

An overview of wood fibre use in Ireland (2011)

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Data sources: The data contained in this overview have been compiled from the UNECE Timber Committee Market Report for Ireland (2012) and from the EUROSTAT Joint Forest Sector Questionnaire (JFSQ) for Ireland (2012). 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 2011 was 2.90 million m³. In 2011, 2.74 million cubic metres of roundwood was processed in the Republic of Ireland, virtually un-changed on 2010. In 2011, the harvest of industrial roundwood from privately owned forests declined by 16.6% over 2010 (Table 1).

Table 1: Roundwood available for processing in the Republic of Ireland (2008-2011) in 000 m³ overbark (OB).

	2008	2009	2010	2011
Imports less exports	106	-63	28	55
Coillte harvest	2,279	2,354	2,217	2,299
Private sector harvest	118	130	463	386
TOTAL	2,503	2,421	2,708	2,740

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 (000 m³OB) (2008-2011).

	2008	2009	2010	2011
Roundwood	2,503	2,421	2,708	2,740
Sawmill residues	846	838	842	829
Wood-based panel residues	106	94	101	115
Harvest residues	0	0	0	40
Post-consumer recovered wood	208	200	280	270
TOTAL	3,663	3,553	3,931	3,994

Table 3: Uses of wood fibre (000 m³ OB) (2008–2011).

	2008	2009	2010	2011
Sawmilling	1,619	1,602	1,603	1,580
Round stake	80	88	118	116
Wood-based panels	1,462	1,286	1,400	1,340
Wood biomass energy use by the forest products sector	378	431	554	572
Other uses				
Horticultural bark mulch	44	54	27	34
Wood chip for commercial biomass use	30	55	39	41
Export of forest product residues	50	37	58	196
Other uses			132	115
TOTAL	3,663	3,553	3,931	3,994

In 2011, forest products to a value of €308 million were exported from Ireland; un-changed on 2010. This includes wood-based panels, sawn timber and pulp and paper products (Table 8). In 2011, the value of wood-based panel exports declined by 3.4% over 2010. This was caused by the cessation of particleboard manufacture by Finsa Forest Products.

Firewood

In 2011, 214,000 m³ of firewood was used in Ireland to a value of €31 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 (2008–2011).

	000 m ³ OB	€ million
2008	171	24.83
2009	184	26.75
2010	199	28.80
2011	214	30.97



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.

Roundwood supply and demand to 2020

Over the next 17 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; 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 m³ OB by assortment category from the private forest estate in Ireland (2011-2028).

	Tip -7cm	7-13 cm	14-19 cm	20cm +	Total
2011	39	225	90	55	409
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 m³ OB.*

	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

The private forest sector now accounts for 47% of the national forest estate or 5% of total land area of the Republic of Ireland. 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 (1981-2011), over 250,000 hectares of forest were established by private growers in Ireland. 219,712 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. In 2011, afforestation in Ireland declined by 20% over 2010 (Table 7).

In 2011, over 1,500 hectares of forest were damaged by forest fires. Coillte lost 1,000 hectares of forest while 600 hectares of private forest were destroyed.



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

	State	Private	Total
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

Forest products trade (2008-2011)

In 2011, exports of forest products from the Republic of Ireland were valued at €308 million, un-changed on 2010. Wood based panels accounted for €173 million, the balance comprising paper and sawn timber exports (Table 8). Export volumes of WBP declined by 6.6% over 2010. This was due to the cessation of manufacturing at Finsa Forest Products in early 2011, which also led to exports declining marginally in value (-3.4%) in 2011 (Table 8). In value terms, Ireland became a net exporter of sawn timber in 2010.

Table 8: Timber and paper products trade, volume and value (2008-2011).

	Imports							
	2008	2009	2010	2011	2008	2009	2010	2011
	000 m ³ UB				€ million			
Sawn timber	412	232	242	201	141	66	74	64
Wood-based panels	264	181	166	195	108	68	65	68
	000 tonnes							
Pulp products	29	32	41	54	20	22	31	45
Paper & paper-board products	526	379	370	383	520	308	313	333
TOTAL					789	464	483	510
	Exports							
	2008	2009	2010	2011	2008	2009	2010	2011
	000 m ³ UB				€ million			
Sawn timber	389	564	621	619	54	51	63	83
Wood-based panels	614	580	660	616	195	147	179	173
	000 tonnes							
Pulp products	2	0	1	0	0	0	0	0
Paper & paper-board products	77	45	33	59	69	45	44	52
TOTAL					318	243	286	308

Sawmill output (2011)

In 2011, sawmills operating in the Republic of Ireland processed 1.7 million m³ of roundwood, resulting in an output of 0.76 million m³ of sawn timber and 0.11 million m³ of round stakes (Table 9). Over the period 2008-2011, in line with the reduction in construction activity, the domestic market for sawn timber declined by 53%. Over the same period, sawn timber exports grew by 60% (Table 10). In 2011, 41% of the Irish market for sawn timber was supplied by indigenous production with the balance being imported (Table 10).

The timber products which are produced by Irish sawmills serve three main markets: construction/structural, pallet/package and fencing. The market size of these products from 2008-2011 is in Table 9.

Table 9: Sawn timber output by product and year for the Republic of Ireland (2008-2011).

