

# UNECE Forestry & Timber Market Report for Ireland 2016

Department of Agriculture, Food and the Marine  
Eoin O'Driscoll (drima market research) and Eugene Hendrick

## Contents

1.0	Irish economy-an overview .....	4
1.1	2015.....	4
1.2	2016-2017 .....	4
2.0	Market drivers .....	5
2.1	Construction activity .....	5
2.1.1	Irish housing output.....	6
2.1.2	Repair, Maintenance and Improvement (RMI) .....	6
2.1.3	Construction inflation.....	7
2.2	UK construction market .....	7
2.2.1	UK housing outlook .....	7
2.2.2	Demand for timber packaging in the UK .....	8
2.2.3	The UK market for forest products.....	8
2.3	€/£ Exchange rate.....	9
2.4	Demographics .....	9
3.0	Policy measures .....	9
3.1	Forest research.....	9
3.2	Afforestation and forest expansion .....	10
3.2.1	Forestry Programme (2014-2020) .....	10
3.2.2	Native Woodland Scheme .....	10
3.2.3	Forest Roads Scheme .....	10
3.2.4	Land availability for afforestation .....	11
3.3	Sources & uses of wood fibre .....	11
3.4	Energy policy and support measures.....	12
3.4.1	Draft Bioenergy Plan.....	12
3.4.2	Energy Performance of Buildings Directive (EPBD).....	12
3.5	Use of forest-based biomass for energy generation (2015).....	12
3.5.1	Existing use of forest-based biomass for energy generation .....	12
3.6	Renewables and national renewable energy targets .....	14
3.6.1	Forest-based biomass outlook to 2020 .....	14
3.6.2	Contribution of renewables to heat and electricity demand.....	15
3.6.3	Renewable energy targets.....	15
3.7	Meeting national renewable energy targets .....	15
3.8	Forecast of roundwood demand .....	16
3.9	Mobilising roundwood supply – the COFORD wood mobilisation report .....	17
3.10	National climate change strategy .....	18
3.10.1	Climate change bill.....	18
3.10.2	Irish forests and climate change .....	18
4.0	Developments in forest products markets.....	20
4.1	Irish roundwood harvest.....	20
4.2	Sawn timber production, consumption, trade and promotion .....	20
4.2.1	Production .....	20
4.2.2	Trade.....	22
4.2.3	Sawn softwood imports .....	23
4.2.4	Sawn hardwood imports .....	23
4.2.5	Promotion .....	24
4.3	Value added products - wooden furniture .....	24
4.4	Wood residues.....	25
4.5	Wood-based panels (WBP).....	25
4.6	Pulp & paper .....	25
4.7	Builders merchanting .....	26
4.8	Voluntary forest certification .....	26
4.8.1	Schemes.....	26
4.8.2	Forest Service certification initiative.....	26
4.8.3	Certified forest products .....	26
5.0	Irish forests and the environment .....	27
6.0	Recent developments.....	27
6.1	National Forest Inventory (NFI) .....	27
6.2	Forecast of roundwood supply (2016-2035) .....	28
6.3	Plant health.....	28

7.0	Economic impact of the Irish forestry & forest products sector .....	29
7.1	Value of the Irish forestry and forest products sector .....	29
7.2	Employment .....	29
8.0	Research & innovation .....	30
8.1	Innovation in forest products and markets .....	30
8.2	Innovation in wood mobilisation/Teagasc <i>Talking Timber</i> events.....	30
9.0	References .....	31

