

Processing / Products No. 29

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- Including firewood, 2.84 million m³ of roundwood was harvested in the Republic of Ireland in 2012.
- Softwood roundwood available for processing in the Republic of Ireland in 2012 was 2.59 million m³.
- There was strong demand for wood fibre across all assortments.
- In value terms, exports of wood products were €303 million, €179 million of which comprised wood-based panels.
- Sawn timber exports grew by 38% over the period 2008-2012.
- The Irish market for firewood has grown by 35% over the period 2008-2012.
- Sawmill output in 2012 was 781,000 m³ of sawn softwood and 119,000 m³ of round stakes.
- Wood-based panel output was 704,000 m³.
- Sawn timber and wood-based panel exports in 2012 were worth €252 million.
- In 2012, 36% of roundwood harvest was used for energy production.

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⁴ Domestic production of harvested wood products (mainly sawn timber and panel products) will, from 2012 onwards, form part of the national calculation of greenhouse gas (GHG) emissions and removals under the Kyoto Protocol.

⁵ Excluding firewood and hardwood.

⁶ UNECE Joint Wood Energy Enquiry (2009-2013) and EUROSTAT Joint Forest Sector Questionnaire (2009-2013).

Woodflow and forest-based biomass energy use on the island of Ireland (2012)

Gordon Knaggs¹ and Eoin O'Driscoll²

Introduction

This COFORD Connects Note provides the 2012 woodflows for the Republic of Ireland and for the island of Ireland, together with an analysis of the use of forest-based biomass for energy production. It is largely based on national wood harvest and forest product trade data, compiled on behalf of the Department of Agriculture, Food and the Marine, and used to complete the annual Joint Forest Sector Questionnaire (JFSQ), run by EUROSTAT, the UNECE Forestry and Timber Committee, the Food and Agriculture Organisation (FAO) and the International Tropical Timber Organisation (ITTO). JFSQ and other data sources are used to compile global forest statistics which can be accessed at the FAOSTAT website^{3,4}.

Roundwood harvest, timber trade and wood-biomass use in the Republic of Ireland (2012)

Gordon Knaggs¹ and Eoin O'Driscoll²

In 2012, 2.84 million m³ of roundwood was harvested in the Republic of Ireland (Table 1).

Table 1: Total roundwood harvest including firewood in the Republic of Ireland (2010-2012).

	2010	2011	2012
	000 m ³ OB		
Coillte harvest	2,262	2,352	2,348
Private harvest	618	547	490
TOTAL	2,880	2,899	2,838

Sources and uses of roundwood available for processing in the Republic of Ireland

Excluding firewood, 2.60 million m³ of roundwood was processed in the Republic of Ireland in 2012⁵, a reduction of 5.3% on 2011 (table 2). This reduction was

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caused by some private growers reducing their harvesting output as a result of lower roundwood prices.

Table 2: Roundwood available for processing in the Republic of Ireland (2008-2012).

	2008	2009	2010	2011	2012
000 m ³ OB					
Commercial softwood					
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
Commercial hardwood					
Coillte harvest	1	3	0	1	1
Private sector harvest	0	0	0	1	1
TOTAL	2,504	2,424	2,708	2,742	2,596

Wood fibre sources for the processing and wood energy sectors and residue outturn are shown in Table 3; uses are in Table 4^{6,7}. 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.

Table 3: Sources of wood fibre (2008-2012)⁸.

	2008	2009	2010	2011	2012
000 m ³ OB roundwood equivalent (RWE) ⁹					
Roundwood ¹⁰	2,503	2,421	2,708	2,740	2,594
Sawmill residues ¹¹	846	838	842	829	904
Wood-based panel residues ¹²	106	94	101	115	104
Harvest residues	0	0	0	40	30
Post-consumer recovered wood	208	200	280	270	250
TOTAL	3,663	3,553	3,931	3,994	3,882

⁷ Wood fibre that is reused is counted twice in this model.

