations. Yet for small heat plants that mainly use wood chips made from whole trees for energy generation, the government subsidy is very important to keep the price of forest fuel competitive.

2.3 Slovenia:

The measures affecting use and markets for wood biomass are mainly individual measures from the Rural Development Programme of the Republic of Slovenia 2007 - 2013 (2007). In promoting the use of wood biomass, the following measures are most pertinent within the framework of Axis 1:

111 - Training for persons engaged in agriculture and forestry, which may influence, indirectly through education of forest owners for safe forest work, the annual felling in privately owned forests.

121 - Modernization of agricultural holdings, which, among other things, enables co-financing of investments in renewable sources of energy for agricultural holdings needs.

122 - Improving the economic value of forests, which can have a positive effect on the wood products market, as it provides for co-financing of investments in modern forestry mechanization and equipment as well as in reconstruction and construction of new forest tracks and roads.

123 - Adding value to agricultural and forestry products, which also foresees co-financing of investments in processing and marketing of wood biomass.

Within the framework of Axis 3, the following measures are the particularly pertinent:

311 - Diversification into non-agricultural activities, where support is given to investments in production of energy intended for sale.

312 - Support for the creation and development of micro enterprises, where among other options, the co-financing for setting-up of enterprises for the production and sale of energy is foreseen.

In the last 18 months, invitations for tenders were open for all above mentioned measures.

In May 2009, a new scheme in support of green electricity production came into force, with which the government wishes to promote and hasten, among other renewable energy sources, the use of wood for the production of green electricity in ensuing years. The renewed scheme includes the following two regulations: the Regulation on support for the electricity generated from renewable energy sources (2009) and the Regulation on support for the electricity generated in cogeneration with high efficiency (2009). The framework for this scheme in support of green electricity production is the EU Directive on the promotion of electricity produced from renewable energy sources in the internal electricity market (2001). In the light of the wood market and further increases in the use of wood for energy purposes, the most pertinent is Appendix V of the Regulation on supports for the electricity generated from renewable energy sources, which clearly defines biomass used for the production of electric energy receiving support.

The programmes for promotion of electricity produced from renewable energy sources for heating and cooling purposes are based on the Resolution on the National Energy Programme (Official Gazette of the Republic of Slovenia No. 57/04). In the light of the wood market and further increases in the use of wood for energy purposes, the most pertinent foreseen financial support includes encouraging household boilers run on wood biomass fuel, co-financing of district heating systems run on wood biomass and co-financing of installation of boilers run on wood biomass.

The programme "Promoting household boilers on wood biomass" is being carried out by the Eco Fund, the Slovenian Environmental Public Fund. In the last 18 months, the Fund opened several invitations to tender featuring favourable loans or grants for both citizens and legal entities.

The programme of co-financing of district heating systems and the installation of boilers run on wood biomass is run within the framework of the Operational programme for environmental and transport infrastructure development for the period 2007 – 2013; the development priority "Sustainable Energy" and the priority orientations of innovative measures for local energy supply.

The Renewable Energy Directive (2009/28/EC) provides that Slovenia should increase the proportion of energy from renewable sources from 16% in 2005 to 25% in 2020. The associated Action Plan provides for measures increase the use of wood. We expect the pressure for use of wood for energy production will be increased further.

Wood biomass sector is fast developing sector in Slovenia. To support, development and implementation of modern technologies for biomass preparation, production and use a national action plan is needed. Long term goals are setup and broader perspective is given in Resolution on the National Energy Programme.

2.4 Croatia

Currently support is available under the IPARD programme (5. Component of the IPA instrument for Pre-accession Assistance) which in certain circumstances can support the majority of elements included in a Woodheat system including: construction of boiler house and fuel bunkering, installation of the boiler and a district heating network.

Example: POKUPSKO MUNICIPALITY

The municipality of Pokupsko (about 3,000 inhabitants) together with the North West Croatia Regional Energy Agency (REGEA) initiated a project of building a biomass district heating system in the town center. The project is in an advanced stage with all necessary permits obtained (location permit, building permit, environment protection certificate). The project has been approved to be financed through the IPARD program (5. Component of IPA instrument for Pre-accession Assistance), with the municipality eligible to receive a 958,000 € grant for the construction of boiler house, fuel storage building, installation of a 1 MW biomass boiler and construction of district heating network. The contractors for the performing of work have to be selected according to EU tendering procedures for third countries (PRAG – Practical Guide to contract procedures for EU external actions), which is planned to be completed in July 2011. Construction and operation is planned for November/December 2011.

The Pokupsko municipality has signed a three year contract for woodchips procurement with three local private forest owners and entrepreneurs for a total of 1,000 tonnes per year. The drafting of the contract and conditions for determining woodchip price based on water content has been done in accordance to the guidelines provided within the Woodheat Solutions project.

Figure 97: Customers of heat consumption:

Costumers:	Connected load in kW:	Planned energy consumption in kWh:	Current fuel consumption:
Municipal building	57	136,000	16,000 litre of heating oil
Apartment building	75	180,000	
Public building (culture house)	32	77,000	7,500 l of heating oil
Forest administration building	32	77,000	
Elementary school	142	340,000	35,000 l of heating oil
Commercial building (HEP)	10	25,000	
Church	12	29,000	
Commercial building (market)	64	153,000	
Veterinary building	16	38,000	
Households (app. 60)	450	1,078,000	
TOTAL:	890	2,133,000	

2.5 England:

Rural Development Plan England:

Axis 1, 3 and '4': Capital grants for machinery, infrastructure etc have been delivered via the South East England Development Agency (currently being disbanded with RDPE delivery being subsumed within the Department for Environment, Food and Rural Affairs – Defra) with local delivery through Leader projects. Full details available on: <http://www.forestry.gov.uk/forestry/INFD-7GML72>

Forestry is seen as a priority in SE England the sector has been successful in attracting support for a range of equipment and infrastructure to help develop the woodfuel supply chain. In some cases support has helped in the installation of woodfuelled heat systems as part of farm or business diversification.

The Forestry Commission works closely with both SEEDA and the Leader groups providing technical advice to both those applying for grants and those assessing applications. Information about what might be supported is availed on the FC website and this includes an RDPE Forestry Funding Eligibility Decision Tree (see copy in appendix 1) Support for forestry related projects many associated with Woodheat has been very encouraging with support being provided for purchase of woodfuel processing equipment including chippers and delivery vehicles and in some cases Woodheat systems themselves (though this is likely to decline due to the availability of the Renewable Heat Incentive – see below)

Axis 2: The greatest proportion of support from RDPE is delivered to woods and forests by the Forestry Commission's English Woodland Grant Scheme with some small woods being included in packages of support available through Natural England's Environmental Stewardship grants. There is currently no direct support for woodfuel but with nearly half of the woods in SE England being 'ancient' (i.e. the land has been wooded since the first maps were produced and hence retains many native woodland plants and animals) there are major ecological benefits in maintaining diversity of habitats within the woods. Hence support can be provided for work which enhances the biodiversity of these woods. This work can include improvements to management access which would overcome barriers to the woodfuel market supporting the ongoing management of the wood.

However, following much lobbying of our national managers, not least by the Woodheat Solutions co-ordinator, we have secured £10,000,000 funding for a dedicated Woodfuel Woodland Improvement Grant which will support:

- Assessing the woodfuel resource;
- Professional supervision of re-establishing harvesting in undermanaged woods; and
- Improvements to the access infrastructure in the wood (e.g. tracks, loading bays etc).

