

Preliminary Study; Local Authority Woodland Resource in Essex



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1 Executive Summary

The purpose of this preliminary study was to quantify the Local Authority owned woodland resource in Essex with a view to encouraging further woodland management. Woodfuel as a woodland product was focused on due to its ability to utilise low grade timber typical of undermanaged mixed broadleaved woodlands.

The study found that the Local Authorities (including the County Council, 12 District / Borough Councils and two Unitary Authorities) own approximately 2,000ha across the county.

These woodlands vary greatly in size and are typically disparate in geographical location. The majority of these woodlands are mixed broadleaves with an estimated Yield Class of 4.

Some form of management is carried out across the majority of the woodland resource although this varies from Council to Council on whether it is coordinated or merely reactive. Access, amenity and the environment are the primary driving forces for management with timber production low in priority. Management of many of the woodlands is delivered in partnership with local community groups.

Many barriers exist to increasing management in these woodlands in particular the economies of scale of carrying out work in small woodlands, high transport costs, lack of infrastructure plus lack of knowledge of potential markets.

However opportunities still exist if Local Authorities worked in partnership in both the management of the woodlands and in marketing timber products.

Utilising timber from these woodlands for woodfuel is not easily achievable due to the small size and disparate location of these woodlands. However the potential to develop opportunities exists by taking a co-ordinated approach working across Districts. Here clusters of smaller woodlands could be identified within local areas that could meet local wood heat markets (either existing or potential). Where a cluster of woodlands exist could they link up with prime woodfuel candidates e.g. large schools, care homes, off grid sites, large private sector energy users e.g. hotels.

Where wood fuel boilers already exist, it will be important to determine if links with local woodlands can be made.

In some cases financial opportunities and incentives exist. For example the current £6m Department of Energy and Climate Change (DECC) funding for Local Authorities to develop district heating systems or the Renewable Heat Incentive.

In order to utilise the woodland resource more fully for woodfuel it is recommended that:

- Spatial mapping exercise of woodland resource is completed to identify clusters of woodland where potential woodfuel 'hubs' can be established.
- Research into potential heat loads including linking existing woodfuel boilers with local undermanaged woodlands.
- Once heat loads have been identified investigate the potential supply chain linking fuel-processing to end user.

- Potential for other linkages and partnerships e.g. Forestry Commission, Woodland Trust, Essex Wildlife Trust, large private landowners for example in the form of further developing woodland clusters, linking in with heat loads, developing a woodfuel network to share best practice, information exchange to ensure everyone is up to speed on what is being developed. By maximising communication all partners are better placed to identify opportunities for woodland management locally that can feed into the supply chain.
- Determine the potential for a Woodfuel hub, although there is a need to address all the gaps identified above to ascertain the viability of this.
- Identify sites for new woodland creation - for example utilising old landfill sites
- Seeking opportunities to link into existing funding available for woodfuel systems.

2 Introduction

2.1 Purpose

This preliminary desk study into the Local Authority owned woodland resource in Essex has been commissioned by the Thames Chase Trust on behalf of Essex County Council.

The purpose of the report is to investigate the economic potential of the Local Authority owned woodland resource, identify where woodlands are already being managed and where appropriate, identify potential for developing the woodfuel market in the local area.

This brief desk top study looks at the woodland area owned by all fourteen of the Local Authorities across Essex (County, District and Unitary Authority), summarises what activity is currently going on in the area, what area of woodland is held in their estate and opportunities for increased management.

This study focuses on the opportunities for woodfuel (in particular heat generation) and how the Local Authority woodlands could play a role in delivering wood heat across the county.

It is considered that this report will provide a useful background for the following:

- Improvement of woodland management in Essex.
- Identify gaps in information on the woodland resource in Essex.
- Begin to identify best practice with the aim for sharing of information between Local Authorities in Essex.
- Integration of woodland management between Local Authorities in Essex.
- Background research for considering timber and fibre products and markets.

2.2 Methodology

The delivery of this desk based study can be broken down in four key areas:

- Quantifying the size and types of (Local Authority) woodlands in Essex from the 14 Local Authorities*
 - Identifying the key members of staff within each Local Authority.
 - Working with these key people to gather required information.
 - Collating data from each of the Local Authorities.
- How Local Authority Woodlands sit as part of the wider woodland resource in Essex*
 - Data gathering exercise involving dialogue with key personnel working within the forestry sector in Essex and other landowners to get a picture of how the Local Authority owned woodlands sit within the wider context of the Essex Woodland resource.
- Overarching assessment of the potential productivity of the Local Authority woodlands*
 - Desk based study of the entire Local Authority owned woodland resource to examine the general composition of the woodlands and make an informed estimate on potential productivity.
- Opportunities and barriers to utilising woodfuel as a primary woodland product*
 - Using the data gathered look at the potential role that the Local Authority role could play in the delivery of wood heat in the county.
 - Based on information collated identify key barriers to the uptake of this.

For the purposes of this exercise, the definition of woodland used within the Forestry Commission statistics has been adopted. This sets out that a minimum woodland size of 2ha is recordable. When seeking information from Councils, this minimum area was noted. However, where data has been provided on smaller areas of woodland by Councils, this has been included within the data set.

3 Essex Woodland Resource

3.1 The Wider Woodland Resource

Essex County is one of the least wooded counties with an estimated 19,455ha¹ ha of woodland equating to only 5.3% woodland cover which is well below the national average of 10%.

Table 3.1 provides a summary of known woodland ownership within the county. The scope of this report was to focus on the woodlands owned by Local Authorities within Essex. Additional woodland owners have been noted in table 3.1 where the information was readily available. However, this information may not provide a full picture of third party woodland ownership across Essex, including private landowners.

	Area (Ha)	Percentage of Woodland in Essex (%)
Local Authorities	1,977	10.2%
City of London Corporation	1,705	8.8%
Non-Local Authority Landowners²		
Forestry Commission	600	3%
Essex Wildlife Trust	625	3.2%
National Trust	500 ³	2.6%
Woodland Trust	700	3.6%

Table 3.1 Summary of known woodland ownership across the Essex woodland resource.