## Tables

Table 1:	Actual and estimated GDP growth in key markets (2012-2017f).....	5
Table 2:	Actual and forecast house completions in the Republic of Ireland (2011-2016f). .....	6
Table 3:	Output of the Repair, Maintenance and Improvement (RMI) sector (2012-2016f).....	6
Table 4:	Wholesale price index for building materials (2011-2015). .....	7
Table 5:	House starts and completions in the UK (2011-2015).....	7
Table 6:	Annual housing completions in the UK (1970-2014).....	7
Table 7:	Estimated construction output in the UK (2014-2019f). .....	7
Table 8:	UK imports of sawn timber and wood-based panel products (2011-2015). .....	8
Table 9:	Ireland's share of UK forest products market by product type (2011-2015).....	8
Table 10:	Historic & forecasted €/£ exchange rates by quarter (2015-2017f).....	9
Table 11:	Area of new forests planted in the Republic of Ireland by area and by ownership (2011-2015).....	10
Table 12:	Sources of softwood wood fibre (2011-2015). .....	11
Table 13:	Uses of wood fibre (2011-2015).....	11
Table 14:	Use of forest-based biomass and as a proportion of total roundwood harvest (2011-2015).....	13
Table 15:	Output use of forest-based biomass and associated greenhouse gas emissions mitigation (2011-2015). .....	13
Table 16:	Volume and value of the domestic firewood market in the Republic of Ireland (2011-2015). .....	13
Table 17:	Estimated roundwood supply and demand in the Republic of Ireland in 2014 and 2020.....	14
Table 18:	Estimated demand for forest-based biomass for energy production by energy type in the Republic of Ireland in 2020.....	14
Table 19:	Renewable energy targets for the Republic of Ireland to 2020 by type.....	15
Table 20:	Progress towards meeting Ireland's renewable energy targets (2010-2020). .....	15
Table 21:	Estimated roundwood demand on the island of Ireland in 2014 and 2020. ....	16
Table 22:	Estimated demand for forest-based biomass for energy production on the island of Ireland in 2020. .	16
Table 23:	Total roundwood harvest (including firewood) in the Republic of Ireland (2011-2015). .....	20
Table 24:	Roundwood available for processing in the Republic of Ireland (2010-2015). .....	20
Table 25:	Large and medium sized sawmills on the island of Ireland by location. ....	21
Table 26:	Roundwood available for processing in the Republic of Ireland (2011-2015). .....	21
Table 27:	Sawn timber and round stake output by product in the Republic of Ireland (2011-2015).....	22
Table 28:	Primary forest products trade, volume and value (2011-2015). .....	22
Table 29:	Self-sufficiency in sawnwood (2011-2015): .....	23
Table 30:	Balance of payments trade in the value of forest products (2011-2015). .....	23
Table 31:	Main softwood exporters to Ireland (2011-2015).....	23
Table 32:	Main hardwood exporters to Ireland (2011-2015).....	24
Table 33:	The value of wooden furniture imports & exports to/from the Republic of Ireland (2011-2015). .....	24
Table 34:	Production of wood residues (2011-2015).....	25
Table 35:	Wood-based panel manufacturers in the Republic of Ireland. ....	25
Table 36:	Production and exports of wood-based panels in and from the Republic of Ireland (2011-2015). .....	25
Table 37:	Employment in the forestry and forest products sector in the Republic of Ireland. ....	29

## 1.0 Irish economy-an overview

### 1.1 2015

Policy efforts have boosted confidence and underpinned a, broad-based economic recovery over 2015. . Unemployment has been falling steadily, the budget deficit is declining, public debt has peaked and continues to fall and international credibility has been strengthened<sup>1</sup>.

The Irish economy saw significant growth in 2015 with improvements observable across a broad set of key indicators. Gross Domestic Product (GDP) and Gross National Product (GNP) increased by 7.8% and 5.7% respectively while unemployment fell to 9.5%<sup>2</sup>.

In summary<sup>3</sup>:

- The Irish economy is strongly rebounding from the crisis, with GDP growth of 7.8% in 2015, the fastest growth rate in Europe.
- At market prices, Gross Domestic Product (GDP) was €215 billion and grew in volume by 7.8% over 2014.
- In 2015, Gross National Product (GNP), increased by 5.7% to €183 billion.
- Export growth has been strong, thanks partly to improved cost-competitiveness since 2009.
- In 2015, the volume of exports grew by 13.8% over 2014.
- At the end of 2015, unemployment stood at 9.5%. This is well below the European average of 11%.
- Inflation as measured by the Consumer Price Index (CPI) was -0.3% for 2015.
- Personal consumption, which accounts for nearly two thirds of domestic demand, grew by 3.5% while Government expenditure declined by 0.8% over 2014.
- In 2015, 12,666 homes were completed, an increase of 15% over 2014<sup>4</sup>.

