- *The market for forest products markets in the UNECE[2] region is currently showing signs of improvement.*
- *Over the period 2015-2017, it is estimated that the roundwood harvest within the UNECE region will increase by 2.6%.*
- *Over the period 2016-2017, it is estimated that the market for sawn softwood and wood-based panels in Europe will increase by 3.9% and 3.2% respectively.*

An overview of roundwood harvest and forest products markets in the UNECE region in 2015-2017

Eoin O'Driscoll[1]

Introduction

The forest products sector is a major employer in many of the Member States of the European Union, providing employment for 2.3 million people in the EU-28[3].

The total growing stock of European forests currently comprises 35 billion m^3. Some 84% of the stock is available for wood supply, representing an area of 151 million ha, or 23% of Europe's land area. In addition, Europe's forests contain about 20 billion tonnes of carbon, equivalent to 74 billion tonnes of carbon dioxide (CO_2)[4].

This COFORD Connects Note provides an estimate of markets for wood products within the region of the United Nations Economic Commission for Europe (UNECE) for the period 2015-2017[5]. Estimates of demand within the UNECE region are based on those discussed at the 74th Meeting of the United Nations Economic Commission for Europe (UNECE) Forestry and Forest Products Committee, held in October 2016[6].

Markets are outlined overleaf together with an overview of construction markets.

COFORD
Department of Agriculture, Food and the Marine, Agriculture House, Kildare Street, Dublin 2, Ireland.
Telephone: +353 1 607 2487
Email: info@coford.ie
http://www.coford.ie

1. *eoin@drima.com*
2. *Member States of the UNECE are listed on: https://www.unece.org/oes/member_countries/member_countries.html*
3. *http://www.cei-bois.org/files/Brochure_Demographic_Changes_-_final_version_EN.pdf*
4. *https://www.forestry.gov.uk/pdf/13_facts_and_figures.pdf/$FILE/13_facts_and_figures.pdf*
5. *Demand is taken as the demand for forest products within the UNECE region: http://www.unece.org/index.php?id=42383#/*
6. *http://www.unece.org/index.php?id=42383#/*

Estimated demand for wood products in the UNECE region to 2017

Production of sawn softwood is estimated to increase in the UNECE region by 2.6% in 2016 and by 0.3% in 2017 (Table 1).

Table 1: Estimated change in the production of wood products within the UNECE region (2016-2017).

Region and products	2016	2017
	% change in production (year on year)	
Europe		
Industrial roundwood	0.6	1.7
Sawn softwood	2.3	1.5
Sawn hardwood	-1.3	0.9
WBP[7]	1.3	1.2
Pulp	2.1	2.2
Paper and paperboard	0.1	0.5
Commonwealth of Independent States (CIS)[8]		
Industrial roundwood	3.1	1.4
Sawn softwood	1.5	4.0
Sawn hardwood	1.6	3.1
WBP	4.3	3.8
Pulp	1.6	2.4
Paper and paperboard	0.4	1.0
North America		
Industrial roundwood	0.9	1.1
Sawn softwood	3.5	-3.0
Sawn hardwood	0.1	1.3
WBP	2.0	1.6
Pulp	0.1	0.1
Paper and paperboard	-0.4	-1.0
Total UNECE region		
Industrial roundwood	1.2	1.4
Sawn softwood	2.6	0.3
Sawn hardwood	-2.1	1.3
WBP	1.6	1.7
Pulp	0.8	1.0
Paper and paperboard	-0.1	-0.1

The outlook for the consumption[9] of wood products within the UNECE region is outlined in Table 2[10].

Table 2: Estimated consumption of wood products in the UNECE region (2015-2017f).

Region and product	2015e[11]	2016f[12]	2017f	% change (2015-2017)
Europe		M m^3		
Roundwood	387.71	390.10	396.79	2.3
Sawn softwood	87.11	88.85	90.55	3.9
Sawn hardwood	10.35	11.42	11.54	11.5
Wood-based panels	71.75	73.33	74.04	3.2
		M tonnes		
Wood pulp	44.51	44.87	45.67	2.6
Paper & paperboard	88.71	89.92	90.42	1.9
Wood pellets	20.05	21.01	21.51	7.3
CIS		M m^3		
Roundwood	210.27	216.75	219.76	4.5
Sawn softwood	16.60	14.60	14.60	-12.0
Sawn hardwood	1.26	1.28	1.33	5.6
Wood-based panels	15.47	15.52	15.94	3.0
		M tonnes		
Wood pulp	6.12	6.08	6.08	-0.7
Paper & paperboard	9.00	9.00	9.00	0.0
Wood pellets	0.76	0.82	0.82	7.9
North America		M m^3		
Roundwood	519.90	524.70	530.70	2.1
Sawn softwood	91.14	91.62	91.61	0.5
Sawn hardwood	21.96	22.00	22.41	2.0
Wood-based panels	51.75	50.79	51.25	-1.0
		M tonnes		
Wood pulp	53.96	53.76	53.53	-0.8
Paper & paperboard	75.59	75.21	74.38	-1.6
Wood pellets	4.01	3.97	4.00	-0.2
Total UNECE region		M m^3		
Roundwood	1,117.88	1,131.55	1,147.25	2.6
Sawn softwood	194.85	195.07	196.75	1.0
Sawn hardwood	33.57	34.70	35.28	5.1
Wood-based panels	138.97	139.64	141.23	1.6
		M tonnes		
Wood pulp	104.59	104.71	105.28	0.7
Paper & paperboard	173.30	174.13	173.80	0.3
Wood pellets	24.82	25.80	26.33	6.1