	2008	2009	2010	2011
	000 m ³ UB			
Construction/structural	267	292	293	289
Pallet/package	232	254	255	251
Square edged fencing	190	208	209	206
Round stakes	51	80	107	106
Other	13	15	15	15
TOTAL	753	849	879	867

Table 10: Percentage of sawn timber demand that was domestically produced in 000 m³ (UB) (2008-2011).

	2008	2009	2010	2011
Domestic production (softwood)	701	772	772	761
Domestic production (hardwood)	1	2	0	0
Exports	-389	-564	-658	-619
Imports	412	232	242	201
TOTAL	725	442	356	343
% of sawn timber demand which is supplied by domestic sawmills	43	48	32	41

Wood residues (2011)

Wood residues are primarily used as feedstock for sawmill kilns and for process heat in the manufacture of wood-based panels (WBP). Post-consumer recovered wood (PCRW) is increasingly being used for wood energy and in the

manufacture of wood-based panels. Over the period 2008-2011, the production of wood residues increased by 18% (Table 11).

Table 11: Production of wood residues in 000 m³ (2008-2011).

	2008	2009	2010	2011
Bark	203	215	222	236
Wood chip	470	517	517	510
Sawdust	152	200	204	198
Post-consumer recovered wood (PCRW)	208	200	280	270
TOTAL	1,033	1,132	1,223	1,214

Panel sector (2011)

In 2011, 736,000 m³ of wood-based panels (WBP) were produced from an intake of 1.34 million m³ of wood fibre, a 2.9% reduction over 2010 (Table 12). This can be traced to Finsa Forest Products ceasing the manufacture of particleboard in January 2011. A very high proportion (84%) of WBP manufacture was exported; 616,000 m³, to a value of €173 million (Table 12). WBP exports comprised mainly 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 (2008-2011).

	2008	2009	2010	2011
Production (000 m ³)	779	709	758	736
Export volume (000 m ³)	614	580	660	616
Export value (€ million)	195	147	179	173

Wood biomass overview

In 2011, 33% of the roundwood harvested in the Republic of Ireland was used for energy generation, mainly within the forest products sector (Table 13). Since 2006, the use of wood biomass energy in Ireland has resulted in an estimated greenhouse gas (GHG) emission saving of 2.56 million tonnes of carbon dioxide (CO₂). This saving averages 427,000 tonnes of CO₂ per annum.

In 2011, 214,000 m³ of firewood was used in Ireland to a value of €31 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. The wood-biomass fuels which were used by the sector are shown in Table 14.

In 2011, the output of the forest-based biomass energy sector grew by 4.5% over 2010 (Table 15).

Table 13: Use of forest-based biomass in 000 m³ OB as a percentage of total roundwood harvest in the Republic of Ireland (2010–2011).

	2010	2011
Use of forest-based biomass by Edenderry Power	79	85
Forest-based biomass used for energy production and process drying in sawmills and wood-based panel mills	475	487
Roundwood chipped for primary energy use	39	41
Domestic firewood use	199	214
Short rotation coppice (SRC)	1	5
Wood pellets and briquettes	121	129
Charcoal	2	2
TOTAL	916	963
Roundwood harvest		
Roundwood available for processing	2,708	2,740
Firewood harvest	199	214
TOTAL	2,907	2,954
Forest-based biomass as a % of total roundwood harvest	31.5	32.6

Table 14: Wood biomass fuel use by sector in the Republic of Ireland in 000 m³ OB (2008–2011).

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

Table 15: Output of the forest-based biomass energy sector in the Republic of Ireland (2008-2011).

	UNIT	2008	2009	2010	2011
		OUTPUT			
Heat	TJ	4,857	5,273	6,306	6,604
Electricity	TJ	112	240	372	378
TOTAL	TJ	4,969	5,513	6,678	6,982
CO ₂ abated	000 tonnes	380	422	511	534

Table 16: Estimated demand for wood fibre for co-firing by Edenderry Power (2011-2020).

	000 tonnes/annum
2011	150
2012	180
2013	220
2014	260
2015	300
2020	500

Potential socio-economic contribution of bioenergy

In 2012, a socio-economic study carried out by DKM Economic Consultants on behalf of the Irish Bioenergy Association (IrBEA) stated in relation to the achievement of 2020 bioenergy targets:

- It could create over 3,600 jobs in the bioenergy sector.
- An investment of €1.5 billion in the sector would be needed to meet Ireland's 2020 targets for renewable electricity (RES-E), renewable heat (RES-H) and renewable transport (RES-T), of which an estimated 55% would be spent in Ireland.
- It would reduce the cost of energy imports by 7.5%.
- The use of bioenergy for heating would reduce costs for domestic and industrial users.
- The achievement of biomass energy targets would reduce Ireland's greenhouse gas emissions (GHG) by over 3 million tonnes of carbon dioxide (CO₂) per annum by 2020.

The value of the emission reduction could be €94 million by 2020 (based on the level of carbon tax envisaged in the Government's National Recovery Plan (2011-2014)).



Forestry has the potential to create more than 3,600 jobs in the bioenergy sector.



The average annual growth rate for residential biomass energy use increased to 18% between 2005 and 2010.

Contribution of renewables to heat and electricity demand

The contribution of renewable energy to meeting national targets is outlined below.

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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