

# An overview of wood fibre use in Ireland (2012)

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Data sources: The data contained in this overview have been compiled from the UNECE Timber Committee Market Report for Ireland (2013) and from the EUROSTAT Joint Forest Sector Questionnaire (JFSQ) for Ireland (2013). Both of these reports were compiled on behalf of the Department of Agriculture, Food and the Marine by drima marketing.

## Irish roundwood harvest

Including firewood, the total roundwood harvest in the Republic of Ireland in 2012 was 2.84 million m<sup>3</sup>. In 2012, 2.60 million cubic metres of roundwood was processed in the Republic of Ireland, a reduction of 5.3% on 2011 (Table 1). This reduction was caused by some private growers reducing their harvesting output as a result of lower roundwood prices.

Table 1: Roundwood available for processing in the Republic of Ireland 000 m<sup>3</sup> overbark (2008-2012).

	2008	2009	2010	2011	2012
<b>Commercial softwood</b>					
Imports less exports	106	-63	28	55	-18
Coillte harvest	2,279	2,354	2,217	2,299	2,269
Private sector harvest	118	130	463	386	343
<b>Commercial hardwood</b>					
Coillte harvest	1	3	0	1	1
Private sector harvest	0	0	0	1	1
<b>TOTAL</b>	<b>2,504</b>	<b>2,424</b>	<b>2,708</b>	<b>2,742</b>	<b>2,596</b>

## Sources and uses of wood fibre

The wood fibre sources for the processing and wood energy sectors in the Republic of Ireland are shown in Table 2, while the product output is in Table 3.

Table 2: Sources of wood fibre in 000 m<sup>3</sup> overbark (2008-2012).

	2008	2009	2010	2011	2012
Roundwood	2,503	2,421	2,708	2,740	2,594
Sawmill residues	846	838	842	829	904
Wood-based panel residues	106	94	101	115	104
Harvest residues	0	0	0	40	30
Post-consumer recovered wood (PCRW)	208	200	280	270	250
<b>TOTAL</b>	<b>3,663</b>	<b>3,553</b>	<b>3,931</b>	<b>3,994</b>	<b>3,882</b>

Table 3: Uses of wood fibre in 000 m<sup>3</sup> overbark (2008-2012).

	2008	2009	2010	2011	2012
Sawmilling	1,619	1,602	1,603	1,580	1,622
Round stake	80	88	118	116	131
Wood-based panels	1,462	1,286	1,400	1,340	1,276
Wood biomass energy use by the forest products sector	378	431	554	572	611
<b>Other uses</b>					
Horticultural bark mulch	44	54	27	34	40
Wood chip for commercial biomass use	30	55	39	41	30
Export of forest product residues	50	37	58	196	112
Other uses not specified above			132	115	60
<b>TOTAL</b>	<b>3,663</b>	<b>3,553</b>	<b>3,931</b>	<b>3,994</b>	<b>3,882</b>

In 2012, exports of forest products from the Republic of Ireland were valued at €303 million, a 2% reduction on 2011. Wood based panels accounted for €179 million, the balance comprising paper and sawn timber exports (Table 8). Export volumes of WBP increased by 2.3% over 2011 (Table 8).

### Firewood

In 2012, 225,000 m<sup>3</sup> of firewood was used in the Republic of Ireland to a value of €33 million, showing that it is providing a steady and a growing market for first thinnings (Table 4). In addition, firewood is also harvested by forest owners for their own use.

Table 4: Volume and value of the domestic firewood market in the Republic of Ireland (2008-2012).

	000 m <sup>3</sup> overbark	€ million
2008	171	24.83
2009	184	26.75
2010	199	28.80
2011	214	30.97
2012	225	32.56

### Roundwood supply and demand to 2020

Over the next 16 years, the supply of roundwood to be harvested from Irish forests will increase significantly. A recent COFORD report shows that over the period to 2028 the production capacity of Ireland's forests will almost double to 7 million cubic metres, from the current 3.79 million.

Almost all of the increase in supply is set to come from privately-owned forests in the Republic of Ireland; those areas established over the past 25 years on foot of State/EU and private sector investment (Table 5).