7. *WBP: wood-based panels.*
8. *Member States of the CIS are: Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, the Russian Federation, Tajikistan, Turkmenistan, Uzbekistan and Ukraine: http://www.cisstat.com/eng/cis.htm*
9. *Consumption is defined as: (production + imports) – exports.*
10. *http://www.unece.org/fileadmin/DAM/timber/statsdata/market-statement-coffi74-oct-28-2016.pdf*
11. *E: estimated*
12. *F: Forecast*

Sawn softwood

Over the period 2014-2017, the consumption of sawn softwood within the UNECE region is forecast to increase by 3.1%, largely driven by growth in North American markets (+7.1%). The decline in Commonwealth of Independent States (CIS) markets for sawn softwood (-14.1%) over this period is largely driven by the stagnation of the residential construction sector in the Russian Federation and an expected increase in its exports of sawn softwood, largely to China[13] (Table 3).

Table 3: Estimated consumption of sawn softwood in the UNECE region (2014-2017f)[14].

Region	2014	2015	2016f	2017f	% change (2014-2017)
	M m³				
Europe	88.3	87.1	88.8	90.6	2.6
CIS	17.0	16.6	14.6	14.6	-14.1
North America	85.5	91.1	91.6	91.6	7.1
Total	190.8	194.8	195.0	196.8	3.1

In 2015, the production of sawn softwood in member countries[15] of the European Organisation of the Sawmill Industry (EOS) increased by 0.3% to 80.3 million m³. Over the same period, the production of sawn softwood[16] within the European region of the UNECE increased by 0.25% over 2014 to 102.7 million m³. In 2015, Germany and Sweden were the EU's leading sawnwood producers, accounting for 21% and 17% respectively of the EU-28 total output[17].

In 2016, the production of sawn softwood by EOS members is expected to increase by 1.9% to 81.8 million m³. Over the same period, the consumption of sawn softwood within Europe is forecast to increase by 2.6% (Table 3).

In 2015, 36.3 million m³ of sawn softwood was produced in the CIS, an increase of 0.4% over 2014[18]. The Russian Federation is the largest producer of sawn softwood within the CIS. However, there remains huge unrealised potential to increase the output of the sawn softwood sector in the Russian Federation. Constraints include: high logging costs, logistical challenges and investment risk[19].

In 2015, the production of sawn softwood in the Russian Federation increased by 0.2% to 32.1 million m³. Larger export-oriented mills were able to maintain or increase production, but many smaller mills selling into the domestic market reduced their output.

The end uses for the sawn softwood consumed in North America in 2016 are shown in Table 4[20].

Table 4: End use for sawn softwood in North America (2016).

End use	M m³	% market share
New construction	25.5	30.0
Repair and remodel	32.3	38.0
Industrial	27.2	32.0
Total	85.0	100.0

The supply of sawn softwood for the residential repair, maintenance and improvement (RMI) market in North America is dominated by big box stores[21]. These include Home Depot[22], Lowe's[23] and Menards[24]. They may use wood products as a loss leader[25].

Sawn hardwood

In 2015, the production of sawn hardwood in the UNECE region increased by 1.8% to 40.7 million m³. Over the same period, the consumption of sawn hardwood increased by 0.9% to 35.6 million m³. This was the fourth consecutive year of increase. Falling consumption in Europe and the CIS in 2015 was offset by rising consumption in North America.

Over the period 2015-2017, the consumption of sawn hardwood within the UNECE region is forecast to increase by 5.1% (Table 2).

13. *http://www.unece.org/forests/welcome.html*
14. *http://www.unece.org/fileadmin/DAM/timber/statsdata/fpamr-2016-tables.pdf#page=63*
15. *The European Organisation of the Sawmill Industry (EOS) represents the interests of the sawmill industries from 13 European countries (Austria, Belgium, Denmark, Finland, France, Germany, Italy, Latvia, Norway, Romania, Sweden, Switzerland and the United Kingdom), producing about 77% of the total European sawnwood output: http://www.eos-oes.eu/en/sawmill_industry_facts_figures.php*
16. *http://www.ettf.info/sites/ettf/files/ISC2016/ETTF_ISCVonMoller-SawnSoftwood2016_AdB_10okt2016%20%5BMode%20de%20compatibilit%C3%A9%5D.pdf*
17. *https://bookshop.europa.eu/en/agriculture-forestry-and-fishery-statistics-pbKSFK16001/*
18. *http://www.ettf.info/sites/ettf/files/ISC2016/Russia%20EOS%20Paris%202016%20fin%20-%20Slava%20Bychkov.pdf*
19. *http://www.ettf.info/sites/ettf/files/ISC2016/ISC_2016_Rupert_Oliver_Global_Overview%20%5BMode%20de%20compatibilit%C3%A9%5D.pdf*
20. *http://www.ettf.info/sites/ettf/files/ISC2016/Canada%20-%20Andr%C3%A9%20Beaulieu.pdf*
21. *A big-box store (also supercentre, superstore, or megastore) is a physically large retail establishment, usually part of a chain. The term sometimes also refers, by extension, to the company that operates the store.*
22. *http://www.homedepot.com/*
23. *www.lowes.com*
24. *https://www.menards.com*
25. *http://www.ettf.info/sites/ettf/files/ISC2016/Canada%20-%20Andr%C3%A9%20Beaulieu.pdf*

Wood-based panels (WBPs)

In 2015, the production of WBPs in Europe increased by 0.4% over 2014 to 69.1 million m³ (Table 5)[26].