This will be launched in summer 2011 with a third of the overall resource being targeted at South East England.

Renewable Heat Incentive (RHI):

Following extensive consultation the Department of Energy and Climate Change (DECC) launched RHI on 10th March 2011. This will provide direct support for the use of heat produced from sustainable technologies with woodfuel being a major source. Full details can be found on: http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/policy/incentive/incentive.aspx

Grants will be paid for heat produced and used with a stepped regime to help overcome the barrier of the additional costs of woodheat infrastructure compared to that required for fossil fuels:

<200kW boiler	- 7.6p/kWh then 1.9p/kWh
200kW-1MW boiler	- 4.7p/kWh then 1.9p/kWh
>1MW boiler	- 2.6p/kWh

The higher level of support is paid for a set number of kWh's based on the maximum capacity of the boiler multiplied by 1314 (hours = 15% of the year)

The payment period is guaranteed for 20 years from installation with an annual adjustment at the RPI. A review of tariffs is scheduled for 2014.

Tariffs have been calculated on the basis of a required return on additional capital invested of 12 per cent. The scheme commences following Parliamentary approval and successful accreditation. It will be administered by Ofgem whose representative joined us on the study tour to Finland.

Initial impressions from those considering woodfuel are very positive and the Woodheat Solutions project is pleased to have stimulated some very good projects which are likely to take advantage of this support over the next year (Many of those we have worked with through the project would have progressed further but they were waiting to see what level the Government's support would be set at).

3. Review of how the support mechanisms work in practice:

1. Woodland

- (a) Tree planting and restocking
- (b) Woodland management/maintenance
- (c) Harvesting wood

In England the key challenge is bringing woodlands back into management following decades of poor market drivers for woodland management. Support directly for woodland management is via RDPE Axis 2 – English Woodland Grant Scheme (EWGS). More than half of the woods in SEE are ancient, many of these being traditionally managed as coppice. Most of the rest comprise native species and have high biodiversity value. The development of self sustaining markets will deliver far more than direct grants for work which will benefit biodiversity. Hence the Forestry Commission's interest in developing markets for woodland products, with woodfuel offering a particularly useful opportunity as it provides the market for the lowest quality wood (not to be confused with low quality woodfuel!).

The EWGS includes several elements which indirectly support woodfuel:

Woodland Planning Grant (WPG): Supports the development of management plans for woods and helps owners assess what they have and the options available, it provides a minimum of £1,000 for woods > 3 ha and hence supports sufficient time to allow a professional forestry agent to engage with the owner, identify their interests and priorities, prepare a plan and then explain it to the owner. FC has a set standard for plans and these can provide the background information needed to seek independent certification of sustainable woodland management.

Woodland Assessment Grants (WAG): Provides a little extra to help owners seek specialist advice about ecology, archaeology, landscape and community engagement in woods where these aspects are particularly sensitive.

Woodland Regeneration Grant (WRG): Supports the restocking of felled areas (excluding coppice regrowth) with higher grants being paid for restocking with native species.

Woodland Management Grant (WVG): Provides a small annual payment on a per ha basis for work which benefits the biodiversity of the wood; and

Woodland Improvement Grant (WIG): Capital payments for operations which benefit the ecological value of the wood – based on standard costs and varying %'s depending on location.

The elements of particular value to Woodheat development are:

- WPG in helping owners assess what they have AND professional foresters engage with woodland owners who have not actively managed their woods recently; and
- WIG in supporting capital investments such as access improvements which will facilitate the ongoing management of woods of high biodiversity value – often traditional coppicing.

Example: Wick Wood, near Selborne, England



Figure 1: Underused mixed broadleaf woodland, historically managed as coppice with standards



Figure 2: Access track improvement along a particularly wet section. Grants are only provided where there is a clear benefit in addressing a long term barrier to the woods sustainable management.



Figure 3: Simple culvert to prevent track lying wet during the winter and spring

This wood illustrates a typical ancient woodland which hasn't had active management of coppice for many years due to poor markets and access. Access improvements supported with WIG include profiling, draining and hardening of the access track along wet sections only to allow coppice harvesting to be reinstated, building on the growing woodfuel market.

The key 'challenge' with the EWGS grant package is the initial registration of the woodland area with the Rural Land Register, which takes time as boundaries have to be aligned with adjacent farmland etc. WPG is relatively easy to apply for BUT applicants would benefit from more examples to illustrate what constitutes a good management plan. (Copy of plan for this wood is attached as [appendix 2](#)). WIG is even more helpful in addressing key barriers to ongoing management such as the access improvements illustrated above, however, this grant is only available where there is a clear biodiversity benefit so is not available everywhere. Note: direct support for harvesting is not available under EWGS and WhS has advised against this on the basis that it would distort the evolving markets for woodfuel and other wood products.

As described in section 2 the Forestry Commission will be launching the Woodfuel WIG later this year and this will expand the EWGS package to more directly support woodfuel production. As this element falls under Axis1 of the RDPE support is focused more on business development and hence the support for access improvements is available for any wood which has not been managed recently and which will then bring a commensurate quantity of wood to the market within a set time. While it is too early to say how effective this will be WhS has been very actively encouraging and supporting the development of this grant and it will form a key tool in the development of Woodheat in England over the next two years. WhS material will be a key part of the promotion campaign.

2. Processing

- (a) seasoning
- (b) conversion to logs, chips or pellets

All the above elements are potentially eligible for support under Axis 1, 3 or (Leader). Of the grants that have been given under Axis 1 (including those delivered by 'Leader' groups) these programmes via SEEDA and Leader for forestry projects approximately 60% have supported equipment which is directly related to woodfuel production either as woodchips or firewood. In addition a lot of support has been provided to farmers who are diversifying their businesses under axis 3. In some cases this has included heat distribution to let offices in farm buildings. With the launch of the Renewable Heat Incentive in the UK it is unlikely that

there will be many further grants from RDPE for heat conversion as this can be supported by RHI. We are currently exploring the question of whether RDPE might be able to provide support for larger heat distribution networks alongside RHI which supports the generation of renewable heat.

RDPE has supported a number of Woodheat related businesses in SEEngland and the FC, SEEDA and Leader groups have been discussing where priorities lie.

- Boilers can be supported through RHI so not a priority for RDPE.
- High quality woodchippers for producing quality fuel need careful consideration as there are a lot of chippers in SEE now and it would be better to ensure these are utilized more effectively. Basically a new woodchip business should first consider hiring in chipping equipment first. A strong business need would need to be demonstrated for grant applications to be considered positively by a SEEDA or Leader judging panel.
- Small scale forestry machinery continues to be a major priority because there is little existing equipment in the Region and it is often better suited to large scale operations. For instance harvesters and forwarders suitable for large forests may not be cost effective (partly due to high costs of low loader transport between sites) and potentially environmentally damaging (due to soil compaction and damage to coppice stools because of limited maneuverability). Consequently we see smaller scale forestry machinery being a priority, particularly equipment that can be adapted from relatively common farm machinery.

Case study: Woodwise's tractor based processor.

