

Confederation
of Timber
Industries

Mapping UK Timber industries

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CTI Policy Report: Value & Growth

Mapping UK Timber industries

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1.0 Executive Summary

Since its formation in 2015, the Confederation of Timber Industries (CTI) has had 'Increasing Value and Growth' as one of its five Strategic Themes. The CTI recognise that any programmes to support the growth of the sector should be built upon a full and up-to-date picture of the size and growth rates of different levels of the UK Timber supply chain. With this aim, this review of industry data has been prepared on the back of a brief issued to Egan Consulting by the CTI in February 2016.

As per the brief, this is a compilation of data available from secondary industry sources. We have relied upon data provision mainly from government and trade association sources, complemented where necessary by data sourced from private sector research companies. No primary research has been conducted in the preparation of this work and it is likely that direct engagement with the different industries covered may result in some adjustments to the data.

Overall, the core UK Timber Industries outlined below are estimated to employ c.81,600 people generating sales in 2014 of £8.3bn

Sector	Overall sector size	Employment	GVA £million
Forestry and logging	£1.3bn	16,000	504
Sawmills	£1.1bn	8,300	545
Wood based panels	£1.8bn	5,000	280
Builders joinery	£3.8bn	50,000	n/a
Wooden Packaging	£279m	2,300	n/a

Source: Forestry Commission and BRES

In addition, a proportion of the 81,000 people working in UK furniture manufacturing in 2014 could be considered part of the Timber Industries sector while the Pulp and Paper sector also employed 44,900 people in 2014.

A wide range of different types of enterprises are involved throughout the supply chain, including:

- Forestry
- Primary sawmills
- Wood based panel mills
- Manufacturers of construction related products:
 - structural timber
 - timber frame systems
 - builders joinery and carpentry
 - fencing, wood panels and cladding
- Furniture manufacturing
- Packaging
- Biomass fuels
- Wood co-products including bark, chippings, shavings and mulch
- Timber import
- Timber merchants and distribution
- Builders merchants and distribution



The picture is complicated by the presence of some companies at different levels in the supply chain. Many sawmills, for example, seek to add value through the manufacture of some finished wood products like cladding and fencing while some importers and merchants have significant timber processing operations involving secondary sawmilling and application of treatments to increase the functionality of raw timber.

As with any supply chain, there are inherent competitive pressures within the UK timber supply chain. Pricing and margins vary over time between different levels in the chain and there is significant competition for raw material at different points, not least in the supply of chippings and other non-stemwood to users in wood-based panels, biomass fuels, co-products and the pulp and paper industry.

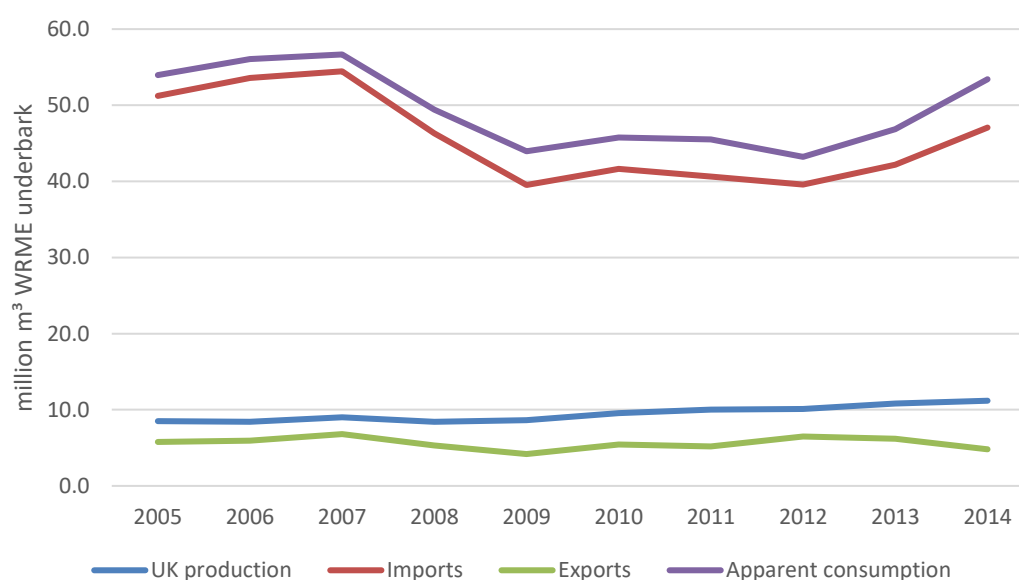
The sector overall is dependent on imports to feed the majority of the manufacturing industries listed above, with product coming in generally in the form of sawnwood or wood-based panels. The only exception to this is the import of hardwood roundwood for further processing in specialist UK sawmills.

With the majority of imports coming from EU markets, it remains to be seen what effect the intended exit of the UK from the EU will have on this supply chain. The recent devaluation of sterling in the wake of the Brexit vote has already increased import prices and this is likely to work its way through the supply chain in the coming months.

This report describes the supply chain as a flow from raw material through to final application, showing volumes and growth trends wherever possible.

1.1 Overall UK Consumption of Wood Raw Material Equivalent

The following table allows direct comparison between wood grown in the UK and the raw material equivalent of wood imports to the UK.

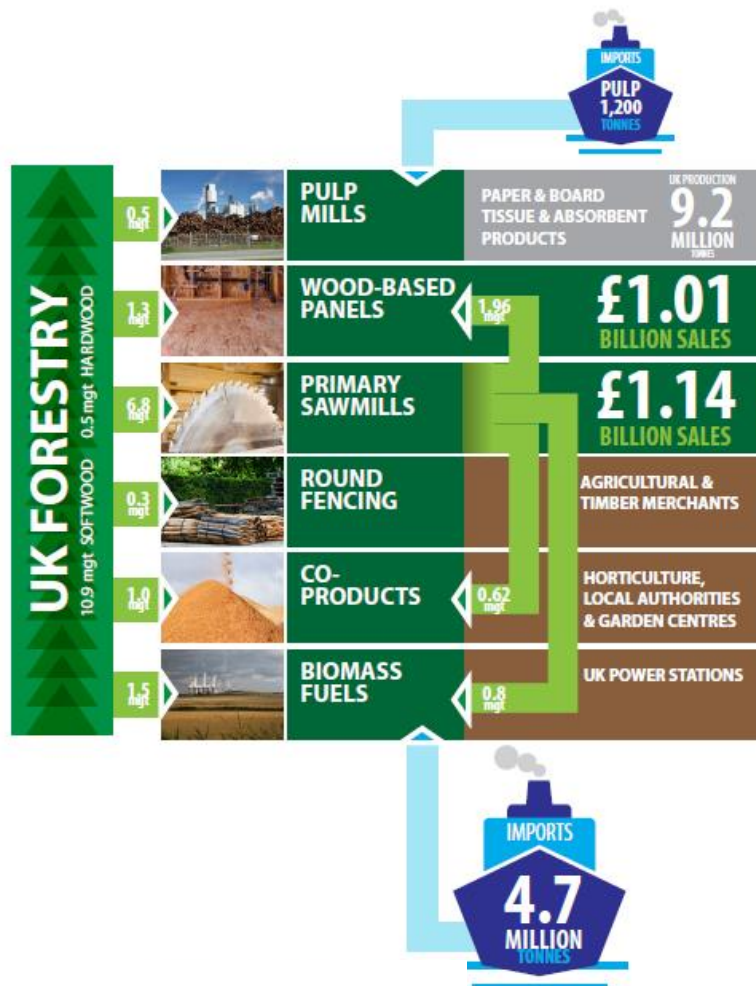


Source: Forestry Commission

In essence, the import figures above describe the amount of wood that would have to be grown in the UK to produce the wood and wood products actually imported.

1.2 UK Forestry Removals and Primary Consumption

The map below shows the primary material flows at the early stages of the UK timber sector.



As indicated, in 2014, UK Forestry produced 10.9 million green tonnes (mgt) of softwood and 0.5 mgt of hardwood destined for use in UK timber industries.

A further 0.5mgt of softwood was exported in 2014, in roundwood form, most of which goes to sawmills in the Republic of Ireland (ROI).

UK production is absorbed by the industries shown, with the largest proportion (6.8mgt or 60%) going to UK sawmills.

The next two largest users are Biomass fuels and wood-based panel mills (producing products such as particle board, MDF and OSB). These two sectors are increasingly competing for raw material from UK forestry and the Biomass sector has been increasing

its consumption in recent years, as discussed later.

In 2014, 1.0mgt of forestry output was consumed as co-products. This is destined for a range of applications in horticulture, local authority play areas, garden sectors and animal bedding.

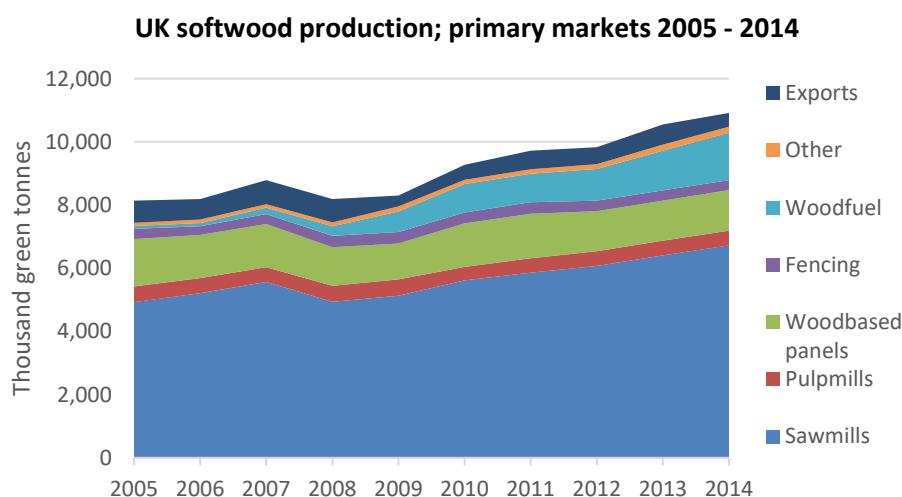
UK Pulp mills take 0.5 mgt of softwood. This sector is not covered in this review in detail but, along with high energy costs, the availability of this raw material is an important factor in the viability of these two pulp mills who would otherwise have to import low cost raw material. The sector competes with Biomass and Wood-based panel manufacturers for a proportion of this raw material.

A further 0.3mgt of forestry output is converted into round fencing. This appears at this stage on the supply chain rather than with more 'manufactured' fencing because it is a direct output from forestry businesses who are essentially cutting and shaping tree branches for direct use as fencing. This type of fencing tends to go straight into the agricultural merchants sector, with some going via timber merchants.



Of the 6.8mgt of UK wood processed by UK sawmills, around half is sold into the supply chain as sawn wood, mainly softwood. This converts to a 2014 output of 3.7 million m³ of sawn softwood and 47,000 m³ of hardwood. The remaining output of UK sawmills is mainly destined for wood-based panel manufacturers, with additional supply to biomass fuels and the co-products group. Again, there is competition for this non-sawnwood output from UK sawmills between panel manufacturers and biomass.

In terms of trends over time, the following chart shows how UK softwood removals have been growing in recent years but with some changes in markets:



Clearly UK Forestry has been able to steadily increase removals in recent years, with growth only being interrupted by the recession of 2008/09.

Source: Forestry Commission

Of particular note here is the growth of Biomass (woodfuel) as a market over the last ten years.

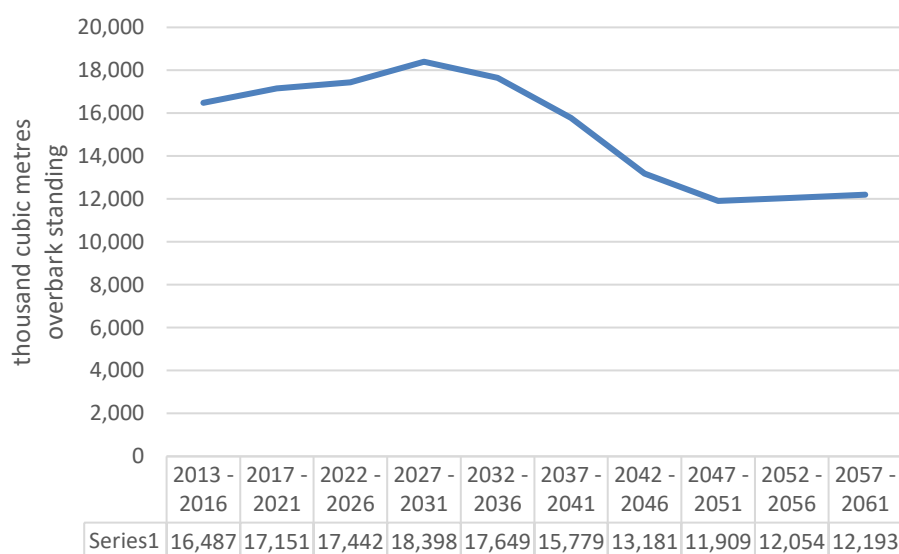
Hardwood production has been steady over the same period at c.0.5mgt but the end-use markets for hardwood in the UK are now dominated by Biomass which consumes 75% of UK hardwood removals. Only 15% of removals are destined for a UK sawmill.

Clearly hardwood in the UK is a specialist sector and the market is dominated by softwoods. This report therefore focuses on softwood markets.

1.3 Forward Availability of UK Softwood

The UK forestry commission projects softwood availability forward to 2061, in blocks of five years. The following table provides the latest data, produced in 2014.

Figure 11: GB availability of softwood to 2061 (annual average in the period)



Source: Forestry Commission

The conversion rate from m³ overbark to green tonnes for softwood is 0.909. With UK softwood removals estimated at 11.4 million green tonnes (mgt) in 2014, and with deliveries to sawmills estimated at 10.9 mgt, this suggests no ongoing shortage of softwood to feed current sawmill capacity in the coming decades.

Indeed, these figures suggest that it may be possible for the UK to remove more than the current 69% of its standing availability but this does not take into account practical conditions on the ground or the objectives of the mainly private sector concerns involved in UK wood production.

Longer-term, the industry forecasts that the UK is in danger of getting to the stage where removals are ahead of planting. Although targets for planting have been set by all the central and devolved governments of the UK, none of these targets are being met.

In theory, the volume of imports of wood into the UK suggests that there is an opportunity for import substitution, however the wood available in the UK cannot always be used in the same manner as some of the imported wood or wood products and awareness of availability is poor.

The overall forecast for forestry and logging is continued growth at a steady rate of c.3.3% in the coming three years, with the main constraint to growth being sawmill capacity.

The two primary processors of softwood in the UK are sawmills producing sawnwood and other secondary products and wood-based panel mills, producing mainly MDF, Particleboard and Orientated Strand Board (OSB).

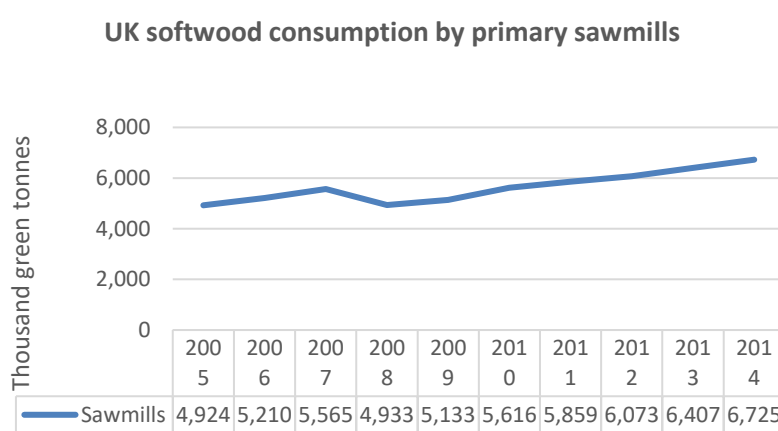


1.4 UK Sawmills

According to the Forestry Commission, in 2014 there were 174 sawmills processing UK Roundwood. Total direct employment in UK sawmills in 2014 was estimated at 3302. Mills vary in size considerable but the majority (71%) produce less than 10 thousand m³ of sawnwood per year.

In 2014, 115 of these mills processed only softwood, 9 processed only hardwood and 50 processed both. There has been some rationalisation of the sector in recent years and only 29% of sawmills consumed 95% of UK softwood in 2014.

Overall consumption and output has been increasing in recent years, largely driven by the recovery of the construction sector and increased removals by UK Forestry.

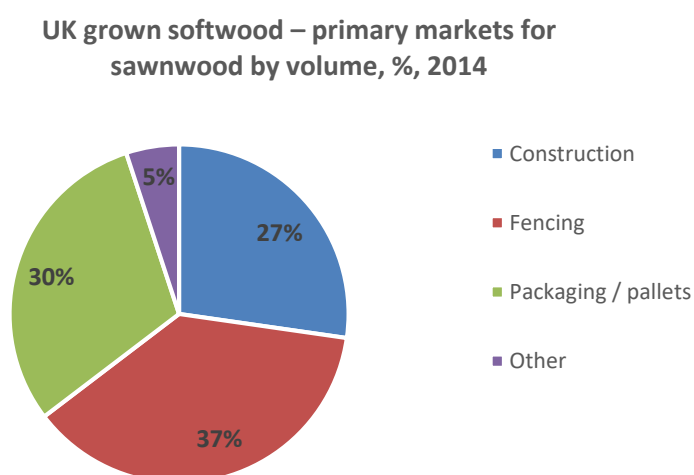


Source: Forestry Commission

With UK sawmills processing 6.7 million green tonnes of softwood in 2014, this equates to a volume output of some 3.7 million m³ of sawn softwood.

Measured in value, the output of the sector follows a very similar path in recent years, suggesting stable pricing.

Sawmill output splits into sawn wood and other non-sawn products like woodchip and sawdust. Markets for sawn softwood output from UK sawmills were as follows in 2014:



Source: Forestry Commission

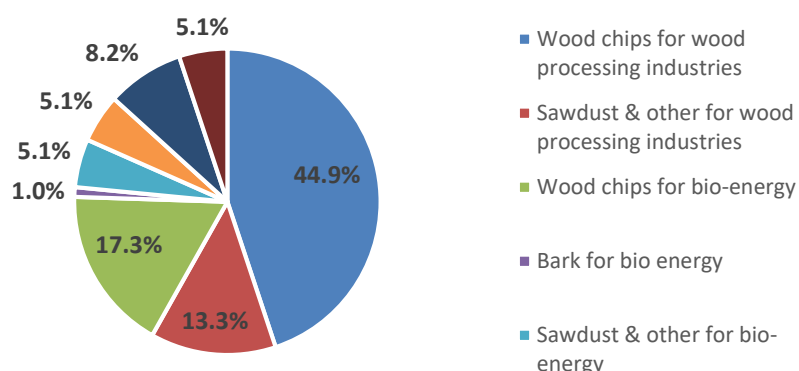
This split is rather different from the overall pattern of softwood consumption in the UK when imports are added to the picture, where construction accounts for 63% of volumes (2014). The overall pattern of consumption in the market is discussed later.



Markets for non-sawn outputs were as follows in 2014:

Non-sawnwood consumption by wood processing industries (wood-based panel manufacture) had grown between 2010 and 2013 from 57% to 61% but dropped back to 58% in 2014. Consumption by the biomass sector increased from 20% to 23% between 2010 and 2014.

UK grown softwood - primary markets for non-sawnwood by volume, %, 2014



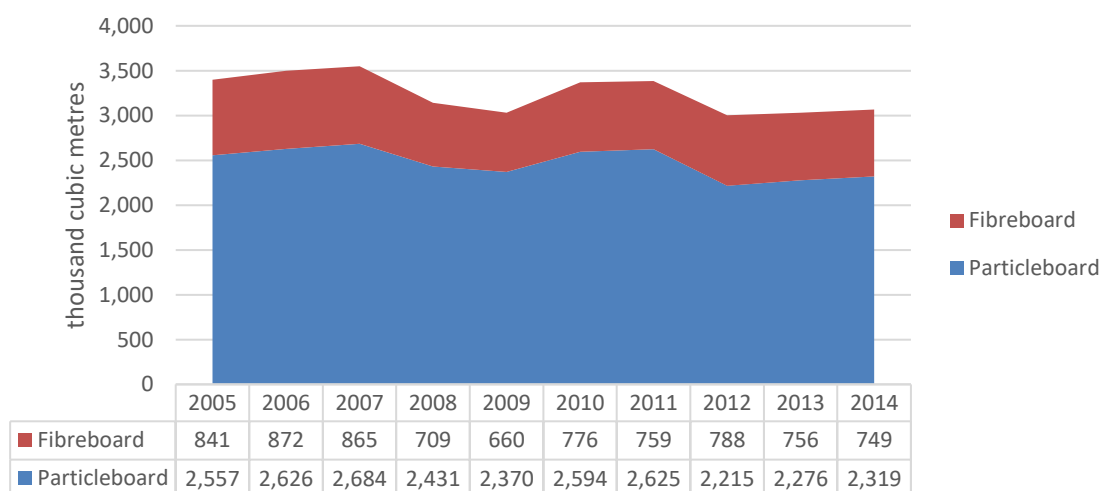
Source: Forestry Commission

1.5 UK Wood-based Panel Manufacturing

The UK wood panel manufacturing sector directly employs around 2250 people and generates a further 7500 indirect jobs associated with its whole supply chain. As noted in Section 4, in 2014 UK panel manufacturers consumed around 11% of UK softwood production, a total of 1283 thousand green tonnes. A further 1809 thousand green tonnes is delivered from UK sawmills. Currently no UK manufacturers of wood based panels are importing wood as a raw material and none are using hardwood, this more likely going to biomass.

The UK only produces particle board (including Orientated Strand Board (OSB)) and Fibreboard (including Medium Density Fibreboard (MDF)). Production output in recent years has been as follows:

UK production of wood based panels, 2005 - 2014



Source: Wood Panels Industry Federation (WPIF)



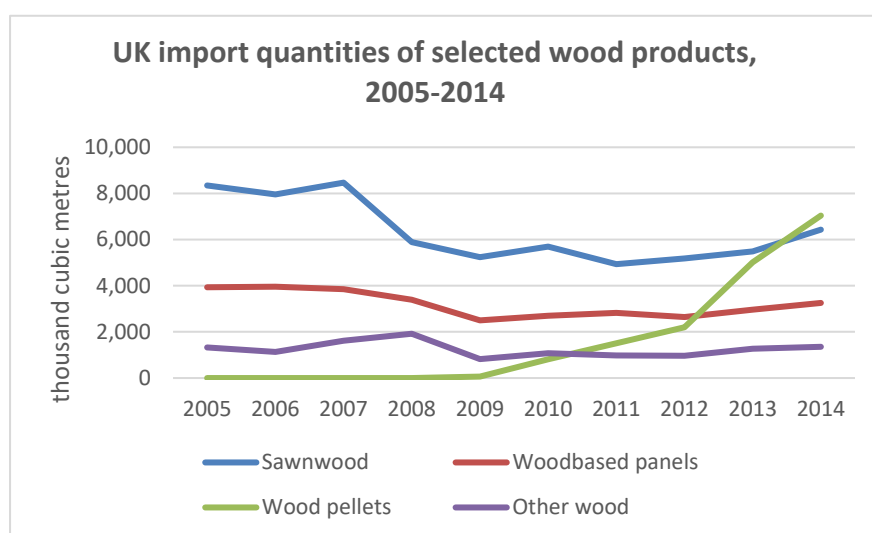
This output generated turnover of some £500 million. Sales of UK manufactured wood panels break down as follows:

	Construction	Furniture	Other
Chipboard	45	50	5
MDF	30	60	10
OSB	85	5	10

1.6 UK Imports of Wood and Wood-related Products

As described above, the UK is dependent in imports to meet demand for wood and wood-related products. This is particularly the case for sawn softwood where the UK imports 6.4 million m³ compared with the 3.7 million m³ produced by UK sawmills.

Patterns over the last ten years have been as follows:



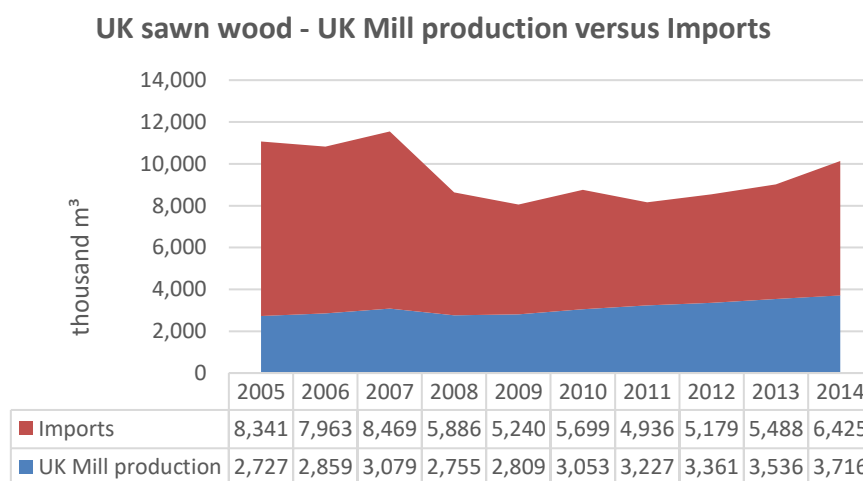
While there has been gradual growth in imports across all product groups, clearly the most dramatic has been in wood pellets which are destined for UK biomass power stations. This strategic change in UK wood consumption is discussed later.

Source: Forestry Commission

1.7 Overall UK Consumption of Sawn Softwood and Wood-based Panels

10-year trends in the consumption of sawn softwood are shown in the picture on the right:

The graph shows clearly the effect of the 2008/09 slow-down in the UK economy on imports. This appears to have had less of an effect on UK sawmill

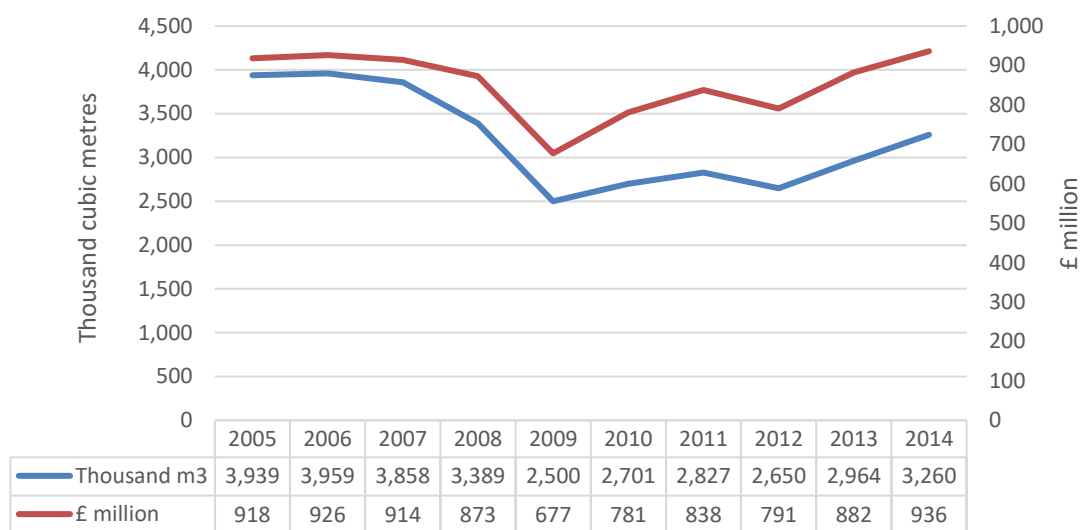


Source: Forestry Commission

output, perhaps due to this sectors lower reliance on the construction sector.

Consumption of UK wood has been growing steadily alongside increased softwood removals but there is a finite capacity in the UK and market growth has more recently been filled by imported sawn softwood. This pattern is forecast to continue alongside expected growth in the construction sector.

A direct comparison between imports and local production of wood-based panels is not appropriate primarily because the UK does not manufacture all of the panel products imported, particularly plywood. Import trends have been as follows:



Source: Forestry Commission

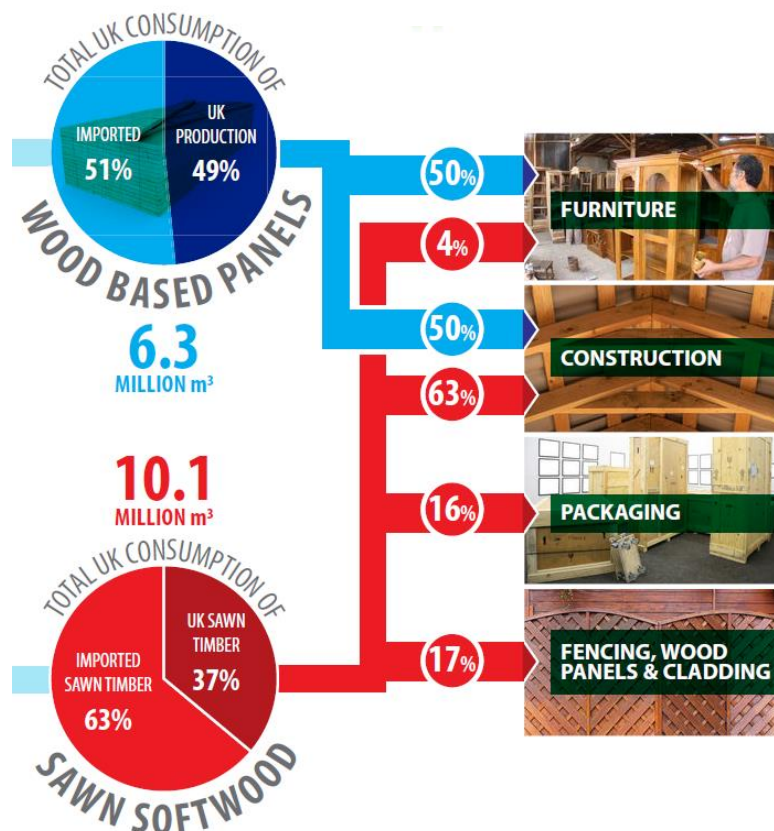
With UK production volume in 2014 standing at 3.1 million m³ it is clear that there is more of a balance between local production and imports for this product group (again with the proviso that the UK only make fibreboard and particleboard).

1.8 UK Markets for Sawn Softwood and Wood-based Panels

The diagram to the right indicates the destination market for both main product groups in 2014. In the case of wood based panels, UK furniture manufacturing is an important market, driven by the continued use of panels and a core material for veneered and covered products.

Overall, construction is the largest consumer of these product groups combined and, if fencing, wood panels and cladding was included in construction, this would account for 80% of all UK softwood consumption.

Within construction there is a further split between general structural timber, wood used in timber framed systems and builders joinery and carpentry.



1.9 UK Construction Markets for Wood and Wood-based Products

Overall consumption of sawn softwood by the UK construction sector in 2014 is estimated at 5,950 thousand m³, of which 17% comes from UK sawmills. Sawn softwood may be destined for a construction site with minimal further processing by the importer, distributor or merchant but the majority of sawn softwood is destined to enter some form of further processing. Data on volumes split in this way is not available but could be estimated via a programme of direct contact with the different industries involved. We are aware, for example, that the STA has been looking at the source of their members wood raw materials and a similar exercise may be useful for other sectors.

We are aware that some of the larger joinery manufacturers have their own importing and processing operations. Smaller companies are more likely to purchase from an UK based importer or timber merchant.