The Public and Third sector woodlands within Essex have an important role in providing access to green spaces for not only the population of Essex but also many people coming in from London. Table 3.1 demonstrates that there is no one dominant woodland owner within the county; emphasising the need for partnership working between organisations to maximise the potential social, environmental and economic benefits of the woodland resource in Essex.

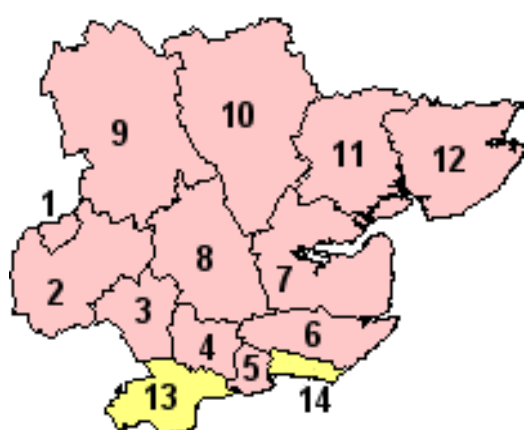
3.2 Local Authority Owned Woodland Resource

Councils within Essex predominantly operate within a two tier system; Essex County Council and twelve District Councils. There are also two Unitary Authorities. Figure 3.1 below shows the geographical location of each of the District and Unitary Authority Councils.

¹ Figure Taken from Essex Biodiversity Project (<http://www.essexbiodiversity.org.uk/species-and-habitats/ancient-woodland>).

² This data was collected incidentally during the research and is presented for information only. In part, the data supports the conclusions of this report.

³ This figures includes wood pasture



1. Harlow
2. Epping Forest
3. Brentwood
4. Basildon
5. Castle Point
6. Rochford
7. Maldon
8. Chelmsford
9. Uttlesford
10. Braintree
11. Colchester
12. Tendring
13. Thurrock (Unitary Authority)
14. Southend-on-Sea (Unitary Authority)

Figure 3.1 District Councils and Unitary Authorities within Essex.

All the Local Authorities across Essex own some woodland within their estate. This is diverse in age, type, size and function. It is typically disparate in geographical distribution, but often linking in with other locally important woodlands across Essex which are owned by other key landowners across the county.

In many of the districts woodland management is carried out by the Parks and Open Spaces department (in essence the same across all districts although sometimes operating under a different title). There are very few members of staff where the employee's role is dedicated solely to woodland management. This is symptomatic of the fact that woodland management is not a statutory requirement, and therefore has been and remains exposed to budget cuts. Typically it is covered either by a ranger who manages a whole site encompassing many habitats or as part of the management of green spaces team within the Council.

The 10.2% or 1,977ha of woodland within Essex owned by the Local Authorities can be broken down into county owned, Unitary Authority and District / Borough Councils owned.

Of the 15 Councils (County and 14 District Councils / Unitary Authorities, data has been collected for 14 (93% success rate for data collection). For the remaining Council estimates have been made based on conversations with other Councils and key personnel working within the county.

This data has been collated as part of the study and quality varies from district to district depending on the resource availability and priority given to woodland management. Many of the districts have seen recent redundancies which have led not only to a loss of actual time to invest in woodland management but also a loss of in house expertise and knowledge. Appendix 1 holds a list of key contacts that provided the data for the purposes of this study.

Table 3.2 gives a summary of Local Authority owned woodland within Essex. A more detailed breakdown of the woodland resource can be found in Appendix 2.

Local Authority	Area (ha)	Brief Summary	Estimated Annual Volume (Cubic Metres) ⁴
Essex County Council	810	The county woodland estate consists of 50 separate woodlands scattered across Essex. The woodlands are a mixture of woodlands located on Country Parks, agricultural estate woodlands, willow plantations and disused railway track beds.	3,240
Basildon Council	76	6 areas of woodland the main one of which is Norsey Wood an ASNW of 50ha in size. There is a small urban ASNW of 6ha in size with the remainder being new planting or younger mixed broadleaved secondary woodland	304
Braintree District Council	31	26 small parcels of woodland scattered across the district; the majority of which are under 2ha in size. The woodlands are diverse with a mix of new planting, secondary woodland, ASNW and wet woodland. Of the 5 parcels over 3 contain some wet woodland.	124
Brentwood Borough Council	140	Estimate only. Approximately 21 compartments of varying size and composition. Only partial data available from Council	560
Castle Point District Council	59	Woodland Resource broken into 4 actively managed woodlands the largest being West Wood (32ha)	236
Chelmsford	114	5 woodlands (some made up of multiple compartments) within Council owned Parklands. Information on woodlands outside these areas is not available although it is assumed they would be small urban woodlands unlikely to be managed.	456
Colchester Borough Council	86	8 woodlands with the main being woodlands within High Woods country Park (although this is not a single block). The resource consists of predominantly mixed broadleaved with some ASNW, some new planting and secondary woodland	344
Epping Forest District Council	34	4 parcels of woodland the largest of which is Chigwell Row Wood (15.6ha). Woodlands are managed by Epping Forest Country Care	136

⁴ Based on average Yield Class of 4

Harlow Council	159	22 parcels of woodland, predominantly mixed broadleaves; of which 13 are over 2ha in size. The most notable woodlands are Harlow Woods (47.1ha) which is a SSSI; Latton Woods (49.1ha) and Harlow Park (19.7ha) both of which are owned and managed by Harlow Council but are located within Epping Forest District	636
Maldon District Council	0	No Woodland - 3 small areas (less than 2ha) of secondary woodland/scrub	0
Rochford District Council	108	6 woodlands with the main one Hockley Wood (80ha) managed actively. Active in marketing firewood locally	432
Tendring District Council	30	Limited woodland and little active management	120
Uttlesford District Council	0	Limited woodland of consequence	0
Southend-on-Sea Borough Council	100	No Response from Council	400
Thurrock Council	230	Includes Langdon Hills Country Park	920
TOTAL	1,977		7,908

Table 3.2 Summary of the estimated Local Authority owned Woodland Resource.