Nick Hilton owns a small forest contracting business called Woodwise. They are based in Sussex, England and undertake a range of woodland management operations and have a practical and entrepreneurial approach which is well suited to the evolving opportunities in the woodland sector. Nick also writes a regular and popular article in the main UK forestry sector magazine: 'Forestry Journal'. In the article from 2009 attached as appendix 3 Nick outlines the issues affecting SE England woodland management and how he pursued support from RDPE to help address it. As he explains he was able to justify the business benefits of the purchase of the tractor based processor illustrated below:



Valtra tractor (second hand) with 8 metre reach Botex arm and Keto processing head. Note:

- Long reach allows machine to work across a wide band of woodland while travelling over little of it;
- Tractor is higher powered than needed for processor head but provides better stability when arm is at full reach and allows engine to run very efficiently;
- Tractor base facilitates easy travel between woods without need for costly low loaders, making management of small woodland blocks more cost effective;
- Processor head easily swapped for grapple head for loading, hence tractor can be converted to a simple forwarder v easily.

Keto processor head. Note:

- Compact head improves maneuverability;
- Tracks give good grip and flexibility when dealing with broadleaf trees;
- Linked computer allows size of processed pieces to be measured accurately providing good feedback on yield of particular woodland crops.

The overall cost of the machine was just under £100,000 and RDPE provided a 40% contribution. However, RDPE cannot support harvesting operations or machinery and hence grant was restricted to the parts of the machine directly involved with adding value to the felled tree i.e. the delimiting system etc. the felling chainsaw element was not eligible for grant aid.

This particular machine has proved highly successful and has stimulated interest from others. For instance the Balcombe and Holmbush estates have recently established a partnership and bought a 360 degree excavator based processor to help them add value to the trees from their estates. Each estate is already involved in the woodheat business. Balcombe started supplying woodfuel about 6 years ago when the FC was able to introduce the estate forester to a religious Steiner community in West Hoathly who installed a centralised woodchip fuelled boiler plant to provide heat to 27 discrete properties within the community (More details available on: <http://home.btconnect.com/hoathlyhill/hhr/blog.html>). This illustrated the potential and the estate then installed a woodheat system to supply heat to office units and a residential care home. They also supply woodchips through the South East Wood Fuels Ltd (www.sewef.co.uk) to various users including West Sussex County Council properties. The

forester Jamie Kirkman presented at the WhS workshop at the Weald Woodfair in 2009 and joined the WhS study tour to Finland and they continue to build their knowledge and develop the range of markets for wood products, with woodfuel/heat being a key element. They are located near major roads and in a particularly densely wooded part of SEE so are acting as an exemplar to neighbouring estates.

3. Storage

4. Distribution

- Woodfuel storage and distribution is another priority BUT while bespoke tree stations illustrated in Austria are great, in England there are so many semi-redundant farm buildings that it is far better to use these than build new. The exception might be where there is a strong business case to dry woodfuel to less than 30% where 'forced drying' using an underfloor ventilation system may be warranted. One such building was granted RDPE support recently based on the business premise that very high quality fuel would result in lower maintenance costs of the woodheat systems the company was planning to install and through which they would sell heat to others (ESCo approach). In terms of distribution the preference is for local use of wood (as illustrated in Finland) and in this respect farm trailers are readily available. Hence a strong business case would need to be presented to attract RDPE support.

5. Bunkerage

6. Conversion to heat

7. Distribution of heat

While a small number of woodheat installations have received RDPE support, in the future we anticipate that the Renewable Heat Incentive (RHI) will be the primary source of support for these elements of the woodheat supply chain.

The details of this are still evolving, however, Woodheat Solutions has built a good relationship with ofgem, E-Serve (<http://www.ofgem.gov.uk/e-serve/RHI/Pages/RHI.aspx>) who will be managing the scheme, and facilitated meetings between ofgem and industry representatives which passed across key issues which need to be resolved about the implementation of the support package. We await confirmation of the legislation by parliament which we hope will be this summer.

Access to RDPE Axis 1 and 3 via Regional Development Agency and Leader groups: The FC meets woodland owners, contractors and administrators on a regular basis, and they tend to be forthright in advising us of their experience of applying for grants or processing grants. FC also regularly provides technical advice on applications and the FC's Regional Director chairs the panel which assesses all applications to the RDA for support.

Key concerns and analysis of the issues raised:

(a) Complexity of the application forms: The general premise seems to be that the more entrepreneurial businesses find the process long but cope pretty well while the smaller contractors often feel the application process is 'too much hassle' and/or 'too complicated'. A particular point was raised about the duplication of information required between an initial 'expression of interest' and a 'full application'.

This is always a delicate balancing act between ensuring there is sufficient information for the assessors to determine the validity of the request and discouraging good applications. This could be improved by careful review of the application forms BUT applicants might find examples of completed applications related to the 'forestry' sector more useful. These could be suitably annotated with pointers to what applicants need to provide. This type of information on a website would be particularly useful except for those that are less familiar with the web and/or completing applications. In this case some way to coach people would be helpful.

The duplication of information between 'expression of interest' and 'invitation' to submit a full application could easily be addressed by combining the two forms.

(b) Requirement for business plans: Some people feel this is over complicated.

In discussions with Leader and SEEDA administrators we have found a generally pragmatic approach which seeks to ensure that the application represents a viable business. Their guidance suggests that for small applications a clear summary of 'cash flow' is sufficient to both help the assessors consider the application AND help the applicant consider whether they have a viable business proposal.

For larger applications RDA advice on business plans is to consider the information which has to be supplied to a bank when applying for a loan or information required to support a planning application. That said it is pretty clear that some examples relating to the forestry/woodheat sectors would be helpful to applicants. FC will look to testing this approach through the Kent Downs Woodfuel Pathfinder.

(c) Identification of relevant measure to apply for. Having personally worked with RDPE delivery teams in both SE and SW Regions it is clear that the definitions of the measures are open to interpretation. This is particularly relevant to the administrative bodies where a cautious approach to interpretation of the definitions can be common.

In the SE the SE RDA and the FC sought to clarify this for both applicants and administrators by producing the guidance on RDPE support for forestry illustrated in appendix 1. However, we would also recommend that for future RDP programs the core definitions of RDP measures are reviewed to ensure they are clear about what could be supported in relation to woodheat and other renewable business developments.

(d) Perception that only new machinery is supportable.

Discussions with SEEDA revealed that this is not the case BUT the RDA and/or Leader administrators will include conditions to ensure that:

- The previous owner was not in receipt of EU grant for that machine;
- The machine has at least a five year life span;
- The machine must meet all legislative requirements for on road use.

(e) Length of time to get decisions. This is a general issue with all forms of grant and particularly those that must be considered by a 'judging panel'.

Our impression is that there is little that can be done to overcome the need for panels which inevitably meet at fixed times. However, clear communication between applicants and administrators helps ensure everyone understands where they stand. However, the best way to ensure speedy decisions is to help ensure good applications are presented – see (a), (b) and (c) above.

(f) Knowledge of administrators/assessors about the forestry/woodheat industry. Some applicants feel those considering applications have limited knowledge of the forestry/woodheat industries.

This can be the case (particularly in England where the forestry industry isn't as large and embedded as in other EU states). FC has sought to help address this by providing training events to familiarise Leader teams in forestry. FC has also provided direct support to SEEDA in encouraging and reviewing applications for grant aid. This process is ongoing with several Leader teams attending WhS engagement and training events and active engagement from FC managers and Woodland Officers to ensure Leader teams know that we will provide technical advice if required. As knowledge gained from WhS becomes embedded in the whole Regional team the breadth of advice we can provide will expand.