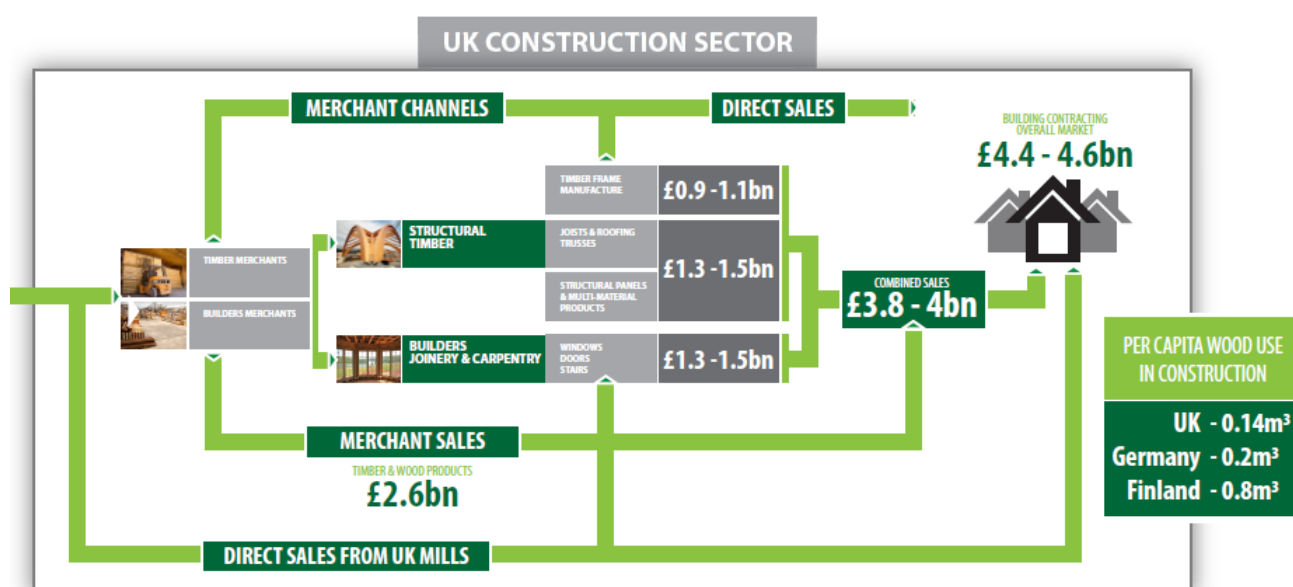
Focusing on sawn timber going for further processing by the manufacturing sector, sawn wood is often combined with other materials for the production of:

- Windows and doors

- Stairs and internal joinery
- Roof trusses and traditional solid structural timber
- Timber framed housing
- Structural and semi-structural timber products such as SIPS panels, I-Beams, Glulam etc
- Kitchen and bedroom furniture
- Exterior decking, fencing etc.

Depending on volumes, some of the above products might be supplied by the manufacturer directly to a construction company but most will be going into the builders' merchants' channel. This is a complex distribution pattern with increasing overlaps between the products supplied by timber merchants and builder's merchants.

The overall structure of the supply chain is shown in the diagram below:



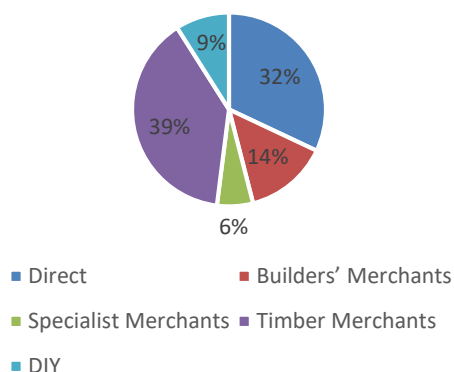
As the diagram shows, this sector is characterised by multiple routes to market with different types of distribution potentially appearing at multiple points in the supply chain.

Discussions with the industry suggest that it is possible for a piece of sawn wood to go through a timber merchant, into a further processing or manufacturing plant and back again to the same distribution source or into a builders' merchant channel. The potential for double counting therefore make any accurate estimates of volume material flow difficult.

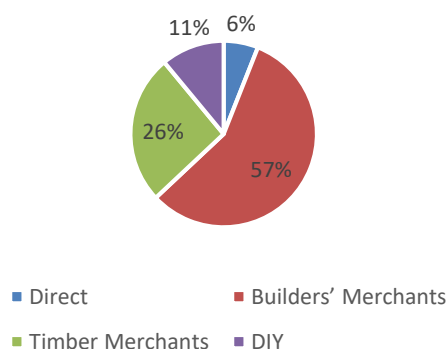
Broadly speaking, channels break down between direct supply, timber merchants and builders' merchants. Smaller volumes go through some specialist outlets and the DIY chains. The following estimates have been made by AMA Research but must be taken to be very broad due to the double counting issues outlined above.



Timber and semi-finished timber



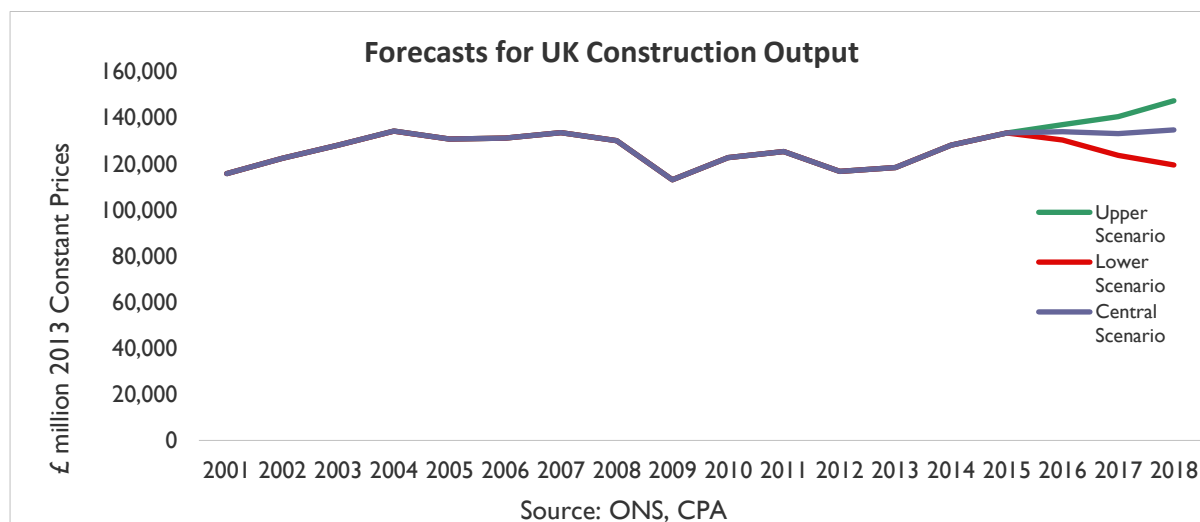
Builders' carpentry



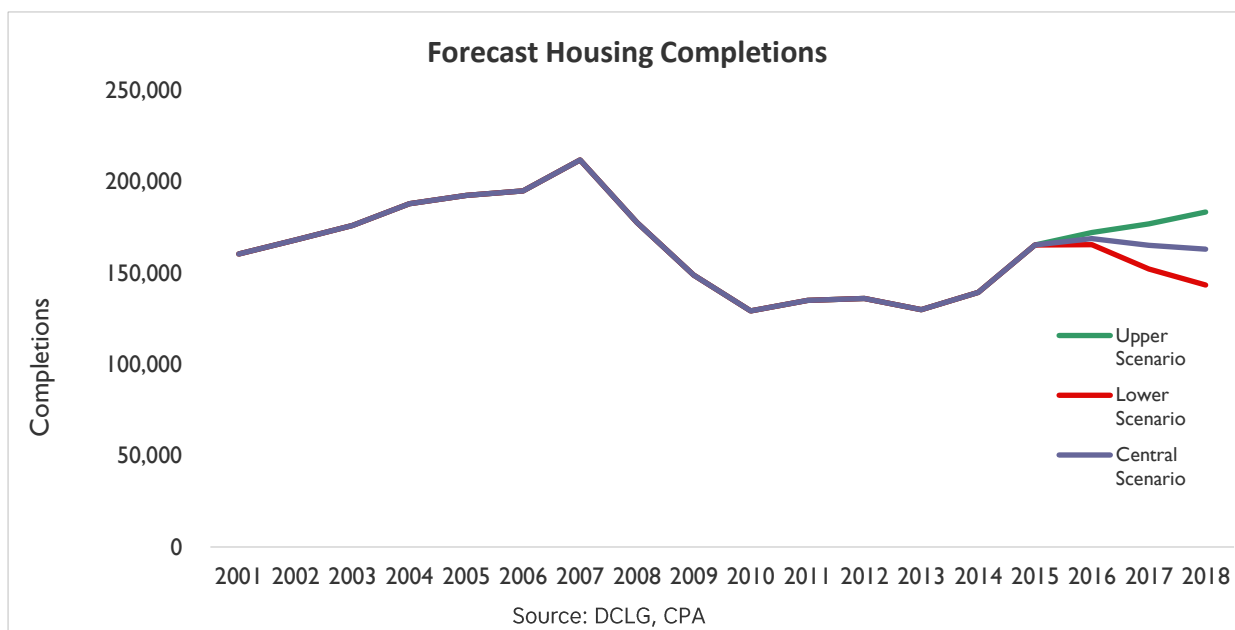
Source: AMA Research

1.10 Trends and Prospects in Construction and related Wood Products

Clearly, the fortunes of wood and wood products manufacturers targeting the construction sector are closely tied to the health of that sector. Fortunately, since the downturn of 2008 – 2012, the construction sector has enjoyed a period of growth but the effect of the UK's exit from the EU is causing considerable uncertainty and the CPA have recently published revised growth scenarios for the sector, as shown below:



Specific scenarios have also been prepared for the housing sector, as follows:



If we use the above growth figures for 2014 to 2019 for housing alone, consumption of sawn softwood and wood based panels over this period would look as follows:

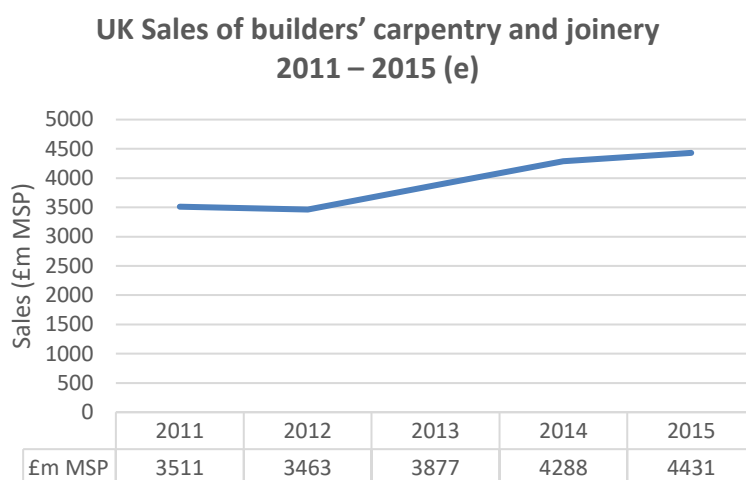
Forecasts for wood consumption in the UK Construction Sector to 2019

	Growth in construction output from prior year	Consumption of sawn softwood ('000 m ³)	Consumption of wood based panels ('000 m ³)
2014	10%	5950	1935
2015	3%	6129	1993
2016e	1%	6190	2013
2017e	-2%	6066	1973
2018e	0%	6066	1973

Overall the UK construction sector has proved resistant to the increased use of UK grown timber and there is work to be done to build confidence in the ongoing quality and reliability of UK wood.

1.11 Builders' Carpentry and Joinery

Manufacturer's sales of builders' carpentry and joinery in recent years has been as follows:

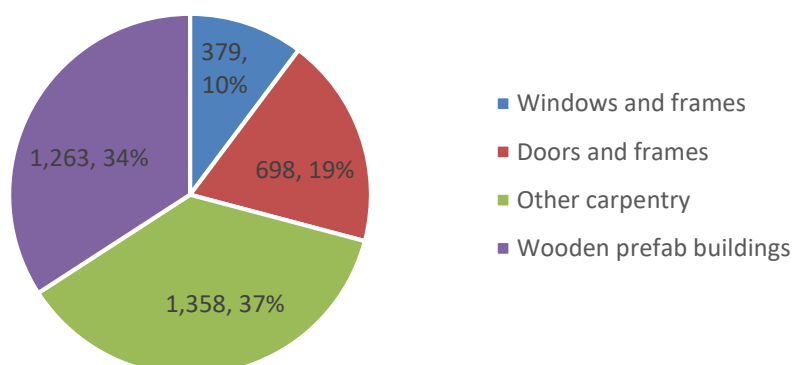


Analysis of PRODCOM and HMRC data suggests that only 11% of these sales are imports. The import situation is different, however, at product level, with imports of wooden windows and doors in 2014 at 24% and 27% respectively.

Source: PRODCOM and Industry Estimates

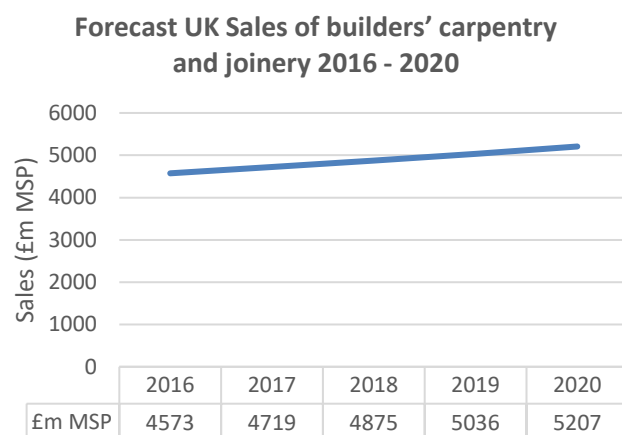
Within this overall industry sector, 2014 UK manufacturers sales of break down into the following product groups.

**UK Manufacturers Sales of builders' carpentry and joinery 2014,
£000's and % split by product group**



Source: PRODCOM

Keynote have produced the following forecasts for this sector, based around analysis of wider economic and construction forecasts.



Source: Keynote

Rather conservatively, the projections for overall sales of builder's carpentry and joinery broadly map those for the construction sector as a whole and for builder's merchants. The challenge for the timber sector is to accelerate growth at a rate higher than general market growth and this will require combined effort across the sector to increase the volume of wood used in construction projects.

Industry commentators believe that the use of wood in UK construction is far from being at saturation point, with UK usage in 2013 sitting at 0.14m³ per capita compared with 0.20m³ in Germany and 0.80m³ in Finland in the same year.

1.12 Structural Timber

Structural timber applications include roof trusses and joists but also include products such as SIPS, Glulam and timber-framed housing. Traditional products such as trusses and joists will either be sourced through builders or timber merchants or from truss manufacturers who will be sourcing directly from sawmills or via timber merchants, depending on volume.

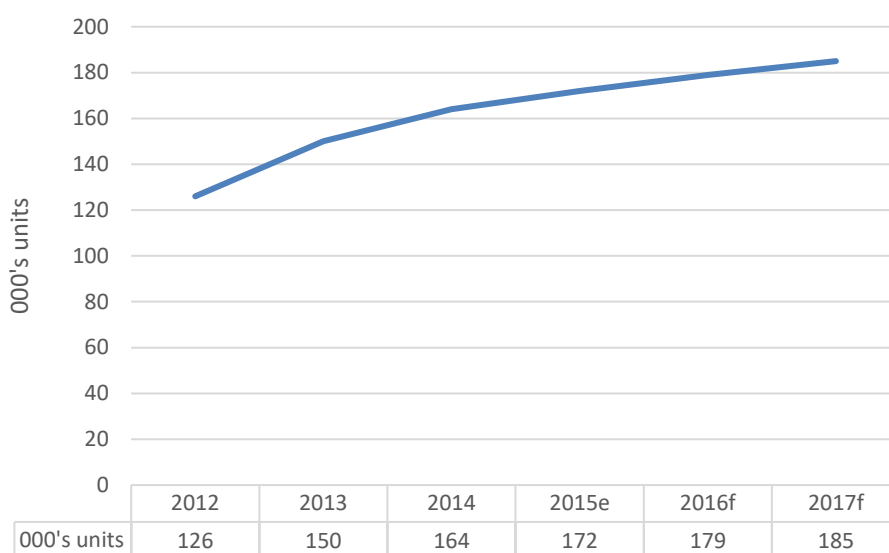
The majority of timber frame, SIPS and Glulam manufacturers are sourcing either direct from timber importers or from timber merchants, with some sourcing directly from UK sawmills.

While roof trusses and joists will play a role in the majority of residential new build, the uptake of wood by timber frame, SIPS and glulam applications depends largely on the industry's ability to persuade specifiers and housebuilders to switch from brick and block designs to more timber based models. The overall share of UK new housing penetration by timber frame has been variable in the last decade between 19.7% in 2005 and 27.4% in 2015, its highest ever. This overall figure hides significant regional variations, with timber frame accounting for 76.2% of new housing starts in Scotland in 2014 but only 18.5% in England. The much larger size of the English market does mean that the smaller % means many more units than in Scotland, however, with 2014 figures standing at 25,000 in England and 12,600 in Scotland. Achieving ever higher penetration of the housing market in England must therefore remain the industry's key objective and the STA report that 40% more detached timber frame homes were built in England in 2014 than in 2013.

The UK housing market grew to 175,000 in 2015, an increase of 6.3% over 2014. Within this growth, timber frame building grew by 17.8% to c.48,000 units in the same period whilst non-timber frame housing was estimated to have grown by 2.4% over the same period.

Overall UK housing starts from 2012 to 2017, actual and forecast (for Great Britain) are as follows:

Figure 38: GB Housing starts 2012 – 2017 actual and forecast



Source: CPA and STA

Over this period, the share of timber frame is forecast by the STA to grow from its 2014 level of 24.6% to 27% by 2017 which would suggest an overall volume of 50,000 units.

AMA Research, we understand with the assistance of the STA, have valued a 2013 output of 29,700 units at a MSP of £320m, suggesting an average value per house of 10,800. 2014 volumes have been estimated by the STA at 40,344 units and if we assume no change in the price per frame then the 2014 market value can be estimated at £436m. Direct contact with the industry will allow us to develop estimates of the specific consumption of wood by this sector.

Alongside this, AMA Research have estimated the overall UK market for SIPS at £40m.

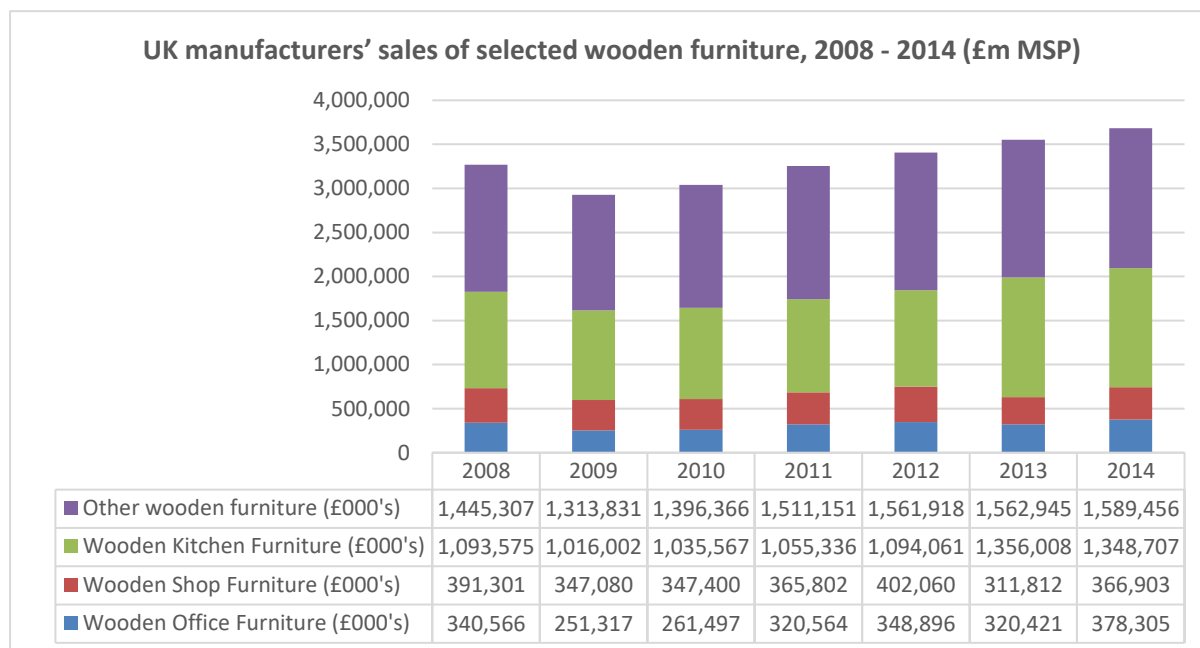
1.13 UK Furniture Manufacturing

UK Furniture manufacturing overall contributes c£10.1bn¹ to UK GDP and employs 106,000 people across 7,969 companies. This data includes manufacturers of furniture, beds and furnishings. It is a highly fragmented sector with only 40 companies employing more than 250 people and 78% of companies employing less than 10 people. The size

¹ Source: British Furniture Confederation / ONS

of company would suggest that most would not be able to negotiate terms with direct importers, panel manufacturers or sawmills and it is likely that most wood raw materials are sourced via timber merchants and specialist furniture component distributors.

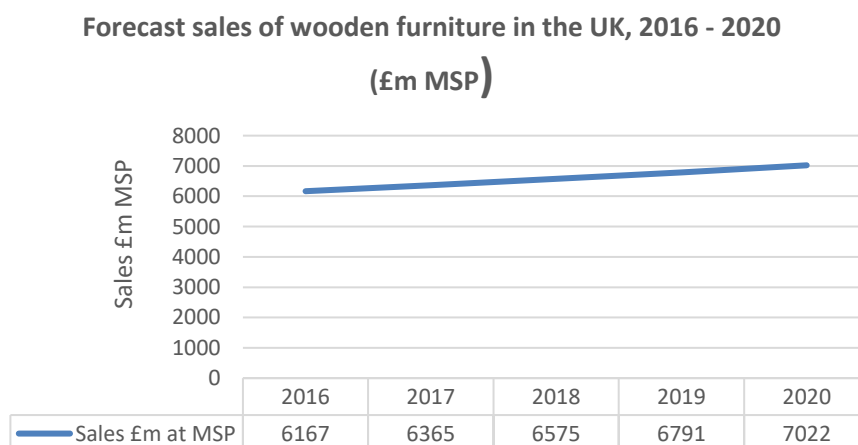
Prodcom data places overall UK furniture manufacturing output at £6.4 bn in 2014. Reasonably detailed data is available via Prodcom for sales of a range of different types of furniture and selected data is provided below for those types with significant wood or wood-based content.



Source: Prodcom

Relative to overall production levels, the UK is not a major exporter of wood furniture, with 2014 exports estimated by HMRC at c£300 million. Imports in 2014 were £2112 million, equivalent to 57% of UK manufacturing or c.33% of the overall UK market.

Overall forecasts for UK wooden furniture sales are as follows:



Source: Keynote

1.14 Wood as a Biomass Fuel in the UK

According to the Forestry Commission, around 1900 thousand green tonnes of UK Roundwood (1500 tgt softwood and 468 tgt hardwood) goes directly as a biomass fuel. In addition, a further 620 thousand green tonnes of wood processed by sawmills and 55 thousand green tonnes of wood processed by round fencing manufacturers is sold on as a biomass fuel.

In addition, strong increases in demand have meant that imports of wood pellets for fuel have risen sharply in recent years, increasing from 1502 to 7041 thousand m³ between 2011 and 2014. This 2014 import figure is also reported by HMRC at 4757 thousand tonnes and as having a value of £545 million suggesting a value of £114.6 per tonne of wood pellets. Converted to value for cubic metres, each m³ of imported wood pellets is worth £171.

Wood pellets have become a major component of the UK's renewable energy mix. In 2014, wood pellets accounted for more than 22% of all renewable energy sources and 36% of all biomass fuels used to generate electricity. 2014 consumption of wood pellets by the UK's major power stations was reported at approximately 4700 thousand tonnes and nearly 4600 thousand tonnes of these pellets were imported. 58% of these pellets come from the USA, with a further 21% coming from Canada.

With the majority of wood pellets being imported from the US, the recent devaluation of sterling against the dollar is likely to significantly alter the economics of this supply chain.

UK pellet producers do not appear to have entered this market in a significant way, possibly because values per tonne for high volume supply to power stations may be less attractive than prices available in consumer markets but more likely because UK production capacity is just not available.

There are certainly an increasing number of pellet manufacturers in the UK, with the Forestry Commission reporting 20 production plants in the UK, although only 8 of these are approved to the ENplus A1 standard managed by the UK Pellet Council. UK production of wood pellets in recent years has been as follows:



Source: Forestry Commission

The future of this sector is very much linked to UK and European policies for the use of wood as a bio-fuel. While the UK is the world's largest importer of wood pellets,

Denmark and Italy also import large quantities, approaching the UK's level when combined. Commitments to meet low carbon emissions targets are driving these policies at a European level but individual states are adopting different approaches overall. Should the ongoing debate around the actual net contribution to global CO₂ emissions reduction of using wood as a biofuel conclude that the benefits are neutral or even negative then it is likely that this market will contract rapidly.

It is certainly the case that other applications for the use of wood and wood particles are known to release much lower levels of CO₂ than power generation. Wood panel manufacture, for example, releases approximately 378kg of CO₂ per tonne of wood whereas electricity generation typically releases 1,905kg of CO₂ per tonne of wood).

It is not within the scope of this study to undertake an assessment of how this market would operate with no government subsidy but it is possible that pellet producers will begin to scale back on investment in new production capacity as the 2027 deadline for the removal of subsidies approaches. It may be that the domestic market for wood biofuel is less dependent on subsidies and the current financial support for the installation of pellet fired central heating systems may result in a base demand in the UK that would ensure an ongoing market for UK pellet production. Subsidies at the level of power generation are more likely to have a strategic effect on imports and, in particular, whatever production capacity has been put in place in the US and Canada to meet demand from European importers.

The relatively modest increase in pellet production in the UK is already having a knock-on effect in other sectors, with the UK Wood Panel Industry Federation reporting a shortage of raw material for UK panel production facilities. These industries utilise similar raw materials, particularly sawmill residues and any increase in pellet production can only fuel further price increases.

Specific forecasts have not been published for this sector but, with a ten-year horizon on subsidies, it is reasonable to expect growth in UK pellet production to continue at recent rates of between 10% and 16% per year, feeding primarily domestic heating systems. Further increases in imports for mainstream power generation also seem likely as the largest UK power station using wood pellets, Drax, has indicated a desire to convert more of its coal burning capacity into wood burning. Other wood pellet fuelled power stations have been approved in Northumberland and Teeside. If these planned increases go ahead they will have a combined requirement for 13 million tonnes of wood biomass per year by 2019, up from 4.7 million tonnes in 2014. It is likely that the bulk of this consumption will continue to be sourced from the US and Canada but it may be that some of the larger UK pellet producers could take a share of this market.

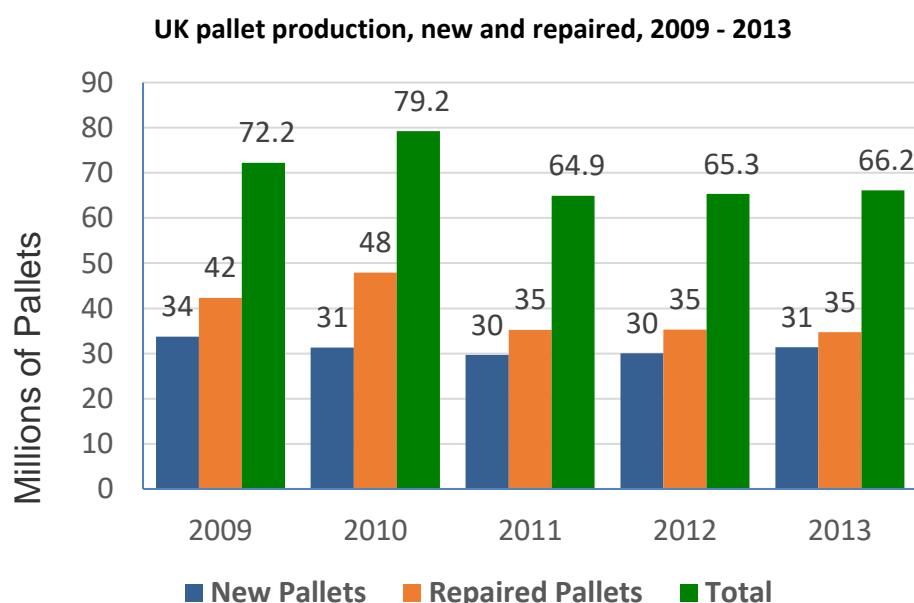
Whether or not this represents a major opportunity for UK suppliers and the upstream forestry and sawmill sector depends largely on price levels which are likely to be dramatically affected by any withdrawal of UK Government subsidies. Balancing this, there may well be an export market in other European markets which may mitigate some of the risk of increasing UK pellet production capacity in the run up to 2027.

1.15 UK Pallets and Packaging Manufacture

The application of sawn wood in UK packaging is predominantly for production and repair of wooden pallets. The total turnover of this industry in 2013 was £279m², an increase of 2.3% of the previous year. Of this total, new pallet production was valued at £205m, the rest being repair. The pallet sector is thought to employ just over 2,300 people.

In terms of consumption of wood, it is estimated that timber makes up around 70% of the cost of making a new pallet. Total timber consumption in pallet making and repair in 2013 was estimated at 1.2 million m³, up by 10% on 2012. This total splits by 86% softwood, 6% hardwood (mainly imported) and 8% manufactured wood products.

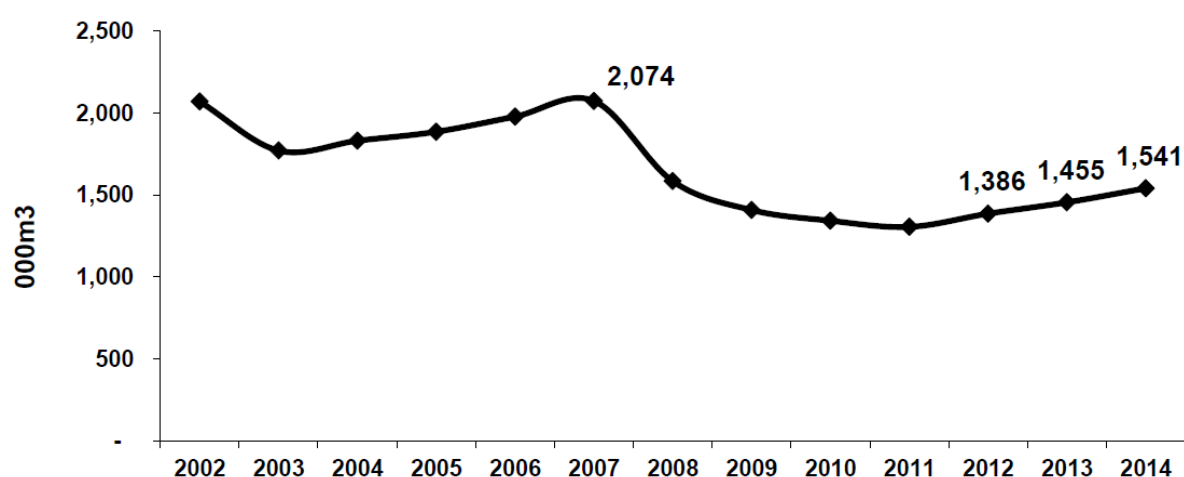
Production over recent years is shown in the picture on the right:



Source: TIMCON

All wood consumption is of sawn softwood and recent trends have been as follows:

Softwood consumption by the UK packaging and pallet sector, 2002 - 2014



Source: TIMCON

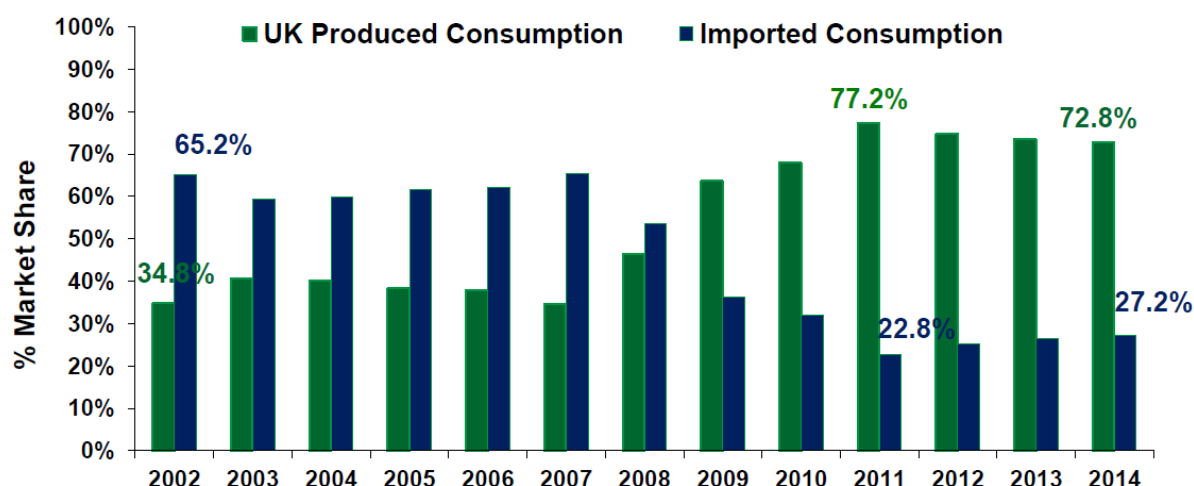
² Source: TIMCON/Forestry Commission/Timbertrends; Wood packaging study 2013.