3.3 Summary of Findings

3.3.1 Typical Woodland Composition and Productivity

The woodland resource is diverse in nature with the majority being mixed broadleaved with a typical estimated Yield Class⁵ of 4.

They are a mix of Ancient Semi Natural Woodland (ASNW), some Plantation on Ancient Woodland Sites (PAWS), secondary woodland (both native and non-native species), new planting with the odd occasional coniferous plantations and significant areas of wet woodlands. A rough breakdown of this composition can be found in Table 3.2.

The most common woodland type is mixed broadleaved, oak woodland with hornbeam and cherry.

Although the officers on the ground often know the woodland composition, many of the Councils do not have detailed records of species composition and site details. As and when staff move on this local knowledge is lost often taking years to rebuild if at all.

3.3.2 Management Activity

All the Councils who responded felt that they were actively carrying out woodland management across the majority of their woodland resource. However the scope of this

⁵ Yield Class = 'Yield' refers to the productive capacity of a forest. Yield classes are measured in cubic metres per hectare per year. A compartment that is said to belong to yield class 12, for example, has a mean annual timber increment of 12m³ per hectare. Different species have very different yields. First rotation monocultures of exotic conifers are capable of achieving a yield class 22 but many deciduous hardwoods may only achieve a yield class 4 or 6.

report did not enable what was classed as management to be quantified. The key unknown here is what form the management operations take (e.g. is the management reactive for Health & Safety reasons or proactive management to meet specific objectives).

Many Councils work reactively dealing with Health and Safety issues as a priority, with many members of staff identifying aspirational objectives which are hampered due to workload.

Of the 15 Local Authorities 8 are known to be actively working with the Local Forestry Commission Woodland Officer in some form.

Many woodlands (approximately 25%, based on information provided) are managed by local communities, often as a 'friends of group' set up to manage and protect the habitat for the local community. Here management is driven with community, public access and the environment in mind.

Some Councils (8 of 14) are known to actively market the timber from their woodlands for firewood.

Where formal management takes place and a management plan is in place the priorities without exception are for amenity and the environment.

3.3.3 Management Priorities

The important role that Local Authority woodlands play in providing access to green spaces for the large population of Essex means that many are under pressure with high visitor numbers. This naturally influences how these woodlands are managed; access and amenity are key. Where woodlands have a high environmental value they are managed with this in mind where possible. However all management has to balance access with environmental sustainability. This typically means that timber production is low on the priority list.

However it should be highlighted that it is widely recognised that a by-product of well managed woodlands is increased environmental value.

3.3.4 Barriers to Achieving Productivity

The majority of the Local Authority owned woodlands are small and they are located in a diverse array of places; housing estates, landlocked woodlands in the centre of farmers' fields, and woodlands which form part of a larger estate such as a country park or local nature reserve.

With the exception of some of the larger woodlands such as Norsey Woods; Harlow Woods, Langdon Hill Country Park to name just a few the key barriers will always be economics and economies of scale. Undermanaged mixed broadleaved woodlands of an estimated Yield Class 4 are not typically suited to mechanised forestry which is the cheapest way to harvest timber. The alternative to mechanised forestry is the use of chainsaw operatives. This is typically the preferred method of timber harvesting in low grade undermanaged woodlands. However there is a skills shortage of this type in the region.

Key constraints include:

- Infrastructure for access by large machinery e.g. forest roads, timber transfer points.
- The cost of transportation of equipment to and from the site – transport costs are high therefore it is unlikely to stack up unless there is a larger volume of timber to harvest.

- Much of the work would constitute thinning's. In commercial woodlands this is done early on with racks being created to allow access for the machinery into the woodland.
- General constraints at the site. For example power lines, Rights of Way, dedication under the Countryside Rights of Way Act (CROW).

3.4 Opportunities for Increasing Woodland Management

Despite the many barriers that exist to realising productivity within these typically small, low grade woodlands, opportunities might exist that could be better utilised by all or some of the Local Authorities.

- Ideally management across the Local Authority owned woodland resource would be done in collaboration and be co-ordinated. This could be extended to working with other 3rd and private sector landowners.
- Maximising the potential of firewood from site which is a local high value forest product.
- Working in partnership with neighbouring Local Authorities to produce a package of woodlands for direct harvesting where contractors could work round a series of woodlands as a management programme.
- Working in partnership with neighbouring Local Authorities to put a package together to tender as a standing sale. An audit of the woodland resource would need to be completed prior to this happening. There are differing ways to do this and an agent is likely to be required to manage this.
- Looking at reactive costs. For example what is spent on Health and Safety? If these costs could be quantified there may be a case to justify active management which would incorporate these costs whilst working proactively to address not only health and safety issues for example but improve the quality of the woodland resource.
- Developing long term contracts across the entire estate.
- It is widely supported that co-ordinated management of woodlands not only generates timber but offers significant wider benefits both in amenity value and for the environment.

4 Opportunities for Woodfuel to support the Local Markets

4.1 Introduction

Locally there are many thriving niche timber markets for example coppice poles, charcoal making etc. These are high value but they are not only hard to quantify but also hard to create. Where these opportunities exist they should always be encouraged, in part due to the local economic and community benefits. In addition where there is high value timber in woodland this should be marketed separately to the remaining low grade timber. Some Local Authorities maximise on the opportunities of local woodfuel markets which again offers a high value market; whilst others are inactive when it comes to marketing timber from their woodlands. What is available is dependent on the level of management taking place and often the priorities that are driving that management.

Many of the larger sites which offer wider recreational value or are of high environmental value e.g. Site of Special Scientific Interest (SSSI) have management plans in place with a person responsible for delivering this; often a ranger. For the majority of 'other' woodlands these are managed reactively to address health and safety issues or are linked to local community groups with much of the management being carried out by local volunteers where timber is not seen as a priority.

With the majority of the Local Authority owned woodland being mixed broadleaves with a typical maximum yield class of 4; the low grade of the timber that is removed means that opportunities for woodland products are fairly limited. Woodfuel offers an obvious market for the low grade timber being removed from these woodlands. In many cases this may be to a local firewood market, but opportunities for woodfuel to meet local wood heat (biomass) markets are increasingly emerging. This study has prioritised woodfuel as a woodland product as it has the potential to meet many local objectives promoting woodland management, finding markets for low grade timber, reducing carbon emissions and the drive for a low carbon economy whilst supporting local businesses and the rural economy.