Intelligent Energy Europe Support:

Having personally spent nearly 26 years supporting private woodland owners through administering grants, regulations and providing independent advice to owners across 3 English regions and 1 Scottish region I have encountered a huge cross section of individuals with a range of ideas and aspirations for their woods. One of the fundamental lessons is the value that owners place on independent advice provided by someone who is not directly paid by the receiver of the advice. As a manager the skill of being able to encourage and enthuse an owner, adapting your advice to help him or her meet their own aspirations while also ensuring the woods are sustainably managed is something I look for and have encouraged in all my teams.

Advisers must have a robust knowledge in order to provide accurate and credible advice and perhaps most importantly they must know what they don't know!

I'm very pleased to note that the IEE support for the Woodheat Solutions project has allowed us to gain a huge amount of knowledge and experience which we would not have been able to 'sit at home'. This is proving incredibly useful as all partners in 'developing' member states work to build the woodheat industry in their respective countries.

The most valuable elements have been:

- Seeing how the woodheat industry has evolved in Finland and Austria;
- Appreciating the technological developments that have been made;
- Adapting this experience to fit our respective situations;
- Enthusing delegates at our events about it; and
- Establishing contacts whom I am sure we will continue to liaise with about developments.

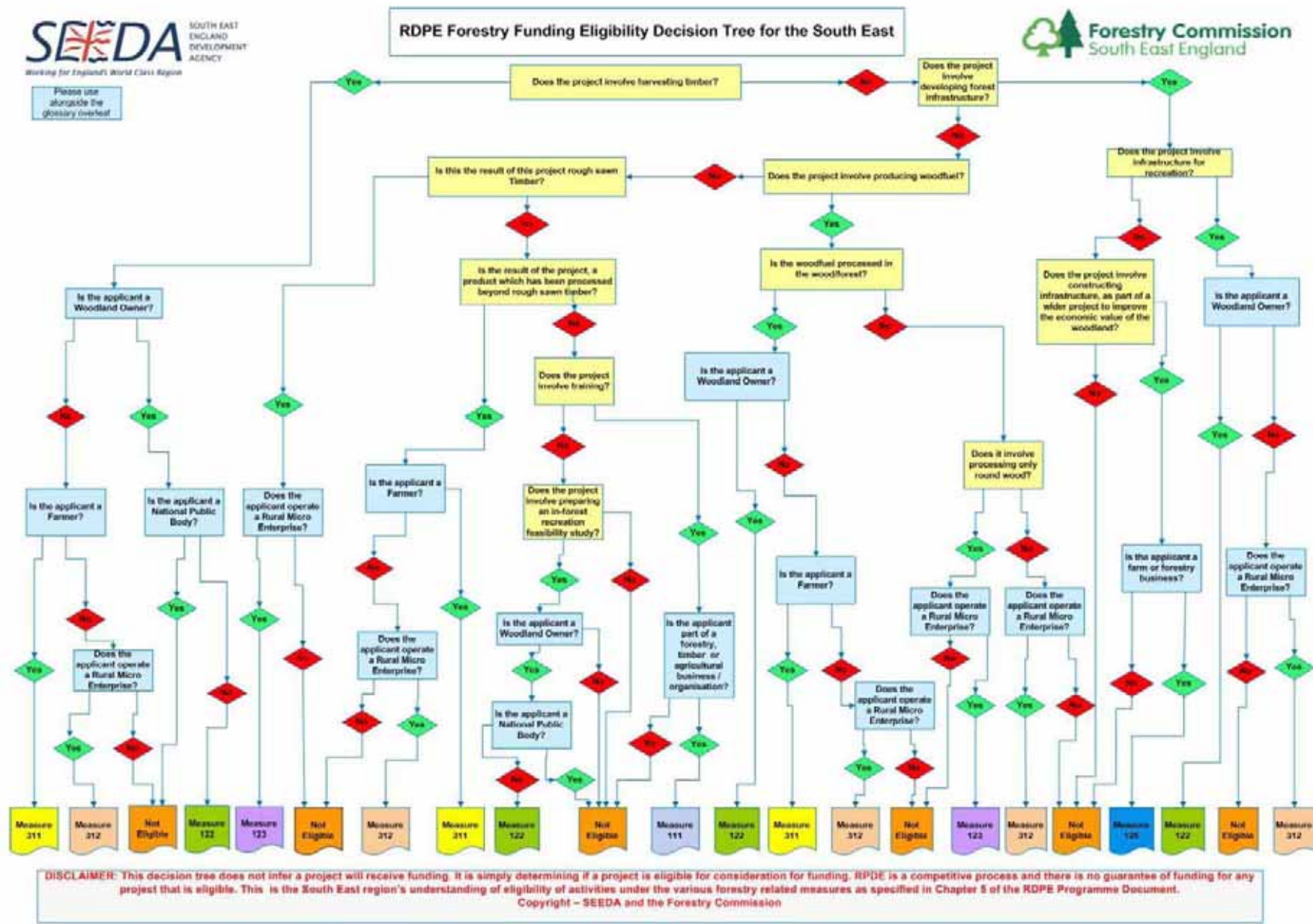
Certainly from the Forestry Commission's perspective I can say we would not have moved so far without the support (and the umbrella of the WhS project to allow us to provide a very robust communications campaign).

While the overall support has been gratefully received IEE support understandably brings a need for an agreed plan of action, and over 30 months a lot changes. As someone whom has been 'dropped into' the project co-ordinators role with no experience of similar projects and their administration I have learnt a lot (and lost a lot more hair!). I suggest that a simple set of best practice guidelines be established (probably written with the advice of experienced co-ordinators) to help ensure projects have the greatest chance of success. Many of the elements will seem simple to anyone familiar with the IEE 'system' and may well be explained on the website but a simple summary of best practice would help both co-ordinators, partners and project officers.

4. Overall Conclusions:

- (a) Support will encourage the uptake of Woodheat much more quickly;
- (b) Sometimes woodfuel is regarded as being a cheap fuel compared to fossil fuels which can be counterproductive because:
- As more woodfuel systems are installed demand will rise;
 - As demand rises we will need to access wood from those woodlands which are more difficult to access, either physically or due to the nature of the woodlands ownership (for instance in England many woods have not been actively managed for many years and current owners are unfamiliar with the benefits of woodland management, Slovenia and Croatia some woods are physically difficult to access) – this will increase costs;
 - The maximum price of woodfuel is likely to be dictated by alternative fuel sources;
 - Woodfuel is most cost effective when supplied locally, especially when a woodland owner uses the woodfuel from his/her own woods to supply their own needs.
- It is crucial that the stages in and realistic costs of woodfuel production are understood by both those considering woodfuel use and woodheat production and those assessing applications for grant support.
- (c) The wood to warmth supply chain embraces a range of elements from woodland management to heat distribution and support packages can seem complex. For instance support available under RDP can be very helpful but the definitions of the relevant measures can make it appear complex and confusing – even to those administering the grants. Future RDP programmes may benefit from a review of the definitions of the measures in respect of support for renewable technologies including carbon sequestration AND clear guidance to member states.
- (d) The value of sustainable local markets such as local Woodheat in delivering wider environmental and social benefits should be included in any evaluation of support programmes.
- (e) Experience gained from individual member state support programmes such as the UK's Renewable Heat Incentive should be shared between member states. From what we have learnt through the WhS project this support package looks well designed; however, we are slightly concerned that the tiered structure of the support could encourage owners/installers to fit slightly larger boilers than are strictly necessary (as they would receive more kWh's at the higher tier) which would affect the efficiency of the overall system. We will watch carefully and advise the scheme managers accordingly.
- (f) Technical advice from independent experts is greatly appreciated. The Austrian model of obligatory independent quality engineer advice to all those seeking grant support for district heating systems is one to aspire to. The long term savings that this level of advice can bring are considerable. In Slovenia, Croatia and England the knowledge and experience partners have gained is being put to good use, however, we're not convinced that senior officials in our respective organisations recognize this.
- (g) Technical advice through examples and case studies is also incredibly valuable and effectively multiplies the impact of specialist advisers time. This needs to cover woodfuel production, woodheat installation and business planning.