Since the Forestry Commission report that a total of 1.1 million m³ is consumed by the UK packaging sector, we can conclude that a further 0.4 million m³ is used in other industrial packaging applications (wood is often used as a protective frame in shipping products).

Around 73% of overall consumption is thought to be of UK grown wood, a total of 0.9 million m³ and this is mainly of softwood. This pattern has changed over recent years, with the sector taking the opportunity presented by reduced demand in other sectors to move to UK produced wood rather than imports.

Relative shares of UK produced and imported wood in pallet manufacture and repair, 2002 - 2013



Source: TIMCON

Forecasts for wooden packaging are only done on a 12 month basis. TIMCOM members in 2013 were forecasting growth of 8.6% in value and 3.4% in volume. The difference was thought to reflect an aim on the part of pallet manufacturers to pass on some of the increases in wood raw material prices which they have been experiencing in recent years.

It is reasonable to assume that overall packaging consumption will track general trends in UK construction (its main market at 30%), retail and manufacturing. Average growth in the construction sector in the coming years is expected to be in the region of 3.7% while retail sales are expected to grow at a more constrained 1.7% and manufacturing at 0.7%.

1.16 UK Fencing, Decking and Cladding Production

These industries are generally well aligned to the UK sawmill sector and many of these products are manufactured and sold directly from the mill. The Forestry Commission's survey of larger sawmills suggests that fencing accounts for 37% of UK sawmill output, which equates to 1.3 million m³ of production. Fencing is therefore the largest single market for UK sawmills, ahead of packaging & pallets at 30% and construction at 27%. There are negligible volumes of imports of fencing since it is mainly manufactured from softwood.

In value terms, while no specific data is available, it seems reasonable to assume that fencing pricing is generally equivalent to the overall price for sawn timber, estimated in 2015 at £222 per m³. This would place the value of the fencing market at £288.6 million.

Forecasts for fencing have not been produced but volumes have been relatively steady at between 34% and 37% of sawmill output over recent years. With consumption being linked to sectors such as housebuilding and agriculture, growth can be expected to remain in the area of 3-4%.

Data for cladding and decking has been requested from the TDCA but has not been received at the time of publication. A 2010 presentation by the TDCA has been sourced and this placed the overall UK market for timber decking in 2009 at £135m, with cladding at £30m (2007). It is hoped that these figures can be updated. There are indications that the opportunities for growth in these product groups is greater than for fencing since there is increased interest in the use of wood both as a building material and as part of home improvement.

1.17 Strategic Issues

The overall picture is one of growth in most sectors with average growth in consumption estimated at between 3.2% and 3.4% per annum for the next four years (to 2020). With the UK currently importing circa 60% of its wood and wood products, there are opportunities for import substitution in several sectors, particularly in wood based panels and sawn softwood.

Patterns of consumption of both hardwood and softwood are very different, with overall consumption of softwood being some 57.2 million m³ compared with only 0.96 million m³ for hardwood. The UK produces 48% of all its hardwood consumption including sawn and non-sawn wood, but only 19% of its softwood consumption. This softwood volume figure is derived from the industry standard WRME conversion factors. For sawn softwood, imports amount to 63% of total UK consumption.

A number of high-level, strategic issues have emerged as being of particular relevance as the CTI works to define its policies and strategies for the coming 3-5 years.

1. There appears to be an opportunity to increase levels of timber removals from UK Forests. 2014 softwood removals were 11.4 million green tonnes (mgt) while the theoretical availability of softwood from GB (i.e. excluding Northern Ireland) forests was in the region of 15mgt.
2. Forecasts of softwood availability show it rising to an estimated 16.7mgt in the period 2027-2031 at which point it starts to decrease (this assumes no further planting between now and then).
3. This naturally indicates the need to accelerate the planting programme to address medium to long term demand. We are already beyond the point where we can maintain maximum projected levels of supply for 2031 and beyond, if we do not begin the process of planting to rebalance supply. Failure to respond will make us increasingly dependent on imports.



4. UK sawmills have increased their output by 36% in the last ten years but appear to have the opportunity for further expansion in line with increased removals. UK Sawmills consume c.60% of the outputs of UK Forestry and so are the UK Forestry sector's single most important customer. Export markets for UK roundwood are not well developed and it would not make strategic sense for this to be promoted while the UK's balance of trade in sawnwood is so skewed towards imports.
5. The UK Forestry sector has already become very efficient at extracting value from all of its raw material. 40% of UK Forestry removals is non-stemwood which includes branches, stumps, woodchips and particles, wood residues and pulpwood and the sale of these products is an important part of the business model of forestry enterprises. Non-stemwood removals go to a range of markets including Biomass Fuels, Wood panel production, Co-products (bark, wood-chip, shavings, mulch), Pulp & Paper and Round Fencing. These sectors in essence compete for this raw material although, until recently, there does appear to have been a relative balance of supply and demand across these supply relationships.
6. The rapid growth in the use of non-stemwood forestry output (sometimes called small roundwood) as a fuel may be altering the traditional balance of supply between pulp mills and wood panel mills who are now having to compete more aggressively for their raw materials. The increased demand for this raw material is reported to have pushed prices up and this is being felt by UK based wood panel mills in particular. Both sectors have already taken steps to secure supply of alternative raw materials via wood recycling operations but these too are being affected by increased demand for fuel wood. The use of UK grown hardwood for pulp had already ceased in 2007.

In addition, in 2014 some 75% of all hardwood removals in the UK was burnt as fuel and only 14% was processed by UK sawmills. This indicates that whole hardwood trees are being converted to fuels whereas for softwood this tends to be only the 50% of the growth that is not suitable for conversion into sawnwood. This is in stark contrast to the overall picture of consumption of hardwood in the UK, where in excess of 90% of sawn hardwood is imported. There appears to be an opportunity to find more added value outlets for UK grown hardwood roundwood, most likely through increased processing via UK sawmills.

The increase in the burning of wood biomass in large-scale power generation is being driven largely by the provision of on-going subsidies by the UK Government under their Renewables Obligation Regime. It was the Government's expectation that virtually all of the biomass burnt in these power stations would be imported but UK panel mill operators report that the power generators are sourcing a significant proportion of their biomass requirements from UK sources, particularly operators of smaller plants generating >50MW

While increases in pricing may well improve the profitability of forestry and sawmill businesses, the volumes required by power generators has also resulted in a very sharp increase in imports of wood pellets. Should these imports become more price competitive this could in theory make this market less attractive to UK forestry and sawmills and thus relieve the pressure on raw material pricing for the wood panel and pulp & paper sectors. This balance has not, however, been seen to be reached at this time and indeed, seems a long way off.

This raw material issue is reported to be having a strategic impact on the wood-based panel manufacturing sector in particular and this is coming at a time when growth in the UK construction sector has seen corresponding levels of growth in the use of panels/board. Since the UK manufacturers are not able to meet all of this increased demand, the UK now imports 34% of its consumption of particleboard (including OSB) and fibreboard. There is a clear opportunity for UK based wood panel manufacturers to capture a greater share of the overall market but they are unlikely to invest in this additional capacity if raw material availability and its pricing remains such a constraint.

It is clear that the increase in the use of wood as a biofuel is a major opportunity for UK forestry and sawmill operators but this may come at the expense of growth in wood-based panel manufacture and other sectors.

7. Returning to sawn-wood, the UK imported 63% of its sawn-wood consumption in 2014, up from 60% in 2011. Without short-term increases in UK sawmill capacity, this figure is likely to increase further as the UK construction sector continues to recover to pre-recession levels.
8. Construction is the main driver of sawn-wood sales in the UK, with an estimated 62% of all UK sales of sawn softwood being consumed by the sector. This overall picture changes markedly when the source of the sawn wood being used in construction is considered; 84% of construction consumption is imported sawn softwood.
9. There is an on-going opportunity for UK forestry and sawmill operators to achieve a higher share of the construction market but this opportunity is not a new one and it may be that UK sawmills are achieving their commercial objectives through their current sawn wood sales split of 37% Fencing, 30% Pallets and Packaging, 27% construction and 5% other. UK sawmills also sell non-sawn wood to a wide range of secondary sectors, which consume half of its round wood inputs, the largest of these being the wood-based panels sector. Taken overall therefore, the construction sector may only represent 12-15% of the sawmill sectors sales.
10. As the UK construction sector continues to grow, there is an opportunity to meet some of this demand from UK wood. However, this is only a viable goal if the supply chain can supply the necessary products to specification. Even if removals of softwood and capacity in sawmills could be increased, UK derived softwood does not physically meet many of the specification requirements for use as structural timber, primarily due to fundamental material properties such as density and strength. This is a difficult challenge to overcome, being based as it is on factors such as species, weather conditions and terrain. Some commentators have suggested that UK wood could be more widely used in structural applications but this would require a change in specification and it is unlikely that designers and specifiers are going to develop a range of unique specifications simply to encourage greater use of UK wood. The key challenge appears to be the 'in use' performance when looking at the two major softwood grades i.e. C16 and C24. Whilst UK grown softwood wood is graded predominantly as C16 i.e it meets industry standards for bending strength, other mechanical properties affect end use application (twisting and warping is reported as a particular problem). This perception (real or imagined) must be addressed to enable wider use of UK grown timber in construction.



11. Industry estimates suggest that circa 33-35% of sawn softwood used in general construction is C16 grade which would represent c2.2 million m³ metres of sales. Given that the construction sector consumes c. 1.0 million m³ of UK sawn softwood overall, then there is at least an opportunity to capture an additional slice of this C16 market.
12. At the same time, the opportunity exists to further support the continued growth of timber framed buildings in the UK which grew to 27.4% of all housing starts in the UK in 2015.
13. An alternative strategy would be to target those elements of the wider construction market where timber is used extensively and by far the largest consumer of sawnwood related to construction is the joinery sector, particularly manufacturing of windows, doors and stairs. The overall UK market for builders' carpentry and joinery grew by over 26% between 2011 and 2015 and is forecast to grow by a further 14% between 2016 and 2020. The UK made an estimated 87% of the Builders' Carpentry and Joinery used in the UK in 2015 but it is unlikely that more than 20% of the wood purchased by these manufacturers was grown in the UK. Anecdotally, it is reported that joinery business have a preference for imported sawnwood since its characteristics result in less wastage and quality problems.
14. UK based carpentry and joinery business had a combined output of £3.8 bn in 2014 from over 5000 companies which together employed some 45,000 people.
15. Within the supply chain, Timber Merchants and Builders Merchants have an important role to play in promoting greater integration between UK wood producers and the construction sector. Sales of wood and wood products via merchants is estimated by the BMF to be in the region of £1,890 million (excluding DIY companies such as B&Q and Wickes). Other sources estimate this figure to be in the region of £4bn. Many of the larger Timber Merchants in particular source from both the UK and abroad and some have significant timber processing operations alongside their storage and distribution operations. Such businesses are well placed to participate or contribute to any strategy to promote greater use of UK wood.
16. Central to the achievability of any specific strategy for supply chain integration, change in utilisation or import substitution are the commercial realities of pricing, quality and availability. The Pallet sector, for example, has successfully moved from a situation where, in 2002, over 65% of its sawnwood raw material was imported to the 2015 picture where almost 73% is UK wood. The sector reports that this has been down to better pricing and availability from UK sawmills plus they felt that other EU suppliers had found better markets in Asia and the Middle East. The trend over the last four years has, however, been moving slowly back towards exports and it may be that modest increases of UK softwood sales into construction are already placing pressure on the availability and pricing of sawnwood for packaging.
17. It has not been within the scope of this report to complete a detailed analysis of pricing of different grades of roundwood, sawnwood and other wood raw material products going into different sectors from UK and imported sources and this would be a useful exercise to inform strategy. Import figures do indicate that sawnwood prices have increased by 22% from an average of £181 per m³ in 2009 to £221 per m³ in 2014. Such significant increases can usually be attributed to an increase in



demand over supply and, alongside the overall sharp rise in imports, can only point to a lack of capacity in UK sawmills.

18. Another important consumer of sawnwood in the UK is the furniture sector. Overall sales of wooden furniture in the UK were almost £6bn, higher than overall sales of Builders' Carpentry and Joinery at £4.4bn. UK manufacture of wooden furniture in 2015 was estimated at £4.1bn but figures are unfortunately not available for this sector's utilisation of UK versus imported sawnwood. Given that UK sawmills do not even include the furniture sector in their sales reporting, it appears that UK furniture manufacturers are using primarily imported sawnwood, both hardwood and softwood. However, UK furniture is not included in the available statistics for imported timber utilisation. Further research is required to clarify the source and volume of sawnwood consumption by UK furniture manufacturers.
19. It is not immediately clear why there is so little integration between UK wood producers and UK furniture manufacturers and it is recommended that this issue be considered by CTI. It may well be that a strategic opportunity exists to facilitate more supply relationships between these sectors.

1.18 Policy Recommendations

1. Accelerate the rate of planting of new forest
2. Clarify & pursue a strategy of higher removals to address the issues of roundwood shortages
3. Encourage further investment to increase sawmill capacity in line with increased removals
4. With 75% of all hardwood removals in the UK being used as a biofuel, the UK is evidently burning roundwood that could be processed into sawn wood for use in multiple other added value application. This requires further investigation.
5. Review the issue of the fuels subsidy and its impact on the supply chain including pulp & paper and panel manufacturers. Upward price pressure facilitated by the fuel subsidy is potentially making it uncompetitive for panel manufacturers and the pulp & paper sectors to compete effectively. Its reduction/removal or incremental support to the whole market merits consideration. The last detailed analysis of the panel sector was circa six years ago, so requires updating, particularly as it offers potential for expansion in UK manufacturing.
6. UK manufacturers of panels are not responding to demand growth, which is largely being met by imports. This clearly is an opportunity for growth.
7. Promote/create an environment that encourages investment in capacity for the manufacture of panel, based upon a more secure raw material supply chain.
8. An integrated marketing campaign combined with greater supply chain collaboration is required to grow the use of UK grown timber across multiple industry sectors, particularly construction and furniture.



9. A detailed investigation of pricing of wood and semi-finished wood products going into different sectors would better inform the CTIs policy and strategy. At the moment, UK sawmills do not appear to feel it necessary to target customers in construction and furniture but it is possible that raw material prices in these sectors may be higher than in their current markets of fencing and packaging.
10. The overall health of the UK timber sector is clearly linked to the increased use of wood and wood derived products in the construction sector. 75% of all housing in Scotland is already timber framed and the share of overall UK construction in timber frame has been increasing steadily albeit relatively slowly. Accelerating the greater use of timber frame techniques requires the market to better appreciate the compelling case for wood as a primary material, these being carbon capture, speed of build and lifetime energy performance.
11. Since it is the case that UK grown sawn softwood will typically be graded C16 further efforts should be made to increase the share of UK grown softwood from 1.0 million m³ to c.2.2 million m³.
12. Wood usage by the UK Furniture Manufacturing sector is currently poorly reported. An estimate of 15% has been suggested by the TTF, mainly made up of sheet materials but it has been impossible to verify this figure from existing sources. We believe that the utilisation of sawn timber in the furniture sector may be greater than reported but producing more accurate figures will require direct engagement with the sector, something outside the scope of this project.

CTI Timber Sector Development – Possible strategies and issues

Sub-sector	Strategy	Issues
UK Wood	Grow more	Where and who buy – public or private Softwood or hardwood?
	Remove more	Technically feasible given access, etc? Some believe Forestry owners are ‘managing’ availability
UK Sawmills	Increase capacity	Business case? Investment climate & access to capital Raw material availability – currently a problem and prices rising
	Improved added value	Possible with raw material quality? Competition for raw material Perception/Brand of ‘UK Wood’?
	Vertical integration	Already happening Conflicts with customers Core skills
UK Wood Panel mills	Increase capacity	Business case? Investment climate & access to capital Some are part of European companies Raw material availability – currently a problem and prices rising



	Focus on higher added value products like waterproof and fireproof	Market needs large volumes of commoditised basic product
Pulp and paper	Pulp import substitution	UK pulp making capacity – business case to expand? Raw material availability – competition for woodchip Better harvesting of fines/raw material
Biomass	Import substitution	Best use of UK wood? Impact on other sectors already an issue Could wipe out other wood users (imports are 70% of sawmill inputs)
Builders joinery and carpentry	1. Build more houses 2. Increase wood content of houses	Growth entirely dependent on UK Housebuilding Per capita wood use in UK construction is 0.14m ³ compared with 0.2m ³ in Germany and 0.8m ³ in Finland. Increasing to 0.16m ³ per capita would mean additional 1.0 million m ³ consumption
Structural timber	Win/maintain share against metal and composites	Many modern solutions are multi-material
Timber frame	Increase share of timber frame	Scotland saturated? England is key. Further strengthen specifier education programmes
Furniture	Support growth of timber use in UK furniture manufacturing	Integrate furniture manufacturers more with timber sector Opportunity to greater added value for UK wood, particularly harder softwoods and hardwoods

1.19 Other Issues/Opportunities

- Would a better grading process reduce shipments of poor wood to manufacturers?
- Over half of UK wood already goes to applications where it is chipped, pulped or burnt
 - Are we ensuring that the right grades of wood end up in the right place?
- UK Forestry businesses appear happy with their current situation
 - Profitable
 - Getting what they need from fencing, packaging and some construction
 - Anecdotal evidence that they are at capacity
- UK sawmills complaining about availability and pricing
 - Uneconomical to move a log from Scotland to S.England – wipes out margin
 - But economical to import sawn wood and wood-based panels from Europe?
- Analysis of raw material pricing at different stages in the supply chain would inform decisions about where to place emphasis
 - Real effect of biomass subsidy
 - Competition between industries for raw material
 - Import versus UK sawmill pricing
 - Grade pricing
 - Hardwood versus softwood
- Can it really make economic sense to burn 75% of UK grown hardwoods?
 - Is there an opportunity to revitalise the brand of UK hardwoods, particularly Oak? Long-term vision and strategy as per 'Grown in Britain'



2.0 Introduction

This review of industry data has been prepared on the back of a brief issued to Egan Consulting by the CTI in February 2016.

As per the brief, this is a compilation of data available from secondary industry sources. We have relied upon data provision mainly from government and trade association sources, complemented where necessary by data sourced from private sector research companies³ through public access libraries.

No primary research has been conducted in the preparation of this work and it is likely that direct engagement with the different industries covered may result in some adjustments to the data.

We would like to acknowledge the support of the following organisations in the preparation of this review.

Dave Hopkins and Nick Boulton, the Timber Trade Federation, TTF

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Iain McIlwee and Dave Campbell, British Woodworking Federation, BWF

David Workman and Nick Langdon, the Confederation of Paper Industries, CPI

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John Dye, TIMCON

Stuart Goodall, the Confederation of Forest Industries, Confor

David Sulman, the UK Forest Products Association, UKFPA

Construction Products Association, CPA

Nick Moore, Timbertrends.

Other sources are referenced in the document. A primary source of statistics about UK wood and wood products production has been the Forestry Commissions 'Forestry Statistics 2015' which also includes data on imports in some categories.

Since all data is sourced from third party sources, Egan Consulting Limited cannot warranty for the accuracy of these statistics and accepts no liability for any decisions taken on the back of them.

³ As of 5th April 2016 no discussions have been held with these private sector research sources to clarify whether their data can be used with no additional cost in this review.

3.0 Brief

The Confederation of Timber Industries (CTI) was formed in June 2015 to act as 'a single voice for the whole of the Timber Industry Supply Chain'. One of the early tasks for the CTI is to map and assess the value and growth prospects of the industry's supply chain.

The background to this work is the need to grow the use of timber and timber related products in the UK marketplace. With 60% of all of the timber used in the UK being imported, adding value throughout the supply-chain through is a key imperative. Naturally this proposition poses a number questions and many of these were highlighted by the CTI Supporters Network event held on September 23rd 2015 through its Value and Growth session.

The following proposal attempts to build on the ACCORD framework which identified key areas for action, namely:

- The need to grow our low carbon economy
- Building more homes for Britain
- Ensuring that all building projects consider their carbon impact
- Encouraging more forestry planting

With recent data suggesting modest growth in the short and medium term indicating levels of circa 2% and 5% it is critical to understand business at both the macro sector level AND the micro segment levels e.g. understand the total level of timber consumption in the construction industry and at the product level. So we could ask what proportion of window manufacture is timber as opposed to uPVC/metal etc. This detail will be necessary pinpoint where support/incentives will be most effective.

As already identified, the research will focus upon:

1. Identifying the growing sub-sectors and which have potential to grow faster, which sub-sectors are struggling and need a boost
2. What type of government support is needed?

3.1 Outputs and Scope

The primary output from this research will be a detailed report to be published by the CTI. This report will present a definitive quantitative review of the Timber sector in the UK, describing the different elements of the supply chain from forest to end-of-life.

The report will essentially be a presentation of data and information on the different sectors that make up the whole Timber industry. It will draw on a wide range of secondary information sources, not least the different trade associations that support the CTI and share its mission. The aim will be to map the creation of value throughout the supply chain, providing key statistics such as input and output volumes and value on a sector by sector basis. These sectors are likely to include:



- Forestry and timber importation
- Sawmills
- Timber processors
- Timber merchants
- Manufacturers of timber products including:
 - Construction products (structural and non-structural)
 - Packaging and pallets
 - Furniture
 - Fencing, decking & cladding
- Paper, tissue and absorbent products
- Biomass feedstock
- Waste wood products including bedding, soft landing, mulching, decorative and bulking agents

Note: the above is not intended as a definitive list or final classification since sectors such as construction break down into many sub-groups.

Given the level of imported timber used in the UK, the research will identify where in the supply chain these imports enter the value stream, potentially identifying areas where there may be the greatest opportunities for import substitution.

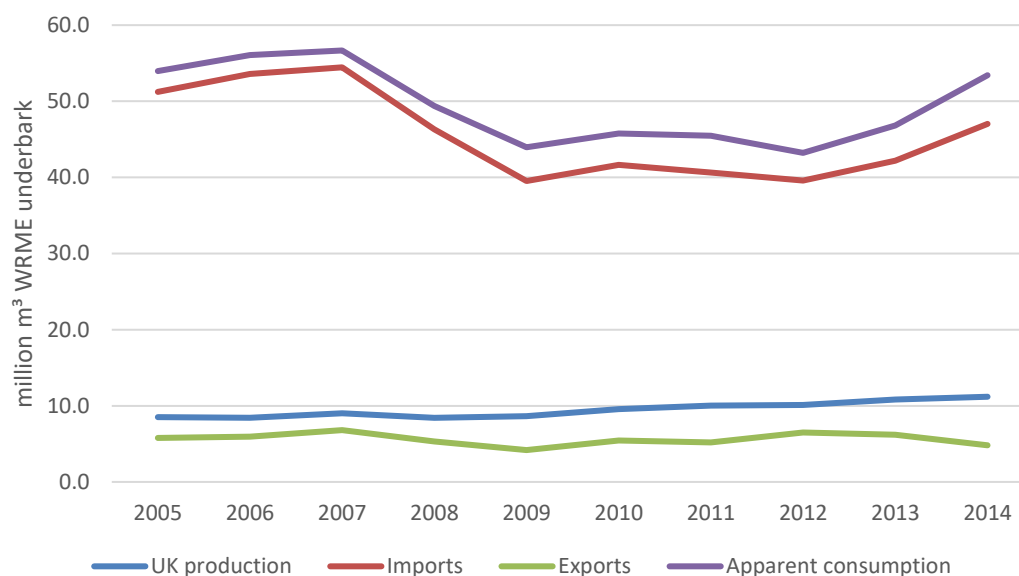


4.0 Overview of Timber Consumption in the UK

According to 'Forestry Statistics'⁴ the apparent consumption of wood in the UK in recent years has been as follows:

Table 1: Apparent consumption of wood ¹ in the UK, 2005-2014				
Year	UK production	Imports	Exports	million m ³ WRME* underbark Apparent consumption
2005	8.5	51.2	5.8	54.0
2006	8.4	53.6	5.9	56.1
2007	9.0	54.5	6.8	56.7
2008	8.4	46.3	5.3	49.4
2009	8.6	39.5	4.2	44.0
2010	9.6	41.6	5.5	45.8
2011	10.0	40.6	5.2	45.5
2012	10.1	39.6	6.5	43.2
2013	10.8	42.2	6.2	46.8
2014	11.2	47.0	4.8	53.4
Source: industry surveys, industry associations, UK overseas trade statistics (HM Revenue & Customs) and conversion factors				
*Wood Raw Material Equivalent (WRME)				

Figure 1: Apparent consumption of wood in the UK, 2005-2014



These figures demonstrate well the impact of the economic slow-down of 2008 and 2009, although it is notable that this had a much greater effect on levels of imports than on UK production, with falls of 27.5% and 6.6% respectively. The lower impact on

⁴ Forestry Statistics 2015, Prepared by the Forestry Commission and available at <http://www.forestry.gov.uk/statistics>

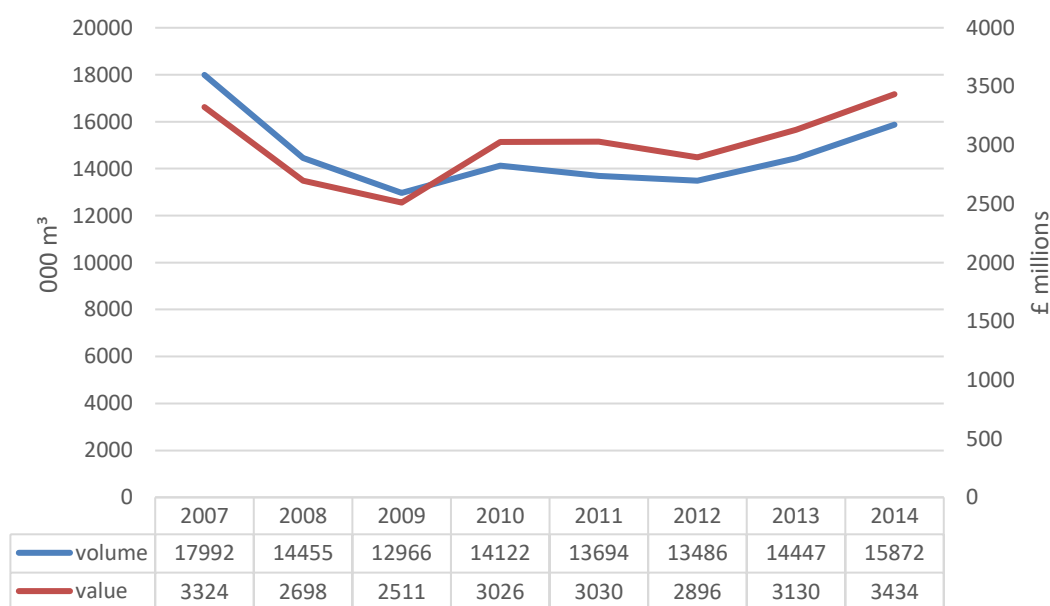


consumption of UK produced timber can be explained by the nature of its consuming markets, these being less dependent on the construction sector than is the case for imported wood. More information of markets for UK produced wood is available in Section 4.

The graph also shows clearly that wood consumption has grown strongly since 2012 and, given the finite production capacity of UK wood producers and sawmills, most of this increased consumption has been met by imported wood. This may represent a lost opportunity for the UK timber sector, although conditions for investment in increased capacity in the years prior to 2012 were not positive. It is certainly the case that the UK continues to import around 60%⁵ by volume of its wood consumption. The next section reviews UK wood production and future availability of raw material.

The Timber Trades Federation publish a separate set of industry statistics and these include estimates of overall UK consumption of wood and wood products by both volume and value. We understand that these figures are based on consumption of sawn wood and wood-based panels only and include both UK produced wood and imports. According to these figures, consumption over recent years has been as follows:

Figure 2: UK consumption of wood and wood products by volume and value, 2007 - 2014



Source: TTF/Timbertrends

While the patterns since 2007 are comparable, the most striking difference between the TTF figures and those from the Forestry Commission are explained by the Forestry Commission's use of WRME as a measure. WRME translates as industrial roundwood and the Forestry Commission statistics are an estimate of how much industrial roundwood would be required to produce the wood products that are actually imported (these being in the form of sawn wood, wood based panels, wood fuel pellets and pulp

⁵ The TTF Statistical Review for 2015 estimates that 60% of wood consumed in the UK is imported.



and paper). Various conversion factors are used to convert imported volume or tonnage into industrial roundwood and the Forestry Commission publish these alongside their figures for UK wood production and imports.

Applying these conversion factors to the four main product groups making up UK imports lifts the actual combined volume/tonnage up to the 47.0 million tonnes WRME that the Forestry Commission reports.

It should also be noted that the TTF estimate of 15.8 million m³ UK consumption of wood and wood products includes only sawn wood and wood based panels and does not include other wood based products like fuel wood, pellets, paper or pulp plus a range of co-products. The imported volume of 6.4 million m³ sawn wood and 3.3 million m³ of wood based panels converts to around 18.7 million tonnes WRME alone.

UK production and imports of different forms of sawn wood and wood-based products feed a range of sectors from construction to furniture, packaging, fencing and wood panel manufacture. In addition, a significant proportion of raw wood that is not destined for sawn wood or panel production generates additional value, being used in paper and board production, in the production of fuel and as a range of co-products including bark, wood-chip and shavings.

4.1 Conclusions and Policy Recommendations

This review comes at a time when the overall consumption of wood and wood products in the UK is increasing. In value terms, the level of consumption now exceeds pre-recession levels for the first time and all indications are for this growth to continue, driven by growth in downstream processing sectors, as described later in this report.

The overall timber sector must continue to seek opportunities to collaborate where possible in order to promote the continued uptake of wood and wood products as high performance, sustainable materials across multiple applications. As the report will show, while there are opportunities to grow the volumes of UK wood used by UK processors, their growth must not be constrained by the availability of UK wood and the timber importation and distribution sector has a critical role to play in supporting growth in a range of key user sectors.



5.0 UK Primary⁶ Wood Production and its Markets

According to BRES, the UK Forestry sector employs an estimated 16,000⁷ people, up by 22% from 13,100 in 2009. 2013 turnover for Forestry and Logging in the UK was £1.3bn⁸ and the Forestry Commission estimate GVA⁹ for 2013 at £504 million. 2014 figures have yet to be finalised.