Table 5: Production of WBP by product in Europe (2014-2015)[27].

Product	2014	2015	% change (2014-2015)
	Production output in M m³		
Particleboard[28,29]	35.0	34.8	-0.6
Fibreboard, of which	22.3	22.5	0.9
MDF	16.3	16.3	0.0
OSB	5.6	5.7	1.8
Plywood	4.6	4.6	0.0
Veneer sheets	1.3	1.5	15.4
Total	68.8	69.1	0.4

In 2015, European consumption of oriented strand board (OSB) increased by 5.5%, to 5 million m³. Germany remained the largest market, consuming 1.4 million m³ in 2015 (up by 14.3% on 2014 and representing 28% of total European consumption). The UK (517,000 m³), Poland (486,000 m³), France (420,000 m³) and Romania (382,000 m³) were the next-largest markets. European consumption of OSB is expected to grow by 2.6% in 2016[30].

If investments in OSB production capacity in Belgium, Hungary and Ireland are confirmed and implemented, the production capacity for OSB in the EU-28 plus EFTA[31] countries could exceed 6.5 million m³ in 2017.

In the third quarter of 2016, when compared to the same period in 2015, the production and consumption of structural WBPs[32] in North America increased by 3.6% and 5.3% respectively[33]. North American OSB demand improved through 2016, driven by the continued rise in US housing starts and a generally robust economic environment. Data from the APA - The Engineered Wood Association[34] shows that demand for OSB from North American mills increased by 7% in 2016[35].

Over the period 2015-2017, the market for WBPs in the UNECE region is forecast to increase by 1.6% (Table 6). The split of WBP markets by region and by product is in Table 6.

The estimated consumption of WBP in the UNECE region by region and by product is in Table 7.

Table 6: Estimated consumption of WBP in the UNECE region (2015-2017f).

Region and product	2015	2016f	2017f	% change (2015-2017)
	M m³			
Europe				
Veneer sheets	2.02	2.17	2.20	8.9
Plywood	8.00	8.08	8.16	2.0
Particleboard	36.90	37.35	37.68	2.1
OSB	5.14	5.27	5.31	3.3
Fibreboard, of which[36]	19.69	20.46	20.69	5.1
Hardboard	2.44	2.55	2.60	6.6
MDF	14.51	15.08	15.17	4.5
Other fibreboard	2.74	2.84	2.92	6.6
Total	71.75	73.33	74.04	3.2
CIS				
Veneer sheets	0.40	0.37	0.34	-15.0
Plywood	1.76	1.63	1.68	-4.5
Particleboard	7.60	7.47	7.42	-2.4
OSB	1.64	1.61	1.66	1.2
Fibreboard, of which	4.07	4.44	4.84	18.9
Hardboard	0.89	0.84	0.80	-10.1
MDF	3.07	3.49	3.94	28.3
Other fibreboard	0.11	0.11	0.11	0.0
Total[37]	15.47	15.52	15.94	3.0
North America				
Veneer sheets	0.65	0.67	0.67	3.1
Plywood	15.80	15.33	15.35	-2.8
Particleboard	6.36	6.36	6.58	3.5
OSB	18.54	18.12	18.19	-1.9
Fibreboard, of which	10.40	10.31	10.46	0.6
Hardboard	0.58	0.55	0.55	-5.2
MDF	4.88	4.80	4.95	1.4
Other fibreboard	4.94	4.96	4.96	0.4
Total	51.75	50.79	51.25	-1.0
Total UNECE region				
Veneer sheets	3.07	3.21	3.21	4.6
Plywood	25.56	25.04	25.19	-1.4
Particleboard	50.86	51.18	51.68	1.6
OSB	25.32	25.00	25.16	-0.6
Fibreboard, of which	34.16	35.21	35.99	5.4
Hardboard	3.91	3.94	3.95	1.0
MDF	22.46	23.37	24.06	7.1
Other fibreboard	7.79	7.91	7.99	2.6
Total	138.97	139.64	141.23	1.6

26. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
27. *At the time of writing, data for 2016 was not available.*
28. *Particleboard production excludes OSB, which is reported separately in the Table.*
29. *Particleboard is also known as chipboard.*
30. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
31. *Member States of the European Free Trade Association (EFTA) are: Iceland, Liechtenstein, Norway and Switzerland: http://www.efta.int/*
32. *Structural WBP are defined as plywood and oriented strand board (OSB).*
33. *https://www.campbellglobal.com/education-research/view-timbertrend-document/172*
34. *www.apawood.org*
35. *http://www.norbord.com/cms/wp-content/uploads/NBD-Q4-2016-Full-Story.pdf*
36. *Fibreboard is defined as: hardboard + MDF + other fibreboard.*
37. *Total WBP consumption = fibreboard + OSB + particleboard + plywood + veneer sheets.*

Table 7: Estimated consumption of WBP in the UNECE region by region and by product (2015-2017f).