⁸ UNECE Joint Wood Energy Enquiry (2009-2013) & EUROSTAT Joint Forest Sector Questionnaire (2009-2013).

⁹ RWE: roundwood equivalent

¹⁰ Data is from Table 2.

¹¹ A breakdown of sawmill residues is shown in Annex A4.

¹² Includes bark (from the debarking lines at Medite & SmartPly) and sawdust from the sanding of wood-based panels. A breakdown of WBP residues is provided in Annex A4.

¹³ Wood biomass energy is used by the forest products sector for process drying, heating and for the generation of electricity.

¹⁴ Includes pulpwood, wood chips, sawdust and post-consumer recovered wood (PCRW).

¹⁵ This excludes the production of round stake.

¹⁶ EUROSTAT Joint Forest Sector Questionnaire (2009-2013).

¹⁷ <http://faostat.fao.org/site/626/default.aspx#ancor>

Table 4: Uses of wood fibre (2008-2012).

	2008	2009	2010	2011	2012
000 m ³ OB RWE					
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 ¹³	378	431	554	572	611
Other uses					
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			132	115	60
TOTAL	3,663	3,553	3,931	3,994	3,882

In 2012, 704,000 m³ of wood-based panels (WBP) were produced from an intake of 1.28 million m³ of wood fibre¹⁴, a 4.4% reduction over 2011 (Table 5). 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 m³, to a value of €179 million (Table 6). 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.

In 2012, sawmill roundwood intake was 1.75 million m³, which was converted to 0.78 million m³ of sawn timber¹⁵ (Table 5).

Table 5: Production of sawn wood and wood-based panels (2008-2012)¹⁶.

	2008	2009	2010	2011	2012
000 m ³					
Construction timber	267	294	293	289	297
Pallet/packageing	232	255	255	251	258
Square edge fencing	190	209	209	206	211
Other	13	14	15	15	15
TOTAL sawn wood	702	772	772	761	781
TOTAL wood-based panels	779	709	758	736	704

Trade in timber products and balance and self-sufficiency in sawnwood

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 6). Export volumes of WBP increased by 2.3% over 2011 (Table 6).

In value terms, Ireland became a net exporter of sawn timber in 2010. This was for the first time since 1961, when global forest products statistics began to be compiled by FAO¹⁷ (Table 7). It marked the continuation of a trend apparent since 2008 (and more apparent in the case of export volumes) with the gap between the value of exports and imports closing due to the collapse of the domestic construction market and increased levels of exports, mainly to the UK.

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 6: Timber and paper products trade, volume and value (2008-2012)¹⁸.

	Imports									
	2008 2009 2010 2011 2012					2008 2009 2010 2011 2012				
	000 m ³					€ 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 and 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 ³					€ 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 and paper-board products	77	45	33	59	68	69	45	44	52	51
TOTAL						318	243	308	308	303

¹⁸ Includes import/export figures for sawn timber, wood-based panels and pulp/paper products only. Data are taken from Ireland's EUROSTAT Joint Forest Sector Questionnaire (JFSQ) returns (2009-2013). Roundwood, sawmill residues and secondary processed timber products are not included. Trade data for the JFSQ is provided by the Central Statistics Office (CSO); www.cso.ie

¹⁹ Negative values show a surplus of imports over exports.

²⁰ Central Statistics Office; www.cso.ie & EUROSTAT Joint Forest Sector Questionnaire (2009-2013).

²¹ Due to rounding, there are slight differences between the values shown in Table 6 and Table 8.

²² Sawn timber export data for 2010 has been revised. This is based on up-dated data provided by the CSO.

²³ Total consumption is calculated as follows: domestic production + (imports-exports).

Table 7: Overall balance of trade in the value of timber products (2008-2012)¹⁹.