The majority of UK wood comes from commercial softwood forests, with much lower volumes of hardwood being removed. Recent production levels by type and source are as follows:

Table 3 Wood production, 2005-2014						
						thousand green tonnes
Year	Softwood			Hardwood ³		
	FC/NRW/FS ¹	Private sector ²	Total softwood	FC/NRW/FS ¹	Private sector ²	Total hardwood
2005	4,579	3,499	8,077	101	492	593
2006	4,582	3,661	8,243	45	392	438
2007	4,653	4,083	8,736	40	400	440
2008	4,415	3,823	8,238	43	388	431
2009	5,126	3,266	8,392	87	449	536
2010	4,625	4,633	9,258	70	465	535
2011	4,870	5,186	10,056	75	465	541
2012	4,836	5,259	10,095	55	478	532
2013	5,084	5,852	10,936	78	451	529
2014	4,900	6,531	11,431	71	461	532
Source: Forestry Commission, Natural Resources Wales, Forest Service, industry surveys, industry associations.						
Notes:						
1. FC: Forestry Commission (England, Scotland, and until March 2013, Wales), NRW: Natural Resources Wales (from April 2013), FS: Forest Service (Northern Ireland).						
2. Private sector: removals from all other woodland (including some publicly owned woodland).						
3. Most hardwood production in the UK comes from private sector woodland; the figures are estimates based on reported deliveries to wood processing industries and others.						

⁶ 'Primary wood production is taken to include all those aspects of forestry whose output is either timber 'in the round' delivered to a saw mill for secondary processing or a range of co-products destined for pulp and paper, wood panel production and bio-mass fuels.

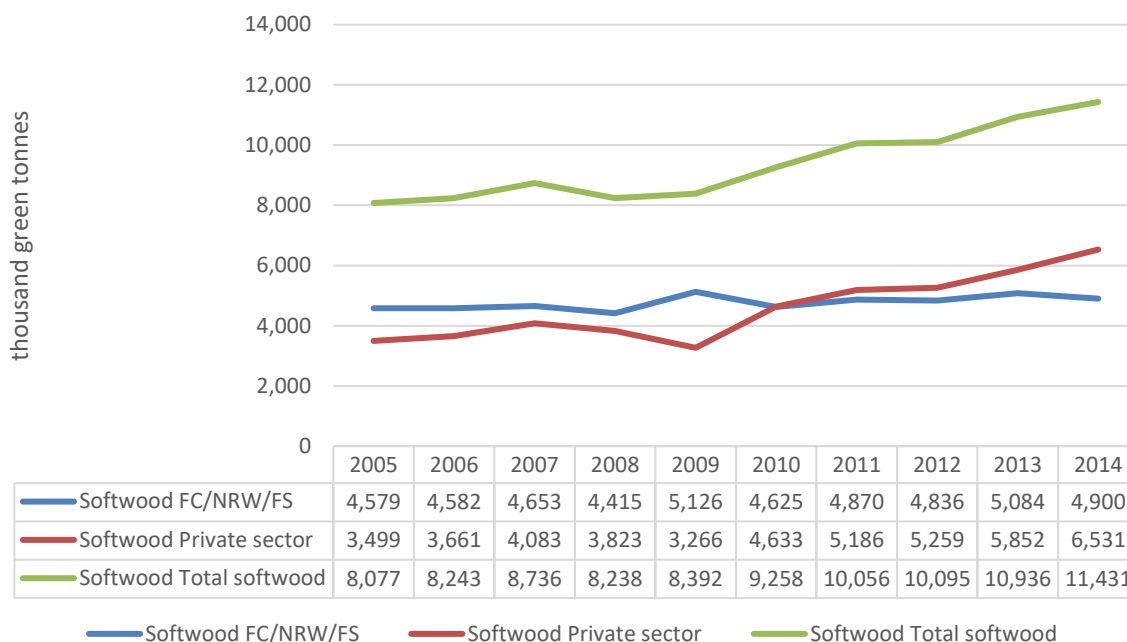
⁷ Note that the Forestry Commission statistics indicated employment in UK Forestry at 14,000. BRES data is used because it is available for the majority of sectors covered in this report and therefore provides the most consistent, comparable source.

⁸ Source: ONS Annual Business Survey

⁹ The ONS definition of GVA can be found at: <http://www.ons.gov.uk/ons/rel/elmr/economic-trends--discontinued-/no--627--february-2006/methodology-notes--links-between-gross-domestic-product-gdp--and-gross-value-added--gva-.pdf>

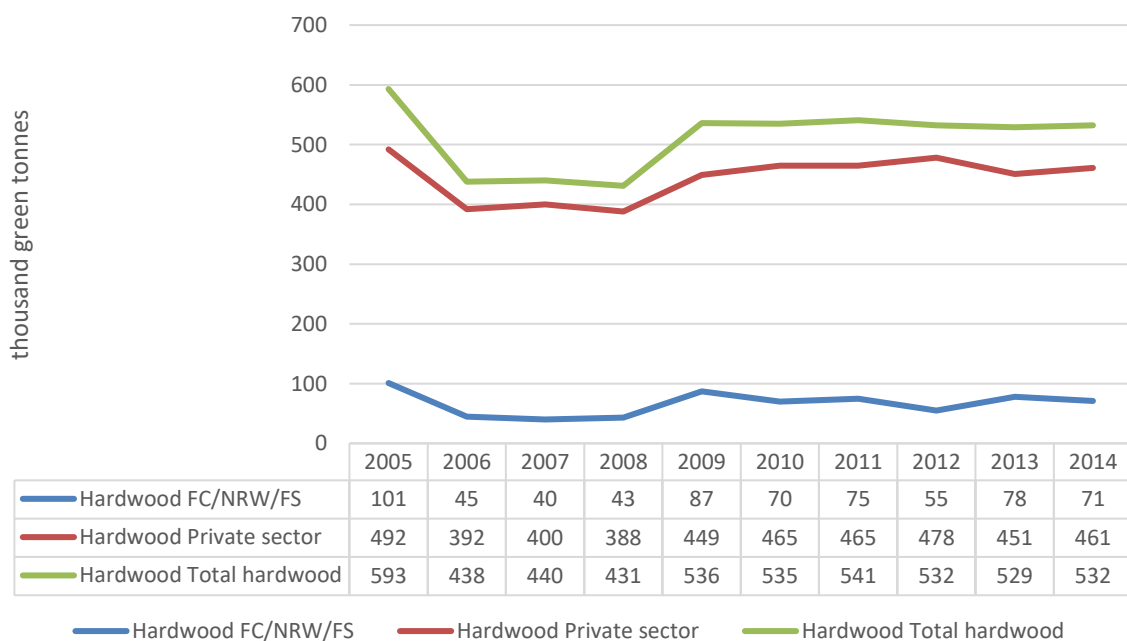
Graphically, the patterns are clearer if production of softwood and hardwood are presented separately, as per below:

Figure 3: UK Softwood production, 2005-2014



Source: Forestry Commission

Figure 4: UK Hardwood production, 2005-2014



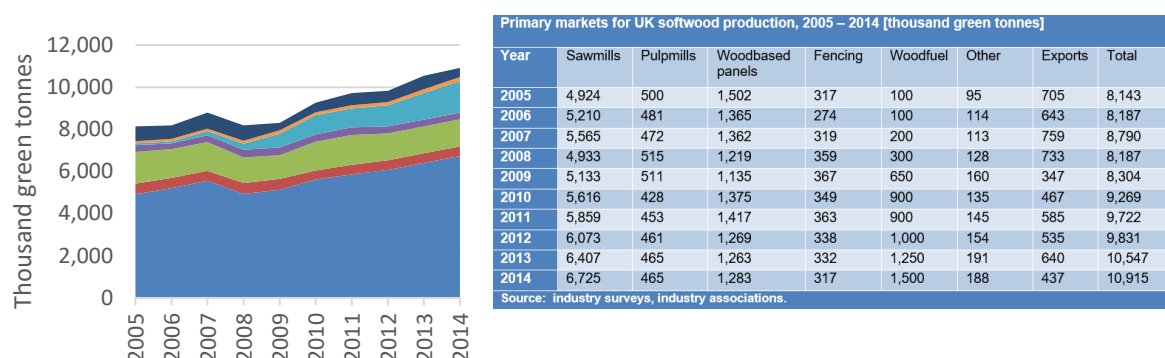
Source: Forestry Commission



As the above charts show, UK hardwood production is at least steady and UK softwood production has grown by 36% between 2009 and 2014. Later analysis will show that there would be a UK market for yet further increases in production in coming years.

Building further on the data in table 3, markets for UK grown softwood are complex but in headline terms production splits as follows:

Figure 5: UK softwood production; primary markets 2005 - 2014

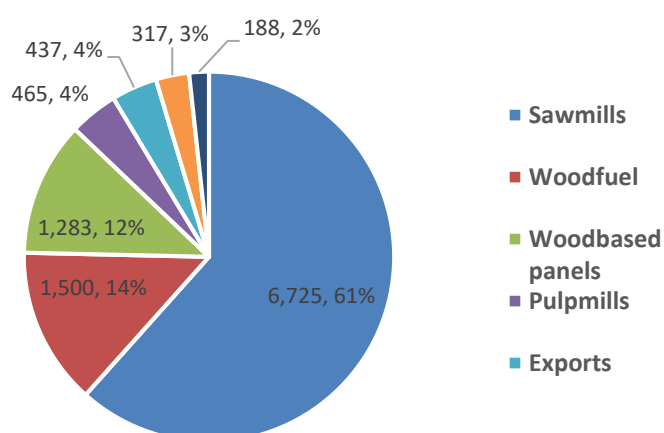


Source: Forestry Commission

The raw data for Figure 5 is shown in the table on the right. It is clear from this chart that UK sawmills have had the capacity to process all of the additional softwood removals in the UK. It is unclear just how much further capacity is available in UK sawmills but, given the growth in imports described later in this report, there are signs that the sector is approaching maximum capacity. Also of note in the above table is the significant increase on the use of UK grown softwood as woodfuel. This is discussed in greater detail in section 6.

For 2014, % consumption splits were as follows:

Figure 6: UK softwood production; primary markets in 2014, thousand green tonnes and %



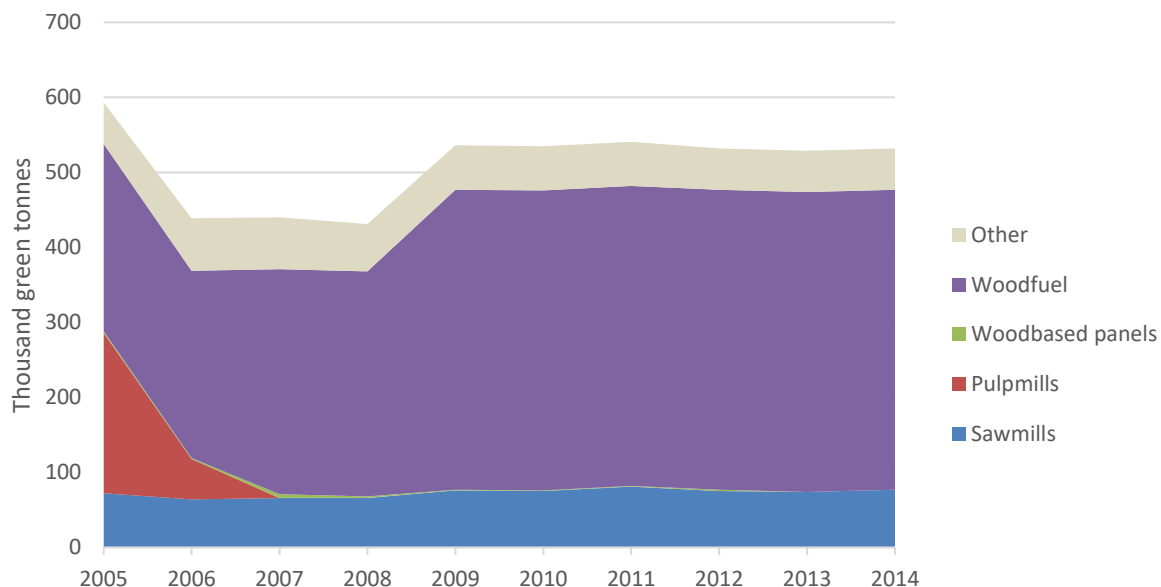
Source: Forestry Commission



Markets for UK grown hardwood are less complex, with the majority going to woodfuel.

The trend over the last ten years has been as follows:

Figure 7: UK hardwood production; primary markets 2005 - 2014

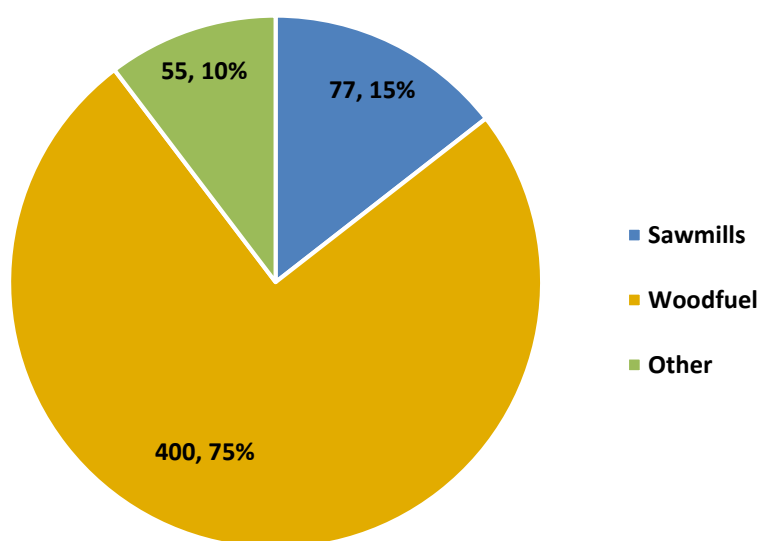


Source: Forestry Commission

Of particular note is the total cessation of hardwood as a feedstock for pulpmills and the corresponding rise in uptake for woodfuels.

The split in 2014 was as follows:

Figure 8: UK hardwood production; primary markets in 2014, thousand green tonnes and %



Source: Forestry statistics 2015, estimated by the Expert Group on Timber and Trade Statistics

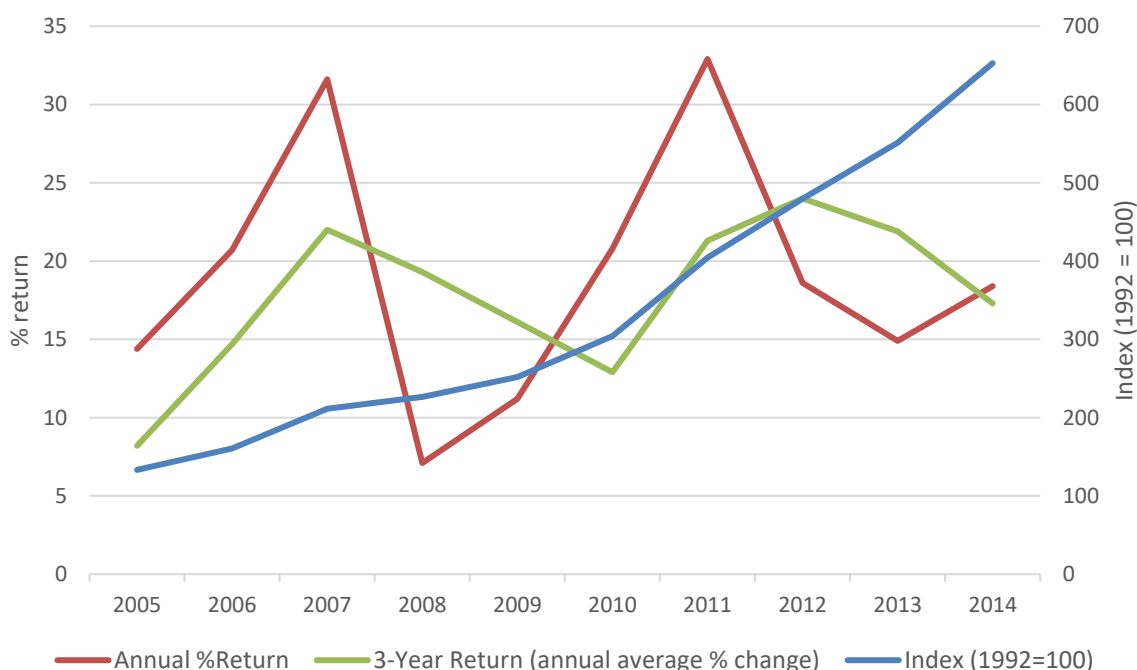


This level of output being used for fuel wood means that whole hardwood trees are currently being burnt. This may be because of higher prices available for fuel wood in the UK which are currently rising due to government subsidies aimed at encouraging sustainable power generation. This issue is discussed in more detail later in this report but the sector may want to reflect on this situation where relatively scarce UK hardwood cannot be put to a more added value use.

5.1 UK Forestry Financial Returns

An analysis of the financial returns of UK Forestry businesses has been completed using data from the Forestry Commission and this shows a high degree of variability over recent years, albeit with the peaks being particularly profitable when compared with many other primary production industries.

Figure 9: Financial returns in the forestry sector, 2005 - 2014



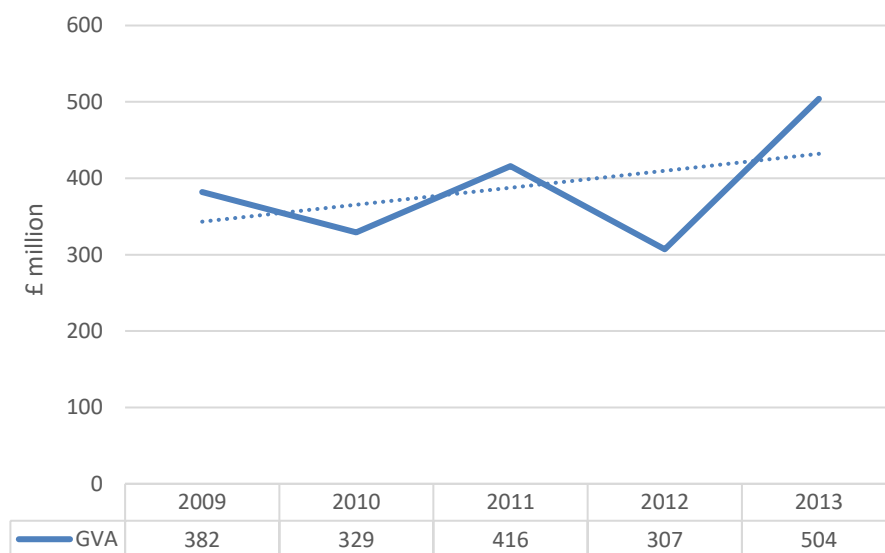
Source: Forestry Commission

The general trend is upward, particularly when using the 1992 index. It is not within the scope of this project to investigate and/or explain the reasons why Forestry returns have been so variable but it is likely that patterns of supply and demand would have played a key part in this alongside levels of removals. Sustained profitability above 15-20% should certainly be enough to encourage investment in the medium – long term.



Alongside this variability in profitability, data from the ONS¹⁰ that indicates UK Forestry has also seen significant variations in overall levels of gross added value in recent years. See Figure below.

Figure 10: Variations in GVA in the forestry sector, 2009 - 2013



Source: Forestry Commission

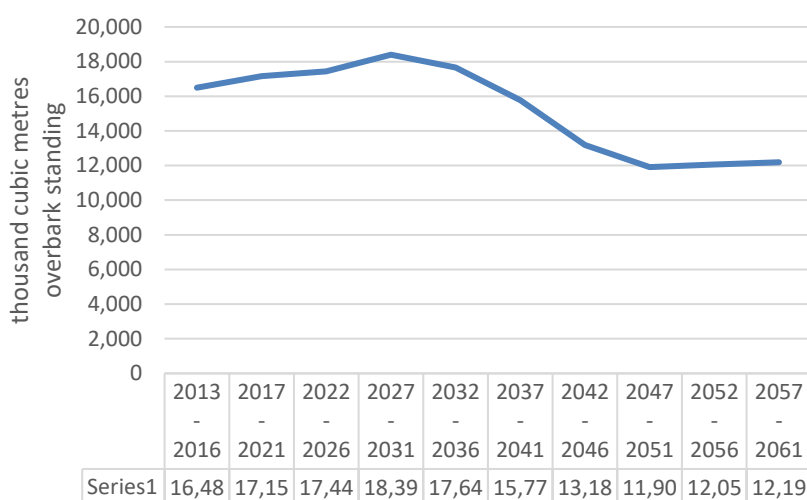
Clearly the trendline (the dotted line) does show a general improvement but further investigation is required to understand why reported GVA has varied so much over this period.

¹⁰ Annual Business Survey

5.2 Forward Availability of UK Grown Softwood

The UK forestry commission projects softwood availability forward to 2061, in blocks of five years. The following table provides the latest data, produced in 2014.

Figure 11: GB availability of softwood to 2061 (annual average in the period)



Source: Forestry Commission

The conversion rate from m³ overbark to green tonnes for softwood is 0.909. With UK softwood removals estimated at 11.4 million green tonnes (mgt) in 2014, and with deliveries to sawmills estimated at 10.9 mgt, this suggests no ongoing shortage of softwood to feed current sawmill capacity in the coming decades.

Indeed, these figures suggest that it may be possible for the UK to remove more than the current 69% of its standing availability but this does not take into account practical conditions on the ground or the objectives of the mainly private sector concerns involved in UK wood production.

In theory, the volume of imports of wood into the UK suggests that there is an opportunity for import substitution, however the wood available in the UK cannot always be used in the same manner as some of the imported wood or wood products.

The overall forecast for forestry and logging is continued growth at a steady rate of c.3.3% in the coming three years, with the main constraint to growth being sawmill capacity.

5.3 Conclusions and Policy Recommendations

UK softwood production has grown by 36% between 2009 and 2014, reaching 11.4 million green tonnes. All of this growth has been absorbed either by UK sawmills (61% in 2014) or through its use as biomass fuel (14% in 2014). Consumption by the wood based panel sector remains an important outlet for UK wood, representing 12% in 2014.



Over the same period, hardwood removals have been steady at 0.5 million green tonnes. Some 75% of all hardwood removals are now going to biomass fuel use.

One of the biggest trends in the sector is the increased uptake of all forms of wood as a biomass fuel. In part, this is being driven by Government policy aimed at encouraging renewable energy industries but, as will be discussed later, this trend is pushing up prices and having a noticeable effect on other sectors who have traditionally used UK wood as a raw material. It is important that a balance is maintained such that these other industries have access to local raw materials since it would not be economically viable to import the wood raw materials (small roundwood, etc) that these industries use.

Allied to the biomass trend, the industry may want to reflect on the current situation where 75% of hardwood removals are being used as fuel.

Rising prices for wood does appear to be improving the overall profitability of the UK forestry sector, although the data indicates that there are large fluctuations year on year. Given that there appears to be the opportunity to further increase removals of softwood from UK forests it is hoped that sustained profitability would encourage growth in forestry enterprises. As the report will demonstrate, overall market growth should ensure that there are opportunities for both UK wood producers and timber importers/distributors.

6.0 Wood as a Biomass Fuel in the UK

According to the Forestry Commission, around 1900 thousand green tonnes of UK Roundwood (1500 tgt softwood and 468 tgt hardwood) goes directly as a biomass fuel. In addition, a further 620 thousand green tonnes of wood processed by sawmills and 55 thousand green tonnes of wood processed by round fencing manufacturers is sold on as a biomass fuel.

In addition, strong increases in demand have meant that imports of wood pellets for fuel have risen sharply in recent years, increasing from 1502 to 7041 thousand m³ between 2011 and 2014. This 2014 import figure is also reported by HMRC at 4757 thousand tonnes and as having a value of £545 million suggesting a value of £114.6 per tonne of wood pellets. Converted to value for cubic metres, each m³ of imported wood pellets is worth £171.

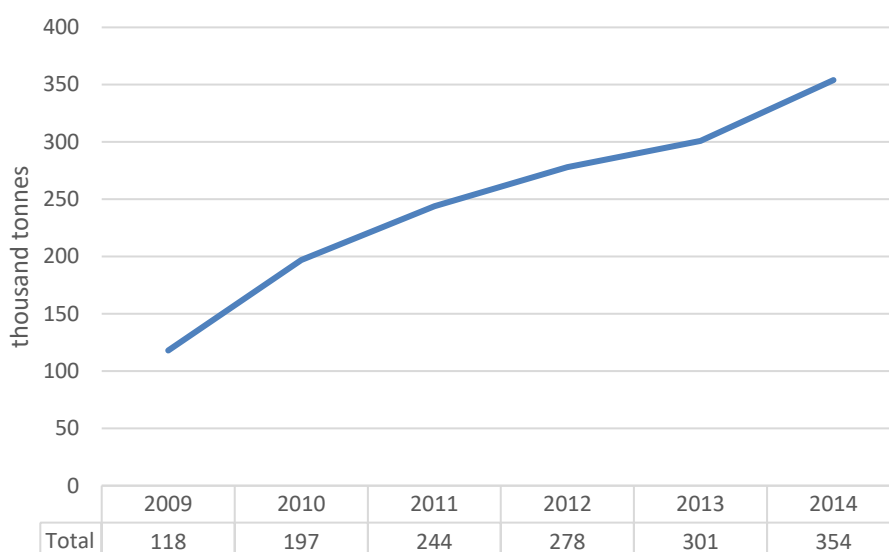
Wood pellets have become a major component of the UK's renewable energy mix. In 2014, wood pellets accounted for more than 22% of all renewable energy sources and 36% of all biomass fuels used to generate electricity. The biggest change came in 2012 with the conversion of Tilbury B from a coal-fired power station to a dedicated biomass plant, followed by further conversions in 2013 at Drax and Ironbridge. Tilbury B closed completely in August 2013 but consumption by other power stations continues to rise. A significant driver for this increase is the subsidy provided from the UK Government for power generators using biofuels. These subsidies are due to stop in 2027 but there is already considerable debate around the core rationale for subsidies, that burning biomass reduces CO₂ emissions.

2014 consumption of wood pellets by the UK's major power stations was reported at approximately 4700 thousand tonnes and nearly 4600 thousand tonnes of these pellets were imported. 58% of these pellets come from the USA, with a further 21% coming from Canada. UK pellet producers do not appear to have entered this market in a significant way, possibly because values per tonne for high volume supply to power stations may be less attractive than prices available in consumer markets but more likely because UK production capacity is just not available.

There are certainly an increasing number of pellet manufacturers in the UK, with the Forestry Commission reporting 20 production plants in the UK, although only 8 of these are approved to the ENplus A1 standard managed by the UK Pellet Council.

UK production of wood pellets in recent years is shown in the following figure.

Figure 12: UK production of wood pellets, 2009 - 2014



Source: Forestry Commission

The future of this sector is very much linked to UK and European policies for the use of wood as a bio-fuel. While the UK is the world's largest importer of wood pellets, Denmark and Italy also import large quantities, approaching the UK's level when combined. Commitments to meet low carbon emissions targets are driving these policies at a European level but individual states are adopting different approaches overall. Should the ongoing debate around the actual net contribution to global CO₂ emissions reduction of using wood as a biofuel conclude that the benefits are neutral or even negative then it is likely that this market will contract rapidly.

It is certainly the case that other applications for the use of wood and wood particles are known to release much lower levels of CO₂ than power generation. Wood panel manufacture, for example, releases approximately 378kg of CO₂ per tonne of wood whereas electricity generation typically releases 1,905kg of CO₂ per tonne of wood).

It is not within the scope of this study to undertake an assessment of how this market would operate with no government subsidy but it possible that pellet producers will begin to scale back on investment in new production capacity as the 2027 deadline for the removal of subsidies approaches. It may be that the domestic market for wood biofuel is less dependent on subsidies and the current financial support for the installation of pellet fired central heating systems may result in a base demand in the UK that would ensure an ongoing market for UK pellet production. Subsidies at the level of power generation are more likely to have a strategic effect on imports and, in particular, whatever production capacity has been put in place in the US and Canada to meet demand from European importers.

The relatively modest increase in pellet production in the UK is already having a knock-on effect in other sectors, with the UK Wood Panel Industry Federation reporting a shortage of raw material for UK panel production facilities. These industries utilise similar

raw materials, particularly sawmill residues and any increase in pellet production can only fuel further price increases.

Specific forecasts have not been published for this sector but, with a ten-year horizon on subsidies, it is reasonable to expect growth in UK pellet production to continue at recent rates of between 10% and 16% per year, feeding primarily domestic heating systems. Further increases in imports for mainstream power generation also seem likely as the largest UK power station using wood pellets, Drax, has indicated a desire to convert more of its coal burning capacity into wood burning. Other wood pellet fuelled power stations have been approved in Northumberland and Teeside. If these planned increases go ahead they will have a combined requirement for 13 million tonnes of wood biomass per year by 2019, up from 4.7 million tonnes in 2014. It is likely that the bulk of this consumption will continue to be sourced from the US and Canada but it may be that some of the larger UK pellet producers could take a share of this market.

Whether or not this represents a major opportunity for UK suppliers and the upstream forestry and sawmill sector depends largely on price levels which are likely to be dramatically affected by any withdrawal of UK Government subsidies. Balancing this, there may well be an export market in other European markets which may mitigate some of the risk of increasing UK pellet production capacity in the run up to 2027.

6.1 Policy Issues and Recommendations

Leaving aside the debate on whether or not using wood as a biofuel is a sustainable means of achieving carbon reduction targets, the primary policy issue facing this sector is the existence and/or level of subsidy provided for the use of wood and wood pellets in power generation and, to a lesser extent, heating systems. Current subsidies are clearly driving demand and, while c.90% of this demand is being met by imports, the sheer scale of the increase in consumption is having a knock-on effect, particularly with regard to the availability and price of raw material for wood panel production.

The wood panel industry is a success story in the UK and, as will be reported later, there is considerable opportunity for further investment in UK manufacturing capacity. The availability of raw material from UK forestry and sawmills is, however, finely balanced and any further increases in the use of wood as a biofuel are likely to place immediate limitations on the growth of the wood panels sector.

It is recommended that some further research be carried out to inform the following issues:

1. To what extent would the uptake of wood as a bio-fuel be affected by the removal of government subsidies
2. What effect are the current levels of government subsidies having on the availability of raw materials for the wood panels sector in the short-term and what will be the long-term impacts given proposed increases in the UK's wood biomass power generation capacity



7.0 UK Pulp and Paper

The UK Confederation of Paper Industries (CPI) has 66 member companies employing some 22,000 people. Overall production figures for 2015 were reported as follows:

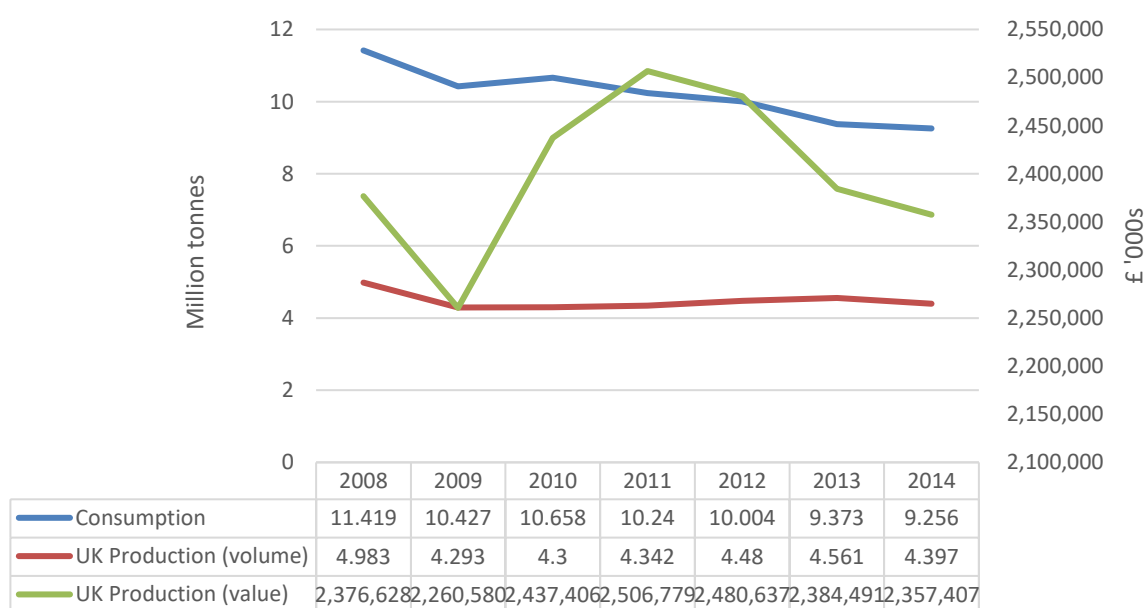
Table 6: Production in the paper and board sector

Paper and Board production ('000 tonnes)	3969.9
Corrugated production (million sq. metres)	3729.7
Tissue Parent Reel Production ('000 tonnes)	772.0
Recovered paper collection ('000 tonnes)	7976.9

There were 49 mills producing paper and board in 2015, down from 71 in 2005 and 99 in 1995. Volumes of production have not dropped in line with the number of mills, however, with almost half the number of mills in 2015 producing around two-thirds of the overall volume produced in 1995. These 49 mills directly employed 7,900 people in 2015.