Region and product	2015	2016f	2017f
% WBP market share by region			
Europe	51.6	52.5	52.4
CIS	11.2	11.1	11.3
North America	37.2	36.4	36.3
Total	100.0	100.0	100.0
% market share by product			
Veneer sheets	2.2	2.3	2.3
Plywood	18.4	17.9	17.8
Particleboard	36.6	36.7	36.6
OSB	18.2	17.9	17.8
Fibreboard, of which	24.6	25.2	25.5
Hardboard	2.8	2.8	2.8
MDF	16.2	16.7	17.0
Other fibreboard	5.6	5.7	5.7
Total	100.0	100.0	100.0

Pulp and paper products

In 2015, paper and paperboard production fell in Europe and North America as graphic paper capacity continued to be closed due to an increasing reliance on electronic communications.

Overcapacity in the pulp, paper and paperboard segments led to closures and consolidation in 2015 and in the first half of 2016. However, in mature markets such as Europe, Japan and North America, pulp mill closures, integration into tissue and towel operations and conversions removed 2.1 million tonnes of pulp capacity in 2015. A further 602,000 tonnes of integrated pulp capacity was permanently or indefinitely removed[38].

In 2016, it is estimated that the production of graphic paper and newsprint in North America declined by 3.8% and 10% respectively[39].

An overview of the European pulp and paper sector is in Table 8[40,41]. A reduction in the consumption of graphic papers was partly offset by increases in the use of sanitary and household papers and packaging.

In 2015, the production of wood pulp in the CIS increased by 4.7% to 6.8 million tonnes due to new investment in pulp capacity. Over the same period, the production of paper and paperboard products in the region remained unchanged at 9.72 million tonnes[42].

However, a series of strategic investments, mainly in tissue, specialty packaging and dissolving pulp, in recent years has breathed some life into the pulp and paper sector in the UNECE region[43].

Table 8: An overview of the European pulp and paper sector in 2015.

Item	Unit	Value	% change (2014-2015)
Turnover[44]	€ billion	78.8	0.4
Value added[27]	€ billion	16.5	1.5
Pulp production	M tonnes	38.4	0.1
Pulp consumption	M tonnes	44.7	1.2
Paper production	M tonnes	97.9	-0.2
Paper consumption including[45]	M tonnes	88.0	1.6
Graphic papers[46]	M tonnes	37.2	-3.6
Sanitary and household papers	M tonnes	7.8	2.7
Packaging	M tonnes	49.1	2.0

It is estimated that pulp production in the UNECE region increased by 0.8% in 2016 and will increase by 1.0% in 2017. However, over the same period, it is estimated that the production of paper and paperboard in the UNECE region declined by 0.1% in 2016 and will decline by a further 0.1% in 2017.

Pulp capacity outside the UNECE region continues to increase. The expansion of pulp production in 2011-2016 was concentrated in hardwood grades and in low-cost countries outside the UNECE region[47] (Table 9).

Table 9: Production of pulp in Brazil and China (2015).

County	Production M tonnes	% change (2014-2015)
Brazil	17.2	4.6
China	79.1	1.0

Planned further expansions will add 2.8 million tonnes of pulp capacity in Brazil by the end of 2018, an increase of 20.2% when compared with the country's existing capacity.

38. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
39. *http://www.unece.org/fileadmin/DAM/timber/meetings/20161018/coffi74-item3b2-01-valois.pdf*
40. *http://www.unece.org/fileadmin/DAM/timber/meetings/20161018/coffi74-item3b2-02-DeGalembert.pdf*
41. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
42. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
43. *http://www.unece.org/fileadmin/DAM/timber/meetings/20161018/E/ECE_TIM_2016_2_Report_final_5.01.2017.pdf*
44. *Turnover figures are for CEPI members only: www.cepi.org*
45. *Not all paper categories are shown. As such, the paper categories shown in the Table do not add to the total.*
46. *Graphic papers include newsprint.*
47. *http://www.unece.org/fileadmin/DAM/timber/meetings/20161018/E/ECE_TIM_2016_2_Report_final_5.01.2017.pdf*

Wood pellets

Over the period 2012-2015, imports of wood pellets to Europe increased by 60.3% (Table 10)[48]. Demand in the European Union is expected to grow over the next 3 years, as Member States work towards meeting the Europe 2020 targets for climate change and energy[49].

It is estimated that the production of wood pellets in the UNECE region increased by 6.8% in 2016 and will increase by 3.1% in 2017[50].

Table 10: Imports of wood pellets to Europe (2012-2015).

Importer	2012	2013	2014	2015
		M tonnes		
UK	1,487	3,430	4,757	6,520
Denmark	2,016	2,236	2,121	2,121
Italy	1,197	1,749	1,936	1,640
Belgium	970	896	896	896
Germany	347	547	419	418
Austria	272	385	344	369
Other markets	2,156	2,090	1,997	1,543
Total	8,445	11,333	12,470	13,507

The UK is the largest importer of wood pellets in Europe. The US and Canada are the principal suppliers to the market, with a combined market share of 72% in 2015 (Table 11).