Considerable scope exists to expand wood energy production, and this is in addition to supplies for sawmilling and board manufacture.

*Table 5: Forecast of potential net realisable volume production in 000 m<sup>3</sup> overbark by assortment category from the private forest estate in Ireland (2012-2028).*

	Tip-7 cm	7-13 cm	14-19 cm	20 cm +	Total
2012	39	225	102	57	423
2013	35	190	106	73	404
2014	41	229	150	45	465
2015	47	264	183	57	551
2016	52	297	196	72	617
2017	64	377	284	91	816
2018	56	317	191	122	686
2019	65	366	290	195	916
2020	78	492	486	262	1,318
2021	85	485	555	463	1,588
2022	84	483	528	404	1,499
2023	93	502	784	848	2,227
2024	84	490	657	617	1,848
2025	72	427	634	703	1,836
2026	76	441	715	886	2,118
2027	101	544	1,209	1,605	3,459
2028	96	519	1,090	1,620	3,325

However, realising this increase in potential production will entail significant capital investment in roads, harvesting equipment and in information technology (IT) systems by forest owners, contractors and by the State.

Historically the Irish timber processing sector has processed all of the roundwood which has been harvested from Irish forests. In addition there is a lot of scope for the private forest sector to supply wood for energy use. Work which was undertaken for the COFORD Demand Report shows that the projected level of demand for roundwood on the island of Ireland in 2020 from both the conventional timber processing sector and from the emerging wood biomass energy sector is shown in Table 6.

Table 6: *Estimated roundwood demand on the island of Ireland in 2020 in 000 m<sup>3</sup> overbark.*

	Demand
Conventional demand	3,830
Demand for forest-based biomass for energy production	3,084
Residues from conventional demand which are used to meet energy demand	-876
TOTAL	6,038

Based on scenario modelling, the Sustainable Energy Authority of Ireland (SEAI) forecasts that by 2020, the demand for biomass for energy in the Republic of Ireland will be 53 M GJ. Forest-based biomass and waste resources could deliver about 9 M GJ each, with agricultural residues having the potential to supply a further 8 M GJ. The balance of supply is likely to comprise indigenous purpose-grown energy crops and imported biomass.

The demand for forest-based biomass for energy in 2020 is an aggregate of the demand for combined heat & power (CHP), heat only and co-firing. To meet the 2020 renewable energy target, the demand for forest-based biomass for energy production will need to double over the period 2011 to 2020. This is a challenging target. However, experience in Scotland and in Austria has shown that biomass use can grow to meet challenging renewable energy targets.

#### **Private forest estate**

Over the period (1981-2012), over 250,000 hectares of forest were established by private growers in Ireland.

The private forest sector now accounts for 46% of the national forest estate or 5% of total land area of the Republic of Ireland.



*Historically, Irish timber processors have utilised all the roundwood available from Irish forests.*

There are approximately 19,500 private forest owners, of which 84% are classed as farmers. These manage over 340,000 hectares of forest.

In the period (1981-2012), over 250,000 hectares of forest were established by private growers in Ireland. 226,364 hectares of this estate has been planted since 1990. 84% of private forest owners are farmers. Much of this estate is now available for harvesting.

However, the full potential of this farm forest resource for rural development in Ireland has not yet been fully realised. 42% of the private forest estate in Ireland is less than 25 years old. Over the period 2010-2012, the harvest of commercial roundwood from the private forest estate declined by 26%. This was despite strong demand for wood fibre from both the sawmilling and wood-based panel sectors.

In 2012, forest fires damaged 75 hectares of forest. This was a considerable improvement on the 1,500 hectares lost to fire in 2011.

*Table 7: Area of new forests planted in the Republic of Ireland by area and by ownership.*

	State	Private	Total
	Hectares		
2005	64	10,032	10,096
2006	25	8,012	8,037
2007	0	6,947	6,947
2008	67	6,182	6,249
2009	35	6,613	6,648
2010	4	8,310	8,314
2011	62	6,591	6,653
2012	60	6,592	6,652



*In 2012, 75 ha of forests were damaged by fire, a considerable improvement on 2011 when 1,500 ha were destroyed.*

### **Forest products trade (2008-2012)**

In 2012, exports of forest products from the Republic of Ireland were valued at €303 million, a 2% reduction on 2011. Wood based panels accounted for €179 million, the balance comprising paper and sawn timber exports (Table 8). Export volumes of WBP increased by 2.3% over 2011 (Table 8).