	2008	2009	2010	2011	2012
	€ million				
Sawn timber	-87	-15	11	19	19
Wood-based panels	87	79	114	105	104
Pulp products	-20	-22	-31	-45	-45
Paper and paper-board products	-451	-263	-269	-281	-288
TOTAL	-471	-221	-175	-202	-210

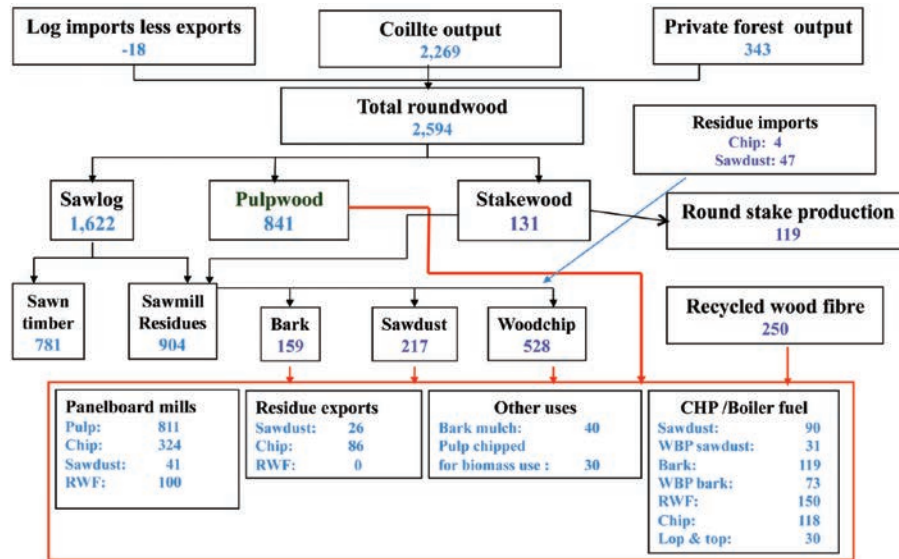
Table 8: Self-sufficiency in sawnwood (2008-2012)^{20,21}.

	Sawn softwood					Sawn hardwood				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
	000 m ³ UB									
Domestic production	696	772	772	760	781	1	3	0	1	1
Exports ²²	387	563	658	619	534	2	1	1	1	0
Imports	346	191	205	169	116	65	41	37	32	28
TOTAL consumption²³	655	400	319	310	363	64	43	36	32	29
% of sawn timber consumption supplied by domestic production	47	52	36	45	68	2	7	0	3	3

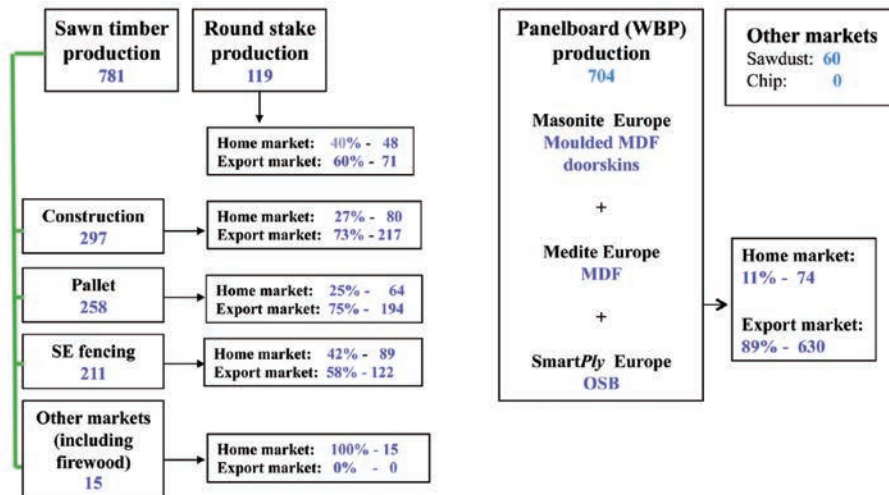
Woodflow for the Republic of Ireland in 2012

The woodflow for the Republic of Ireland in 2012 is in Figure 1.

Figure 1: Woodflow for the Republic of Ireland for 2012 (000m³) (overbark)²⁴.