Table 11: Imports of wood pellets to the UK by country and volume (2011-2015)[51].

Exporter	2011	2012	2013	2014	2015
			M tonnes		
US	0.27	0.48	1.57	2.76	3.50
Canada	0.59	0.85	1.47	1.03	1.20
Portugal		0.02	0.14	0.44	0.44
Latvia		0.10	0.17	0.41	1.00
Estonia				0.05	0.32
Other	0.16	0.04	0.08	0.07	0.06
Total	1.02	1.49	3.43	4.76	6.52

The production of wood pellets in the US is centred in the Gulf Coast region. Over the period 2008-2015, US export capacity increased from less than 100,000 tonnes in 2008, to more than 3 million tonnes in 2015[52].

The vast majority of wood pellet imports to the UK are burned in large power stations for electricity generation, either exclusively or co-fired with coal. UK power plants vary in their efficiency: the best performers currently use from 0.45 to 0.50 million tonnes of wood pellets per 100 megawatt (MW) capacity[53].

The development of large scale electricity generation and combined heat and power (CHP) using imported wood pellets continues. In addition to Drax's[54] conversion of its coal boilers to biomass[55], other projects to note are MGT in Teesside[56] and EPH[57] confirming its intention to convert its recently acquired Lynemouth coal firing power station[58] to biomass. It is estimated that to run the 420 MW power station on wood-biomass will require 1.5 million tonnes of wood pellets a year.

In 2016, SinoFortone, a Chinese investment group, announced it will invest £2 billion in two biomass CHP plants at Port Talbot and Holyhead in Wales. When fully operational, these are predicted to consume 3.3 million tonnes of imported wood pellets per annum[59].

UK market for forest products

Over the period 2015-2017, the consumption of sawn softwood in the UK is forecast to increase by 5% (Table 11). Over the same period, the consumption of OSB and medium density fibreboard MDF in the UK is forecast to decline by 7.7% and by 3.2% respectively. The reduction in demand is linked to the reduction in the output of the UK housing sector (Table 15). It is estimated that 50% of the OSB market in the UK is used for construction and for RMI[60].

Over this period, the UK market for wood pellets is estimated to increase by 4.3% (Table 12)[61].

48. *http://www.unece.org/fileadmin/DAM/timber/statsdata/fpamr-2016-tables.pdf#page=59*
49. *http://www.nrcan.gc.ca/forests/industry/products-applications/13736*
50. *http://www.unece.org/fileadmin/DAM/timber/meetings/20161018/E/ECE_TIM_2016_2_Report_final_5.01.2017.pdf*
51. *https://www.gov.uk/government/statistics/dukes-foreign-trade-statistics*
52. *https://woodprices.com/north-american-wood-fiber-review/*
53. *https://gain.fas.usda.gov/Recent%20GAIN%20Publications/UK%20Wood%20Pellet%20Market_London_United%20Kingdom_1-16-2015.pdf*
54. *http://www.drax.com/*
55. *Subject to being awarded State Aid approval, it was announced in December 2016 that a third unit at Drax's coal power station will switch to burning wood pellets. https://www.theguardian.com/environment/2016/dec/19/power-station-shares-jump-ec-approves-wood-burning-subsidies-coal-switch*
56. *http://www.mgtteesside.co.uk/*
57. *http://www.epholding.cz/en/*
58. *http://www.lynemouthpower.com/*
59. *http://www.forestryscotland.com/media/322451/tilhill%20timber%20bulletin%2016.pdf*
60. *http://www.forestryscotland.com/media/308758/ttj%20norbord.pdf*
61. *http://www.ettf.info/sites/ettf/files/ISC2016/RAPPORT%20ISC%202016%20maj%20NOV%202016.pdf*

Table 12: Estimated consumption of selected forest products in the UK (2015-2017f)[62].

Product	2015	2016	2017f	% change (2015-2017)
	Million m³			
Sawn softwood	9.17	9.46	9.63	5.0
Sawn hardwood	0.46	0.45	0.45	-2.2
Plywood	1.42	1.42	1.42	0.0
Particleboard	2.61	2.60	2.71	3.8
OSB	0.52	0.50	0.48	-7.7
MDF	1.26	1.24	1.22	-3.2
Wood pellets	6.52	6.80	6.80	4.3

The UK Timber Trade Federation (TTF)[63] estimates that imports of sawn softwood to the UK in 2015 increased by 2.6% over 2014[64] to 6.04 million m³. In 2015, it is estimated that 9.17 million m³ of sawn softwood was consumed in the UK[65] (Table 11). In 2016, the consumption of sawn softwood in the UK was projected to rise by 3.1% to 9.46 million m³ (Table 11).

The volume of imported planed softwood increased from 2 million m³ in 2014 to 2.1 million m³ in 2015. In 2015, the volume of imported rough sawn timber declined from 3.93 million m³ in 2014 to 3.79 million m³ in 2015.

Production data from surveys of softwood sawmills in the UK suggests that the product market breakdown has remained fairly stable over the past 10 years. The use of sawn softwood by market for 2015 is in Table 13.

Table 13: Use of sawn softwood by end use market in the UK (2015).