### 1.2 2016-2017

The Irish economy delivered a strong and increasingly broad-based recovery in 2015. The strong momentum has carried over to 2016, with growth still very positive. However, there are some tentative signs that growth is easing somewhat. Brexit uncertainty and currency movements are the key contributing factors<sup>5</sup>.

Mainly due to domestic sources of growth, the Irish economy is still set to grow significantly in 2016. By May 2016 overall taxation receipts were up 9% on the same time last year with income tax witnessing a 6% increase over the same period<sup>6</sup>.

The Irish economy is projected to continue its expansion in 2016 and 2017. Both exports and business investment, which surged due to temporary impetus by multinational enterprises, will moderate but remain solid. Activity in the domestic sector will remain firm and employment will grow steadily. Wage growth will be strong as the labour market tightens. Household consumption will be solid, supported by labour earnings growth and tax cuts<sup>7</sup>.

- Economic growth is projected to be robust and broadly based in 2016 and 2017.
- However, it is likely “Brexit” will act as a headwind to Irish growth prospects in the short term<sup>8</sup>. Brexit is an issue of considerable concern and uncertainty for Ireland. In the short-term the key issues of concern include a slowdown in the UK economy and a further weakening of sterling<sup>9</sup>.
- GDP is forecast to grow by 4.6% in 2016 and 4.2% in 2017<sup>10</sup>.
- GNP is forecast to grow by 4.8% in 2016 and 4.3% in 2017<sup>8</sup>.
- Exports are expected to remain strong. It is expected that the volume of exports of goods and services will increase by 8.9% in 2016 and by 7.7% in 2017.
- The actual and expected growth in the GDP of Ireland’s export markets is shown in Table 1<sup>11,12,13</sup>.

<sup>1</sup> <http://www.oecd.org/eco/surveys/Ireland-2015-overview.pdf>

<sup>2</sup> <https://www.esri.ie/pubs/QEC2016SUM.pdf>

<sup>3</sup> [https://www.esri.ie/UserFiles/publications/QEC2015AUT\\_ES.pdf](https://www.esri.ie/UserFiles/publications/QEC2015AUT_ES.pdf)

<sup>4</sup> <http://www.cso.ie/px/pxeirestat/Staire/SelectVarVal/saveselections.asp>

<sup>5</sup> <https://www.friendsfirst.ie/wp-content/uploads/Economic-Outlook-Report-Aug.16-VF.pdf>

<sup>6</sup> <https://www.esri.ie/pubs/QEC2016SUM.pdf>

<sup>7</sup> <http://www.oecd.org/economy/ireland-economic-forecast-summary.htm>

<sup>8</sup> <http://www.ntma.ie/business-areas/funding-and-debt-management/irish-economy/>

<sup>9</sup> <https://www.friendsfirst.ie/wp-content/uploads/Economic-Outlook-Report-Aug.16-VF.pdf>

<sup>10</sup> [https://www.esri.ie/UserFiles/publications/QEC2015AUT\\_ES.pdf](https://www.esri.ie/UserFiles/publications/QEC2015AUT_ES.pdf)

<sup>11</sup> <http://www.imf.org/external/pubs/ft/weo/2015/update/01/pdf/0115.pdf>

<sup>12</sup> [http://research.cibcwm.com/economic\\_public/download/fxmonthly.pdf](http://research.cibcwm.com/economic_public/download/fxmonthly.pdf)

<sup>13</sup> IMF Economic Outlook (2016): <http://www.imf.org/external/pubs/ft/weo/2016/update/01/>