Appendix 1: FC/SEEDA guidance on RDPE (Axes 1, 3 & '4') funding for forestry



Appendix 1: Back page of FC/SEEDA guidance on RDPE (Axes 1, 3 & '4') funding for forestry

RDPE Forestry Funding Decision Tree – Glossary

This decision tree will help you to decide whether or not a proposed project is eligible for RDPE funding. In order to decide you need to ensure that both the proposed project activity and the applicant are eligible for support. Some activities are only eligible for support depending on who the applicant is. The decision tree questions are divided into two colours – blue questions ask about the activity, yellow questions ask about the applicant.

NB: This document has been prepared by SEEDA and Forestry Commission South East based upon Chapter 5 of the Programme Document and the Regional Implementation Plan for the South East. This may not fit the priorities in other regions, please consult your own Regional Development Agency.

Measures:

The measures are written below as stated in Chapter 5. Text in brackets indicates the intended main beneficiaries. E.g. gives examples of the kind of investment possible under this measure.

111 Vocational training and information actions (those who spend greater than 50% of their time involved in farming, forestry or horticulture)

Supports training, group based advice, information provision and the uptake of the latest technology for all adults directly employed in agriculture or forestry. RDPE funded training is delivered through LandSkills South East. Applicants should contact them direct for any training requirements they may have. They can be contacted www.lantra.co.uk/LandSkillsSouthEast or 01444 871436

NOTE there is funding available for training through the Leader groups for those engaged within the forestry sector who are not eligible under measure

111. Contact the local Leader group for further details.

122 Improving the economic value of forests (Woodland owners)

e.g. harvesting equipment, chippers for in-forest use, forest recreational infrastructure

123 Adding value to agricultural and forestry products (Forestry micro-enterprises)
e.g. mobile sawmills, firewood processors, chippers, trailers, cranes, feasibility studies and product development

NOTE this measure is only available for processing of virgin timber up to first stage processing eg production of planking. The processing of by-products eg waste slab wood or arboricultural waste can not be considered under this measure

124 Co-operation for development of new products, processes and technologies (Primary producers in forestry and the processing businesses)

e.g. support for product development, collaboration and producer groups

125 Infrastructure related to the development and adaptation of agriculture and forestry (Forestry and agricultural businesses)

e.g. forest roads, paths, drainage as part of wider project to improve economic value of the woodland

311 Diversification into non-agricultural activities (Farmers)

e.g. capital investment such as log processors, chippers for renewable energy, market research and marketing support

Note this measure can support projects that add value to timber beyond first stage processing and the processing of timber by-products eg slab wood and arboricultural waste

312 Support for the creation and development of micro-enterprises (Rural micro-enterprises)

e.g. capital investment such as log processors, chippers for renewable energy, market research and marketing support

Note this measure can support projects that add value to timber beyond first stage processing and the processing of timber by-products eg slab wood and arboricultural waste.

Applicant definitions

Agriculture – as defined in section 109(3) of the Agriculture Act 1947

"agriculture" includes horticulture, fruit growing, seed growing, dairy farming and livestock breeding and keeping, the use of land as grazing land, meadow land, osier land, market gardens and nursery grounds, and the use of land for woodlands where that use is ancillary to the farming of land for other agricultural purposes, and "agricultural" shall be construed accordingly;

Micro-enterprise - an enterprise which: employs the equivalent of fewer than 10 full time persons, and has either an annual turnover of less than EUR 2 million or has an annual balance sheet total which does not exceed EUR 2 million.

National Public body – The Forestry Commission, the Crown Estate. Local authorities are not considered National Public bodies.

Project activity definitions:

Rough sawn timber – the result of roundwood having gone through one stage of processing ie planks, fencing posts.

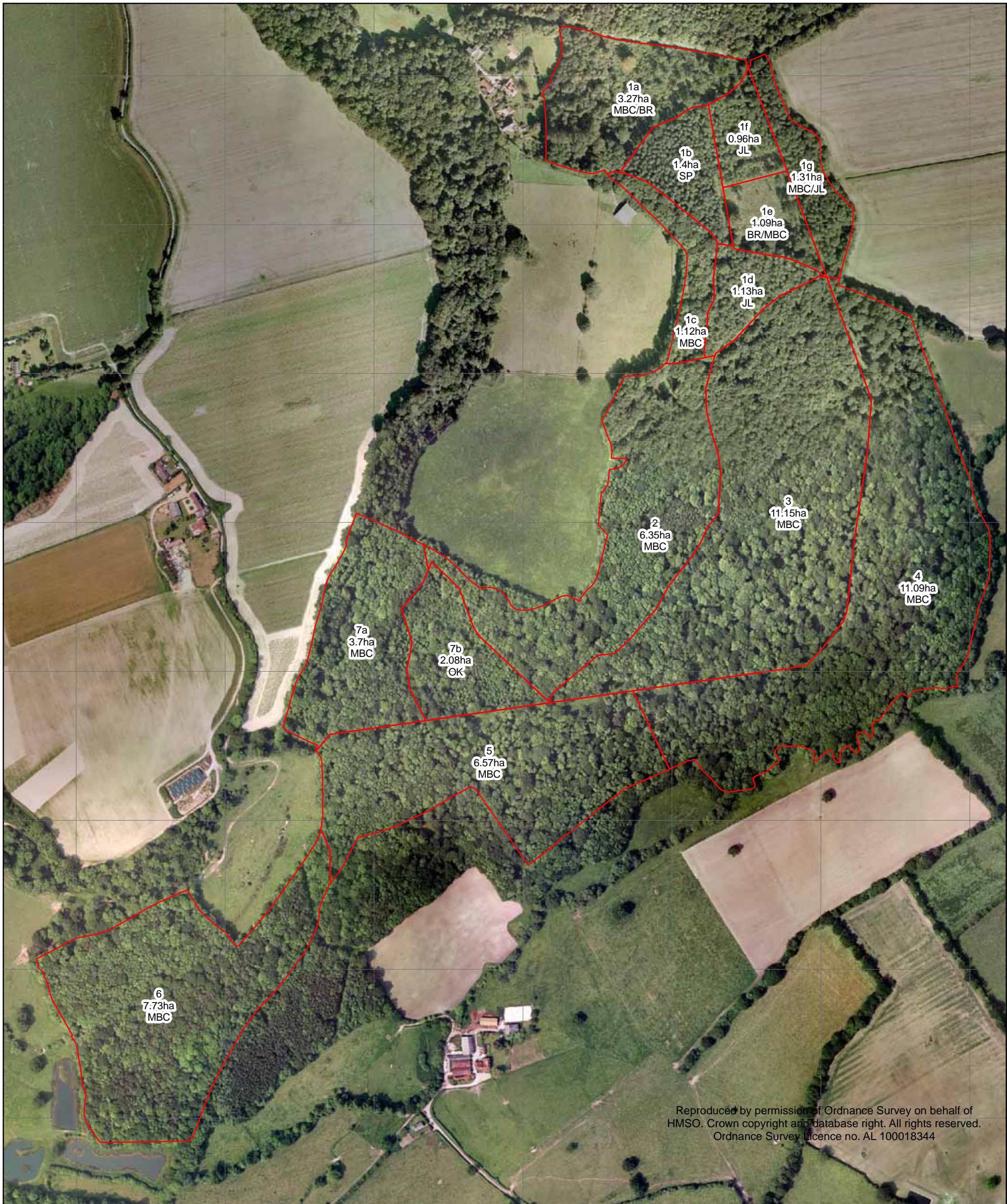
Woodfuel – Firewood logs, woodchips and pellets.