Sector	% market share by volume
Construction	25
Fencing	38
Packaging	30
Other	7
Total	100

In 2015, just 36% of the UK market for sawn softwood was supplied by domestic sawmillers[66]. While the health of the construction industry is instrumental to the development of the market for imported softwood, domestic producers have significantly higher shares of the pallet, packaging, fencing and outdoor products markets[67].

In 2015, the consumption of sawn hardwoods in the UK declined by 12.7% to 0.46 million m³.

Consumption of wood pulp in the UK in 2015 was 1.41 million tonnes, a decrease of 2.0% on 2014.

The Confederation of Paper Industries (CPI) estimates that paper and board consumption in the UK for 2015 was 9.08 million tonnes, down 1.9% from 9.26 million tonnes in 2014[68].

Mainland European and UK-produced timber and wood-based panel products dominate the supply chain in the UK, accounting for over 92% of all supply in 2015[69].

The UK remains the key export market for forest products manufactured in Ireland. Ireland remains the largest exporter of fibreboard to the UK and in 2015 was the 4th largest exporter of sawn softwood to the UK. Ireland's market share by product is in Table 14[70,71].

Table 14: Ireland's share of the UK market for forest products (2013-2015).

Product	2013	2014	2015
	% market share		
Sawn softwood	8	7	6
Particleboard including OSB	15	13	14
Fibreboard including MDF	34	37	35

While the Republic of Ireland maintains a dominant position in the supply of OSB imports to the UK, strong growth was achieved in 2014 by Latvia and Lithuania[72].

In addition, a weaker sterling is making domestically produced OSB, particleboard and MDF more competitive against imported WBP[64].

62. *http://www.unece.org/fileadmin/DAM/timber/country-info/statements/UK2016.pdf*
63. *http://www.ttf.co.uk/*
64. *http://www.unece.org/fileadmin/DAM/timber/country-info/statements/UK2016.pdf*
65. *http://www.unece.org/fileadmin/DAM/timber/country-info/statements/UK2016.pdf*
66. *At the time of writing, data for 2016 were not available.*
67. *http://www.unece.org/fileadmin/DAM/timber/country-info/statements/UK2016.pdf*
68. *http://www.paper.org.uk/information/statistics/CPI_Factcard_2015_FINAL.pdf*
69. *https://www.forestry.gov.uk/pdf/Ch3_Trade_FS2016.pdf/$FILE/Ch3_Trade_FS2016.pdf*
70. *https://www.forestry.gov.uk/pdf/Ch3_Trade_FS2016.pdf/$FILE/Ch3_Trade_FS2016.pdf*
71. *At the time of writing, data for 2016 were not available.*
72. *http://www.forestryscotland.com/media/311818/ttf%20statistical%20review%202015.pdf*

Housing and repair markets in the UK

As the majority of UK forest products are used in construction applications, the market in the UK is intrinsically linked to the fortunes of the construction sector, particularly house-building.

In 2015, housing starts in the UK were around 4.2% higher when compared to 2014, which was however, a significant drop in growth rate since 2014 which saw a 13.3% increase on 2013. UK house starts are anticipated to remain flat in 2017 before a 2.0% fall in 2018 (Table 15) due to slower demand, as UK economic growth and real wage growth are expected to weaken considerably in 2017[73].

Table 15: House starts in the UK (2015-2018f)[74,75].

Item	2015	2016	2017f	2018f
House starts	178,880	172,490	172,000	169,560

The volume of repair, maintenance and improvement (RMI) work remained similar to 2014 levels for public and private housing which increased by only 0.8% and 1.9% respectively. This contrasts to the rise in 2014 on 2013 which was 1.6% for public and 8.2% for private housing RMI[76].

It is estimated that private housing RMI increased by 3.2% in 2016 and will increase by 2.4% in 2017 and by 2.2% in 2018[77].

Engineered Wood Products (EWP)

EWP are defined as value-added wood products that are made by bonding sawn softwood, veneers, strands or fibres together, usually with resin. The manufacturing process generates high performance, dimensionally stable products for different size building projects. Products include cross laminated timber (CLT), I beams, parallel strand lumber (PSL), laminated veneer lumber (LVL) and glulam.

EWP markets in Europe have increased rapidly in the past decade in spite of the economic downturn[78]. European produced EWP are primarily consumed in domestic markets. Currently only glulam is exported in notable volumes from Europe.

EWP are also manufactured in North America, but the market differs from Europe. The most important EWP in North America are wooden I-joints and laminated veneer lumber (LVL), whereas the market volume of glulam is only one tenth that of Europe. Over the period 2010-2015, the production of EWP in North America has increased: glulam +8.1%, I beams +1.8% and LVL +2.4%[79].

The use of CLT for construction is gaining momentum in North America, thanks in large part to interest shown in west-coast cities in North America with strong wood cultures (e.g. Portland, Seattle and Vancouver[80]), the newly established quality and performance standards[81,82,83] and investment in manufacturing facilities[84].

EWP are often in direct competition with steel and concrete; however they have an advantage in quicker build time, lower embodied energy and greater carbon savings.

A report released in mid 2016 forecasts that the global engineered wood products market will grow at a compound annual growth rate of 26.5% for the period 2016-2020[85,86].

Housing markets within the UNECE region

The European and North American housing markets are still recovering from the 2008 global financial crisis.