However woodfuel is not suited to every location and there are many barriers to its uptake. This study looks at the potential for Local Authority woodlands across Essex to supply woodheat markets helping drive woodland management and the local rural economy.

This market is to feed fully automated woodfuel boilers delivering heat for heating and hot water to either a single or multiple properties. The fuel may be in the form of logs or woodchips. This does not look specifically at the firewood market which is already being utilised in some districts.

4.2 The Available Timber Resource

4.2.1 Introduction to Woodfuel

Fuel for a modern fully automated woodheat system can come in one of three forms namely woodchip, logs and pellets. There are pros and cons to all fuel types and the decision of which fuel type to use is specific to that sites heat load requirements, space availability and constraints. Table 4.1 below highlights some of the advantages and disadvantages of each fuel type.

	Batch Log Boiler	Woodchip Boiler	Pellet boiler
Benefits	<p>Cheaper system to install as compared with woodchip and pellets</p> <p>Suitable for systems up to around 30-40kW</p> <p>Cheaper fuel</p> <p>Fuel sourced locally</p> <p>Supports the local rural economy</p>	<p>Large financial savings as compared with oil</p> <p>Fuel ideally sourced locally</p> <p>Supports the local rural economy</p>	<p>Fuel can easily be blown making delivery and receipt of fuel easy</p> <p>Fuel is light and easy to manage</p>
Disadvantages	<p>Hands on role required</p> <p>Manual filling of boiler</p> <p>Not suitable for larger heat loads</p> <p>Storage of logs required</p>	<p>System must be designed to receive fuel which can be difficult in retrofit situations</p> <p>Best suited to larger installations typically over 50kW</p> <p>Woodchip takes up a larger volume as compared with logs and pellets therefore larger stores required</p> <p>Need to ensure woodchip to your boiler specification is available locally and can be delivered in a method compatible with the system set up.</p>	<p>Reduced financial savings</p> <p>Price of pellets fluctuates more closely with the energy market</p> <p>Higher carbon footprint as compared with woodchip and logs</p> <p>Many pellets currently on the market are imported</p>

Table 4.1 Benefits and Disadvantages of different fuel types.

Most boiler manufacturers stipulate a range or maximum moisture content (MC) that the boiler will operate efficiently on. For both woodchip and logs this is typically between 30-35% (for woodchip the manufacturer will also stipulate a quality and grade of the chip that is to be used in the system). To put this into context newly felled 'green' timber has typical MC of 50% and it is typically recommended that the timber remains in roundwood form for around a year to get down to the required MC. It is important when looking at woodfuel boilers that you investigate not only the appropriate boiler for the sites specific heat requirements, but suitable fuel source and supply chain to meet your fuel requirements. For example can a local contractor chip the roundwood to the specifications of the chosen boiler?

Importance of low moisture content (MC)

At 35% MC calorific value (CV) of woodchip is about 3,180 kWh/tonne.

At 50% MC (as green when felled) the CV is only about 2,250kWh/tonne.⁶

Above about 30-35% MC the woodchip will start to degrade which will begin to reduce the CV but more importantly if the wood begins to degrade decomposition of wood can result in fungal spores and dust which can be detrimental to health.

4.2.2 The Potential Woodfuel Resource

An estimated 4,745 cubic metres⁷ are estimated to be available annually through the Local Authority Woodland Resource. The Assumptions used are:

- Estimated Yield Class 4 with optimal productivity of 4m³ per ha per year.
- This assumes the woodland is in proactive management otherwise these volumes would not be achieved.
- It recognises that there will be an initial glut of woodland that tails off but this has not been built in for the purposes of these figures.
- Ideally these woodlands would be linked into an active England Woodland Grant Scheme (EWGS).
- It is assumed 60% will be available for wood heat markets with the remainder going to high value niche markets and where applicable high value timber marketed separately. This has not been quantified and is merely an estimate.

4.2.3 Use of the Woodland Products as Woodfuel

4,745 cubic metres of timber equates to 3,796 tonnes⁸ per annum at 50% MC which is typical of when timber is felled green (green tonnes). For woodfuel timber will ideally be stored as roundwood either out in the forest or in a central location for approximately one year to ensure the timber has reached a MC appropriate for use as woodfuel. This is typically between 30-35% MC but varies from boiler to boiler.

Table 4.2 details some worked examples of various woodland sizes which may be considered typical within the Essex Local Authority land holding. The table also identifies the woodchip and woodland area required to meet the needs of a medium sized Primary school with a 150kW boiler will use around 120,000kWh per annum. Table 4.2 also demonstrates the importance of MC not only in relation to calorific value but also in relation to transport costs. The wetter the fuel the less energy produced when it is burned therefore the larger the volume required to be transported and stored.

⁶ The increase in energy is disproportionally greater. This is due to the loss in energy required to drive off (boil) the water within the woodchip which is greater in woodchip of a greater moisture content.

⁷ This volume is based on 60% of the available annual volume of 7,908 Cubic Metres

⁸ Green tonnes refers to the weight of timber at felling with a typical moisture content of 50%. The conversion rate of 1.25 cubic metres/tonne was used as an assumption.

Woodland Area ⁹	Dried in Wood (35% MC) ¹⁰		Green (50% MC)	
	Hectares (Ha) ¹¹	Tonnes (t)	Energy (kWh)	Tonnes (t)
5	9	28,600	10	21,600
10	18	57,300	19	43,200
15	27	86,000	29	64,800
50	90	286,900	96	216,000
(Examples below based on Primary school – see text)				
28	-	-	53	120,000
20	38	120,000	-	-

Table 4.2 Estimated annual woodfuel productivity based on woodland size, and woodland size requirements for a medium sized primary school.

Although this suggests that a relatively modest area of woodland could meet the woodfuel requirements of a school, consideration should be given to the average size of Local Authority woodland within Essex. Therefore the energy requirement of primary school is more likely to be delivered through one larger woodland or multiple smaller ones located in close proximity to form a management cluster.