Breakdown of 2012 wood products (000 m³).



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²⁴ This woodflow excludes firewood and commercial hardwood.

All island woodflow (2010-2012)

The all island woodflow for the period 2010-2012 is provided in Annex A. In 2012, the volume of roundwood processed on the island of Ireland was 3.26 million m³, a 4.8% decline over 2011 (A1). Over the same period the output of sawn timber increased by 1.4% (A2). Wood-based panel output declined from 0.74 M m³ in 2011 to 0.70 M m³ in 2012 (A5), mainly due to the closure in 2011 of Finsa Forest Products' particleboard plant.

Forest-based biomass use for energy production and relationship with national policies and goals

In 2012, 36% of the roundwood harvested in the Republic of Ireland was used for energy generation, mainly within the forest products sector (Table 9). 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 (CO₂). Wood-biomass fuels used by the sector are shown in Table 10.

In 2012, the output of the forest-based biomass energy sector grew by 4.4% over 2011 (Table 11). In 2012, 225,000 m³ of firewood was used in Ireland to a value of €33 million, showing that it is providing a steady and a growing market for first thinnings (Table 12). In addition, firewood is also harvested by forest owners for their own use.

Table 9: Use of forest-based biomass and as a proportion of total roundwood harvest (2010-2012)²⁵.

	2010	2011	2012
	000 m ³ OB RWE		
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

Table 10: Wood biomass fuel use by sector in the Republic of Ireland (2008-2012)²⁶.

Fuel type	Category	2008	2009	2010	2011	2012
		000 m ³ OB RWE				
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 ²⁷ and forest products industry	Process drying/heating/CHP	384	438	554	572	611
TOTAL		703	791	916	966	1,017
Use by the energy and forest products sectors (%)		55	55	60	59	60

²⁵ Source: UNECE Joint Wood Energy Enquiry (JWEE); 2009 -2013.

²⁶ Source: UNECE Joint Wood Energy Enquiry (JWEE) return for Ireland (2009-2013).

²⁷ This includes co-firing of wood biomass at Edenderry Power; www.edenderry-power.ie

Table 11: Output use of forest-based biomass and associated greenhouse gas emissions mitigation (2008-2012)²⁸.

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

Table 12: Volume and value of the domestic firewood market in the Republic of Ireland (2008-2012)²⁹.

	000 m ³ OB	€ million
2008	171	24.83
2009	184	26.75
2010	199	28.80
2011	214	30.97
2012	225	32.56

Contribution of renewables to heat and electricity demand

Renewable heat (RES-H)³⁰

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)³¹

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. The breakdown of gross electrical consumption by fuel source for the period 1990-2011 is shown in Table 13.

²⁸ UNECE Joint Wood Energy Enquiry (2009-2013).

²⁹ drima market research study

³⁰ http://www.seai.ie/Publications/Statistics_Publications/Renewable_Energy_in_Ireland_2011.pdf. At the time of writing data for 2012 was not available.

³¹ http://www.seai.ie/Publications/Statistics_Publications/Renewable_Energy_in_Ireland_2011.pdf. At the time of writing data for 2012 was not available.


Table 13: Gross electricity consumption percentage by fuel source (1990-2011) (provisional)^{32,33}.

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2011
Gross electricity consumption % by fuel source										
Coal	39.8	36.5	27.0	26.5	22.9	21.5	19.0	16.0	17.2	19.7
Peat	17.4	13.5	8.5	8.5	7.8	7.7	10.0	10.4	8.6	9.2
Oil	12.5	20.3	27.5	20.5	17.8	13.7	11.0	9.3	8.8	6.8
Gas	28.5	28.1	35.1	38.7	45.3	51.1	53.9	56.5	59.0	54.6
Renewables	1.8	1.5	1.8	2.8	3.6	4.1	5.3	6.5	5.6	8.9
Net imports	0.0	0.0	0.1	3.0	2.6	1.9	0.7	1.2	0.7	0.8
% of electrical consumption supplied by biomass ³⁴	0.0	0.0	0.0	0.04	0.06	0.04	0.12	0.25	0.50	0.61