The key factors positively affecting the residential sector in Europe are financing and improved economic prospects, consistent with a slowly recovering European economy[87]. On average, over the period 2015 to 2018, the European market for new residential construction and repair, maintenance and improvement (RMI) is forecast to increase by 2.45% per annum (Table 16)[88].

73. *http://www.constructionproducts.org.uk/media/214760/cpa-autumn-forecast-press-release-31october2016.pdf*
74. *http://www.constructionproducts.org.uk/media/214760/cpa-autumn-forecast-press-release-31october2016.pdf*
75. *https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building*
76. *http://www.unece.org/fileadmin/DAM/timber/country-info/statements/UK2016.pdf*
77. *http://www.cadvantage.co.uk/forecasting-private-housing-rmi/*
78. *http://www.efi.int/files/attachments/publications/efi_tr_91_2014_manninen.pdf*
79. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
80. *http://wood-works.ca/*
81. *http://www.forestprod.org/buy_publications/resources/untitled/summer2012/Volume%2022,%20Issue%202%20Mohammad.pdf*
82. *http://www.awc.org/pdf/education/mat/ReThinkMag-MAT240A-CLT-131022.pdf*
83. *http://www.wood.tcaup.umich.edu/lectures/PRG_320-2012.pdf*
84. *http://www.unece.org/fileadmin/DAM/timber/meetings/20161018/E/ECE_TIM_2016_2_Report_final_5.01.2017.pdf*
85. *http://www.researchandmarkets.com/research/p2tvc6/global_engineered*
86. *http://www.wbpionline.com/news/global-engineered-wood-products-market-growth-4934801/*
87. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
88. *Euroconstruct, June 2016: http://www.euroconstruct.org/about/about.php*

Table 16: Estimated change in residential construction and residential RMI output in the Euroconstruct region (2015-2018)[89,90,91].

Item	Unit	2015	2016	2017	2018
New residential construction	% change (€ at 2015 prices)	2.9	5.7	4.2	3.0
Housing starts	1,000 units	1,465	1,562	1,623	1,658
Residential RMI	% change (€ at 2015 prices)	1.3	1.4	1.6	1.4
Total residential construction	% change (€ at 2015 prices)	1.9	3.1	2.7	2.1

The US housing market is a major driver of softwood lumber and WBP demand in North America. It has strengthened considerably from the depths of the economic recession, though the recovery continues to be slower than anticipated. Starts have grown considerably since 2012, when they totalled 784,000 units, to 1 million units in 2014 and 1.1 million units in 2015 (Table 17). In the first 7 months of 2016, annualised starts averaged 1.2 million units. This level of housing starts is still below the long-term (20-year) average of 1.4 million annual starts, with a higher proportion of multifamily housing starts (about 35%) than the historical average (25-30%). The higher instance of multifamily housing starts further dampens softwood lumber demand, as single family homes use three to four times the amount of structural lumber than multifamily units[92,93]. The estimated market for forest products in the US for the period 2015-2017 is in Table 18.

North American OSB demand continues to improve, driven by a gradual rebound in new home construction and strong growth in repair-and-remodel and industrial end-uses[94]. It is estimated the consumption of OSB in North America will increase by 5.8% over the period 2015-2017 (Table 18).

In 2015, housing starts in Canada increased by 3.3%, from 189,329 units in 2014 to 195,535. It is estimated that Canadian starts for 2016 were 186,800, with 177,800 starts expected in 2017[95].

In 2005, 83% of house starts in North America were single-family homes. By 2015, this had declined to 64%[96]. Multifamily construction consumes approximately 65% less sawn softwood and WBP per family unit than do traditional single-family units[97].

Table 17: US housing starts (2013-2018f)[98].

Year	Single	Multifamily	Total
		000 homes	
2013	618	307	925
2014	648	355	1,003
2015	715	397	1,112
2016p[99]	782	393	1,175
2017f	855	381	1,236
2018f	961	370	1,331

Table 18: Estimated market for forest products in the US (2015-2017f)[100,101].

Product	2015	2016	2017f	% change (2015-2017)
		M m^3		
Roundwood				
Coniferous sawlog	122.4	123.2	123.2	0.7
Hardwood sawlog	35.0	35.1	35.2	0.6
Pulpwood	139.9	138.3	138.0	-1.4
Total	297.3	296.6	296.4	-0.3
WBP				
Plywood	11.8	11.2	11.1	-5.9
Particleboard	4.5	4.6	4.7	4.4
OSB	15.5	16.2	16.4	5.8
Insulation board	2.8	2.8	2.8	0.0
Hardboard	0.7	0.7	0.7	0.0
MDF	4.1	4.3	4.4	7.3
Total	39.4	39.8	40.1	1.8
		M m^2		
Veneer sheets	669	669	669	0.0
Pulp, paper and paperboard products		M tonnes		
Pulp	47.0	47.0	47.0	0.0
Paper and paperboard products	70.3	70.2	69.6	-1.0
Total	117.3	117.2	116.6	-0.6

Housing completions in the Russian Federation decreased by 1.1% in 2015, with just over 280,000 new residential dwellings put in place. Subdued near-term economic growth is expected to result in sizeable budget cuts and delays in residential construction programmes for the period 2016-2017[102].