4.2.4 Barriers to the Uptake of Woodfuel

Although the timber is in principal available many barriers exist to the uptake of woodfuel. Many of these are the same as for woodland management (noted above), with the issues of economics and economies of scale continuing to exist. However some barriers are unique to woodfuel. These include:

- Economics and Economies of Scale – As with woodland management the infrastructure still needs to be in place for felling the trees. If the timber is to be processed on site the chipper for example still needs to be transported to the site.
- Disparate locations of woodlands.
- Consideration of views of local communities, in part due to the nature of harvesting for woodfuel.
- Urban Areas – Within some urban areas issues exist in relation to air quality. Woodfuel boilers cannot be installed in smoke free zones unless they are exempt and where Air Quality Management Areas have been declared due to poor air quality woodfuel boilers are generally not encouraged. Further information on this can be found on local Council websites.
- Planning and building control – some woodfuel boilers will require planning permission. This is dependent on flue height, whether a new fuel store and/or boiler house is being erected for example.

⁹ The woodland area assumed a Yield Class of 4.

¹⁰ The green (50% MC) to Dried in Wood (35% MC) is 94% based on an assumed 670 kg/m³ dried weight of wood.

¹¹ It is worth noting that this is area of productive woodland. Areas of open space, rides, woodland edge, constraints etc should be discounted in the area calculation.

- Identifying local heat markets – Woodfuel is only viable if a market for the woodchip/logs is available locally. Therefore it is important to identify potential heat loads prior to managing and developing a woodfuel supply chain.

Based on the area required to achieve a sustainable woodfuel supply chain and that larger woodlands in Essex are already under some form of management, it is unlikely that individual woodlands will provide a sustainable resource. Therefore utilisation of the woodland resource is only likely to be achieved where clusters of woodlands can be identified where timber can be amalgamated to feed into a single wood heat market. This may be a single Local Authority or more than one Authority/woodland owner working in partnership.

Additional opportunities to extend the reach and viability of woodfuel markets could be sought through new planting schemes. These would be particularly suited to brownfield sites where multiple objectives and benefits could be achieved by planting species suitable for woodfuel.

4.3 Potential Heat Load

Identifying potential heat loads is key to the success of any woodfuel venture. The supply chain needs to be robust from start to finish. Investment in the production of woodfuel is futile if adequate research into potential markets for the fuel has not been identified in parallel. In addition it is important to look at the quality and grade of the woodchip or logs being produced in relation to the requirements of both existing and proposed installations.

Knowing and understanding the existing markets are important when developing woodfuel supply; as the opportunity may exist to feed into an existing boiler thus kick starting supply whilst waiting for other opportunities to develop.

Ideally the two will be developed in parallel within the local area to maximise on both economic and carbon savings

4.4 Opportunities within Essex

Despite the barriers that exist to the uptake of woodfuel, opportunities do exist within Essex that could be developed.

The key area is taking a co-ordinated approach working across Districts. Here clusters of smaller woodlands could be identified within local areas that could meet local wood heat markets (either existing or potential). Where a cluster of woodlands exist could they link up with prime woodfuel candidates e.g. large schools, care homes, off grid sites, large private sector energy users e.g. hotels.

Where wood fuel boilers already exist, it will be important to determine if links with local woodlands can be made. Anecdotal evidence of these opportunities was discussed with contacts. An anecdotal example of a potential missed opportunity is an existing woodchip boiler within a school located immediately adjacent to a large District Council woodland. The woodchip is brought in; was the opportunity to supply from the local woodland investigated? This would require partnership working between both County and District Councils plus cross department partnership working.

In addition to working in partnership with other Local Authorities further opportunities would develop through wider partnership working. Using local Knowledge such as the FC Woodland Officer and local knowledge on the ground linkages may be made with suitable

woodlands either adjacent or near to Local Authority Woodlands. By developing small clusters wider opportunities will arise not only in reduced management costs, greater potential to supply markets but also developing wider supply chain opportunities, environmental and social benefits. There are many examples of partnership working already happening on the ground; for example the Woodland Trust works with Thurrock at Belhus and at Thorndon Park; the Wildlife Trust has a good relationship with Southend and has set up the Belfairs Woodland Centre. But these are typically ad hoc and there is no co-ordinated approach to identify beneficial partnerships. Wider opportunities also exist with private woodland owners who are either already engaged with woodland management or require further incentives to drive management. For example a private woodland owner at Thorndon used to own 100Ha adjacent to an Essex County Council and Brentwood Borough Council Woodland. A partnership Cluster between these three landowners for example would provide more supply chain opportunities than working individually due to economy of scale and reduced costs.

In some cases financial opportunities and incentives exist. For example the current £6m DECC funding for Local Authorities to develop district heating systems (<https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies/supporting-pages/heat-networks>) or the Renewable Heat Incentive (<https://www.ofgem.gov.uk/environmental-programmes/renewable-heat-incentive-rhi>)

These partnership clusters would have greater potential and could appeal to larger funders such as the EU Low Carbon Funding coming up in 2015/16.

5 Conclusions

5.1 Key Findings

There is a sizeable woodland resource within Essex which is owned by Local Authorities. This is typically fragmented and disparate although often borders other woodlands of note owned by other large landowners in the county.

The majority of the Local Authority owned woodlands are mixed broadleaves with an estimated Yield Class 4

The majority of Local Authorities are carrying out some woodland management across the majority of their woodlands. Timber production is not seen as a high priority.

All Councils are limited by resources both in the form of staff time and money to more actively manage their woodlands.

Several of the woodlands already utilise the timber often through the local firewood markets.

An estimated annual yield of 4,745 cubic metres is potentially available through the Local Authority woodland resource; however it is highly unlikely that this will ever be realised due to the barrier in place to achieving the production.

There are many practical barriers that exist including size and spread of woodlands, priority for management, existing markets, and lack of available heat load.

More opportunities exist if Local Authorities worked together in both the management of the woodlands and the marketing of woodland products.

There may be opportunities to stimulate the market by increasing supply through new planting schemes; brownfield sites would be good potential candidates for this.