Figure 13 below plots overall UK consumption by volume of paper and board over recent years against UK production (shown by volume and by sales value).

Figure 13: UK consumption and production of paper and board, 2008-2014¹¹



Source: Confederation of Paper Industries and Prodcom

The chart indicates that, while imports have been dropping steadily, UK production has remained fairly consistent. Of greater concern is the dramatic fluctuation in values of production over this period and this requires further investigation with Prodcom.

¹¹ 2005-2012: Consumption = Home sales + imports; 2013-2015: Consumption = Production – Exports + Imports



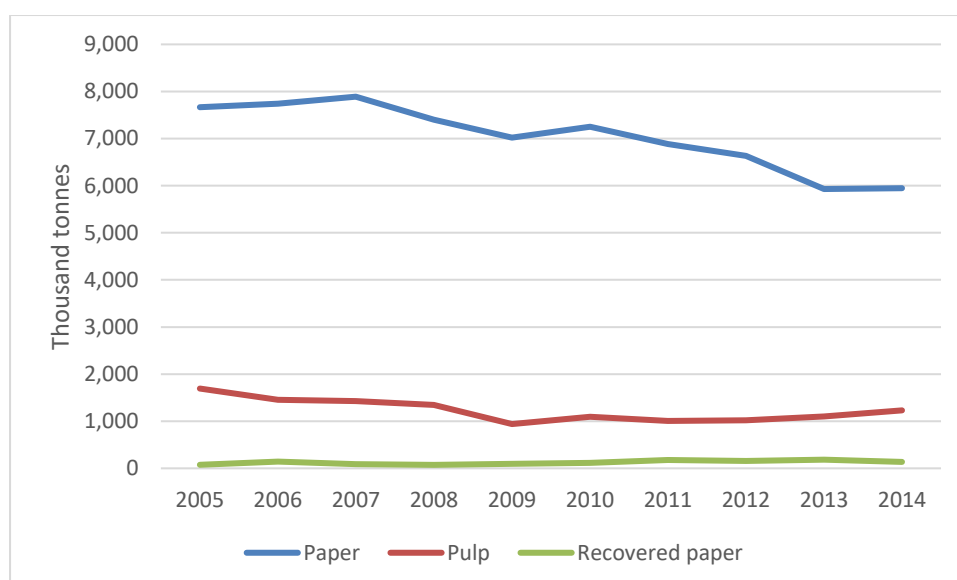
The bulk of UK paper production uses recovered waste paper or imported pulp.

7.1 Imports of Pulp and Paper into the UK

Table 7 UK import quantities, 2005-2014				
Year	Pulp and Paper (thousand tonnes)			
	Paper	Pulp	Recovered paper	Total Pulp & Paper
2005	7,663	1,694	78	9,434
2006	7,741	1,452	140	9,332
2007	7,890	1,427	88	9,405
2008	7,403	1,344	74	8,821
2009	7,018	940	94	8,052
2010	7,254	1,094	115	8,462
2011	6,887	1,009	177	8,073
2012	6,631	1,021	160	7,812
2013	5,929	1,100	184	7,213
2014	5,949	1,234	136	7,319
Source: UK overseas trade statistics (HM Revenue & Customs), industry associations				

Presentation in graphical form highlights the gradual reduction in paper imports, largely connected with the overall drop in consumption of newsprint over recent years. In contrast, import volumes of pulp are steadier since UK paper mills have a more balanced product mix.

Figure 14: UK imports of pulp and paper, 2005 - 2014



Source: Forestry Commission/HMRC



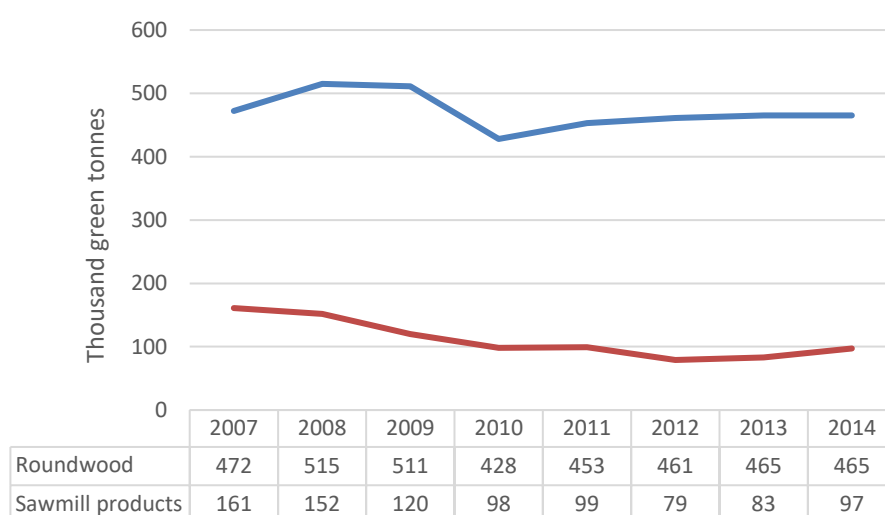
With 2014 UK paper and board consumption estimated at 9.1 million tonnes, paper imports reported by HMRC as 6.0 million tonnes and UK production reported at 4.0 million tonnes this suggest overall UK exports of some 1.1 million tonnes.

Although it might not be seen as a 'timber' related industry, the UK has seen international success with recovered paper, exporting 4.9 million tonnes in 2015, mainly to China. This represents 62% of the total recovered paper in the UK.

7.2 UK Pulp and Paper Mills' usage of UK Timber and Sawmill Products

The remaining two UK integrated pulp and paper mills now process exclusively softwood, mainly in the form of roundwood (small dimension timber and thinnings). UK inputs to UK pulp and paper mills between 2007 (when hardwood ceased to be an input) and 2014 have been as follows:

Figure 15: UK derived inputs to UK pulp and paper mills¹²



Source: UK Forest Products Association

7.3 Conclusions and Policy Recommendations

In conclusion, it appears that the UK Pulp and Paper sector will remain a relatively small but important customer for UK wood producers.

In terms of policy issues, the primary supply chain issue is likely to be the availability of virgin raw material. While the paper industry now utilises mainly recycled raw materials, this must be supplemented to varying degrees with virgin wood (mainly small roundwood and thinnings) and there are indications that this material is becoming more

¹² This data may be at odds with data provided by the CPI which suggests that only 0.2 million tonnes of pulp consumed in the UK is produced in the UK.



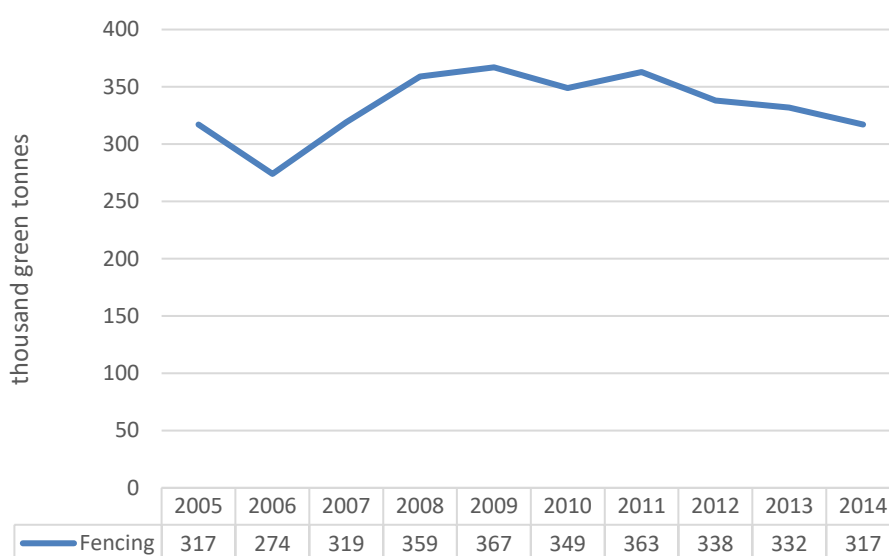
expensive as power generators seek feedstock. We have asked CPI to comment on the extent to which its virgin wood raw materials are either going up in price or becoming harder to source and their response is included in Appendix III.

Beyond this issue, the CPI have indicated that the single biggest constraint on the UK Pulp and Paper sector is the cost of energy, an issue that they campaign on directly. The sector's competitors in other parts of the EU receive significant discounts on energy costs, a policy which is not implemented in the UK. It remains to be seen what impact the UK's decision to leave the EU may have on the UK government's approach to large-scale industrial users of energy.

8.0 UK Round Fencing Sector

Round fencing is included at this stage of the report because the product is generally produced by forestry enterprises and their immediate round fencing customers rather than sawmills. According to the Forestry Commission, in 2014 there were 57 round fencing manufacturers processing UK Roundwood and they represent a relatively small but nevertheless important source of revenue for forestry businesses, consuming around two thirds as much as the Pulp and Paper sector. Their consumption of softwood roundwood in recent years has been as follows:

Figure 16: UK consumption of softwood roundwood by round fencing manufacturers



Source: Forestry Commission survey of Round Fencing Manufacturers

This data does not, of course, reflect the whole fencing production sector in the UK, with much of the wooden fencing sold having first been through a sawmill. The wider market for fencing is discussed later in this review.

As with other sectors that consume parts of the forest other than sawlogs, this sector is likely to be affected by wholesale changes in wood raw material markets coming about as a result of increased demand from power generation.



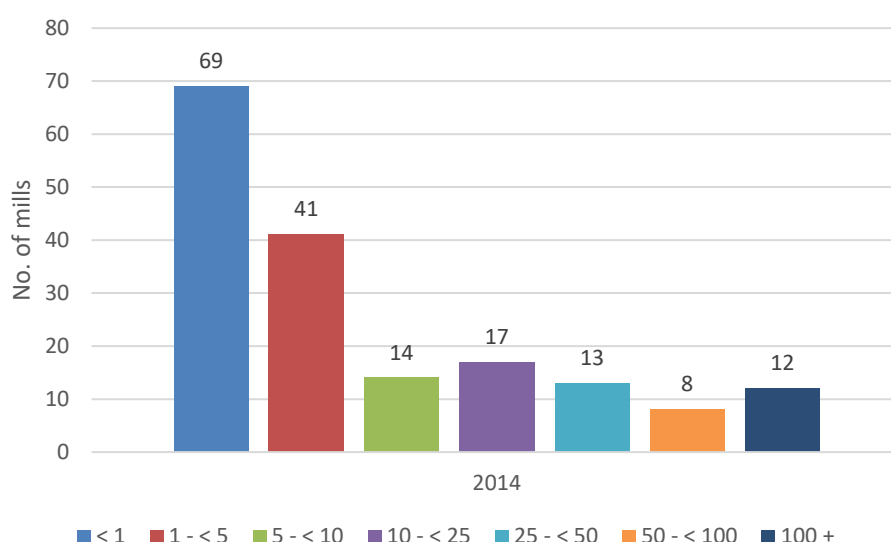
9.0 UK Sawmills

According to the Forestry Commission, in 2014 there were 174 sawmills processing UK Roundwood. Total direct employment in UK sawmills in 2014 was estimated at 3302.

Mills vary in size considerable but the majority (71%) produce less than 10 thousand m³ of sawnwood per year. This figure is relevant because detailed data is only collected on those mills producing greater than 10 thousand m³ of sawnwood but, since these process around 95% of softwood consumed by UK sawmills, this data does adequately represent the sector.

The Sawmill Survey provides a breakdown of the number of sawmills by size as follows:

Figure 17: UK sawmills by volume of output (thousand m³) in 2014



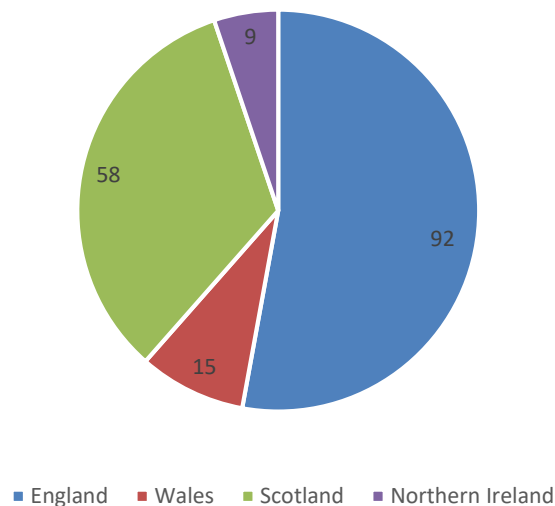
Source: Forestry Commission

There has been some rationalisation in the industry, with a reduction in the number of mills processing less than 25 thousand m³ and a slight increase in the number of larger mills (producing >25,000 m³). Despite accounting for only 29% of sawmills, those mills producing > 10 thousand m³ accounted for more than 95% of the total softwood consumed in 2014.



These mills are spread throughout the UK, with the split across country as follows:

Figure 18: UK sawmills by country in 2014

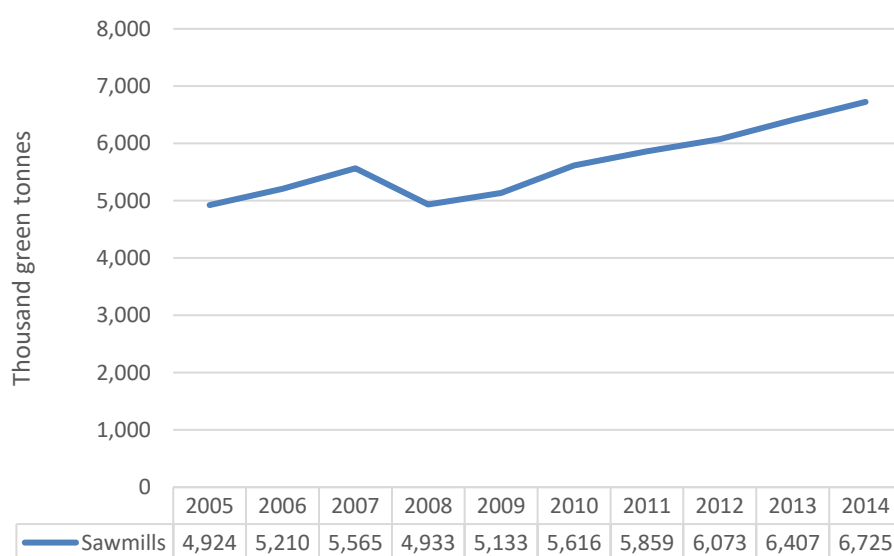


Source: Forestry Commission sawmill survey

In 2014, 115 of these mills processed only softwood, 9 processed only hardwood and 50 processed both.

Sawmill consumption of softwood in recent years has been as follows:

Figure 19: UK softwood consumption by primary sawmills



Source: Forestry Commission sawmill survey



This consumption maps the usage data provided in figure 5.

For sawn wood, reporting data tends to move from using weight to volume as a primary measure. At conversion into sawn wood, the following conversion rates can be applied¹³:

Sawn softwood: 0.54m³ per green tonne

Sawn hardwood: 0.52m³ per green tonne

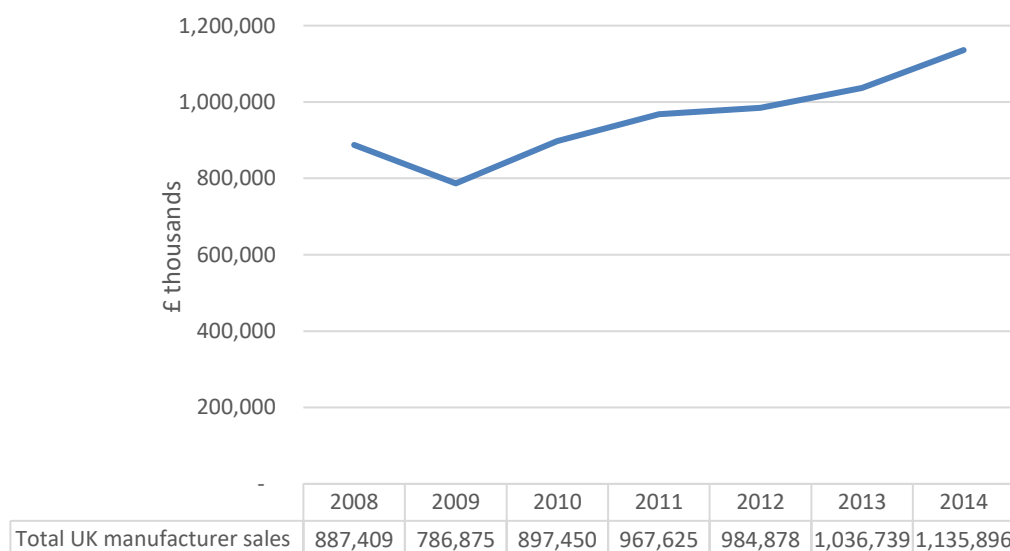
With UK sawmills processing 6.7 million green tonnes of softwood in 2014, this equates to a volume output of some 3.62 million m³ of sawn softwood. A further 0.085 million m³ of sawn softwood is produced from imported timber, just over 2% of UK sawmill production. This is discussed in later sections and is thought to represent trade between timber producers in Southern Ireland and N.Irish sawmills.

It makes logistical sense for UK sawmills to be processing UK grown timber but these statistics are nevertheless a very positive picture for an integrated industry.

9.1 Sales Value of Sawmill Output

UK Prodcom reports the value of total sales for all products in the SIC Group 1610 (Sawmilling and Planing of wood) as follows over recent years:

Figure 20: UK manufacturers' sales (sawmilling and planing of wood), 2008 - 2014

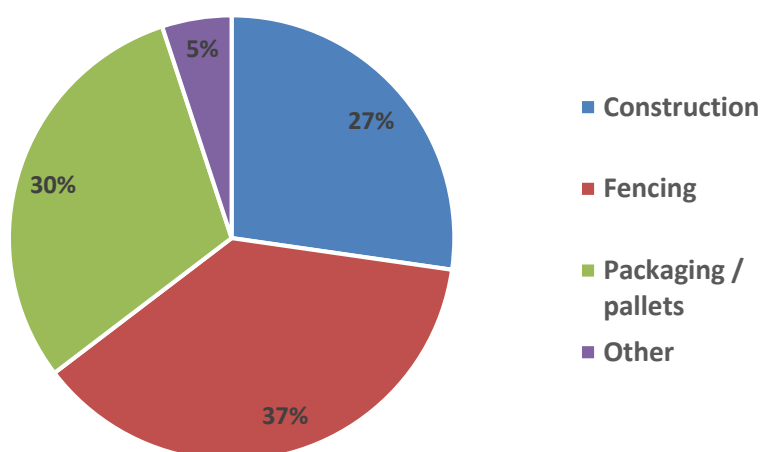


Source: ONS/UK Prodcom

¹³ Based on Forestry statistics

In the broadest terms, this places the value created by a UK sawmill per green tonne of roundwood at £169. The Office of National Statistics reports the Gross Added Value of UK sawmills at £545 million, suggesting input costs in the region of £591 million. Outputs from primary saw mills can be split further into sawn timber, timber destined for panel manufacture and co-products including bark and wood-chip, shavings and mulch used in horticulture, animal husbandry and the leisure sector. In terms of end use markets for sawn softwood, Forestry Statistics report that the typical split for the larger UK sawmills is as follows:

Figure 21: UK grown sawn softwood – primary markets by volume



Source: Forestry Commission sawmill survey

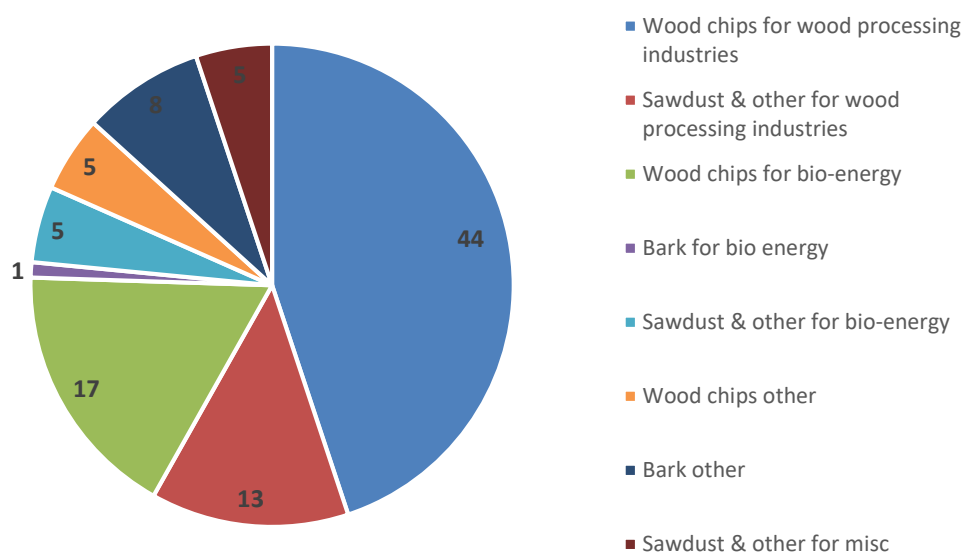
These markets are discussed in greater detail later in this review.

While the core output from these sawmills is sawn wood it is estimated that around 50% (3362 thousand green tonnes) of the consumption on these sawmills ends up destined for applications other than sawnwood, including:

- Wood based panel manufacture
- Bio-energy (including pellet manufacture)
- Others such as horticulture (wood chips and bark), leisure (wood chip and bark), animal bedding (shavings).

The split of these applications in 2014 was as follows:

Figure 22: Other softwood outputs from UK sawmills, % split in 2014



Source: Forestry Commission sawmill survey

Trends are changing slightly with these end uses, with bio-mass energy taking increasing amounts of co-product from primary sawmills

Table 8 Larger mills ¹ , 2010-2014: other softwood products					
					per cent of total other softwood products
Year	Destination				Total
	Sold to wood processing industries	Sold to bio-energy (incl pellet manufacturers)	Other sales	Other ²	
2010	57	20	21	2	100
2011	60	20	19	1	100
2012	59	21	18	1	100
2013	61	21	17	2	100
2014	57	23	18	2	100
Source: Sawmill Survey (detailed)					
Notes:					
1. Sawmills producing at least 10 thousand m ³ sawnwood (softwood and hardwood).					
2. Other includes internal use for heat/ energy, sales of firewood and other products disposed of as waste.					



Co-products

The data above suggest that the UK produces the equivalent of 672 thousand tonnes of bark and wood chip that is not destined for use in wood panel manufacture or fuel. Markets for this output are as described above, namely horticulture, leisure and animal husbandry. Sawdust is also used as a bulking agent in animal feeds.

9.2 Conclusions and Policy Recommendations

UK sawmills employ over 3300 people and provide important employment in often rural areas. It is not immediately clear whether or not UK sawmills are currently operating at capacity but there does appear to be opportunities for further growth in line with UK wood removals.

Since very little roundwood is imported into the UK, any growth in UK sawmills will depend upon availability of UK wood.

Sector policy must therefore support the combined growth of the forestry and sawmills sectors such that a balance is maintained between supply and processing capacity. As with other sectors, increased demand for wood biofuels has the potential to further alter the balance of supply and demand between these industries. It must also be noted, however, that sawmills themselves are benefiting from increased prices for woodchip being used as a biofuel, this being one of their secondary outputs.

Beyond actual growth and capacity issues, there may be opportunities to support UK sawmills in pursuing higher added value markets for their products. At the moment, the majority of UK sawmill sawnwood output is going into pallet manufacture and fencing production which, while important markets, may not offer the same opportunities for added value as, for example, advanced construction applications.



10.0 Imports of Wood and related Products into the UK (excluding Pulp and Paper)

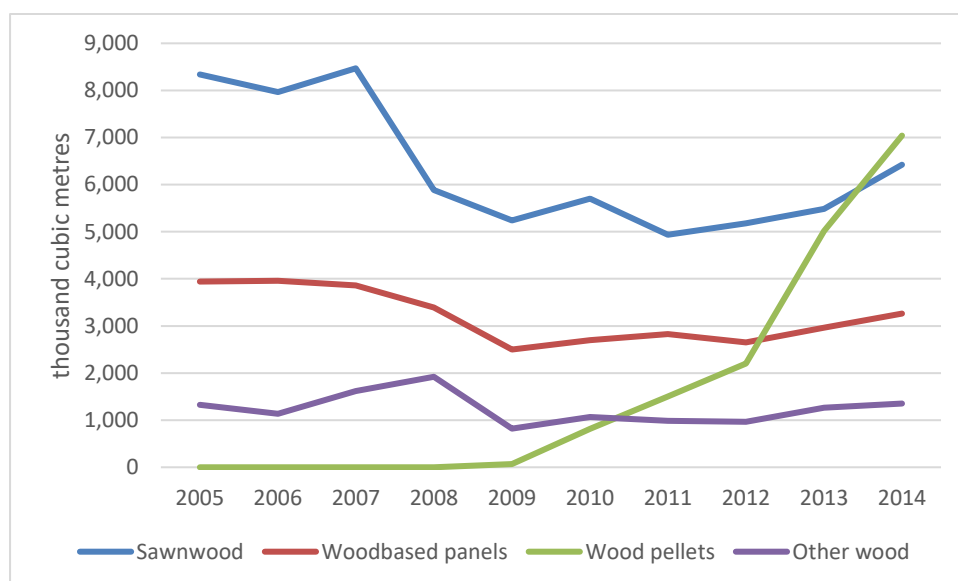
Data on imports of wood and wood related products does not include softwood in Roundwood form since it is believed there are virtually no imports¹⁴ of softwood logs into the UK (with the exception of trade between Southern and Northern Ireland, which are thought to have equated to 159,000 green tonnes in 2014). Some hardwood logs are imported (mainly oak) but the quantities are small, in the region of 25,000 m³ in 2011. The bulk of imports are of wood that has been processed to some degree, as outline in Table 4 below.

Table 4 UK import quantities, 2005-2014				
Year	Wood (thousand m ³)			
	Sawnwood	Woodbased panels	Wood pellets ²	Other wood ³
2005	8,341	3,939	..	1,325
2006	7,963	3,959	..	1,133
2007	8,469	3,858	..	1,621
2008	5,886	3,389	..	1,921
2009	5,240	2,500	66	821
2010	5,699	2,701	816	1,071
2011	4,936	2,827	1,502	985
2012	5,179	2,650	2,201	965
2013	5,488	2,964	5,015	1,267
2014	6,425	3,260	7,041	1,351
Source: UK overseas trade statistics (HM Revenue & Customs), industry associations				
Notes:				
1. There are reliability concerns for some of these figures, particularly for individual products (see Sources chapter).				
2. .. Denotes data not available (wood pellets included within "Other wood" category before 2009).				
3. Includes roundwood, wood charcoal, chips, particles and residues. Excludes wood pellets from 2009.				

Again, presenting this data in graphical form highlights the effects of the slow-down in the UK economy, whereby volumes of imported sawnwood in particular has yet to recover to 2007 levels.

¹⁴ Roundwood Imports and Exports - An Investigation, A Study for the Forestry Commission by Nicholas Moore Timbertrends, August 2012.

Figure 23: UK import quantities of selected wood products, 2005-2014



Source: UK overseas trade statistics (HM Revenue & Customs), industry associations

Of particular note is the increase in imports of wood pellets for fuel usage, included in 'other wood' up to 2009 and then given its own category. Although the proportion of outputs of UK mills going to fuel usage has increased, the level of imports does suggest an opportunity for UK producers to capture a greater share of this market, at least where softwood is in use. This situation is, however, considerably complicated by the presence of financial incentives to encourage the use of bio-fuels, something which is already having an effect of raw material availability in sectors such as wood-based panels.

Of the 6.4 million m³ of sawnwood imported in 2014, 5.9 million m³ was softwood and the remaining 0.5 million m³ was of hardwood. Significant drops in imports of both sawnwood and wood-based panels in 2008 and 2009 reflects the dependency of imports on levels of activity in the construction sector and it is likely that imports of both will continue to rise to 2007 levels and beyond as the UK construction sector continues its recovery.



The import value (£m) of these products is reported as follows:

Table 5 UK import values, 2005-2014				
Year	£ million			
	Sawnwood	Woodbased panels	Wood pellets ²	Other wood ³
2005	1,120	918	..	114
2006	1,144	926	..	112
2007	1,516	914	..	128
2008	1,085	873	..	158
2009	953	677	7	104
2010	1,199	781	69	110
2011	1,080	838	129	79
2012	1,084	791	185	75
2013	1,180	882	412	88
2014	1,420	936	545	82
Source: UK overseas trade statistics (HM Revenue & Customs), industry associations				
Notes:				
1. There are reliability concerns for some of these figures, particularly for individual products (see Sources chapter).				
2. .. Denotes data not available (wood pellets included within "Other wood" category before 2009).				
3. Includes roundwood, wood charcoal, chips, particles and residues. Excludes wood pellets from 2009.				

This suggests an average value for imported sawn wood of £221 per m³ in 2014, up from £181 per m³ in 2009. For wood-based panels, the 2014 average price was £287 per m³, up from £271 in 2009. This sharp increase in value of sawn wood appears to represent a rise in price of imports due largely to market demand and the limited domestic supply of sawn wood.

The TTF's figures for the value of Sawn wood and panel products in 2014 are similar, at £2,270 million (this includes sawn wood and panel products so should be comparable to the £2,356 million reporting by the Forestry Commission above). It can be noted, however, that the Forestry Commission themselves consider that there are reliability concerns over the figures reported above so it is very possible that import levels are closer to those reported by the TTF. In the context of the levels involved, the difference is only 3.7%.

Forecasts for imports of sawn wood and panel products are dependent upon overall growth in the construction sector and also the extent to which UK sawmills and wood-based panel mills can increase levels of production. Overall market growth is expected to be in line with construction industry forecasts of 3.3-3.7% in the coming 2-3 years. Longer term forecasts conservatively estimate growth at the same level until 2020.