Forest infrastructure – Roads, paths and drainage in the forest, including turning circles and hard standing.

In-forest – In the forest, up to leaving the boundary of the forest. Includes work done at roadside before the timber leaves the forest.

Roundwood – Wood in its natural state as felled that has not gone through any other process beyond or equivalent to delimiting, debarking and cross cutting into a sawlog. Timber processed beyond this stage is not considered in RDPE terms to be roundwood. Roundwood timber does not include felled trees from arboricultural operations or other arboricultural arisings, chips made from sawmill co-products, waste or recycled wood.

Appendix 2: Example woodland management plan which includes an assessment of potential woodfuel production.



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	2011			2016			2021		
	7 - 17 cm (m ³)	Calorific value (kwh)	Sawlogs: 18+ cm (m ³)	7 - 17 cm (m ³)	Calorific value (kwh)	Sawlogs: 18+ cm (m ³)	7 - 17 cm (m ³)	Calorific value (kwh)	Sawlogs: 18+ cm (m ³)
Cmpt 1A: Japanese larch (felling)	25	59625	286	0	0	0	0	0	0
Cmpt 1B: Scots pine (thinnings)	6	14310	30	4	9540	32	3	7155	29
Cmpt 1D: Japanese larch (felling)	15	35775	176	0	0	0	0	0	0
Cmpt 1F: Japanese larch (felling)	23	54855	264	0	0	0	0	0	0

	Area (ha/5 years)	Proposed Rotation (years)	Volume from first intervention (m ³)	Calorific value (kwh)
Mixed broadleaf coppice	6.3	40	803	2329425



1:4,846

UPM Tilhill, The Oast, Blackham Court, Withyham, East Sussex, TN7 4DB
Tel: +44 (0)1892 771900 Fax: +44 (0)1892 771901



Wick and Coombe Wood

Biomass Harvesting Implementation Plan

December 2010

Tilhill Forestry Ltd

1. Background information

1.1 Location

Nearest town, village or feature	Oakhanger
Grid reference	SU 758358
Total area (ha)	59.0

2. Summary

This Implementation plan covers the 10 years from 2011 and seeks to assess the viability of the woodland in terms of management for the production of timber and biomass for energy. The figures used are based on yield class assumptions and published data regarding the calorific values of the different species considered.

The species composition of Wick and Coombe Wood is dominated by mixed broadleaf coppice (50.3 hectares). Based on a rotation of 40 years (reflecting the low yield when compared to sweet chestnut coppice), it is proposed that around 6 hectares is cut every 5 years to achieve sustained yield. A volume of around 803 m³ of biomass for energy would be expected from the first intervention, yielding around 2329425 kwh from the 6 hectares.

Within Wick and Coombe Wood there are three stands of Japanese larch which are at felling age. Clear-felling these stands in 2011 could expect to yield 726 m³ of sawlogs (top-diameter ≥18 cm) and 63 m³ biomass for energy (top-diameter 7-17 cm) equating to 150255 kwh.

The one stand of Scots pine is currently at mid-rotation. The next thinning operation is expected to yield around 30 m³ of sawlogs and 6 m³ of biomass for energy equating to 14310 kwh.

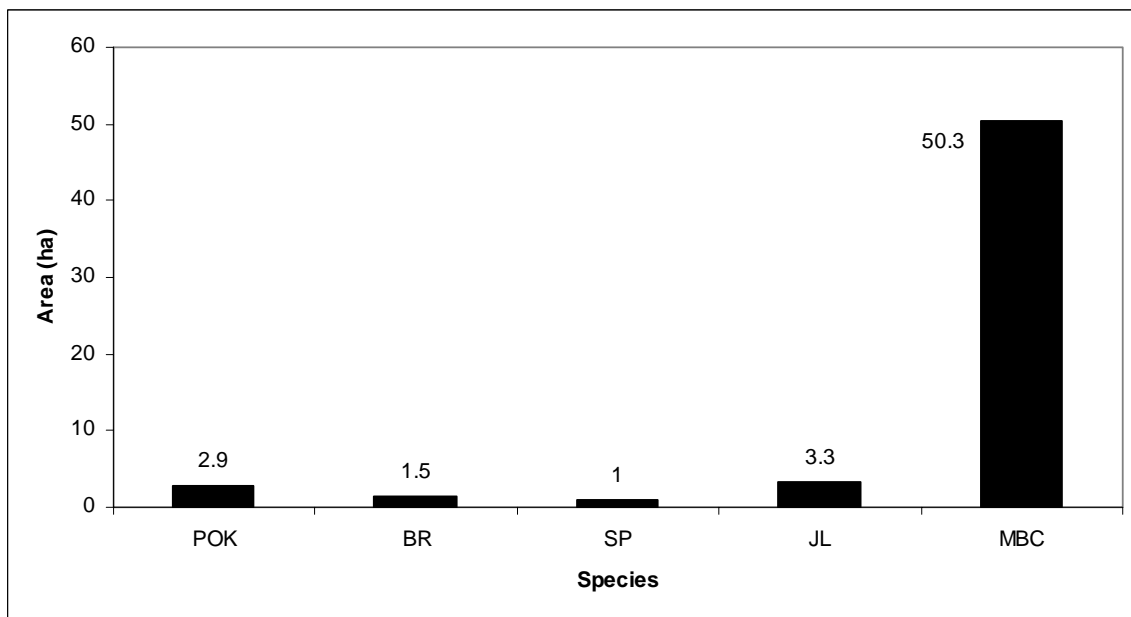
The small area of oak in cpt 7b is currently too young to begin thinning operations and is therefore excluded from the projected production figures.

The ride and track network is in good order and has recently had improvements carried out. No further work is envisaged other than maintenance following use.

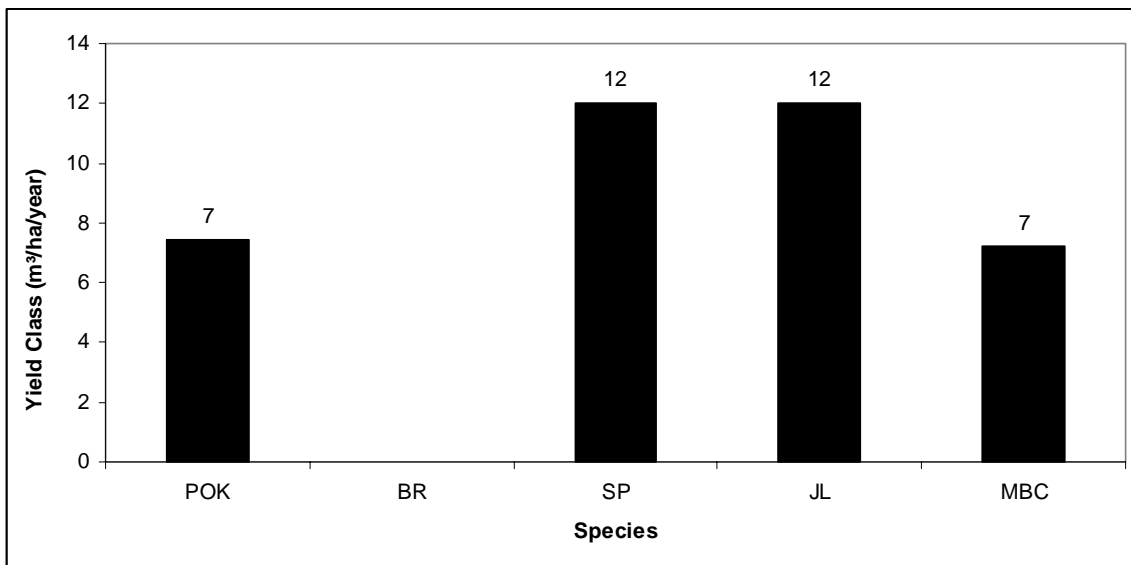
3. Woodland information (Map 1)