It is clear there are opportunities already in existence, including funding availability to support these, e.g. EWGS and DECC funding.

5.2 Recommendations & Next steps

By working together in partnership to develop an organised and co-ordinated approach to woodland management and woodfuel the opportunity exist to further develop an expanding market which not only supports the delivery of a low carbon economy but supports local jobs and the local rural economy and in parallel increases the environmental benefits of the woodland.

In order to utilise the woodland resource more fully for woodfuel it is recommended that:

- Spatial mapping exercise of woodland resource is completed to identify clusters of woodland where potential woodfuel 'hubs' can be established.
- Research into potential heat loads e.g. care homes/ areas off grid/large private sector energy users for example – woodfuel is very much the 'chicken and egg'. The supply chain and the heat load must be developed in parallel to ensure there is demand for the woodfuel and fuel for the boilers. This is often more successful when focussed over local areas. There may be opportunities in place to link existing woodfuel boilers with undermanaged woodlands.

- Once heat loads have been identified investigate the potential supply chain linking fuel-processing end user.
- Potential for other linkages and partnerships e.g. Forestry Commission, Woodland Trust, Essex Wildlife Trust, large private landowners for example in the form of further developing woodland clusters, linking in with heat loads, developing a woodfuel network to share best practice, information exchange to ensure everyone is up to speed on what is being developed. By maximising communication all partners are better placed to identify opportunities for woodland management locally that can feed into the supply chain.
- Determine the potential for a Woodfuel hub, although there is a need to address all the gaps identified above to ascertain the viability of this.
- Identify sites for new woodland creation - for example utilising old landfill sites
- Seeking opportunities to link into existing funding available for woodfuel systems.

6 Appendix 1 – Local Authority Contacts

Council	Contact	Details
Basildon Council	Chris Huggins <i>Countryside Ranger</i>	Tel: 01277 624553 chris.huggins@basildon.gov.uk
Braintree District Council	Richard Parmee <i>Tree & Landscape Officer</i>	Tel: 01376 551414 Ext. 2205; ricpa@braintree.gov.uk
Brentwood Borough Council	Stuart Anderson	Tel: 01277 312654 stuart.anderson@brentwood.gov.uk
Castle Point Borough Council	Ryan Lynch <i>Operational Services Manager</i>	Tel: 01268 882377; rlynch@castlepoint.gov.uk
Chelmsford	Glenn Parkington <i>Parks Development Manager</i>	Tel: 01245 606610 glenn.parkington@chelmsford.gov.uk
Colchester Borough Council	Paul Vickers <i>Countryside Sites Manager</i>	Tel:01206 282963 paul.vickers@colchester.gov.uk
Epping Forest District Council	Chris Neilan Principal Tree & Landscape Officer	01992 564117 cneilan@eppingforestdc.gov.uk
Harlow Council	Darren Fazackerley <i>Landscape & Biodiversity Manager</i>	Tel: 01279 446997 darren.fazackerley@harlow.gov.uk
Maldon District Council	Dave Taylor <i>Team Leader (Parks)</i>	01621 852575 dave.taylor@maldon.gov.uk
Rochford District Council	Marcus Hotten <i>Open Spaces Manager</i>	01702 546366 Marcus.hotten@rochford.gov.uk
Tendring District Council	Trevor Mills <i>Open Space and Transport Services Manager</i>	01255 686643 tmills@tendringdc.gov.uk
Uttlesford District Council	Ben Smeeden <i>Landscape Officer</i>	01799 510466 bsmeeden@uttlesford.gov.uk
Southend-on-Sea Borough Council	Chris De Boick Rick Milson <i>Arboricultural Officers</i> Ian brown	No Responses Received
Thurrock Council	Scot Sullivan	scsullivan@thurrock.gov.uk

7 Appendix 2 – Breakdown of Woodlands

Essex County Council

The information for Essex county Council is taken from the EWGS Wood Estate Management Plan (4/2012-3/2032). The Essex County Council Wooded Estate consists of over 50 separate woodlands scattered across Essex. The woodlands are a mixture of woodlands located on Country Parks, agricultural estate woodlands, willow plantations and disused railway track beds. For ease of management these have been grouped into 24 sub-estates based on either geographic proximity or similarity of character/history.

Woodland Name	Area (Ha)	Woodland Type	Designation	In Management?	Part of Grant Scheme e.g. EWEG etc	Active Community Group	Points of Interest
Essex County Council							
Barnston Hall	27.07	ASNW	SSSI		EWGS		Farm Woodland
Beaumont	11.82	ASNW			EWGS		Farm Woodland
Belhus Woods	76.02	ASNW			EWGS		Country Park
Boyles Court	15.14	ASNW			EWGS		Farm Woodland
Chalkney Wood	25.29	ASNW	SSSI		EWGS		Woodland
Codham Hall	15.16	ASNW			EWGS		Farm Woodland
Cudmore Grove	5.80	MIXED BL			EWGS		Country Park
Danbury Country park	17.50	MIXED BL			EWGS		Country Park
Debden	9.00	ASNW			EWGS		Farm Woodland
Bluegates Farm	5.23	MIXED BL			EWGS		Farm Woodland
Great Notley	24.80	MIXED BL			EWGS		Country Park
Hadleigh	77.45	ASNW			EWGS		Country Park
Hainault Forest	117.96	ASNW	SSSI		EWGS		Country Park
Lambourne Hall	18.70	ASNW			EWGS		Farm Woodland
Langdon Hills	19.30	ASNW			EWGS		Country Park
Shalford	2.96	ASNW			EWGS		Farm Woodland
Marsh Farm	9.47	MIXED BL			EWGS		Country Park
Partridge Green	0.91	MIXED BL			EWGS		Farm Woodland
Pyrgo Park	4.90	ASNW			EWGS		Farm Woodland
Railway	56.11	MIXED BL	LNR		EWGS		Old Railways
Stoverns Hall	6.04	ASNW			EWGS		Farm Woodland
Thorndon	126.40	ASNW, PAWS	SSSI		EWGS		Country Park