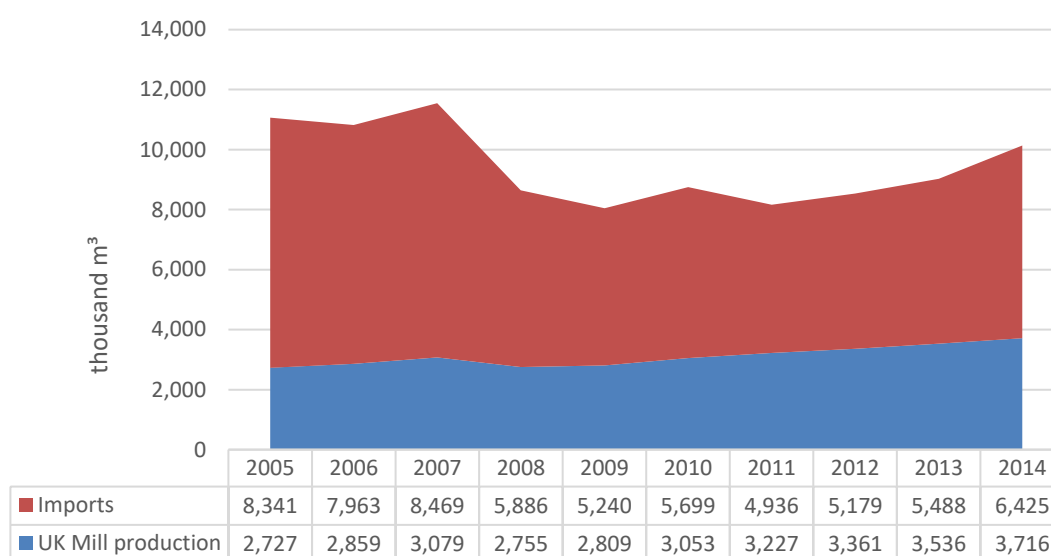
Should UK production capacity be seen to be at its maximum (as figures might suggest), then clearly imports will increase in line with the market.

11.0 UK Consumption of Sawn Softwood

As noted above, 2014 imports of sawn softwood were reported at 5.9 million m³, with a further 0.5 million m³ being hardwood

Combining total UK production (3.7 million m³) and the import data above suggests that total UK consumption of sawn softwood is 9.6 million m³. The balance of UK production versus imports of sawn wood in recent years has been as follows:

Figure 24: UK sawn wood - UK Mill production versus Imports



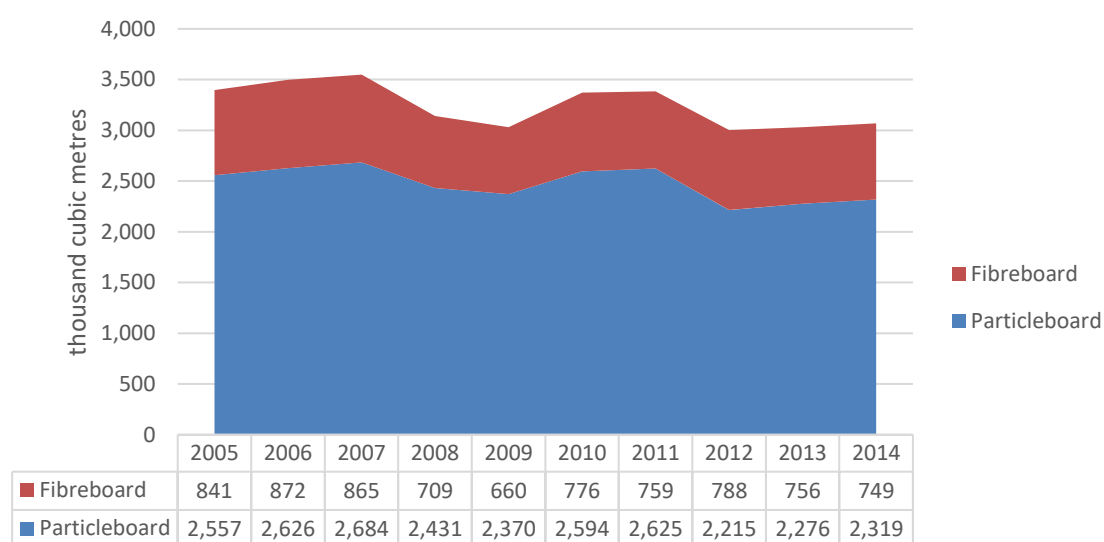
Markets for both UK produced sawn wood and imports are discussed in later sections. There are continued opportunities for demand led growth which should benefit both UK sawmills and timber importers. As referred to earlier, we believe that there is an opportunity to increase softwood removals and subsequent processing in the UK alongside import growth, albeit that the latter can be 'switched on' more quickly.

12.0 UK Consumption of Wood based Panels

The UK wood panel manufacturing sector directly employs around 2250 people and generates a further 7500 indirect jobs associated with its whole supply chain. As noted in Section 4, in 2014 UK panel manufacturers consumed around 11% of UK softwood production, a total of 1283 thousand green tonnes. A further 1809 thousand green tonnes is delivered from UK sawmills. Currently no UK manufacturers of wood based panels are importing wood as a raw material and none are using hardwood, this more likely going to biomass.

The UK only produces particle board (including Orientated Strand Board (OSB)) and Fibreboard (including Medium Density Fibreboard (MDF)). Production output in recent years has been as follows:

Figure 25: UK production of wood based panels



Source: Wood Panels Industry Federation (WPIF)

This output generated turnover of some £500 million. Sales of UK manufactured wood panels break down as follows:

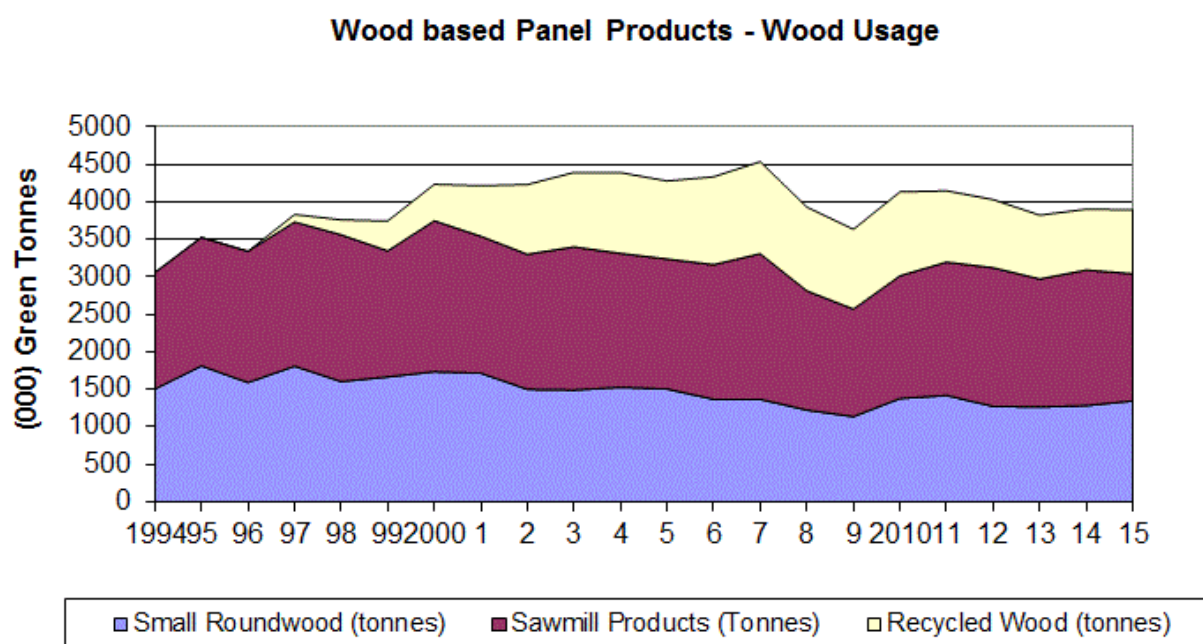
	Construction	Furniture	Other
Chipboard	45	50	5
MDF	30	60	10
OSB	85	5	10



12.1 Consumption of UK derived Wood Raw Materials

All wood raw material used by the six UK panel production facilities is sourced from within the UK and it is the largest consumer of recycled wood in the UK. Despite this, it is mainly reliant on virgin material from forestry and sawmill suppliers.

Figure 26: UK production of wood based panels



Source: WPIF

This reliance of UK sources of raw materials has left the UK panels sector very vulnerable to price increases and the sector is currently being heavily affected by the increased use of wood as a biofuel in the UK. In particular, raw material that would have been available to panel plants is being bought up power generators or by pellet manufacturers whose product sales are being indirectly supported by UK Government subsidies via its Renewable Obligation Certificates (ROC) scheme.

12.2 UK overall Consumption of all Wood based Panels

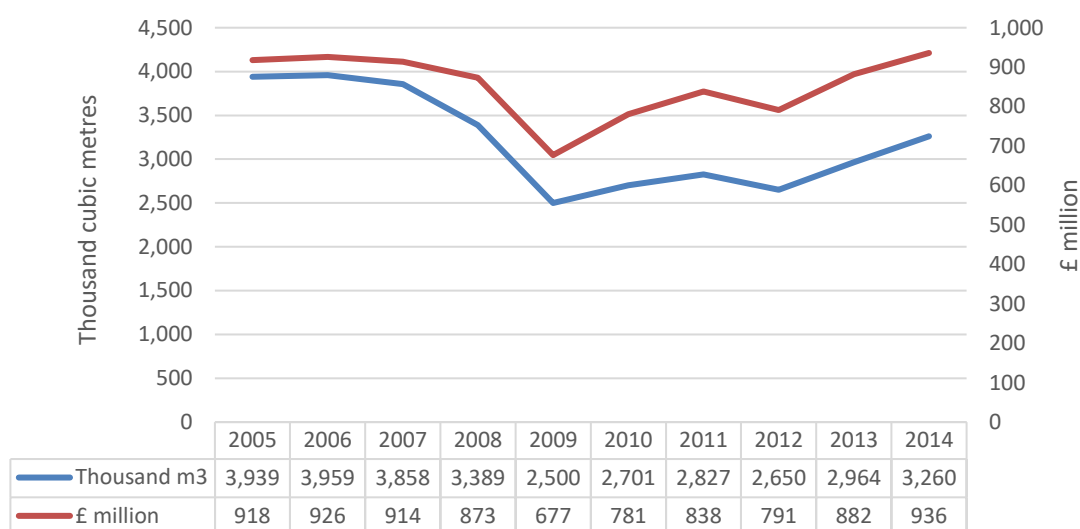
The UK imported 918,161 m³ of particleboard and OSB in 2014¹⁵, equivalent to 40% of UK production of this material. 2014 imports of MDF and fibreboard were 856,000, some 14% above UK production. It should be noted that, as with aspects of forestry and sawmilling, the Republic of Ireland is well integrated with UK supply chains and as much as 50% of MDF and 30% of OSB imports are likely to have come from ROI factories.

¹⁵ Source: WPIF



Alongside the UK production above, recent imports of all panel products have been as follows:

Figure 27: UK import of wood based panels



Source: Forestry Commission / UK Overseas Trade Statistics

Note that this data includes imports of many panel products that are not manufactured in the UK, including plywood.

One of the most striking insights from the chart above is the apparent increase in value of imported wood based panels, from an average of £233 per m³ in 2005 to £287 per m³ in 2014. This upward pressure on prices may well reflect a shortage of UK manufacturing capacity in a period when the UK construction sector is recovering. Overall volumes of imports have yet to reach pre-recession levels but the value of imports has already risen to exceed those seen earlier.

The WPIF reports that UK particleboard manufacturing is operating at close to capacity level while there is room for further volume in MDF manufacture.

Nevertheless, while imports are increasing again, UK exports have only dropped by around 25%, remaining at 404 thousand m³ in 2014. These exports have an average value¹⁶ of £264 per m³ and it is possible that the companies exporting these products may get better prices in the UK market.

In any case, in the current market it appears that UK production is only meeting around 56% of MDF demand and 77% of Particleboard+OSB demand. With construction markets improving, there appears to be an opportunity for import substitution.

¹⁶ Source: HMRC Overseas Trade Statistics



12.3 Policy Issues and Recommendations

The UK wood-based panel sector operates six major plants across the UK and is an important employer, often in rural areas. In pure market terms, there does appear to be an opportunity to increase manufacturing output in the UK to meet the growing demands of the construction sector. With OSB now being accepted as a core, often structural building product and with innovation producing new products like waterproof MDF, the volumes used in construction alone are set to grow by at least 4% per annum for the coming three years. Imports of Particleboard and OSB alone increased by over 24% between 2013 and 2014.

Any increase in UK production capacity would, however, require major investment by any or all of the three companies involved and the likelihood of this happening is much reduced by the ongoing problem of availability and price of wood raw material.

The over-riding policy issue affecting this sector is the continued use of ROCs as a means to boost the use of wood as a bio-fuel. While the major power stations like Drax are importing their wood fuels, it is estimated at 95% of wood fuel used in the smaller 50MW plants is sourced from the UK, placing ongoing pressure on supply and pushing prices up. This issue was forecast to become a problem as far back as 2010 in a Europe Economics report.

It is recommended that consideration is given to any mechanisms available to encourage renewed investment in wood based panel manufacture in the UK. This particularly applies in the case of particleboard and OSB which is in increasing demand from the construction sector.

Alongside this, the situation regarding price inflation of raw materials needs specific attention.



13.0 The UK Supply Chain for Sawn Wood and Wood-based Panels

From this point on the review will discuss the supply chain whereby wood that has been processed to some degree gets to its end use in the UK (excluding paper and pulp, biomass fuels and round fencing which are discussed above).

The supply chain for different wood products is tremendously complex. Companies operating UK sawmills themselves are often highly vertically integrated, supplying not just basic sawn timbers but often adding value through the application of various treatments to render specific characteristics to the wood (preservatives, fire retardancy etc.). Some even have specific manufacturing operations producing pallets, trusses and roof frames, for example. Others have added merchandising operations so that they can gain greater control over their routes to market and have more direct contact with the customer.

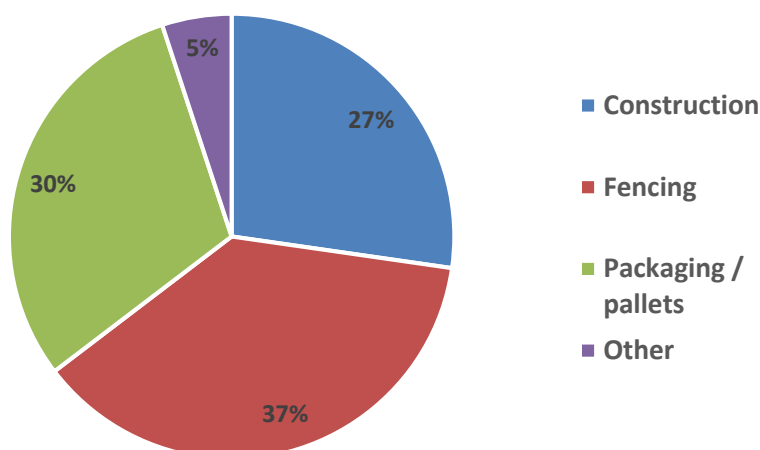
Beside these UK wood processors, the importation and distribution of timber represents a parallel supply chain in the UK which is, in fact, a larger overall sector by volume. Like UK sawmills, some importers have added processing operations to their storage and distribution activities while others occupy niche areas of the market focused on specific species or region of origin.

In many instances, sawn softwood of UK origin and imported sawn softwood end up in the same supply chains, destined for markets such as construction, fencing and packaging.

Within the supply chain, there are some direct links between wood product manufacturers (particularly builders' carpentry and joinery companies, timber frame manufacturers, furniture companies and wood based panel manufacturers) and sawmills but the majority of sawn UK softwood and imported sawn wood enters the merchants' sector for further distribution. Imported wood-based panels also go through the merchants sector but wood and wood pellets destined for bio-energy are more likely to go either direct to energy producers or into specialist fuel distributors.

The largest single product group within 'processed wood' is sawn softwood. As reported above, UK sawmills produced 3716 thousand m³ in 2014 and a further 5929 thousand m³ was imported. The output from UK sawmills is sold into a range of markets with the following split (based on larger sawmills reporting):

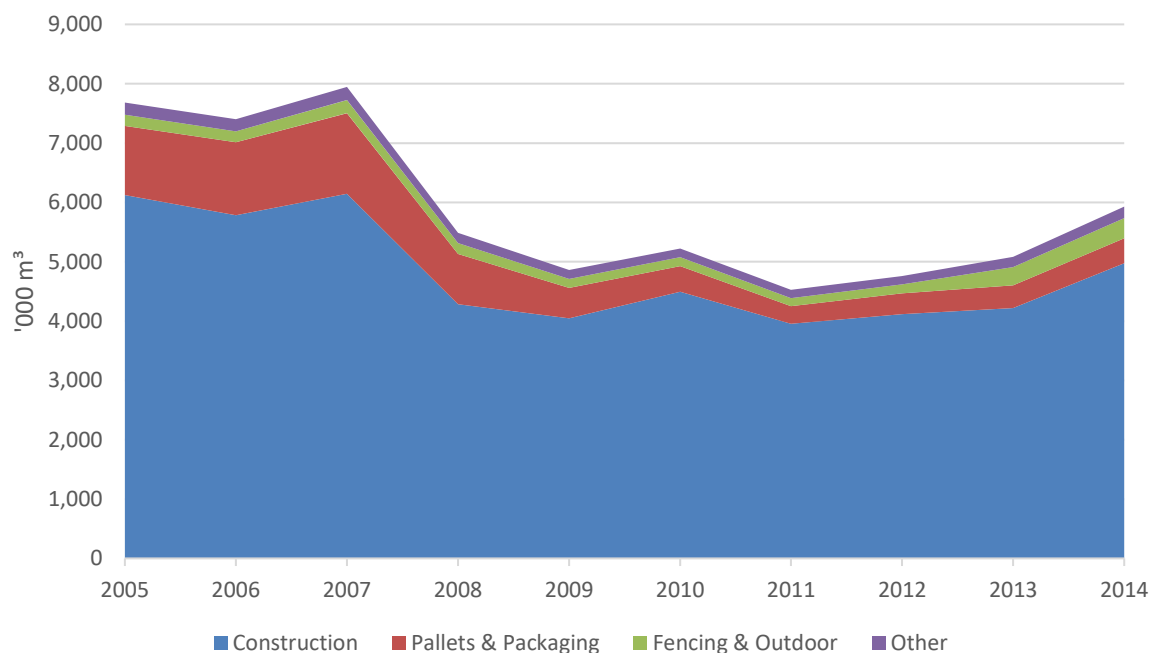
Figure 28: UK produced sawn softwood – primary markets by volume



Source: Forestry Commission Sawmills Survey

While this data is very useful in the UK context, it cannot be used as a guide for the end-use markets for imported timber where patterns are very different. Timber Utilisation Statistics including imported sawn softwood were published by the Forestry Commission in November 2015 and these demonstrate the importance of the construction sector as a consumer of sawn softwood.

Figure 29: Imported sawn softwood – primary UK markets by volume

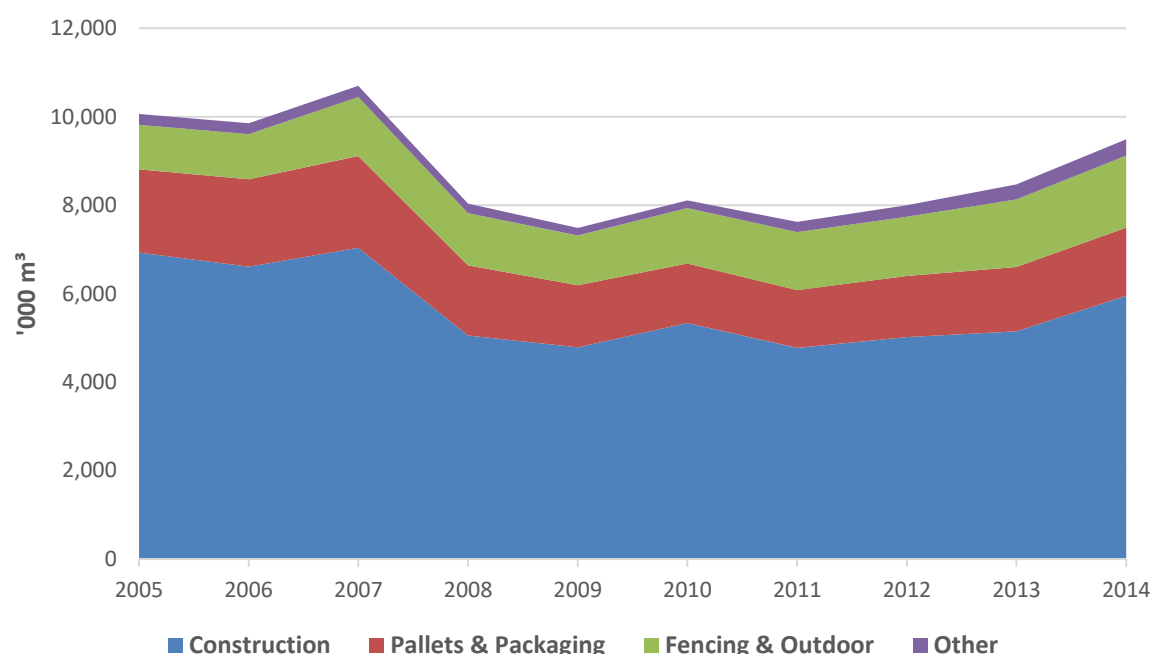


Source: Forestry Commission Timber Utilisation Report

This data suggests that some 83% of all imported sawn softwood is destined for construction applications. The level of imported sawn softwood used in pallets and packaging has been dropping and is discussed in Section 15. Likewise, the majority of UK Fencing is manufactured by UK sawmills and it is not therefore surprising that only 6% of sawn softwood imports is consumed by this product group.

Combining the data from UK production and imports, the end user markets for all sawn softwood are estimated as follows:

Figure 30: UK consumption of sawn softwood – primary markets by volume



Source: Forestry Commission Timber Utilisation Report

The one area where we believe further investigation may be required is in the use of sawn timber by UK furniture manufacturers. Recent data on wood consumption by the sector is not available but a report in 2000 estimated that UK furniture manufacturers consumed around 1.2 million tonnes of sawn wood, split equally between softwood and hardwood. Using Forestry Commission conversion rates, these tonnages convert to over 1.0 million m³ of sawn softwood and 0.8 million m³ of sawn hardwood. Since these figures equate to all the UK sawn softwood used in construction and to significantly more than imports of sawn hardwood, it is difficult to understand why furniture does not appear as a major market in the data.

Since furniture makers do not appear to be a major market for UK sawmills, we are making the assumption that they rely on imported timber. It has not been possible to quantify the volumes of sawn wood being consumed by the UK Furniture sector but we believe it to be higher volume than the estimates above suggest. It is possible that

furniture manufacturing is now making so much of its product from veneered wood-based panels that its utilisation of sawn wood (whether softwood or hardwood) is actually very low but this requires specific clarification only possible through direct engagement with the industry. We have sought clarification initially through TRADA and FIRA but, at the time of this reports submission, definitive data has not been received.

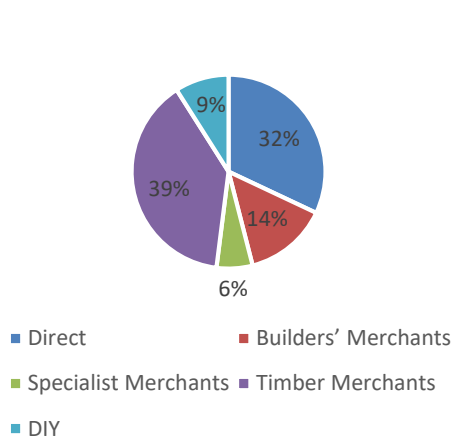
13.1 Routes to Market for Timber, Semi-finished Timber and Builders' Carpentry

In terms of the distribution of timber, semi-finished timber products and builders' carpentry, the flow of materials is extremely complex. Discussions with the industry suggest that it is possible for a piece of sawn wood to go through a timber merchant, into a further processing or manufacturing plant and back again to the same distribution source or into a builders' merchant channel. The potential for double counting therefore make any accurate estimates of volume material flow difficult.

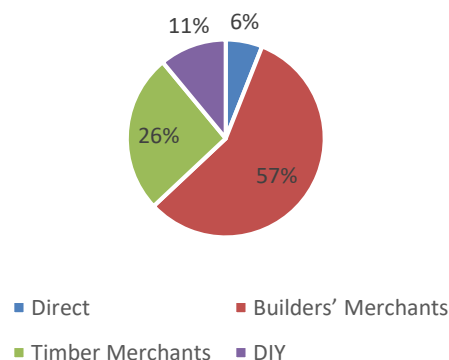
Broadly speaking, channels break down between direct supply, timber merchants and builders' merchants. Smaller volumes go through some specialist outlets and the DIY chains. The following estimates have been made by AMA Research but must be taken to be very broad due to the double counting issues outlined above.

Figure 31: Product sales by distribution route

Timber and semi-finished timber



Builders' carpentry



Source: AMA Research

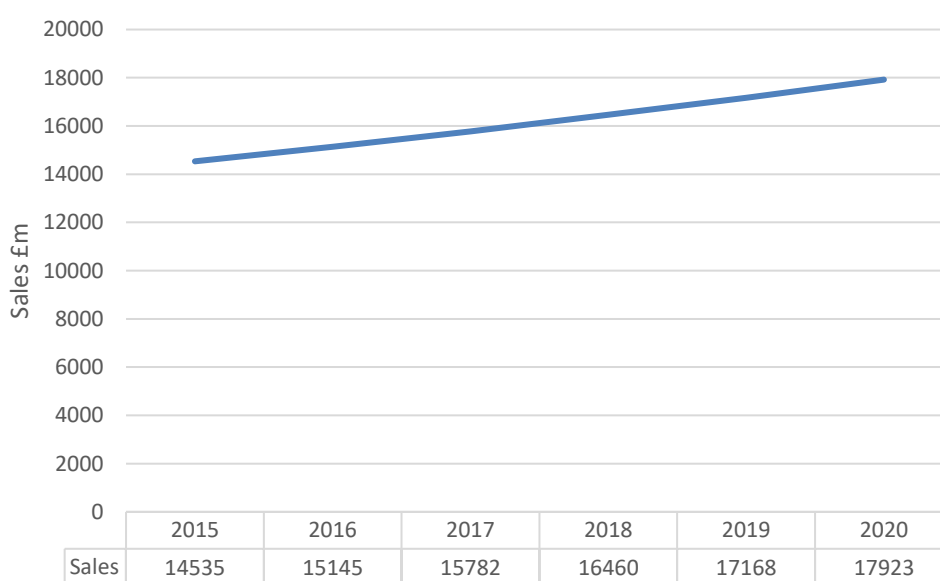
A high proportion of sawn timber going direct from UK sawmills, importers/distributors and timber merchants is supplied into the manufacturing sector, mainly for the production of builders' carpentry and joinery and for furniture manufacture. Sawn wood being used by an end-user with no meaningful processing in between is most likely to be going into a construction project, hence the volume of supply via builders' merchants.

Wood based panels are classed as semi-finished timber. Wood based panels used by the furniture sector are predominantly supplied directly but OSB is primarily used in construction and this tends to be distributed via either builders' Merchants or timber merchants.

Specific data is not available on Timber Merchants but the BMF have provided figures which suggest overall sales in 2015 of £14,535m. Detailed figures on the proportion of this that represents sales of wood and wood based products is not directly available but the industry appears to use 13% as a rule of thumb. This would suggest sales of wood and wood based products through UK Builders Merchants at £1,890m. Given total UK manufacturers sales of Builders' Carpentry and Joinery is estimated at £4,573m, this figures appears to be low. Taking the above splits, 57% of Builders' Carpentry going through Builders Merchants equates to £2,607m before they add their margin. Unfortunately, the BMF were unable to provide more detailed data on specific sales of wood and wood products through their member companies, this data being restricted to their membership.

Forecasts for growth of the Builders Merchants sector are unsurprisingly in line with those for the construction sector as a whole. Keynote have forecast annual growth of between 4.2 and 4.4% in the years 2016 -2020 which, taking the BMF figure as a starting point, would look as follows:

Figure 32: UK Builders Merchants – Forecast sales growth 2015 - 2020 (£million)



Source: BMF and Keynote



13.2 Conclusions and Policy Recommendations

Clearly, importers and distributors have a central role to play in ensuring the effective operation of the core timber supply chain. The sector must be encouraged to grow its capacity as demand from key markets, particularly construction, increases. Alongside overall capacity growth, the distribution environment is increasingly adding value through different levels of processing and further development of these capabilities will both improve margins and provide customers with more innovative timber solutions.

Associated with this increase in added value operation is an upskilling requirement to ensure the necessary technical competence to provide more advanced products and solutions.



14.0 Construction Markets for Wood

Overall consumption of sawn softwood by the UK construction sector in 2014 is estimated at 5,950 thousand m³, of which 17% comes from UK sawmills. As described above, sawn softwood may be destined for a construction site with minimal further processing by the importer, distributor or merchant but the majority of sawn softwood is destined to enter some form of further processing. Data on volumes split in this way is not available but could be estimated via a programme of direct contact with the different industries involved. We are aware, for example, that the STA has been looking at the source of their members wood raw materials and a similar exercise may be useful for other sectors.

We are aware that some of the larger joinery manufacturers have their own importing and processing operations. Smaller companies are more likely to purchase from an UK based importer or timber merchant.

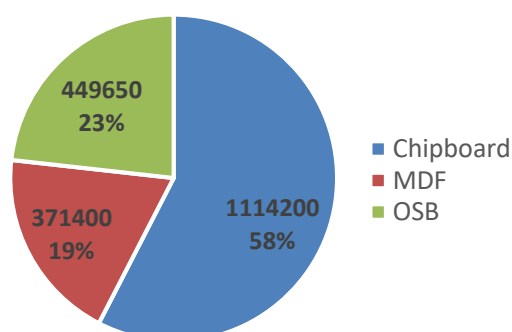
Focusing on sawn timber going for further processing by the manufacturing sector, sawn wood is often combined with other materials for the production of:

- Windows and doors
- Stairs and internal joinery
- Roof trusses and traditional solid structural timber
- Timber framed housing
- Structural and semi-structural timber products such as SIPS panels, I-Beams, Glulam etc
- Kitchen and bedroom furniture
- Exterior decking, fencing etc.

Depending on volumes, some of the above products might be supplied by the manufacturer directly to a construction company but most will be going into the builders' merchants' channel.

In addition to sawn wood, a significant proportion of wood based panels are destined for construction markets, particularly chipboard, particle board/OSB and MDF. 2015 consumption by UK construction of these products is estimated by the industry as follows:

Figure 33: 2015 Consumption of wood based panels by the UK Construction sector (m³ and % of total)

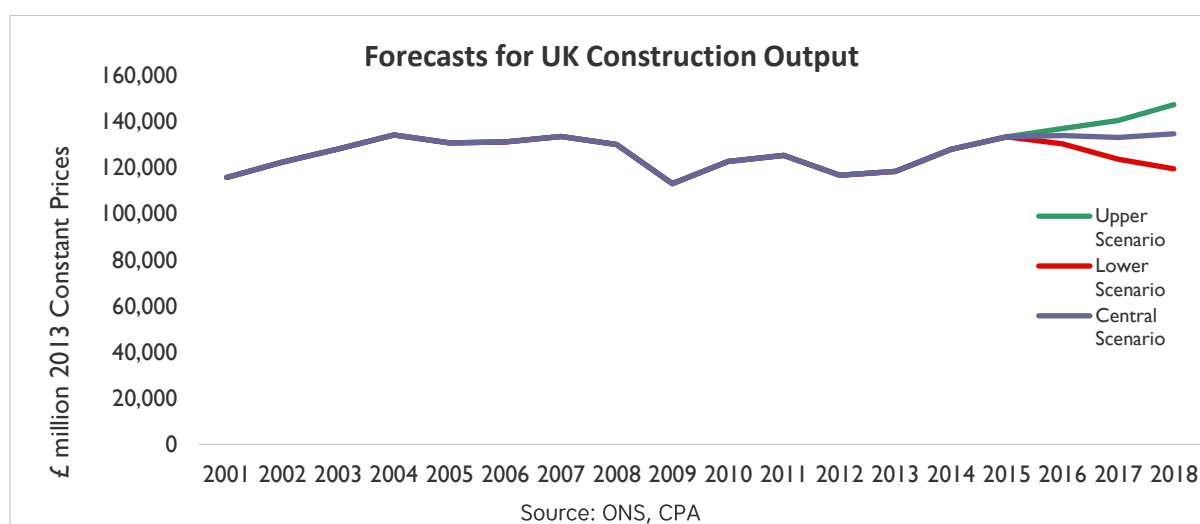


Source: WPIF/Industry Estimates

The above data includes both imported and UK manufactured board.