Abbreviations

Abbreviation	Description	Abbreviation	Description
AD	Anaerobic digestion	PB	Particleboard/chipboard
BF	Boiler fuel	PCRW	Post-consumer recovered wood
CHP	Combined heat & power	REFIT	Renewable energy feed in tariff
GHG	Greenhouse gas	RES	Renewable energy source
GHS	Greener homes scheme	RES-E	Renewable electricity
kW	Kilowatt	RES-H	Renewable heat
m ³	Cubic metre	RES-T	Renewable transport
LPG	Liquid petroleum gas	RWE	Roundwood equivalent
MDF	Medium density fibreboard	SE	Square edged
MWe	Megawatt electricity	SEAI	Sustainable Energy Authority of Ireland
MWh	Megawatt hour	TJ	Terajoule
MWth	Megawatt thermal	TPER	Total primary energy requirement
NA	Not available	UB	Underbark
OB	Overbark	WBP	Wood-based panels
OSB	Oriented strand board	WBP SD	Sawdust from sanding of wood-based panels
PAO	Planed-all-over		

³² http://www.seai.ie/Publications/Statistics_Publications/Renewable_Energy_in_Ireland_2011.pdf. At the time of writing, data for 2012 was not available.

³³ [http://www.cso.ie/px/sei/Dialog/varval.asp?ma=SEI04&ti=Fuels+Used+in+Electricity+Production+\(ktoe\)+by+Fuel+Type+and+Year&path=../DATABASE/SEI/EnergyBalanceStatistics/&lang=1](http://www.cso.ie/px/sei/Dialog/varval.asp?ma=SEI04&ti=Fuels+Used+in+Electricity+Production+(ktoe)+by+Fuel+Type+and+Year&path=../DATABASE/SEI/EnergyBalanceStatistics/&lang=1). At the time of writing, data for 2012 was not available.

³⁴ Data as provided by the Sustainable Energy Authority of Ireland (SEAI) does not split biomass use by type. As such, the consumption total includes electricity generated by all biomass sources, including tallow and wood-based biomass, although the latter is predominant source.





Annex A: All island woodflow (2010-2012) and breakdown of use categories

A1: Softwood fibre processed³⁵.

	2010			2011			2012		
	ROI	NI	Total	ROI	NI	Total	ROI	NI	Total
000 m ³ OB									
Roundwood source									
Imports less exports ³⁶	28	260	288	55	185	240	-18	200	182
NIFS ³⁷		450	450		473	473		428	428
Coillte ³⁸	2,217		2,217	2,299		2,299	2,269		2,269
Private ³⁹	463	30	493	386	30	416	343	40	383
Roundwood processed	2,708	740	3,448	2,740	688	3,428	2,594	668	3,262
Sawlog	1,603	458	2,061	1,580	427	2,007	1,622	414	2,036
Stakewood	118	128	246	116	117	233	131	114	245
Pulpwood	987	154	1,141	1,044	144	1,188	841	140	981
Roundwood processed	2,708	740	3,448	2,740	688	3,428	2,594	668	3,262
PCRW ^{40,41}	280	60	340	270	60	330	250	60	310
Fibre total including PCRW	2,988	800	3,788	3,010	748	3,758	2,844	728	3,572

A2: Sawmill input/output.

	2010			2011			2012		
	ROI	NI	Total	ROI	NI	Total	ROI	NI	Total
000 m ³ OB									
Input ⁴²									
Sawlog	1,603	458	2,061	1,580	427	2,007	1,622	414	2,036
Stakewood	118	128	246	116	117	233	131	114	245
TOTAL	1,721	586	2,307	1,696	544	2,240	1,753	528	2,281
Output ^{43,44}									
Sawn timber	772	220	992	761	205	966	781	199	980
Round stakes	107	110	217	106	101	207	119	98	217
Sawmill residues	842	256	1,098	829	238	1,067	853	231	1,084
TOTAL	1,721	586	2,307	1,696	544	2,240	1,753	528	2,281

³⁵ Roundwood available for processing excludes both hardwood and firewood.