Woodland Name	Area (Ha)	Woodland Type	Designation	In Management?	Part of Grant Scheme e.g. EWEG etc	Active Community Group	Points of Interest
Weald	132.80	MIXED BL			EWGS		Country Park
Willow Plantations	3.71	BL			EWGS		Cricket Bat Willow Plantations
TOTAL	810						

District & Borough Councils

Woodland Name	Area (Ha)	Woodland Type	Designation	In Management?	Part of Grant Scheme e.g. EWEG etc	Active Community Group	Points of Interest
Basildon Council							
Norsey Wood	50	ASNW – Ancient coppiced woodland. Sweet chestnut, oak & hornbeam. Alder carr in wet valleys	SSSI	Yes – management plan for whole site. Majority managed on a 15 year coppice rotation.	Recently completed a WIG	Yes	
Queens Park Country Park	8.6	Newly planting – mixed broadleaves	Country Park	Management plan in place for whole site which includes and managed as part of the wider green open space	NO	Yes, but small	
The Wick Country Park	Approx. 5	New planting					
Mill Meadows	2.3 (Hillmans only)	Young oak woodland	LNR	Yes, some thinning and ride widening	Yes	Yes	
Nevendon Bushes	6	ASNW within urban Basildon	LNR	Managed for safety only	NO	Yes	Within urban area
Agricultural Land Site	3-4	Secondary Woodland – mixed broadleaves		Unmanaged	NO		
TOTAL	76						
Braintree District Council							
Marks Farm	1.71	ASNW	LNR	Management plan under development			Adjacent residential
Marks Farm & A131 Shelter belt	1.68	Mixed ASNW and new planting		Management plan under development			Adjacent A131 and residential
Bocking Blackwater	3.08	Mixed woodland and wet woodland with open areas	LNR	Open space managed by BDC; volunteers carry out work on river and some tree belts		Friends of Bocking Blackwater – long-term involvement	Part adjacent residential
Hoppit Mead	3.4	Wet woodland with some open space	LoWS/future LNR	Draft management plan			
John Ray Park	3.3	Wet woodland and open space					
Ley Wood	0.96	ASNW?		Draft management plan		Braintree East Pride In Our Patch – limited involvement	Part adjacent residential
A131 shelter belt Tesco	0.75	New planting		Management plan under development			

Woodland Name	Area (Ha)	Woodland Type	Designation	In Management?	Part of Grant Scheme e.g. EWEG etc	Active Community Group	Points of Interest
Off Park Drive	0.82	Secondary woodland?					Adjacent industrial units
Sun Lido Gardens	0.92	Mixed wet woodland					
Cuckoo Wood	2.21	Mixed ASNW and new planting	LNR	Recent undertaken parish wide within Great Notley a community consultation on a parish wide management plan which is about to be instigated			Adjacent residential
White Courts Wood	2.6	Secondary woodland, mixed native and non-native species		As Above			Adjacent residential
Central spine north	1.12	New planting and open space		As Above			Adjacent residential
Central spine south	1.54	New planting and open space		As Above			Adjacent residential
Levens Way	0.36	Secondary woodland?		As Above			Part adjacent residential
Whitegates	0.17	New planting		As Above			Adjacent residential
Cycle path main	0.47	Mixed native trees – former hedge line		As Above			Adjacent residential
Thorington Close	0.29	New planting		As Above			Adjacent residential
Rear Pochards Way	0.26	New planting		As Above			Adjacent residential
Grantham Avenue	0.17	Secondary woodland		As Above			Adjacent residential
Nether Court east	1.42	Secondary woodland		Management plan under creation – limited BDC management			
Nether Court west	0.11	New planting		Management plan under creation – limited BDC management			
Bluebridge Estate	0.74	Wet woodland and open space		Management plan under creation – limited BDC management			Adjacent industrial units
Coggeshall Pieces	1.46	Mixed woodland and scrub	LoWS	Management statement in place – regular management underway		Halstead Conservation Group very active	Part adjacent residential
River walk north	0.54	Wet woodland, scrub and open space		Draft management plan in place – limited management by volunteers and BDC		Hedingham Riverside Walk Group – limited activity and group diminishing	Part adjacent residential

Woodland Name	Area (Ha)	Woodland Type	Designation	In Management?	Part of Grant Scheme e.g. EWEG etc	Active Community Group	Points of Interest
Former Premdor land	0.3	Poplar plantation and wet woodland	LoWS	Draft management plan in place – limited management by volunteers and BDC		Hedingham Riverside Walk Group – limited activity and group diminishing	
River walk south	0.24	Wet woodland		Draft management plan in place – limited management by volunteers and BDC		Hedingham Riverside Walk Group – limited activity and group diminishing	Part adjacent residential
TOTAL	31						
Brentwood Council							
No detailed data provided							
TOTAL	140						
Catlepoint District Council							
Shipwrights Woods (includes Shipwright and Jervis Woods)	12	ASNW		Yes – management plan in place			
West Wood	32	ASNW	LWS	Yes – management plan in place		Wood managed in partnership with Castle Point Wildlife Group	Largest wood owned by council. Many of woodland products being used on site or sold for firewood
Thundersley Glen	11	Mixed BL		Yes – management plan in place			Managed as an open space
Thundersley Common	4	Mixed BL		Yes – management plan in place	HSL (on common area only not wood)		Managed as open space
TOTAL	59						
Chelmsford Council							
Admirals Park	1.35	Mixed	In process of part becoming LWS	Yes – managed for public access		Councils vol. scheme operates on ad hoc basis	Part of public parkland
Andrews Park (Newland Spring)	0.73	Mixed	LWS	Yes – Management Plan in place		Councils vol. scheme operates on ad hoc basis	Part of public parkland coppiced - Urban woodland
Galleywood Common	20.9	Mixed	LWS	Yes- managed for public access		Local Env. Group	Part of public parkland - Local opposition to any works including thinning. Woodland comprises of 8 comp. within the park