- The Programme for Government, which was published in May 2016, addresses a number of key policy challenges. A significant amount of attention is devoted to the housing issue with commitments given to produce 25,000 new housing units per annum between now and 2020, with additional undertakings provided on the provision of social housing.
- Investment in building and construction continues to show strong growth. However, housing completion statistics for the first three months of the year suggest that residential output is unlikely to show a significant increase from 2015<sup>14</sup>.
- The rate of unemployment is set to decline to 7.9% in 2016 and 6.9% in 2017.
- Further increases in employment, rising real disposable incomes and gradually strengthening consumer confidence are projected to support a pick-up in the growth of consumer spending over the remainder of 2016 and 2017. Private consumer expenditure is forecast to rise by 4.0% in 2016 and 3.5% in 2017.
- Inflation as measured by the Consumer Price Index (CPI) is forecast to increase by 0.8% in 2016 and 1.0% in 2017.
- The Irish debt to GDP ratio is forecast to fall to 92.8% in 2016 and 90.3% in 2017<sup>15</sup>.

Table 1: Actual and estimated GDP growth in key markets (2012-2017f).

Region	2012	2013	2014	2015	2016f	2017f
	Real annual growth %					
World	3.9	3.3	3.3	3.1	3.4	3.6
United States	2.2	1.9	2.6	3.0	2.6	2.6
Euro area	-0.6	-0.5	0.8	1.5	1.7	1.7
United Kingdom	0.0	1.7	2.6	2.2	2.2	2.2

## 2.0 Market drivers

### 2.1 Construction activity

The demand for forest products is closely related to the level of house building, including timber frame and to demand in key export markets<sup>16</sup>. The investment climate for building and construction is increasingly positive. Residential building is leading the recovery, followed by civil engineering and non-residential building.

- In 2015, the output of the Irish construction industry was estimated at €12.5 billion which represented an increase of 14% over the previous year.
- This recovery is ongoing. The volume of output in building and construction increased by 6.3% in the second quarter of 2016 when compared with the preceding period. This reflects increases of 10.5%, 8.1% and 4.2% respectively in the volume of residential, non-residential building and civil engineering work<sup>17</sup>.
- Over the period 2014-2015, house completions grew by 15% (Table 2).
- In 2015, investment in the repair, maintenance and improvement sector (RMI) grew by 12.4% over 2014 (Table 3).

Recent analysis by the Economic and Social Research Institute (ESRI) has estimated that, in coming years, increases in population will result in the formation of at least 20,000 new households each year, each requiring a separate dwelling. In addition, a number of existing dwellings will disappear through redevelopment or dilapidation. The results suggest an ongoing need for at least 25,000 new dwellings a year over the coming fourteen years<sup>18</sup>.

In addition, the Government has committed to achieving, by 2020, a 20% reduction in energy demand across the whole of the economy through energy efficiency measures. It is expected that the residential sector will contribute 35% of the targeted savings, thus generating opportunities for improving the energy efficiency of the residential building stock.

<sup>14</sup> <https://www.esri.ie/pubs/QEC2016SUM.pdf>

<sup>15</sup> [http://www.budget.gov.ie/Budgets/2016/Documents/Economic\\_Developments\\_and\\_Outlook\\_for\\_Ireland\\_pub.pdf](http://www.budget.gov.ie/Budgets/2016/Documents/Economic_Developments_and_Outlook_for_Ireland_pub.pdf)

<sup>16</sup> <http://www.coillte.ie/fileadmin/templates/pdfs/BaconReport.pdf>

<sup>17</sup> <http://www.cso.ie/en/releasesandpublications/er/pbci/productioninbuildingandconstructionindexquarter22016/>

<sup>18</sup> <http://www.merriestreet.ie/wp-content/uploads/2014/05/Construction-Strategy-14-May-20141.pdf>

### 2.1.1 Irish housing output

Of the estimated requirement of 20,000 houses per annum, 12,666 houses were completed (Table 2).