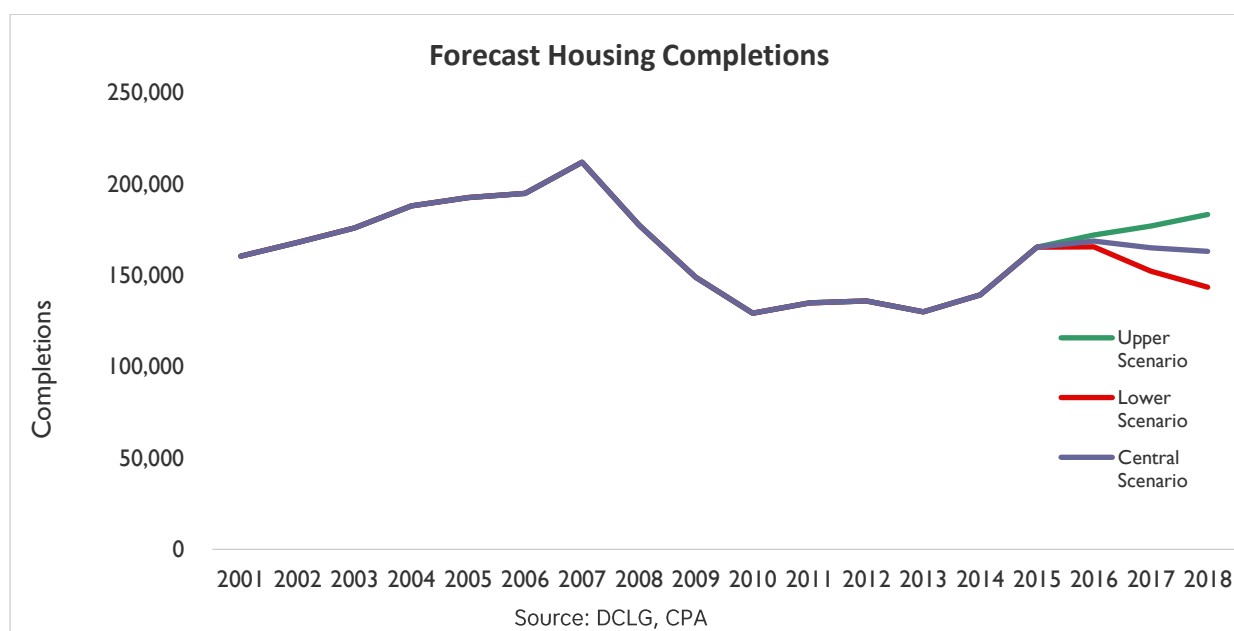
Clearly, the fortunes of wood and wood products manufacturers targeting the construction sector are closely tied to the health of that sector. Fortunately, since the downturn of 2008 – 2012, the construction sector has enjoyed a period of growth but the effect of the UK's exit from the EU is causing considerable uncertainty and the CPA have recently published revised growth scenarios for the sector, as shown below:

Figure 34: Growth forecasts for UK Construction Output



Specific scenarios have also been prepared for the housing sector, as follows:

Figure 34b: Growth forecasts for UK Construction Output



If we use the above growth figures for 2014 to 2019 for housing alone, consumption of sawn softwood and wood based panels over this period would look as follows:

Forecasts for wood consumption in the UK Construction Sector to 2019

	Growth in construction output from prior year	Consumption of sawn softwood ('000 m ³)	Consumption of wood based panels ('000 m ³)
2014	10%	5950	1935
2015	3%	6129	1993
2016e	1%	6190	2013
2017e	-2%	6066	1973
2018e	0%	6066	1973

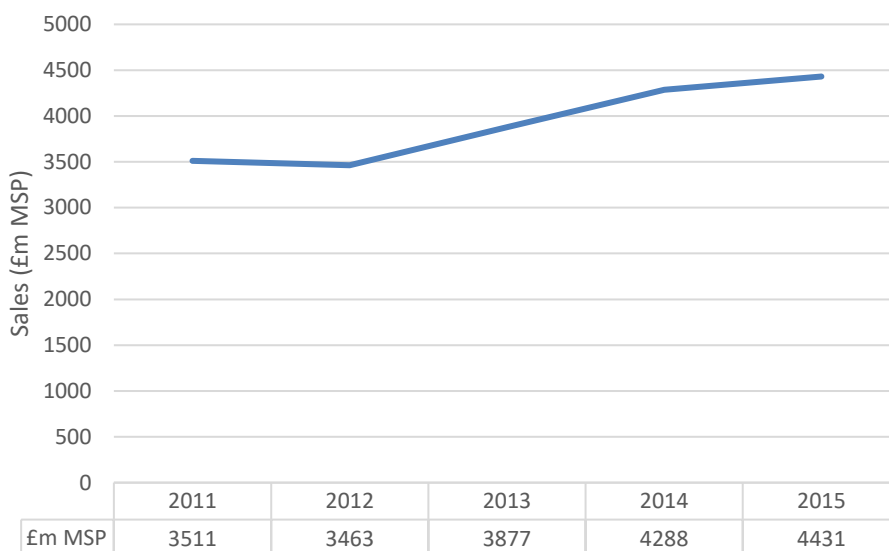
In terms of structural timber, the primary challenge for UK wood producers is the grading process and specifications used in UK construction. The default specification for most engineers and architects is C24, a higher grade of timber generally not available in the UK (UK timber is generally graded to C16). C16 can be used in structural work but needs to be slightly heavier to meet loading specifications and work is required between the sawn wood producers and specifiers to increase the use of UK wood in structural applications in construction projects.

It has not been possible to develop an accurate picture of the consumption of wood and wood based products across different construction applications but what follows is a review of the trends in sales within the broad sector of 'Builders Carpentry and Joinery'. Direct consultation with these industries would allow estimates to be made of the proportion of overall sales accounted for by purchases of wood as a raw material/product component which would then allow an accurate split across the different construction applications to be prepared.

14.1 Builders' Carpentry and Joinery

Manufacturer's sales of builders' carpentry and joinery in recent years has been as follows:

Figure 35: UK Sales of builders' carpentry and joinery 2011 – 2015 (e)

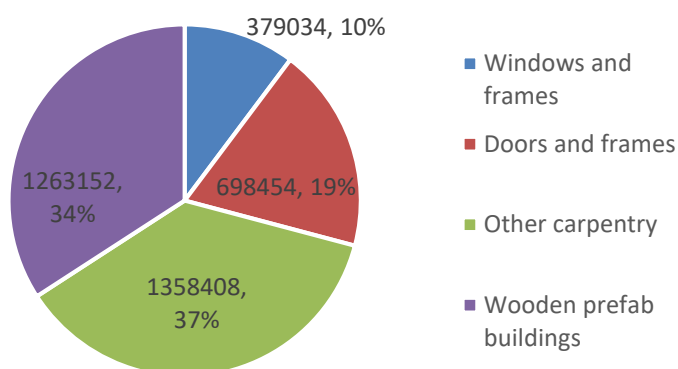


Source: PRODCOM and Industry Estimates

Analysis of PRODCOM and HMRC data suggests that only 11% of these sales are imports. The import situation is different, however, at product level, with imports of wooden windows and doors in 2014 at 24% and 27% respectively.

Within this overall industry sector, 2014 UK manufacturers sales of break down into the following product groups.

Figure 36: UK Manufacturers Sales of builders' carpentry and joinery 2014, £000's and % split by product group

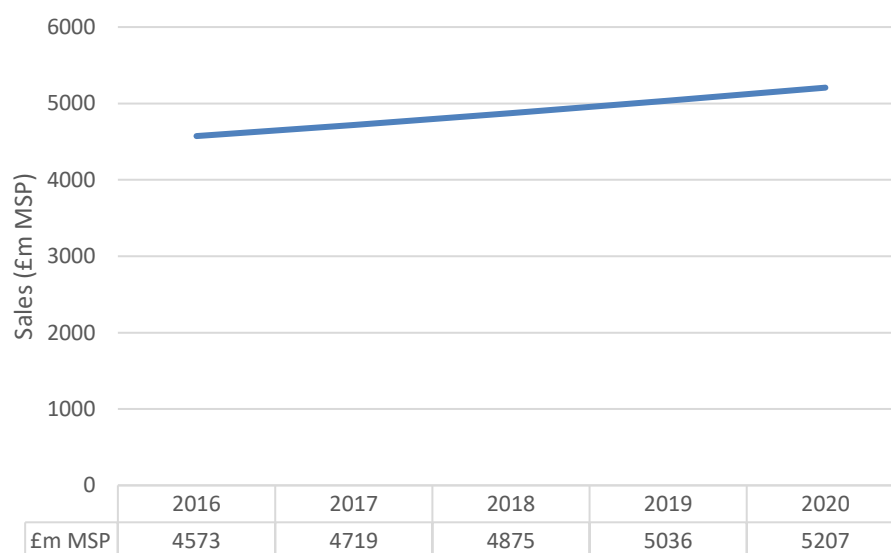


Source: PRODCOM

The SIC code used for 'Wooden prefab buildings' includes complete buildings assembled ready for use, complete buildings unassembled, sheds, greenhouses, conservatories, holiday homes, mobile homes and static caravans. We have made the working assumption that this product group therefore includes all forms of timber framed buildings. It is significant that this group of products actually represent the largest sub-segment of this overall sector, followed by other carpentry and doors and windows. Other carpentry is taken to include all timbers used for general structural and semi-structural applications in the construction environment and we believe that this will include all forms of wood-based building systems other than complete timber frames. There is little doubt that double counting is occurring here where the outputs of some wooden building systems manufacturers are being used by timber frame manufacturers.

Keynote have produced the following forecasts for this sector, based around analysis of wider economic and construction forecasts.

Figure 37: Forecast UK Sales of builders' carpentry and joinery 2016 - 2020



Source: Keynote

Rather conservatively, the projections for overall sales of builder's carpentry and joinery broadly map those for the construction sector as a whole and for builder's merchants. The challenge for the timber sector is to accelerate growth at a rate higher than general market growth and this will require combined effort across the sector to increase the volume of wood used in construction projects.

Industry commentators believe that the use of wood in UK construction is far from being at saturation point, with UK usage in 2013 sitting at 0.14m³ per capita compared with 0.20m³ in Germany and 0.80m³ in Finland in the same year.



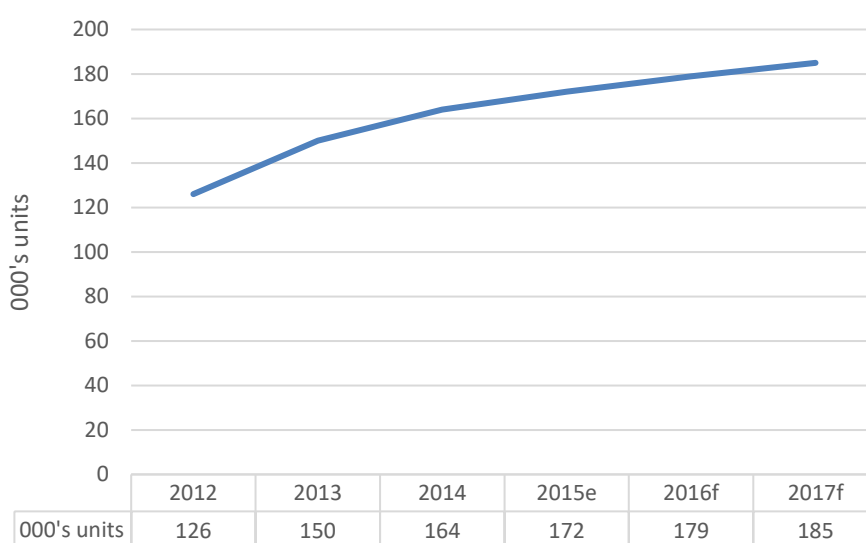
14.2 Structural Timber

Structural timber applications include roof trusses and joists but also include products such as SIPS, Glulam and timber-framed housing. Traditional products such as trusses and joists will either be sourced through builders or timber merchants or from truss manufacturers who will be sourcing directly from sawmills or via timber merchants, depending on volume. The majority of timber frame, SIPS and Glulam manufacturers are sourcing either direct from timber importers or from timber merchants, with some sourcing directly from UK sawmills.

While roof trusses and joists will play a role in the majority of residential new build, the uptake of wood by timber frame, SIPS and glulam applications depends largely on the industry's ability to persuade specifiers and housebuilders to switch from brick and block designs to more timber based models. The overall share of UK new housing penetration by timber frame has been variable in the last decade between 19.7% in 2005 and 27.4% in 2015, its highest ever. This overall figure hides significant regional variations, with timber frame accounting for 76.2% of new housing starts in Scotland in 2014 but only 18.5% in England. The much larger size of the English market does mean that the smaller % means many more units than in Scotland, however, with 2014 figures standing at 25,000 in England and 12,600 in Scotland. Achieving ever higher penetration of the housing market in England must therefore remain the industry's key objective and the STA report that 40% more detached timber frame homes were built in England in 2014 than in 2013.

The UK housing market grew to 175,000 in 2015, an increase of 6.3% over 2014. Within this growth, timber frame building grew by 17.8% to c.48,000 units in the same period whilst non-timber frame housing was estimated to have grown by 2.4% over the same period. Overall UK housing starts from 2012 to 2017, actual and forecast (for Great Britain) are as follows:

Figure 38: GB Housing starts 2012 – 2017 actual and forecast



Source: CPA and STA



Over this period, the share of timber frame is forecast by the STA to grow from its 2014 level of 24.6% to 27% by 2017 which would suggest an overall volume of 50,000 units.

AMA Research, we understand with the assistance of the STA, have valued a 2013 output of 29,700 units at a MSP of £320m, suggesting an average value per house of 10,800. 2014 volumes have been estimated by the STA at 40,344 units and if we assume no change in the price per frame then the 2014 market value can be estimated at £436m. Direct contact with the industry will allow us to develop estimates of the specific consumption of wood by this sector.

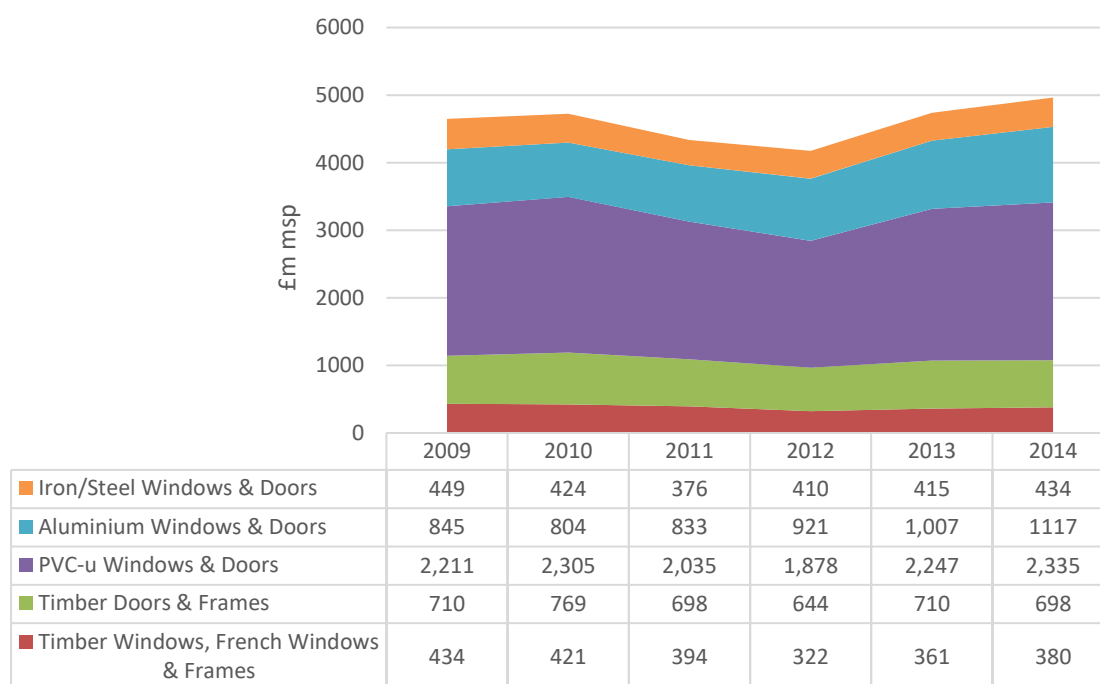
Alongside this, AMA Research have estimated the overall UK market for SIPS at £40m.

14.3 Windows and Doors

Despite the ongoing pressure from uPVC systems, the manufacture of windows and doors from wood remains an important element of the timber industry. This is particularly the case because the level of import penetration in the UK windows and doors sector is lower than for sawn wood, sitting at 22% for windows and 20% for doors¹⁷.

MBD estimate the overall value of UK manufacturing of windows and doors between 2009 and 2013, by material, as follows:

Figure 29: UK production of windows, french windows, window frames, doors and door frames, by type of material, 2009-13



Source: ONS and Mintel/MBD

¹⁷ Source: AMA Research

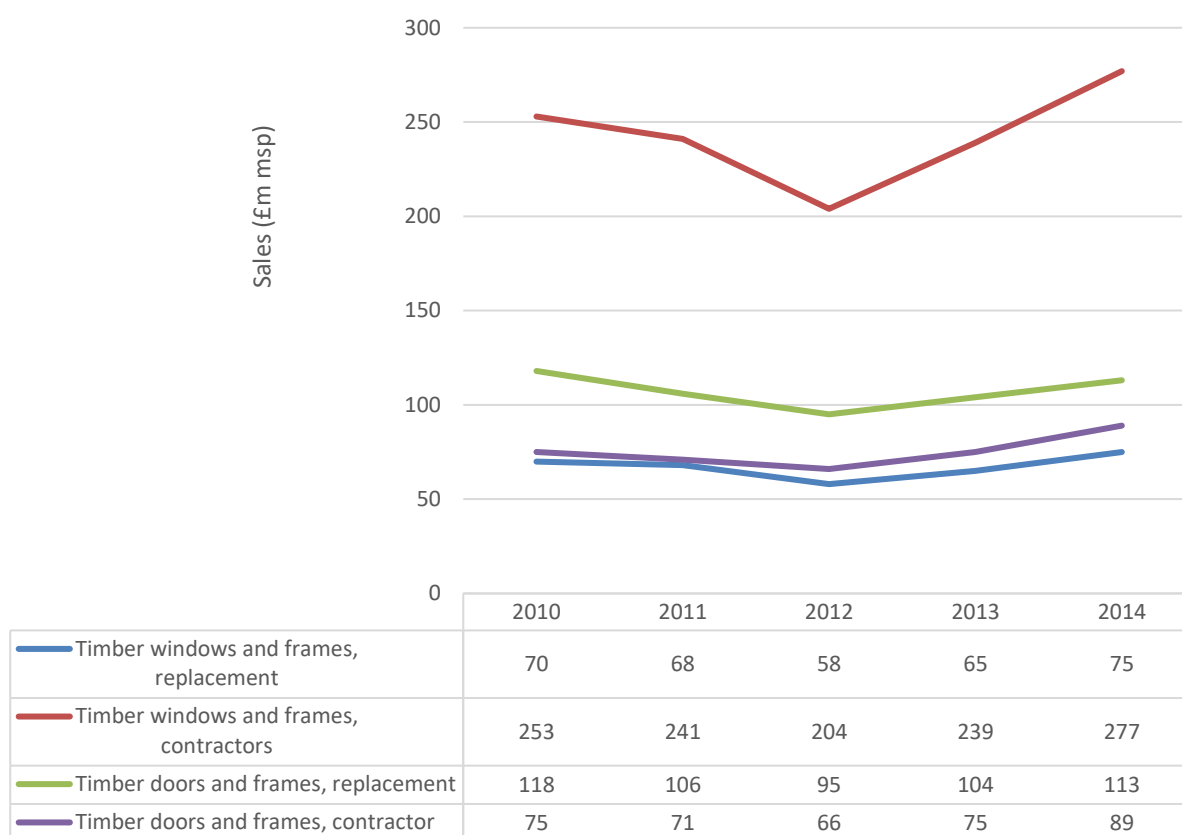


The market for wooden windows and doors is very different between the commercial and residential sectors and, within the residential sector, there are further differences between the contractors segment and the replacement segment (where the decision maker tends to be the homeowner).

Residential Windows and Doors

Contractors specify wooden window frames more often than homeowners, with comparative sales in recent years as follows:

Figure 39: Sales of wooden windows and doors, 2010 to 2014 by specifier



Source: ONS and Mintel/MBD

As the chart shows, the situation is reversed for doors, where homeowners still tend to prefer wooden doors for reasons of prestige and aesthetics. The table above excludes social housing where data is unavailable but where timber is a preferred specification for both windows and doors due to its environmental credentials. With overall UK manufacturer sales of £714m in 2013 and sales in Figure 30 accounting for £483m in 2013 this suggests that the social housing sector overall could account for some £231m sales of windows and doors.

Wood is also the leading material for residential internal doors, although these tend to have a softwood core with veneered external panels. Internal doors represent 60% of the overall residential doors market, with entrance doors at 28% and patio doors/French

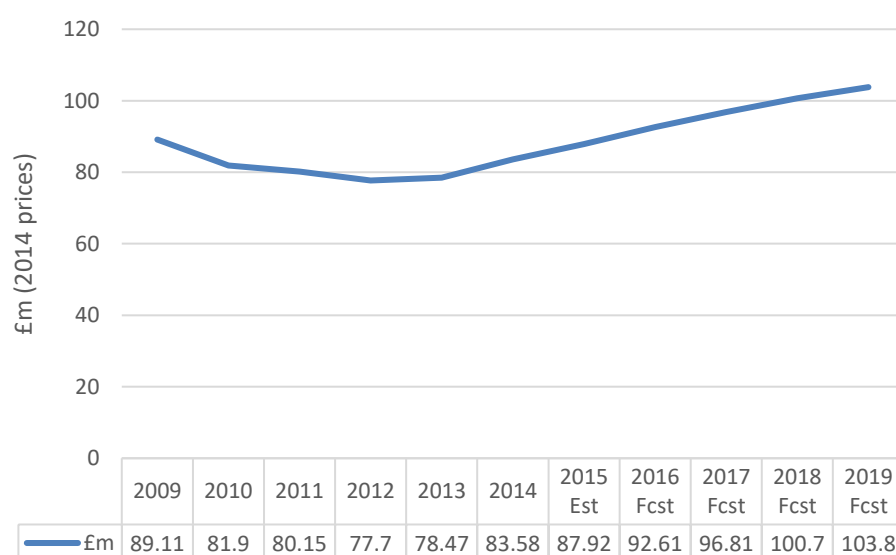
windows at 12%. AMA believe that the total UK market for residential internal doors will be worth £436m msp by 2017 and, if import penetration can be held at current levels, there is the potential for over 75% of this output to be manufactured in the UK.

Commercial Windows

In this sector, timber represents only 6-8% of the market (by value) for commercial windows but, since the overall market for commercial windows is worth an estimated 1.26bn in 2015, this is nevertheless an important market for timber products. Data is unavailable for commercial doors but this sector is dominated by metal.

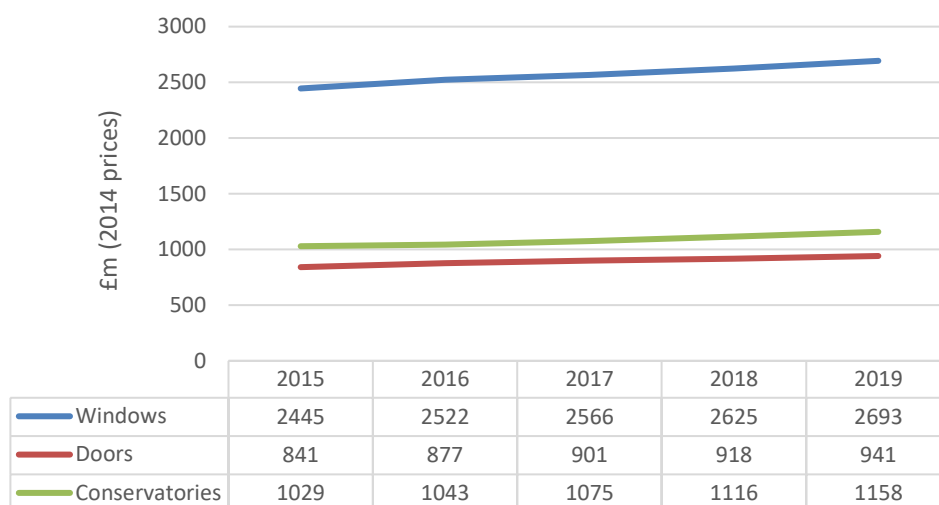
Assuming a continued market share of 7%, the past performance and forecasts for sales of wooden commercial windows is as follows:

Figure 40: UK Market for wooden commercial windows, 2009 - 2019



Source: AMA Research

Specific forecasts for timber windows and doors are not available for the overall forecast for all windows, doors and conservatories is as follows:



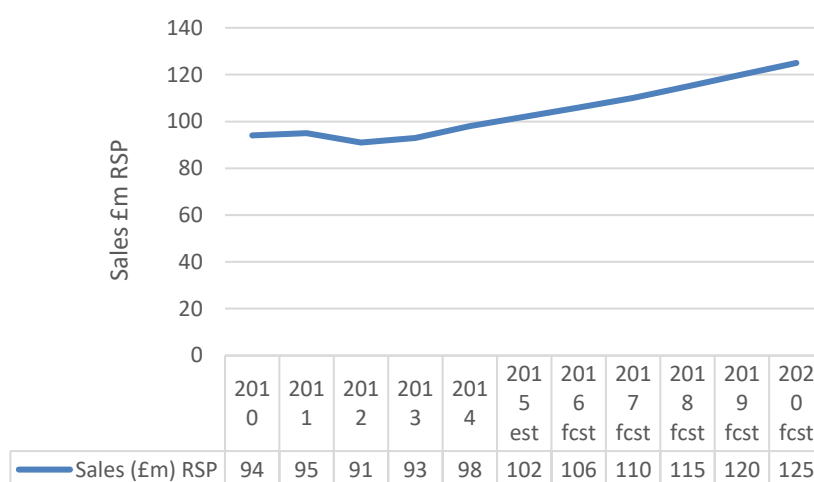
Source: MBD/Mintel

This is projecting a market increase of 11% which seems conservative given that UK construction output is forecast¹⁸ to increase by 15.5% over the same period.

14.4 Domestic Garden Buildings

This sector includes buildings for all-year-round use, log cabins, summer houses and garden storage. This is a significant market, with sales over recent years and forecasts as follows:

Figure 42: UK Domestic garden buildings and structures market, 2010 - 2020



Source: AMA Research

¹⁸ Source: ONS and CPA



It is estimated that around 60% of these products are constructed from wood.

14.5 Conclusions and Policy Recommendations

With UK wood usage in construction currently sitting at 0.14m³ per capita, compared with 0.20m³ in Germany, there appears to be a shortfall in the use of timber in construction. It is in the interests of all involved to increase the use of wood in construction at a rate faster than general market growth which will entail changes in the way wood is used, primarily in structural applications.

However, it is to be expected that any initiatives to further increase the penetration of timber into building techniques in the UK (outside Scotland) is likely to meet strong resistance from other sectors such as brick, block, glass and steel. These sectors have a strong hold on their core markets and will be easily dislodged.

A critical step in the further promotion of wood as a building material, including structural applications, will be the creation of the compelling case for wood which includes the combined benefits derived from speed of build, environmental impact and whole-life energy cost performance.

Allied to this, a programme of education is required at every level within the training and development sector from degree level to basic skills. This should amplify timber as a mainstream building material.

Furthermore, a wholesale change is required at the design and specification stage which promotes timber on an equal level to its alternatives.

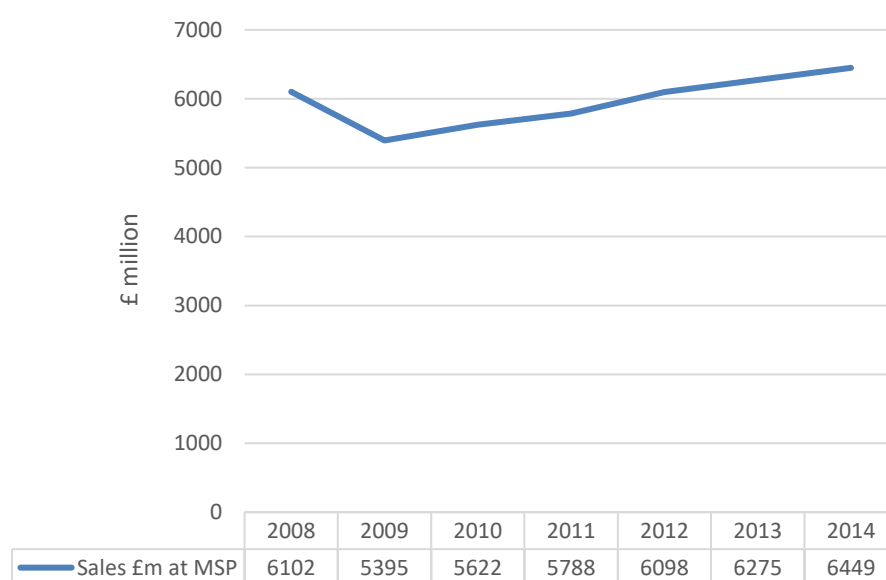
Similarly, as with the woodworking manufacturing sector, investment in skills development around BIM, CAD/CAM and CNC machine processing are critical components of creating the manufacturing capability to exploit the opportunities presented.

15.0 UK Furniture Manufacture

UK Furniture manufacturing overall contributes c£10.1bn¹⁹ to UK GDP and employs 106,000 people across 7,969 companies. This data includes manufacturers of furniture, beds and furnishings. It is a highly fragmented sector with only 40 companies employing more than 250 people and 78% of companies employing less than 10 people. The size of company would suggest that most would not be able to negotiate terms with direct importers, panel manufacturers or sawmills and it is likely that most wood raw materials are sourced via timber merchants and specialist furniture component distributors.

Prodcom data places overall UK furniture manufacturing output at £6.4 bn in 2014, with recent trends as follows:

Figure 43: UK furniture manufacturers' sales (£m MSP), 2008 - 2014



Source: Prodcom

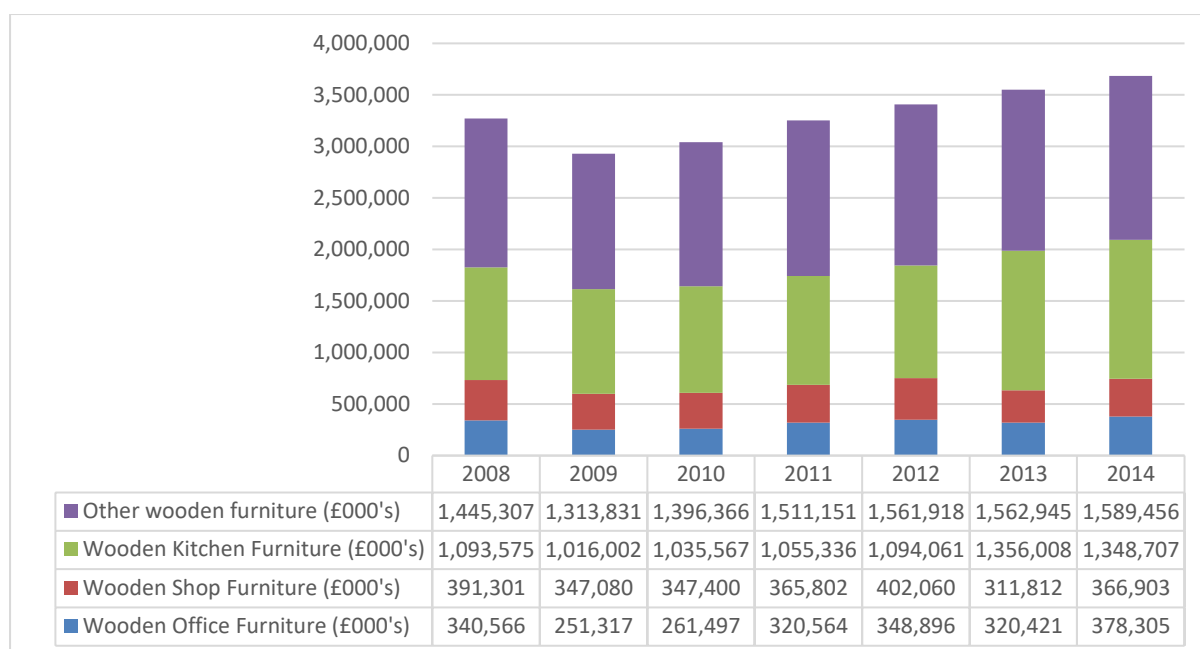
As the table demonstrates, the sector has recovered well since the recession but, in 2014, remains 10% behind 2007 levels. Note that this data includes all types of furniture, not just that manufactured primarily from wood.