Woodland Name	Area (Ha)	Woodland Type	Designation	In Management?	Part of Grant Scheme e.g. EWEG etc	Active Community Group	Points of Interest
Hylands Park	86.08	Mixed	LWS	Yes – Managements plan in place.	EWGS	Councils Hylands Vol. Scheme	Part of public parkland - Woodland comprises of 37 comp.
Melbourne Park (College Wood)	5.0	Mixed	LWS	Yes – in management plan		Councils Vol. Scheme on ad hoc basis	Part of public parkland. Urban woodland – actively coppiced
TOTAL	114						
Colchester Borough Council							
Welsh Wood	2	ASNW – mainly mixed coppice BL	LNR	Y	N	Y	
Bourne Valley	Approx 3	Secondary Mixed broadleaved woodland and some wet woodland	N	Y	N	Y	6ha site – woodlands and wetlands sandwiched within a residential area
Charter Wood	10ha	Planted 1992 mixed BL	N	Y	N	Y	Part of Cymbeline Meadows 74ha site inc woodland
Lexden Park LNR	3ha	Secondary	LNR	Y	N	Y	7ha site
Gosbecks Archaeological Park	2	Mixed BL – new planting in 1990s	SAM	Y	N	Y	
Westlands CP	6ha	New planting between 1998-2002	N	Y	Y	Y	16ha site
Wivenhoe Woods	10	ASNW coppice and secondary woodland	Part of Colne LNR	Y	N	Y	Part of Colne Local NR 85 acre site
High Woods Country Park	50ha	ASNW, younger BL, 19 th C. Plantations & coppice	Country Park	Y	N	Y	150ha site
TOTAL	86						
Epping Forest District Council							
Chigwell Row Wood	15.6	Ancient broadleaved woodland	LNR	yes	Woodland Grant scheme FC 2012-17	EFDC Countrycare's volunteers	300 hornbeam pollards, regenerating heath
Home Mead	1.8 (60% woodland)	Semi-natural broadleaved	LNR	yes	no	EFDC Countrycare's volunteers	Mosaic of habitats including a pond
Linders Field	3.5 (50% woodland)	Ancient and semi-natural broadleaved	LNR	yes	no	EFDC Countrycare's volunteers	Mosaic of habitats including two ponds
Roughtalley's Wood	3.4	ASNW	LNR	yes	no	EFDC Countrycare's volunteers	Woodland and ponds
TOTAL	34						
Harlow Council							
Harlow Woods	47.1		SSSI				

Woodland Name	Area (Ha)	Woodland Type	Designation	In Management?	Part of Grant Scheme e.g. EWEG etc	Active Community Group	Points of Interest
Marshgate Springs	3.19		LNR				
Harold's Grove (Owned by the CRT)	3.2		HAW				
Burnetts Wood	2.75		HAW				
Maunds Wood	2.25		HAW				
Netteswell Plantation and Wood	10.39		HAW				
Vicarage Wood	4.33		HAW				
Markhall Wood	12.7		HAW				
Barnsley/Br enthall Woods	14.72		HAW				
Marsh Lane Wood	0.31		HAW				
Gravelpit Spring, New Hall Farm	1.37		NE				
Ram Gorse Wood	1.93		NE				
Latton Woods	49.17						Owned and managed by Harlow but located within Epping District
Harlow Park	19.7						Owned and managed by Harlow but located within Epping District
Oakwood North	3.18						
Oakwood South	1.96						
Rectory Wood	2.93						
Hérons Wood	0.38						
Peace Wood	2.02						
Brays Grove Wood	1.43						
Little Cattins North	0.72						
Little Cattins South	0.57						
TOTAL	159						
Maldon District Council							
NO WOODLAND OWNED – 3 small areas (less than 2ha) of secondary woodland/scrub							

Woodland Name	Area (Ha)	Woodland Type	Designation	In Management?	Part of Grant Scheme e.g. EWEG etc	Active Community Group	Points of Interest
TOTAL	0						
Rochford District Council							
Hockley Woods	80	ASNW					
Betts Woods	4	ASNW – hornbeam coppice		Yes on a 15 year coppicing cycle			
Cherry Orchard Jubilee Country Park	14	New planting – mixed broadleaves					Pointed in 2008/9
Grove Woods	4	Mixed Broadleaves plus exotics					Sell firewood from site
Swayne Park Open Space	2	New planting					
Kingley Woods	4	ASNW					
TOTAL	108						
Tending District Council - no detailed breakdown provided							
Brook Country Park							
Pickers Ditch Meadows							
Wrabness LNR							
Bobbits Hole						Managed in partnership with the NHG of the Harwich Society	
Pedlars Wood							
Soken Wood	4						Managed in partnership with the Woodland Trust
TOTAL	30						
Uttlesford District Council							
No Woodland							
TOTAL	0						
Southend-on-Sea							
NO CONTACT							
TOTAL	100						
Thurrock Council							
Hangman's Wood (Blackshots)	3.8	ASNW	SSSI/ County Wildlife Site				
Oak Wood and Ash plantation	21	ASNW					
Little Dilkes Wood	1.1	ASNW					
Linford Wood	3.2	Mixed Broadleaves	County Wildlife Site/ Green belt				

Woodland Name	Area (Ha)	Woodland Type	Designation	In Management?	Part of Grant Scheme e.g. EWEG etc	Active Community Group	Points of Interest
Hall/Gravelhill Woods	9.9	ASNW					
Grovehouse Wood And Marsh	2.3	Wet woodland/reedbed/Elmwood					
Mardyke Magazine Site	3.69	Green Belt					
Badgers Dene	1.17						
Terrells Heath	2.8	ASNW	SINC/County Wildlife Site				
Old House Wood	2.1	Green Belt - Mixed BL					
Rookery Hill	0.76	Green Belt - Mixed BL					
Langdon Hills Country Park	120.6		SSSI/County Wildlife Site				
The Park/Coombe Wood	24.6		SSSI/County Wildlife Site				
Old Hill/Gt. Sutton Wood	13.7		SSSI/County Wildlife Site				
Northlands Wood	19.8		SSSI/County Wildlife Site				
TOTAL	230						
GRAND TOTAL	1,167						

	Area (Ha)
Essex County Council	810
Other Local Authorities	1,167
GRAND TOTAL	1,977



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