3.1 Woodland resource

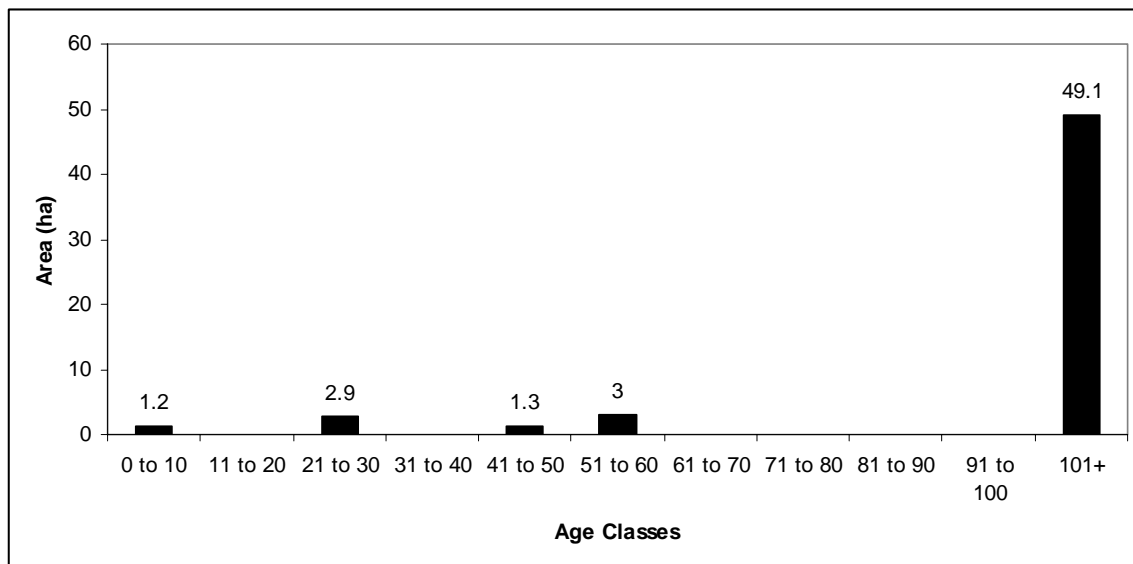
Graph 1: Species composition by area.



Graph 2: Average Yield Class per species.



Graph 3: Age class structure (comments on normalising the woodland resource structure to achieve sustained yield, if considered feasible)



Achieving sustained yield from woodland through the application of a process of normalisation is generally considered to be good practice where viable. However, the decision to implement the restructuring process must take into account the economics of the harvesting operations. Where the woodland is too small or where the areas of the different crop types are too restricted, then normalisation may not be considered sufficiently cost-effective. The period of normalisation is strongly dependent on the current age-class structure. Where the structure is highly uneven, normalisation may take as long as two rotations to achieve, which, in the case of broadleaf high-forest would be some considerable amount of time (at least 200 years in some case). In the case of crops with short rotations, such as sweet chestnut coppice, then normalisation and sustained yield can possibly be achieved within 30 years in some cases.

In the case of Wick and Coombe Wood, the size of the mixed broadleaf coppice component (50.3 hectares) does lend itself towards a feasible programme of normalisation in order to achieve sustained yield. The normalisation process would follow the 'area-only' method. Following this method, 6.3 hectares from the overall woodland area would be cut every 5 years. The coppice rotation would be 40 years.

The aim of management within Wick and Coombe Wood is to remove the conifer component gradually as and when these stands achieve the Age of Maximum Mean Annual Increment (Productive Rotation). Restocking programmes will replace the conifer stands with native broadleaf species with the ultimate aim of producing high quality broadleaf timber.



	2011			2016			2021		
	7 - 17 cm (m ³)	Calorific value (kwh)	Sawlogs: 18+ cm (m ³)	7 - 17 cm (m ³)	Calorific value (kwh)	Sawlogs: 18+ cm (m ³)	7 - 17 cm (m ³)	Calorific value (kwh)	Sawlogs: 18+ cm (m ³)
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Cmpt 1F: Japanese larch (felling)	23	54855	264	0	0	0	0	0	0

	Area (ha/5 years)	Proposed Rotation (years)	Volume from first intervention (m ³)	Calorific value (kwh)
Mixed broadleaf coppice	6.3	40	803	2329425

Table 1: Projected product assortments with associated calorific values from thinning, felling and coppicing operations.

3.2 Site description

Access:

The external road access borders the northern edge of the woodland. This is a C class road running between Oakhanger and West Worldham. There is no weight restriction although the road to the west is narrow so lorry access is restricted to the eastern direction only. Four wheel drive access is also possible along the Hangers Way running between Wick Wood and Coombe Wood. This is an unsurfaced right of way that is often rutted and therefore use is seasonal.

There is a small surfaced car park/ timber stacking area just inside the main gate. A hard track leads out to the fields to the west through cpt 1. The owner of the fields has a right of way across the track. The majority of the internal rides are unsurfaced grass rides which are only useable during the drier months of the year. The section from the entrance running through compartment 1 was surfaced in 2010. This section used to lay wet all year round thus preventing vehicular access even during the summer. A further section was surfaced on the southern boundary of compartment 3. Again a wet section on a moderate slope.

Topography

The site terrain at Hartley Mauditt can be characterised as being undulating with few restrictive slopes in terms of management operations.

Soils and geology

Wick wood lies on the poorly drained strip of Gault Clay between calcareous outcrops on the hanger and Lower Greensand towards Oakhanger and Broxhead and Bordon Commons. The soil is heavy and seasonally waterlogged, often not drying in the summer in enclosed woodland areas.

4. Site features to be considered during planning: Sensitivities (Map 2)

Map 2 highlights those site features which should be considered during the planning of harvesting and extraction operations. Such features will include: culverts, bridges, archaeological features, watercourses, badger-setts etc.

5. Extraction Routes/Loading Bays (Map 3)

Timber extraction routes and vehicle access routes for 'other maintenance' operations within Hartley Mauditt Woods are shown on Map 3. The aim here has been to separate the two uses as far as is possible in order to minimise the impact of running heavy

equipment on the largely unsurfaced forest rides and tracks. Where possible, the timber extraction routes follow those tracks which are less liable to water-logging.

There is a loading/stacking area adjacent to the main access gate in the northern part of the wood.