³⁶ Sources: Coillte, NIFS, Forestry Commission (GB), trade estimates.

³⁷ Source: Northern Ireland Forest Service (NIFS).

³⁸ Source: Coillte.

³⁹ Sources: Private forest management companies, Forestry Commission (GB).

⁴⁰ Sources: EPA, Environment Service (NI), Trade Estimates, Joint wood Energy Enquiry (JWEE) [2011-2013], WRAP UK.

⁴¹ PCRW: Post consumer recovered wood.

⁴² Sources: Coillte, NIFS, private forest management companies, Forestry Commission (GB) and trade estimates.

⁴³ Sawmill output data has been checked against industry estimates.

⁴⁴ Sources: Forestry Commission (GB) sawmill survey and industry expert opinion.



A3: Sawmill output by market/end use^{45,46,47}.

	2010							2011							2012						
	ROI			NI			Total	ROI			NI			Total	ROI		NI		Total		
	Hm	Exp	T	Hm	Exp	T		Hm	Exp	T	Hm	Exp	T		Hm	Exp	T	Hm	Exp	T	
000 m ³ OB																					
Construction timber	53	240	293	37	38	75	368	58	231	289	35	35	70	359	80	217	297	34	34	68	365
Pallet/packaging timber	71	184	255	20	26	46	301	63	188	251	20	23	43	294	64	194	258	20	22	42	300
SE fencing ⁴⁸	52	157	209	47	48	95	304	70	136	206	44	44	88	294	89	122	211	42	43	85	296
Round stakes	30	77	107	50	60	110	217	42	64	106	40	61	101	207	48	71	119	38	60	98	217
Other markets	15	0	15	4	0	4	19	15	0	15	4	0	4	19	15	0	15	4	0	4	19
TOTAL	879			330			1,209	867			306			1,173	900		297		1,197		

A4: Feedstock for WBP, biomass energy and other uses.

	2010			2011			2012		
	ROI	NI	Total	ROI	NI	Total	ROI	NI	Total
	000 m ³ OB								
Pulpwood ⁴⁹	987	154	1,141	1,044	144	1,188	841	140	981
PCRW ⁵⁰	280	60	340	270	60	330	250	60	310
Sawmill residues ⁵¹									
Woodchip imports							4	0	4
Sawdust imports							47	0	47
Bark	157	42	199	154	34	188	159	33	192
Sawdust	168	48	216	165	42	207	170	41	211
Woodchip	517	148	665	510	146	656	524	141	665
Woodchip from stakes	0	18	18	0	16	16	0	16	16
WBP residues ⁵²									
Bark	65	0	65	82	0	82	73	0	73
Sawdust	36	0	36	33	0	33	31	0	31
Woodchip	0	0	0	0	0	0	0	0	0
TOTAL	2,210	470	2,680	2,258	442	2,700	2,099	431	2,530

A5: WBP input/output^{53,54,55}.

	2010			2011			2012		
	ROI	NI	Total	ROI	NI	Total	ROI	NI	Total
	000 m ³ OB								
Pulpwood	850		850	900		900	811		811
PCRW ⁵⁶	70		70	90		90	100		100
Sawdust ⁵⁷	50		50	0		0	41		41
Woodchip ⁵⁸	430		430	350		350	324		324
Total input	1,400		1,400	1,340		1,340	1,276		1,276
Total output^{59,60}	758		758	736		736	704		704