In value terms, Ireland became a net exporter of sawn timber in 2010. Over the period 2011-2012, consumption of sawn timber in the Republic of Ireland grew by 17%.

In 2012, 68% of the Irish market for sawn softwood timber was supplied by domestic production with the balance being imported. Over the same period, only 3% of the Irish market for sawn hardwood was supplied domestically (Table 8).

Table 8: Timber and paper products trade, volume and value (2008-2012).

	Imports									
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
	000 m <sup>3</sup> underbark					€ million				
Sawn timber	412	232	242	201	145	141	66	74	64	54
Wood-based panels	264	181	166	195	204	108	68	65	68	75
	000 tonnes									
Pulp products	29	32	41	54	47	20	22	31	45	45
Paper & paper-board products	526	379	370	383	415	520	308	313	333	339
TOTAL						789	464	483	510	513
	Exports									
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
	000 m <sup>3</sup> underbark					€ million				
Sawn timber	389	564	658	619	534	54	51	85	83	73
Wood-based panels	614	580	660	616	630	195	147	179	173	179
	000 tonnes									
Pulp products	2	0	1	0	0	0	0	0	0	0
Paper & paper-board products	77	45	33	59	68	69	45	44	52	51
TOTAL						318	243	308	308	303

### Sawmill output (2012)

In 2012, sawmill roundwood intake was 1.75 million m<sup>3</sup>, which was converted to 0.78 million m<sup>3</sup> of sawn timber (Table 9). A further 0.12 million m<sup>3</sup> of round stakes were produced bringing total sawmill output to 0.9 million m<sup>3</sup>.

The timber products which are produced by Irish sawmills serve three main markets: construction/structural, pallet/packaging and fencing. The market size of these products from 2008-2012 is shown in Table 9.

Over the period 2008-2012, in line with the reduction in construction activity, the domestic market for sawn timber declined by 66%. Over the same period, sawn timber exports grew by 37% (Table 10). In 2012, 63% of the Irish market for sawn timber was supplied by indigenous production with the balance being imported (Table 10).

**Panel sector (2012)**

In 2012, 704,000 m<sup>3</sup> of wood-based panels (WBP) were produced from an intake of 1.28 million m<sup>3</sup> of wood fibre, a 4.4% reduction over 2011 (Table 12). This can be traced to Finsa Forest Products ceasing particleboard manufacture in January 2011. A very high proportion (89%) of WBP manufacture was exported; 630,000 m<sup>3</sup>, to a value of €179 million (Table 12). WBP exports mainly comprised oriented strand board (OSB) and medium density fibreboard (MDF), manufactured by Masonite, Medite and SmartPly. Key export markets were the UK and the Benelux countries.

Table 12: Production and exports of wood-based panels in and from the Republic of Ireland (2008-2012).

	2008	2009	2010	2011	2012
Production (000 m <sup>3</sup> )	779	709	758	736	704
Export volume (000 m <sup>3</sup> )	614	580	660	616	630
Export value (€ million)	195	147	179	173	179

**Wood biomass overview**

In 2012, 35.6% of the roundwood harvested in the Republic of Ireland was used for energy generation, mainly within the forest products sector (Table 13). In 2012, the output of the forest-based biomass energy sector grew by 4.4% over 2011 (Table 13). In 2012, 225,000 m<sup>3</sup> of firewood was used to a value of €33million, showing that it is providing a steady and a growing market for first thinnings (Table 13).

Table 13: Use of forest-based biomass in 000 m<sup>3</sup> overbark as a percentage of total roundwood harvest in the Republic of Ireland (2010-2012).