89. *The Euroconstruct region comprises 19 countries. The western area consists of Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the UK. The eastern area comprises the Czech Republic, Hungary, Poland and Slovakia: http://www.euroconstruct.org/about/about.php*
90. *http://www.ettf.info/sites/ettf/files/ISC2016/Softwood%20Report%20-%20Sampsa%20Auvinen%20Presentation.pdf*
91. *http://www.ettf.info/sites/ettf/files/ISC2016/Softwood%20Report%20-%20Sampsa%20Auvinen%20Presentation.pdf*
92. *http://www.unece.org/fileadmin/DAM/timber/country-info/statements/Canada2016.pdf*
93. *It is estimated that 37 m3 of sawn softwood is used to construct a single family home in North America, while 11 m3 of sawn softwood is used to construct a multifamily home: http://www.ettf.info/sites/ettf/files/ISC2016/Canada%20-%20Andr%C3%A9%20Beaulieu.pdf*
94. *http://www.norbord.com/cms/wp-content/uploads/NBD-Q4-2016-Full-Story.pdf*
95. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
96. *http://www.ettf.info/sites/ettf/files/ISC2016/Canada%20-%20Andr%C3%A9%20Beaulieu.pdf*
97. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
98. *https://www.census.gov/construction/nrc/index.html*
99. *P: provisional*
100. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*
101. *http://www.americanhardwood.org/products-grades/american-hardwood-products/veneer/*
102. *http://www.unece.org/fileadmin/DAM/timber/publications/fpamr2016.pdf*

Growing the use of forest products in construction[103]

Architects and engineers are the key professionals that determine material selection. Depending on jurisdiction, building type, professional responsibilities and codes, one profession may hold more sway over the other. For the most part, these two professions decide upon structural, envelope and finishing materials, although they are not generally required to have a comprehensive knowledge of all potential structural materials. Engineers are generally required to have a thorough knowledge of both steel and concrete, largely due to the requirements set by the professional accreditation bodies. However, knowledge about wood products is generally not required for either an architect or engineer to achieve their professional credentials.

Despite the predictable nature of wood combustion, many fire protection professionals are resistant to the use of wooden buildings. This is probably a consequence of fires experienced at a time before modern protective measures were adopted including: early detection, sprinklers, better fire-fighting equipment and built-in safety measures became standard within most building codes. Since 2015, structural elements which are constructed from forest products for use on Swiss construction sites must be designed to meet a fire resistance of 60 minutes[104].

In addition to a low level of knowledge about building with wood, the construction sector globally is not renowned for its investment in research and innovation. It often relies on designers to inject new ideas into building design. In fact, only a few construction companies have notable research and development capabilities. Some countries have taken significant steps to reverse this as well as reinvigorate both trade skills and public perception of the construction sector to introduce leading edge practices. For example, the Construction Scotland Innovation Centre (CSIC)[105] was created to help transform the construction sector by demonstrating and enabling new practices to succeed.

The role of building officials is to enforce building code policies and regulations, as well as ensure a base level of structural integrity and performance to protect occupants. Even in the absence of policies which specifically exclude wood use, other regulations may be constraining or preventing its use with limitations, which are not needed or are no longer relevant with current best practices in wood construction.

Insurance companies historically base their insurance rates on the potential for damage caused by a fire within a building. Insurance rates may be between two and six times higher for a wood structure than a similar building constructed of a non-combustible material like steel or concrete. Fortunately, these rates are not a significant contribution to the total project cost, but may nevertheless cause some builders to move away from wood.

In 2016, a UNECE Workshop was held in Geneva regarding the market for wood products in the construction sector. This discussed the major obstacles which have to be overcome to increase the use of wood in construction. The outcome of this workshop included the following suggestions[106]:

- enhance the education of architects and engineers on the physical and design properties and use of wood;
- harmonise and update regulations, products standards, and building and fire safety codes;
- improve communication with insurers and financiers about actual risks and cost effectiveness;
- adopt lifecycle analysis of buildings including embodied emissions;
- promote increased public funding for wood construction and
- set up a taskforce to engage with the construction sector to promote wood construction.

Green building systems and independent certification

Green building is implemented by several different rating systems (e.g. LEED and BREEAM) which aim to reduce environmental impacts of a building project through its entire life cycle. However, the rating systems are voluntary, which weakens their effectiveness. Furthermore, various rating systems used around the world differ significantly, which causes problems for global comparison.

Leadership in Energy and Environmental Design (LEED)[107] is a rating system devised by the United States Green Building Council (USGBC) to evaluate the environmental performance of a building and encourage market transformation towards sustainable design.

BREEAM (Building Research Establishment Environmental Assessment Method), first published by the Building Research Establishment (BRE) in 1990, is the world's longest established method of assessing, rating, and certifying the sustainability of buildings[108].

103. *http://www.unece.org/fileadmin/DAM/timber/meetings/20161018/E/ECE_TIM_2016_2.inf_wood_construction.pdf*
104. *http://www.unece.org/fileadmin/DAM/timber/meetings/20161018/coffi74-item3c-02-klippel.pdf*
105. *http://www.cs-ic.org/*
106. *http://www.unece.org/fileadmin/DAM/timber/meetings/20161018/E/ECE_TIM_2016_2_Report_final_5.01.2017.pdf*
107. *http://www.usgbc.org/leed*
108. *http://www.breeam.com/*