Reasonably detailed data is available via Prodcom for sales of a range of different types of furniture and selected data is provided below for those types with significant wood or wood-based content.

¹⁹ Source: British Furniture Confederation / ONS



Figure 44: UK manufacturers' sales of selected wooden furniture, 2008 - 2014 (£m MSP)



Source: Prodcom

Relative to overall production levels, the UK is not a major exporter of wood furniture, with 2014 exports estimated by HMRC at c£300 million. Imports in 2014 were £2112 million, equivalent to 57% of UK manufacturing or c.33% of the overall UK market.

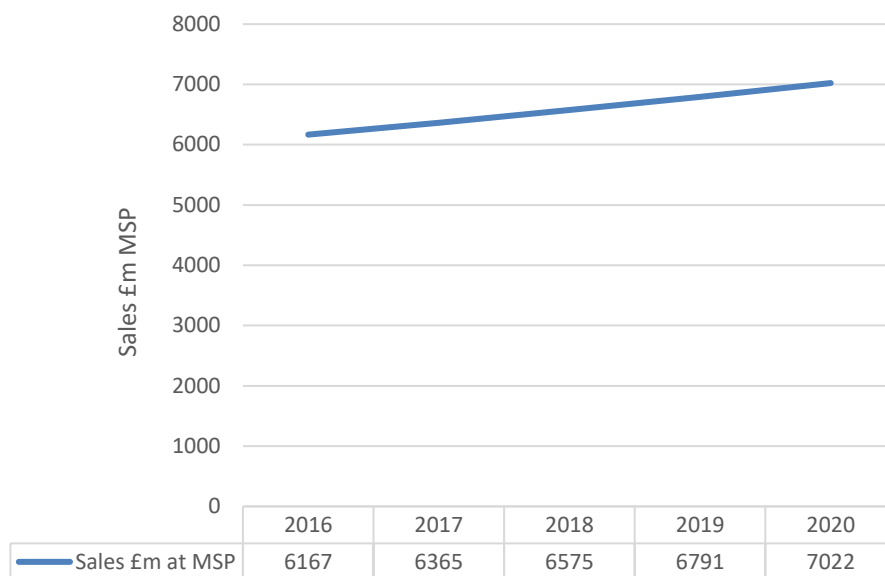
Up to date data for sawn wood use by the UK Furniture manufacturing sector is not immediately available. Estimates have been provided by the WPIF that suggest as much as 60% of all MDF and 50% of all chipboard manufactured in the UK goes into the furniture sector. It is hoped that further direct contact with the industry will help to clarify the overall figures.

One of the areas where the BFM report is on cost inflation and it is interesting to note that their members experienced cost increases between 2013 and 2014 of over 7% in Particle Board, just under 7% in veneer sheets and other panels and around 4.5% in sawn wood.

15.1 Furniture Sector Growth Forecasts

Overall forecasts for UK wooden furniture sales are as follows:

Figure 45: Forecast sales of wooden furniture in the UK, 2016 - 2020 (£m MSP)



15.2 Conclusions and Policy Recommendations

While definitive data on consumption of sawn timber and wood based panels by this sector has been difficult to find, it is clear that UK furniture manufacturing is an important market for wood and wood products.

There is an immediate requirement to investigate patterns of consumption in greater detail and prepare more definitive figures than those currently available.

Beyond this, solid growth is expected in the sector and there is a case for greater collaboration between this and other wood processing and distribution industries.



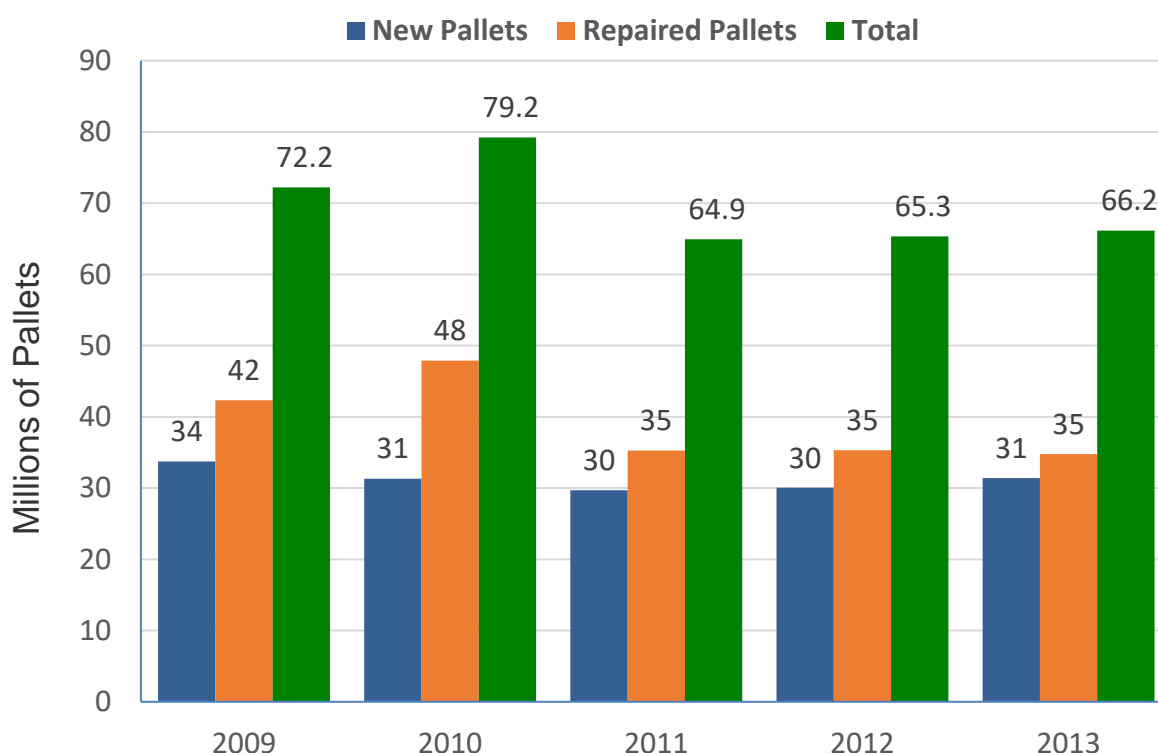
16.0 UK Pallets and Packaging Manufacture

The application of sawn wood in UK packaging is predominantly for production and repair of wooden pallets. The total turnover of this industry in 2013 was £279m²⁰, an increase of 2.3% of the previous year. Of this total, new pallet production was valued at £205m, the rest being repair. The pallet sector is thought to employ just over 2,300 people.

In terms of consumption of wood, it is estimated that timber makes up around 70% of the cost of making a new pallet. Total timber consumption in pallet making and repair in 2013 was estimated at 1.2 million m³, up by 10% on 2012. This total splits by 86% softwood, 6% hardwood (mainly imported) and 8% manufactured wood products.

Production over recent years has been as follows:

Figure 46: UK pallet production, new and repaired, 2009 - 2013

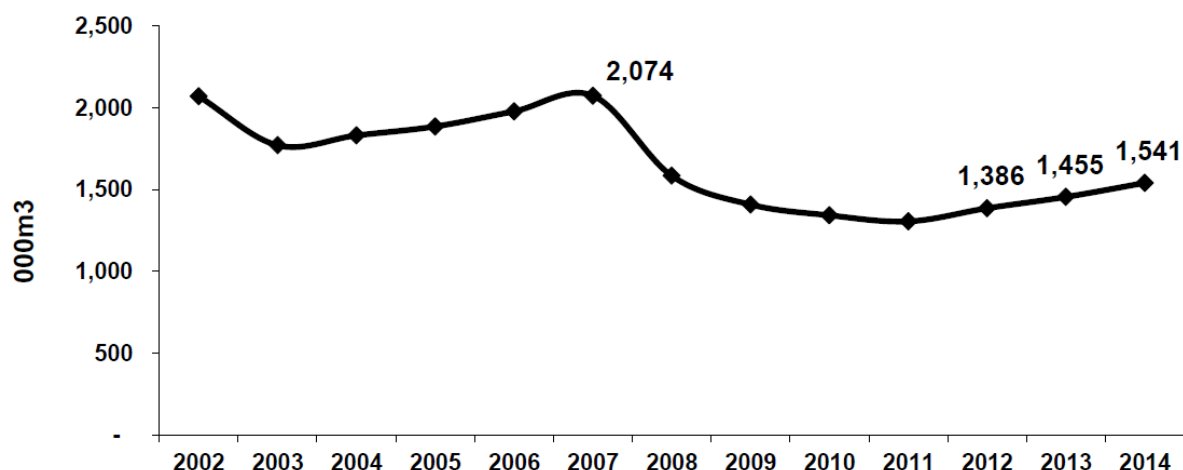


Source: TIMCON

²⁰ Source: TIMCON/Forestry Commission/Timbertrends; Wood packaging study 2013.

All wood consumption is of sawn softwood and recent trends have been as follows:

Figure 47: Softwood consumption by the UK packaging and pallet sector, 2002 - 2014

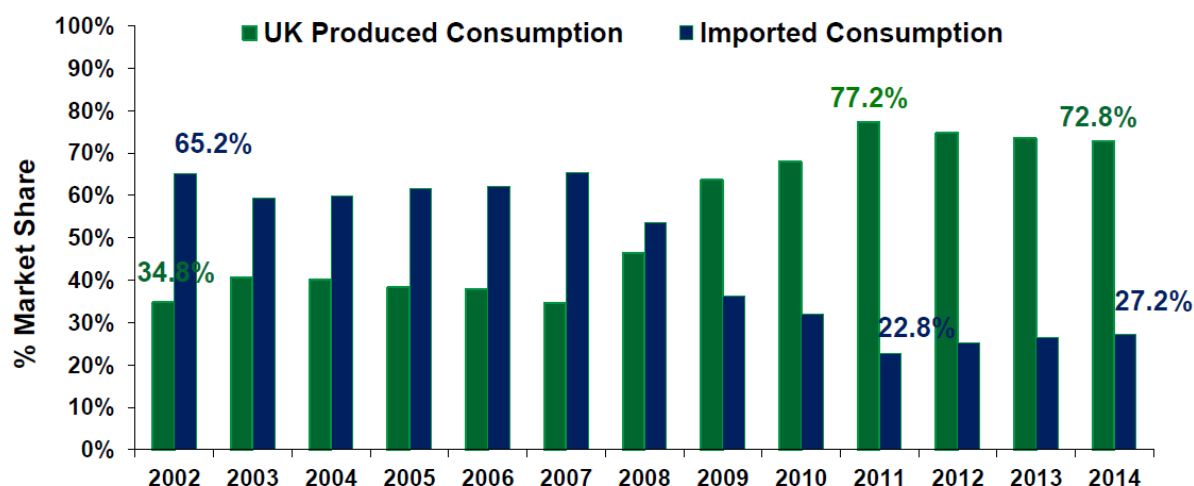


Source: TIMCON

Since the Forestry Commission report that a total of 1.1 million m³ is consumed by the UK packaging sector, we can conclude that a further 0.4 million m³ is used in other industrial packaging applications (wood is often used as a protective frame in shipping products).

Around 73% of overall consumption is thought to be of UK grown wood, a total of 0.9 million m³ and this is mainly of softwood. This pattern has changed over recent years, with the sector taking the opportunity presented by reduced demand in other sectors to move to UK produced wood rather than imports.

Figure 48: Relative shares of UK produced and imported wood in pallet manufacture and repair, 2002 - 2013





Forecasts for wooden packaging are only done on a 12 month basis. TIMCOM members in 2013 were forecasting growth of 8.6% in value and 3.4% in volume. The difference was thought to reflect an aim on the part of pallet manufacturers to pass on some of the increases in wood raw material prices which they have been experiencing in recent years.

It is reasonable to assume that overall packaging consumption will track general trends in UK construction (its main market at 30%), retail and manufacturing. Average growth in the construction sector in the coming years is expected to be in the region of 3.7% while retail sales are expected to grow at a more constrained 1.7% and manufacturing at 0.7%.

17.0 UK Fencing, Decking and Cladding Production

These industries are generally well aligned to the UK sawmill sector and many of these products are manufactured and sold directly from the mill.

The Forestry Commission's survey of larger sawmills suggests that fencing accounts for 37% of UK sawmill output, which equates to 1.3 million m³ of production. Fencing is therefore the largest single market for UK sawmills, ahead of packaging & pallets at 30% and construction at 27%. There are negligible volumes of imports of fencing since it is mainly manufactured from softwood.

In value terms, while no specific data is available, it seems reasonable to assume that fencing pricing is generally equivalent to the overall price for sawn timber, estimated in 2015 at £222 per m³. This would place the value of the fencing market at £288.6 million.

Forecasts for fencing have not been produced but volumes have been relatively steady at between 34% and 37% of sawmill output over recent years. With consumption being linked to sectors such as housebuilding and agriculture, growth can be expected to remain in the area of 3-4%.

Data for cladding and decking has been requested from the TDCA but has not been received as of 24th June 2016. A 2010 presentation by the TDCA has been sourced and this placed the overall UK market for timber decking in 2009 at £135m, with cladding at £30m (2007). It is hoped that these figures can be updated. There are indications that the opportunities for growth in these product groups is greater than for fencing since there is increased interest in the use of wood both as a building material and as part of home improvement.



18.0 Strategic Issues

The overall picture is one of growth in most sectors with average growth in consumption estimated at between 3.2% and 3.4% per annum for the next four years (to 2020). With the UK currently importing circa 60% of its wood and wood products, there are opportunities for import substitution in several sectors, particularly in wood based panels and sawn softwood.

Patterns of consumption of both hardwood and softwood are very different, with overall consumption of softwood being some 57.2 million m³ compared with only 0.96 million m³ for hardwood. The UK produces 48% of all its hardwood consumption including sawn and non-sawn wood, but only 19% of its softwood consumption. This softwood volume figure is derived from the industry standard WRME conversion factors. For sawn softwood, imports amount to 63% of total UK consumption.

A number of high-level, strategic issues have emerged as being of particular relevance as the CTI works to define its policies and strategies for the coming 3-5 years.

1. There appears to be an opportunity to increase levels of timber removals from UK Forests. 2014 softwood removals were 11.4 million green tonnes (mgt) while the theoretical availability of softwood from GB (i.e. excluding Northern Ireland) forests was in the region of 15mgt.
2. Forecasts of softwood availability show it rising to an estimated 16.7mgt in the period 2027-2031 at which point it starts to decrease (this assumes no further planting between now and then).
3. This naturally indicates the need to accelerate the planting programme to address medium to long term demand. We are already beyond the point where we can maintain maximum projected levels of supply for 2031 and beyond, if we do not begin the process of planting to rebalance supply. Failure to respond will make us increasingly dependent on imports.
4. UK sawmills have increased their output by 36% in the last ten years but appear to have the opportunity for further expansion in line with increased removals. UK Sawmills consume c.60% of the outputs of UK Forestry and so are the UK Forestry sector's single most important customer. Export markets for UK roundwood are not well developed and it would not make strategic sense for this to be promoted while the UK's balance of trade in sawnwood is so skewed towards imports.
5. The UK Forestry sector has already become very efficient at extracting value from all of its raw material. 40% of UK Forestry removals is non-stemwood which includes branches, stumps, woodchips and particles, wood residues and pulpwood and the sale of these products is an important part of the business model of forestry enterprises. Non-stemwood removals go to a range of markets including Biomass Fuels, Wood panel production, Co-products (bark, wood-chip, shavings, mulch), Pulp & Paper and Round Fencing. These sectors in essence compete for this raw material although, until recently, there does appear to have been a relative balance of supply and demand across these supply relationships.
6. The rapid growth in the use of non-stemwood forestry output (sometimes called small roundwood) as a fuel may be altering the traditional balance of supply



between pulp mills and wood panel mills who are now having to compete more aggressively for their raw materials. The increased demand for this raw material is reported to have pushed prices up and this is being felt by UK based wood panel mills in particular. Both sectors have already taken steps to secure supply of alternative raw materials via wood recycling operations but these too are being affected by increased demand for fuel wood. The use of UK grown hardwood for pulp had already ceased in 2007.

In addition, in 2014 some 75% of all hardwood removals in the UK was burnt as fuel and only 14% was processed by UK sawmills. This indicates that whole hardwood trees are being converted to fuels whereas for softwood this tends to be only the 50% of the growth that is not suitable for conversion into sawnwood. This is in stark contrast to the overall picture of consumption of hardwood in the UK, where in excess of 90% of sawn hardwood is imported. There appears to be an opportunity to find more added value outlets for UK grown hardwood roundwood, most likely through increased processing via UK sawmills.

The increase in the burning of wood biomass in large-scale power generation is being driven largely by the provision of on-going subsidies by the UK Government under their Renewables Obligation Regime. It was the Government's expectation that virtually all of the biomass burnt in these power stations would be imported but UK panel mill operators report that the power generators are sourcing a significant proportion of their biomass requirements from UK sources, particularly operators of smaller plants generating >50MW

While increases in pricing may well improve the profitability of forestry and sawmill businesses, the volumes required by power generators has also resulted in a very sharp increase in imports of wood pellets. Should these imports become more price competitive this could in theory make this market less attractive to UK forestry and sawmills and thus relieve the pressure on raw material pricing for the wood panel and pulp & paper sectors. This balance has not, however, been seen to be reached at this time and indeed, seems a long way off.

This raw material issue is reported to be having a strategic impact on the wood-based panel manufacturing sector in particular and this is coming at a time when growth in the UK construction sector has seen corresponding levels of growth in the use of panels/board. Since the UK manufacturers are not able to meet all of this increased demand, the UK now imports 34% of its consumption of particleboard (including OSB) and fibreboard. There is a clear opportunity for UK based wood panel manufacturers to capture a greater share of the overall market but they are unlikely to invest in this additional capacity if raw material availability and its pricing remains such a constraint.

It is clear that the increase in the use of wood as a biofuel is a major opportunity for UK forestry and sawmill operators but this may come at the expense of growth in wood-based panel manufacture and other sectors.

7. Returning to sawn-wood, the UK imported 63% of its sawn-wood consumption in 2014, up from 60% in 2011. Without short-term increases in UK sawmill capacity, this figure is likely to increase further as the UK construction sector continues to recover to pre-recession levels.



8. Construction is the main driver of sawn-wood sales in the UK, with an estimated 62% of all UK sales of sawn softwood being consumed by the sector. This overall picture changes markedly when the source of the sawn wood being used in construction is considered; 84% of construction consumption is imported sawn softwood.
9. There is an on-going opportunity for UK forestry and sawmill operators to achieve a higher share of the construction market but this opportunity is not a new one and it may be that UK sawmills are achieving their commercial objectives through their current sawn wood sales split of 37% Fencing, 30% Pallets and Packaging, 27% construction and 5% other. UK sawmills also sell non-sawn wood to a wide range of secondary sectors, which consume half of its round wood inputs, the largest of these being the wood-based panels sector. Taken overall therefore, the construction sector may only represent 12-15% of the sawmill sectors sales.
10. As the UK construction sector continues to grow, there is an opportunity to meet some of this demand from UK wood. However, this is only a viable goal if the supply chain can supply the necessary products to specification. Even if removals of softwood and capacity in sawmills could be increased, UK derived softwood does not physically meet many of the specification requirements for use as structural timber, primarily due to fundamental material properties such as density and strength. This is a difficult challenge to overcome, being based as it is on factors such as species, weather conditions and terrain. Some commentators have suggested that UK wood could be more widely used in structural applications but this would require a change in specification and it is unlikely that designers and specifiers are going to develop a range of unique specifications simply to encourage greater use of UK wood. The key challenge appears to be the 'in use' performance when looking at the two major softwood grades i.e. C16 and C24. Whilst UK grown softwood wood is graded predominantly as C16 i.e it meets industry standards for bending strength, other mechanical properties affect end use application (twisting and warping is reported as a particular problem). This perception (real or imagined) must be addressed to enable wider use of UK grown timber in construction.
11. Industry estimates suggest that circa 33-35% of sawn softwood used in general construction is C16 grade which would represent c2.2 million m³ metres of sales. Given that the construction sector consumes c. 1.0 million m³ of UK sawn softwood overall, then there is at least an opportunity to capture an additional slice of this C16 market.
12. At the same time, the opportunity exists to further support the continued growth of timber framed buildings in the UK which grew to 27.4% of all housing starts in the UK in 2015.
13. An alternative strategy would be to target those elements of the wider construction market where timber is used extensively and by far the largest consumer of sawnwood related to construction is the joinery sector, particularly manufacturing of windows, doors and stairs. The overall UK market for builders' carpentry and joinery grew by over 26% between 2011 and 2015 and is forecast to grow by a further 14% between 2016 and 2020. The UK made an estimated 87% of the Builders' Carpentry and Joinery used in the UK in 2015 but it is unlikely that more than 20% of the wood purchased by these manufacturers was grown in the UK. Anecdotally, it

is reported that joinery business have a preference for imported sawnwood since its characteristics result in less wastage and quality problems.

14. UK based carpentry and joinery business had a combined output of £3.8 bn in 2014 from over 5000 companies which together employed some 45,000 people.
15. Within the supply chain, Timber Merchants and Builders Merchants have an important role to play in promoting greater integration between UK wood producers and the construction sector. Sales of wood and wood products via merchants is estimated by the BMF to be in the region of £1,890 million (excluding DIY companies such as B&Q and Wickes). Other sources estimate this figure to be in the region of £4bn. Many of the larger Timber Merchants in particular source from both the UK and abroad and some have significant timber processing operations alongside their storage and distribution operations. Such businesses are well placed to participate or contribute to any strategy to promote greater use of UK wood.
16. Central to the achievability of any specific strategy for supply chain integration, change in utilisation or import substitution are the commercial realities of pricing, quality and availability. The Pallet sector, for example, has successfully moved from a situation where, in 2002, over 65% of its sawnwood raw material was imported to the 2015 picture where almost 73% is UK wood. The sector reports that this has been down to better pricing and availability from UK sawmills plus they felt that other EU suppliers had found better markets in Asia and the Middle East. The trend over the last four years has, however, been moving slowly back towards exports and it may be that modest increases of UK softwood sales into construction are already placing pressure on the availability and pricing of sawnwood for packaging.
17. It has not been within the scope of this report to complete a detailed analysis of pricing of different grades of roundwood, sawnwood and other wood raw material products going into different sectors from UK and imported sources and this would be a useful exercise to inform strategy. Import figures do indicate that sawnwood prices have increased by 22% from an average of £181 per m³ in 2009 to £221 per m³ in 2014. Such significant increases can usually be attributed to an increase in demand over supply and, alongside the overall sharp rise in imports, can only point to a lack of capacity in UK sawmills.
18. Another important consumer of sawnwood in the UK is the furniture sector. Overall sales of wooden furniture in the UK were almost £6bn, higher than overall sales of Builders' Carpentry and Joinery at £4.4bn. UK manufacture of wooden furniture in 2015 was estimated at £4.1bn but figures are unfortunately not available for this sector's utilisation of UK versus imported sawnwood. Given that UK sawmills do not even include the furniture sector in their sales reporting, it appears that UK furniture manufacturers are using primarily imported sawnwood, both hardwood and softwood. However, UK furniture is not included in the available statistics for imported timber utilisation. Further research is required to clarify the source and volume of sawnwood consumption by UK furniture manufacturers.
19. It is not immediately clear why there is so little integration between UK wood producers and UK furniture manufacturers and it is recommended that this issue be considered by CTI. It may well be that a strategic opportunity exists to facilitate more supply relationships between these sectors.



19. Policy Recommendations

1. Accelerate the rate of planting of new forest
2. Clarify & pursue a strategy of higher removals to address the issues of roundwood shortages
3. Encourage further investment to increase sawmill capacity in line with increased removals
4. With 75% of all hardwood removals in the UK being used as a biofuel, the UK is evidently burning roundwood that could be processed into sawn wood for use in multiple other added value application. This requires further investigation.
5. Review the issue of the fuels subsidy and its impact on the supply chain including pulp & paper and panel manufacturers. Upward price pressure facilitated by the fuel subsidy is potentially making it uncompetitive for panel manufacturers and the pulp & paper sectors to compete effectively. Its reduction/removal or incremental support to the whole market merits consideration. The last detailed analysis of the panel sector was circa six years ago, so requires updating, particularly as it offers potential for expansion in UK manufacturing.
6. UK manufacturers of panels are not responding to demand growth, which is largely being met by imports. This clearly is an opportunity for growth.
7. Promote/create an environment that encourages investment in capacity for the manufacture of panel, based upon a more secure raw material supply chain.
8. An integrated marketing campaign combined with greater supply chain collaboration is required to grow the use of UK grown timber across multiple industry sectors, particularly construction and furniture.
9. A detailed investigation of pricing of wood and semi-finished wood products going into different sectors would better inform the CTIs policy and strategy. At the moment, UK sawmills do not appear to feel it necessary to target customers in construction and furniture but it is possible that raw material prices in these sectors may be higher than in their current markets of fencing and packaging.
10. The overall health of the UK timber sector is clearly linked to the increased use of wood and wood derived products in the construction sector. 75% of all housing in Scotland is already timber framed and the share of overall UK construction in timber frame has been increasing steadily albeit relatively slowly. Accelerating the greater use of timber frame techniques requires the market to better appreciate the compelling case for wood as a primary material, these being carbon capture, speed of build and lifetime energy performance.
11. Since it is the case that UK grown sawn softwood will typically be graded C16 further efforts should be made to increase the share of UK grown softwood from 1.0 million m³ to c.2.2 million m³.
12. Wood usage by the UK Furniture Manufacturing sector is currently poorly reported. An estimate of 15% has been suggested by the TTF, mainly made up of sheet materials but it has been impossible to verify this figure from existing sources. We believe that the utilisation of sawn timber in the furniture sector may be greater than reported but producing more accurate figures will require direct engagement with the sector, something outside the scope of this project.



20. CTI Timber Sector Development – Possible Strategies and Issues

Sub-sector	Strategy	Issues
UK Wood	Grow more	Where and who buy – public or private Softwood or hardwood?
	Remove more	Technically feasible given access, etc? Some believe Forestry owners are ‘managing’ availability
UK Sawmills	Increase capacity	Business case? Investment climate & access to capital Raw material availability – currently a problem and prices rising
	Improved added value	Possible with raw material quality? Competition for raw material Perception/Brand of ‘UK Wood’?
	Vertical integration	Already happening Conflicts with customers Core skills
UK Wood Panel mills	Increase capacity	Business case? Investment climate & access to capital Some are part of European companies Raw material availability – currently a problem and prices rising
	Focus on higher added value products like waterproof and fireproof	Market needs large volumes of commoditised basic product
Pulp and paper	Pulp import substitution	UK pulp making capacity – business case to expand? Raw material availability – competition for woodchip Better harvesting of fines/raw material
Biomass	Import substitution	Best use of UK wood? Impact on other sectors already an issue Could wipe out other wood users (imports are 70% of sawmill inputs)
Builders joinery and carpentry	3. Build more houses 4. Increase wood content of houses	Growth entirely dependent on UK Housebuilding Per capita wood use in UK construction is 0.14m ³ compared with 0.2m ³ in Germany and 0.8m ³ in Finland. Increasing to 0.16m ³ per capita would mean additional 1.0 million m ³ consumption
Structural timber	Win/maintain share against metal and composites	Many modern solutions are multi-material
Timber frame	Increase share of timber frame	Scotland saturated? England is key. Further strengthen specifier education programmes
Furniture	Support growth of timber use in UK furniture manufacturing	Integrate furniture manufacturers more with timber sector Opportunity to greater added value for UK wood, particularly harder softwoods and hardwoods



20.1 Other Issues/Opportunities

- Would a better grading process reduce shipments of poor wood to manufacturers?
- Over half of UK wood already goes to applications where it is chipped, pulped or burnt
 - Are we ensuring that the right grades of wood end up in the right place?
- UK Forestry businesses appear happy with their current situation
 - Profitable
 - Getting what they need from fencing, packaging and some construction
 - Anecdotal evidence that they are at capacity
- UK sawmills complaining about availability and pricing
 - Uneconomical to move a log from Scotland to S.England – wipes out margin
 - But economical to import sawn wood and wood-based panels from Europe?
- Analysis of raw material pricing at different stages in the supply chain would inform decisions about where to place emphasis
 - Real effect of biomass subsidy
 - Competition between industries for raw material
 - Import versus UK sawmill pricing
 - Grade pricing
 - Hardwood versus softwood
- Can it really make economic sense to burn 75% of UK grown hardwoods?
 - Is there an opportunity to revitalise the brand of UK hardwoods, particularly Oak? Long-term vision and strategy as per 'Grown in Britain'



Appendix I

Note on data sources and consistency

Preparation of this report has revealed large variations in the reported data for the sectors and products covered. In some cases, the differences may be explained by the definitions used for the sector or products being described but in others there are unexplained differences which it has not been possible within the scope of this report to investigate further. We note that this appears to have been an ongoing problem for many years and that there have been specific pieces of work commissioned by the Forestry Commission and ONS in the past specifically to look into the methods and accuracy of sector data covering different aspects of timber production and imports.

Our approach in this report has been to use figures from the same overall source where possible, on the assumption that the methods used to prepare these figures will have been the same and so they are more likely to be comparable. Where this has not been possible, we have presented what we believe to be the most accurate figures but have also noted that there are other sources providing different figures.

Appendix II

Response from the CPI with regard to availability and cost of UK wood as a raw material for UK pulpmills.

“Against the background of a growing UK timber resource, we note increased routes for harvested materials to be utilised – these include manufacturing uses (additional sawmill capacity, increased use of virgin fibre by board mills and ongoing demand by paper mills) and of course increased demand for lower grade materials for direct use in energy generation (both direct use and after processing in an increasing number of pellet mills). For lower grade materials there is a pull between manufacturing use and energy generation on which subsidies for energy use impacts.

There is clearly an upward price trend in the cost of small round wood over the past 10 years, this being caused by a number of factors, including (but not restricted to) energy subsidy.

Accordingly, CPI remains of the opinion that the UK should enhance its biomass mobilisation plan to increase the amount of resource available (both through increased management of existing resources and new planting), while continuing to respect the potential for well managed woodlands to deliver the benefits of multi-purpose forestry including its role in the control of carbon dioxide in the atmosphere.

In this context we note that sustainably produced forest fibres is ultimately limited in volume, and with increasing demand for such materials, subsidised use for energy production should ensure that best use is made of the resource, including respecting the cascade principle where industrial use of forest fibre is preferred to energy use.”



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The Confederation of Timber Industries (CTI) is an umbrella organisation, representing the UK's Timber supply chain from Forest to end of life recycling.

The CTI was formed to give a single voice for the timber supply chain.

It acts as a "trade association of trade associations" covering the diverse interests of timber producers, processors, importers, wholesalers, manufacturers and merchants.

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