⁴⁵ Sawmill output data has been checked against industry estimates.⁴⁶ Hm: home market; Exp: export market; T: total⁴⁷ Sources: Forestry Commission (GB) & industry expert opinion.⁴⁸ SE: Square edged.⁴⁹ Source: Industry expert opinion.⁵⁰ Sources: Industry expert opinion and the Environmental Protection Agency (EPA).⁵¹ Source: Industry expert opinion.⁵² Source: Industry expert opinion.⁵³ In March/April 2009, Spanboard ceased producing chipboard in Coleraine, Co Derry.⁵⁴ This input is for the production of wood-based panels. This excludes boiler fuels. These are detailed overleaf.⁵⁵ In January 2011, Finsa Forest Products Ltd. ceased producing particleboard in Scarriff, Co Clare.⁵⁶ Sources: EPA & industry expert opinion.⁵⁷ Source: Industry expert opinion.⁵⁸ Source: Forestry Commission (GB) & industry expert opinion.⁵⁹ Sources: Board mill survey & industry expert opinion.⁶⁰ All Ireland WBP output includes the output of the all WBP plants operating on the island of Ireland. These are Masonite Europe, Medite Europe and SmartPly Europe.

A6: Feedstock for biomass energy and other uses.

	Biomass energy 2010			Biomass energy 2011			Biomass energy 2012			Other uses 2010			Other uses 2011			Other uses 2012		
	ROI	NI	Total	ROI	NI	Total	ROI	NI	Total	ROI	NI	Total	ROI	NI	Total	ROI	NI	Total
Pulpwood																		
Domestic/industrial heating fuel ^{61,62,63}	77	25	102	41	25	66	30	25	55									
Bio energy ⁶⁴	0	75	75	0	75	75	0	50	50									
Other markets Exported ⁶⁵										60	54	114	53	53	53	75	65	140
Total pulpwood	77	100	177	41	100	141	30	75	105	60	54	114	103	44	147	75	65	140
PCRW																		
CHP/WBP boiler fuel (BF) ⁶⁶	208	20	228	177	20	197	150	30	180	2	40	42	3	40	43	0	30	30
Exported																		
Total PCRW	208	20	228	177	20	197	150	30	180	2	40	42	3	40	43	0	30	30
Bark																		
Sawmill bark used for biomass energy ⁶⁷	130	30	160	120	25	145	119	25	144									
WBP bark used for biomass energy ⁶⁸	65	0	65	82	0	82	73	0	73	27	12	39	34	9	43	40	8	48
Bark mulch ⁶⁹																		
Total bark	195	30	225	202	25	227	192	25	217	27	12	39	34	9	43	40	8	48
Sawdust																		
Sander line sawdust used for WBP BF	36	0	36	33	0	33	31	0	31									
Sawdust used by BF by sawmills	54	13	67	40	5	45	56	21	77									
Other energy use			9				34	0	34									
Exported																		
Pellet manufacture ⁷⁰	30	20	50	62	22	84	60	20	80	25	15	40	63	15	78	26	0	26
Total sawdust	129	33	162	135	27	162	181	41	222	25	15	40	63	15	78	26	0	26
Woodchip ⁷¹																		
Woodchip used for CHP	52	65	117	80	60	140	118	30	148									
Woodchip exports										33	27	60	80	26	106	86	21	107
Pellet manufacture										0	18	18	0	16	16	0	16	16
Other uses including animal bedding	2		2							33	45	78	80	42	122	86	37	123
Total woodchip	54	121	175	80	120	200	118	120	238	147	166	313	283	150	433	227	140	367
TOTAL	663	304	967	635	292	927	671	291	962									

61. Sources: SEAI survey (ROI), industry expert opinion.

62. Source: Industry expert opinion.

63. This includes pulp used for the manufacture of wood pellets.

64. Source: Forestry Commission (GB).

65. Source: Industry expert opinion.

66. Sources: EPA survey & industry expert opinion.

67. Sources: SEAI, Forestry Commission (GB).

68. Sources: Forestry Commission (GB) & industry expert opinion.

69. Source: Industry expert opinion.

70. Source: Industry expert opinion.

71. Sources: Forestry Commission (GB) & industry expert opinion.