	2010	2011	2012
Forest-based biomass use by Edenderry Power	79	85	152
Forest-based biomass used for energy production and process drying in sawmills and wood-based panel mills	475	487	459
Roundwood chipped for primary energy use	39	41	30
Domestic firewood use	199	214	225
Short rotation coppice (SRC)	1	5	5
Wood pellets and briquettes	121	129	144
Charcoal	2	5	2
TOTAL	916	966	1,017
Roundwood harvest			
Roundwood available for processing	2,708	2,740	2,594
Firewood harvest	199	214	225
TOTAL	2,907	2,954	2,819
Forest-based biomass as a % of total roundwood harvest	31.5	32.6	36.0

In addition, firewood is also harvested by forest owners for their own use.

Since 2006, the use of wood biomass energy in Ireland has resulted in an estimated greenhouse gas (GHG) emission saving of 3.12 million tonnes of carbon dioxide (CO<sub>2</sub>). Wood-biomass fuels used by the sector are shown in Table 14. The output of the wood biomass sector is shown in Table 15.

Table 14: Wood biomass fuel use by sector in the Republic of Ireland in 000 m<sup>3</sup> overbark (2008–2012).

	Category	2008	2009	2010	2011	2012
Firewood	Domestic heating	171	184	199	214	225
Wood chips	Commercial heating	63	53	39	41	30
Short rotation coppice (SRC)	Commercial heating	1	4	1	5	5
Wood pellets and briquettes	Domestic and commercial heating	82	110	121	129	144
Charcoal	Domestic use	2	2	2	5	2
Biomass use by the energy and forest products industry	Process drying/heating/CHP	384	438	554	572	611
<b>TOTAL</b>		<b>703</b>	<b>791</b>	<b>916</b>	<b>966</b>	<b>1,017</b>
Use by the energy and forest products sectors (%)		55	55	60	59	60

Table 15: Output of the forest-based biomass energy sector in the Republic of Ireland (2008–2012).

	Unit	2008	2009	2010	2011	2012
Heat	TJ	4,857	5,273	6,306	6,604	6,808
Electricity	TJ	112	240	372	378	477
<b>TOTAL</b>	<b>TJ</b>	<b>4,969</b>	<b>5,513</b>	<b>6,678</b>	<b>6,982</b>	<b>7,285</b>
CO <sub>2</sub> abated	000 tonnes	380	422	511	534	557

The expected future demand for wood biomass fibre for co-firing by Edenderry Power is shown in Table 16.

Table 16: Estimated annual demand for wood fibre for co-firing by Edenderry Power (2012–2020).

	000 tonnes
2012	180
2013	220
2014	260
2015	300
2020	500



### **Contribution of renewables to heat and electricity demand**

The contribution of renewable energy to meeting national energy targets is outlined below. This data is for 2011. At the time of writing, data for 2012 was not available.

#### **Renewable heat (RES-H)**

In 2011, renewable heat (RES-H) provisionally accounted for 5% of all thermal energy and was one year late in meeting the national target of 5% RES-H for 2010. RES-H grew from 2.6% in 1990 to 5.0% in 2011.

Industrial biomass energy use (mostly in the wood, food and cement sectors) accounted for 68% of all thermal renewable energy used in 2011. This corresponds to 2.9% of all thermal energy use in Ireland.

Between 1990 and 2006, industrial biomass energy use increased by 167% (6% average annual growth). However, there has recently been a decrease in industrial RES-H with an average annual reduction of 2% since 2006.

The industrial biomass demand in 2011 remained unchanged at the 2010 demand level.

Residential biomass energy use increased by 9.5% between 1990 and 2011 (0.5% average annual growth). However the average annual growth rate increased in recent years to 18% between 2005 and 2010.

#### **Renewable electricity (RES-E)**

In 2011, the share of electricity generated from renewable energy sources (RES-E) was 17.6%. Wind energy accounted for over 13% of all electricity generation in 2011, hydro accounted for 2.6% and the remaining 2% was from bioenergy sources (mainly biomass co-firing and landfill gas). In 2011, wind power installed generating capacity reached 1,631 MW.

The EU Directive 2001/77/EC target for Ireland of 13.2% RES-E by 2010 was exceeded with RES-E at 14.8% in 2010. However, the national target of 15% RES-E by 2010 was narrowly missed, due to lower than average wind speeds and rainfall levels in that year.



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