6. Harvesting Plan: Felling/Thinning (Map 4)

Conifer stands:

Yields from thinning operations in conifer stands will be calculated assuming that the marginal thinning intensity (70% of the annual yield class removed per year) is adhered to. Conifer rotations will follow the 'Productive rotation' for each species, defined by the Age of MMAI (Maximum Mean Annual Increment). Calculated production figures are based on net areas of sub-compartments and assume 15% open area.

The projected products from these stands have been divided into: 'sawlogs' (top diameter >18cm) and 'biomass for energy production' (top diameter 7-17cm).

Stated production values refer to stem-wood only. Harvesting residues (brush and stumps) are not included in the calculated figures for the reason that, in terms of sustainable management of the woodland, it is not considered to be worth removing this material from site. It is known that the branches and fine material of a tree contain the bulk of the trees nutrients. Repeated removal of this material from the site would prove detrimental to future productivity.

Broadleaf high forest:

Thinning operations in broadleaf high forest generally follow the marginal thinning intensity for the first part of the rotation but this is typically reduced due to the rotation ages being far in excess of the Age of MMAI.

Mixed broadleaf coppice:

Areas of mixed broadleaf coppice will be managed on a rotation of 40 years. For the purposes of this study, all produce from these areas will be treated as biomass for energy production.



7. Maps

Map No./Title	Description
1	Compartment/Yield Class Map
2	Site Sensitivities
3	Extraction routes/Loading Bays
4	Harvesting Plan: Felling/Thinning



Do it all...

For many, many years now I've had a thought growing away at the back of my brain. It usually starts when it's bucketing down on some dreadful site; the fire keeps going out and productivity and profit are draining away as fast as the water is running down my neck. There has to be a better way – besides, the body is getting to that age where running around all day with a chainsaw is taking its toll.

So, why not employ more blokes? Well, that works to a point, but over the years I've seen quite a few come and go and it was getting increasingly difficult and costly to replace them. I say 'was' because, since the recent collapse of UK plc, I've had more applications, CVs and hopeful phone calls than you can shake a stick at.

Anyway, back to the 'thought'. At each and every APF I stand and gawp at the monster harvesters laying waste to vast swathes of woodland, the highly skilled operators not even breaking sweat as they sit in their air-conditioned cabs, stereos on, racking up vast cubages with every button press.

Yes, I am profoundly jealous; that is, until I look at the price – a bit of a case of if you have to ask, you can't afford it.

Scanning the secondhand ads doesn't help much. They are either

still too pricey, got a zillion hours on the clock or quite obviously a wreck-age waiting to happen. Equally, from a practical viewpoint, one of these mighty beasts just doesn't sit well in the Woodwise business framework.

As a firm we tend to be dealing with lots of small woods, or small areas of wood, and down here in Sussex we don't really have vast acres of production forest. There again, the thought of switching off one of these machines when the birds and bees start doing their thing fills me with horror.

So the thing evolving in my brain needs to be reasonable in cost, be easily adaptable and therefore multi purpose. It needs to be economical to run and ideally roadworthy to save on the cost of lorry movements wherever possible. On top of that lot it also needs to do the work of many and keep me in the 'manor' to which I yearn.

In my mind's eye I'm seeing a tractor; after all you can't really get a more adaptable, economical and roadworthy vehicle. We can use it for mulching, winching, chipping, towing and so on. Then on top of that we'll slap a good crane and then dangle a small harvester head on that – brilliant, eh? Well it would be, if it was as simple as saying it!

In my research over the years



Apple of my eye... Admiring the new arrival.

I've seen a few attempts at a similar machine. In all cases they didn't quite fit the bill. One was so heavily adapted that it wouldn't be able to do anything else, another had the operator kneeling on the seat to work the crane and yet another had a slow old stroke processor on the back that still required all the trees to be manually felled. Okay, they all worked, but somehow they didn't ring my bells.

However, times change and so did my luck. Most of you will know that I'm a great fan of the Valmet/Valtra range of tractors; after all I've kept the same one for 12 years and it still looks like new – well almost.

The thing is they do a reverse drive system which obviously puts the operator's eyes and hands back in line with the action rather than behaving like a contortionist. So imagine my delight when stooging about on the Web one evening I find that Wilsons have successfully grafted an eight-metre-reach Botex on to the roof of just such a tractor. That really got me thinking, but mostly about heads.

An awful lot of research and googling later got me looking for a short chassis – all the better for

going round bendy trees. I want to do both hard- and softwood, you see.

I'm also looking for a track feed which may not be as fast as rollers nor as powerful as a stroke feed, but is a good compromise between the two and, again, all the better to grip those bendy trees. Finally, it's got to be tough but not weigh too much as I definitely want the dog in charge of the tail.

As some of you will have already guessed, my search engine spat out the name Keto Harvesters as fitting the criteria and on top of that it told me that Wilsons were the agents – well well, there's a plan developing here.

I made a long phone call to Scotland which, although positive in terms of a tentative yes to the possibility, also raised questions about the feasibility/costs and would require a good bit of thought before further action.

I sort of cooled on the idea for a while until by good fortune a forest officer pal casually dropped into conversation that they (the Commission) were helping SEEDA (South East England Development Agency) to run a new RDPE (Rural



It's still dark and it's raining, but it's here at last.



Finnish equipment and Finnish weather: the Valtra/Keto combination processing larch in the snow.

Development Programme for England). In layman's terms he explained it meant there was a bit of money available if you've got an idea to upgrade or expand your kit collection if it will help your business. He also came up with the number of the chap to ring.

Very quickly I'm on the blower again and running through my ideas. I think they were a bit surprised as they'd expected the requests to be more along the chipper, logging machine or splitter route. It was also a sizeable chunk I was looking for, but hey it's all got to go through several panels before approval, so in for a penny in for a lot of squids!

I think that my rather bald statement that it was all very well having the other kit, but if no one is cutting the stuff economically in the first place then what's the point, was quite persuasive. I coupled that with the handy statement that we

will help to bring previously uneconomic sites back into management, thus improving sustainability/biodiversity.

That did the trick, or at least got me an application form for an Expression of Interest. A very simple form about me, my business and my idea. This was duly filled and sent which generated another form. This was a much more detailed application giving the costings, arguing the case for the machine and, more importantly, why we wanted the grant and how we would fund our part of the deal.

Although I said it was much more detailed I don't want to give the impression that it was difficult, particularly as our contact at SEEDA helped us through the process.

During this time I had obviously been in close contact with Wilsons so that we could get the costings right and allow them the required head scratching time.

Brilliantly we got the form back stamped 'Approved' and shot up to Scotland for a look at the various components and to talk through the concept. Once home and feeling suitably confident we arranged a loan and paid a deposit. Naturally luck's cruel streak came into its own by announcing world recession, swiftly followed by plummeting interest rates just after we had arranged our loan.

Then of course it was the horrible process of watching and waiting from afar with only photos and update calls for consolation.

Eventually the big day arrived and it was delivered along with the designer/engineer, Ian McCall, and

Iain Wilson to guide me through the machine and its operation. After all the months of worry I have to say I started smiling as it came off the lorry and just a few weeks later I'm still beaming, despite the very steep learning curve.

So, thank you Wilsons, you did what I asked and it does what I wanted. As to running costs and output I'm still learning, but so far there seems to be a lot of wood on the deck in exchange for roughly 40 litres of red and 5 litres of veggie oil per day.

I'll give you further updates as my knowledge increases; in the meantime have a gander at the lovely pics. Ta ta. *Nick Hilton*



"You hum it and I'll play it!"



Ian McCall making the final adjustments to the new machine.