In May 2014, the Government launched its Construction 2020 Strategy to address constraints on housing supply<sup>19</sup>. This provides measures which aim to resolve the constraints currently facing the construction sector<sup>20</sup>.

In May 2016, housing commencements showed a 75% increase on the same period for 2015<sup>21</sup>.

Table 2: Actual and forecast house completions in the Republic of Ireland (2011-2016f).

Year	House completions	Growth rate 1990 = 100
2011	10,480	53.63
2012	8,488	43.44
2013	8,301	42.48
2014	11,016	56.38
2015	12,666	64.84
2016f	15,000	76.77

The Irish Programme for Government also commits to delivering 25,000 new housing units per annum between now and 2020. There is also a renewed commitment to expedite the delivery of social housing units, with the pledge that 18,000 additional housing units will be supplied by 2017, and 17,000 additional housing units by the end of 2020. Overall, however, despite a number of initiatives cited in the programme, it is not clear how the supply of housing will be particularly accelerated from its present low base<sup>22</sup>.

### 2.1.2 Repair, Maintenance and Improvement (RMI)

In 2015, Irish expenditure on RMI grew by 12.4% over 2014 to reach €4.27 billion, with 78% being spent in the residential sector. A growth of 10.0% is forecast for 2016 (Table 3)<sup>23</sup>.

Table 3: Output of the Repair, Maintenance and Improvement (RMI) sector (2012-2016f).

Year	Residential	Private non residential	Social	Civil works	Total	% change year on year
	€ billion					
2012	2.80	0.08	0.23	0.57	3.68	
2013	2.75	0.09	0.24	0.46	3.54	-3.8
2014	2.94	0.10	0.26	0.50	3.80	+7.3
2015	3.31	0.11	0.29	0.56	4.27	+12.4
2016f	3.66	0.12	0.31	0.61	4.70	+10.0

<sup>19</sup> <http://www.merriestreet.ie/en/wp-content/uploads/2014/05/Construction-Strategy-14-May-20141.pdf>

<sup>20</sup> [http://www.taoiseach.gov.ie/eng/Publications/Publications\\_2014/Construction\\_Strategy\\_-\\_14\\_May\\_2014.pdf](http://www.taoiseach.gov.ie/eng/Publications/Publications_2014/Construction_Strategy_-_14_May_2014.pdf)

<sup>21</sup> <http://cif.ie/news-feed/reports-publications.html>

<sup>22</sup> <https://www.esri.ie/pubs/QEC2016SUM.pdf>

<sup>23</sup> [https://www.scsi.ie/documents/get\\_lob?id=538&field=file](https://www.scsi.ie/documents/get_lob?id=538&field=file)

### 2.1.3 Construction inflation

In 2015, the wholesale price index for building materials showed a 1% increase on 2014 (Table 4)<sup>24,25,26</sup>.

Table 4: Wholesale price index for building materials (2011-2015).

Item	2011	2012	2013	2014	2015
Index (2005 = 100)	119.6	122.6	123.6	126.3	127.6
% change year on year	2.6	2.5	0.8	2.2	1.0

## 2.2 UK construction market

The UK construction market is the key export outlet for forest products manufactured in Ireland. However, house building in the UK has been on a long term downward trend since 1970. The number of houses built across the UK, has fallen from 378,000 in 1969/70 to an average of 145,000 in 2014 and 2015 (Table 5)<sup>27</sup>.

Table 5: House starts and completions in the UK (2011-2015).

Year	Starts	1998 = 100	Completions	1998 = 100
2011	138,230	0.70	136,010	0.71
2012	136,200	0.69	145,780	0.76
2013	127,010	0.64	133,000	0.70
2014	162,100	0.82	138,350	0.73
2015	171,850	0.87	152,520	0.80

### 2.2.1 UK housing outlook

Despite the better performance in the private sector in 2015, there is much ground to recover if output is to return to the most recent peak year of 2006. In 2014, UK housing output was 36% below the 2006 level. In the larger housing repair, maintenance and improvement (RMI) sector volume remained 10% below 2006. Moreover, UK housing completions have been in decline since the 1970s (Table 6).

However, over the period 2015-2019, construction output in the UK is forecast to grow by 2.7% per annum<sup>28</sup> (Table 7)<sup>29</sup>.

Table 6: Annual housing completions in the UK (1970-2014).

1970s	1980s	1990s	2000s	2010-2014
<b>000 completions</b>				
314	217	189	191	140

Table 7: Estimated construction output in the UK (2014-2019f).

Construction type	2014	2015	2016	2017	2018	2019	2015-2019
	£ million 2010 prices	Forecast annual change%					Average annual %
Public housing	5,635	5	0	2	3	2	2.4
Private housing	20,121	10	5	3	3	2	4.6
Housing R & M <sup>30</sup>	21,862	3	1	3	2	1	2.0
Non housing R & M	23,621	2	3	2	1	1	1.7
Total	71,239						2.7

<sup>24</sup> <http://www.cso.ie/en/releasesandpublications/er/wpi/wholesalepriceindexmarch2015/>

<sup>25</sup> <http://www.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=WPM18&PLanguage=0>

<sup>26</sup> <http://www.cso.ie/px/pxeirestat/Statire/SelectVarVal/saveselections.asp>

<sup>27</sup> <https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building>

<sup>28</sup> <https://www.citb.co.uk/documents/research/csn%20reports%202015-2019/construction-skills-network-uk-2015-2019.pdf>

<sup>29</sup> <https://www.gov.uk/government/organisations/department-for-communities-and-local-government>

<sup>30</sup> R & M: repair and maintenance

### 2.2.2 Demand for timber packaging in the UK

The UK timber packaging market is also showing signs of recovery. In 2013, the quantity of both newly manufactured and repaired pallets increased by just over 1%, to 66.2 million; while the quantity of newly manufactured pallets rose from 31.4 million in 2013 to 32.5 million in 2014, an increase of 3.5%<sup>31,32</sup>.

A report by the Timber Packaging and Pallet Confederation (Timcon)<sup>33</sup> showed that in 2013, home grown UK softwood had a 74% share of the UK pallet/packaging sector. Over the period 2012-2013 the exports of pallet/packaging timber from the Republic of Ireland grew by 60% to reach a market penetration of 5.5%.

### 2.2.3 The UK market for forest products

The UK is a significant importer of sawn timber and panel products. In 2015, 6.32 million m<sup>3</sup> of sawn timber products were imported to the UK (Table 8)<sup>34</sup>, a decline of 1.6% over 2014. Over the same period, imports of wood-based panel declined by 1.3%. Over the period 2007-2015, Ireland's share of the UK sawn softwood timber market has grown by more than 50%, from 3.34% in 2007 to 5.77% in 2015.

In 2015, the Republic of Ireland was the fifth largest exporter of sawn softwood timber to the UK. Moreover, there are further opportunities for the Irish sawmilling sector to grow its market share in the UK. In 2015, only 37% of the UK market for sawn softwood was supplied domestically.

In 2015, Ireland was the largest exporter of fibreboard, including medium density fibreboard (MDF), to the UK.

Table 8: UK imports of sawn timber and wood-based panel products (2011-2015).

Year	Sawn timber	Wood-based panels	Total
	000 m <sup>3</sup>		
2011	4,925	2,827	7,752
2012	5,100	2,700	7,800
2013	5,500	2,962	8,462
2014	6,425	3,260	9,685
2015	6,323	3,217	9,540

Table 9: Ireland's share of UK forest products market by product type (2011-2015)<sup>35</sup>.

Product	Market share % by volume				
	2011	2012	2013	2014	2015
Sawn softwood	6	7	7	6	6
Particleboard including OSB	24	20	15	11	14
Fibreboard including MDF	36	36	34	47	35

<sup>31</sup> [http://www.forestry.gov.uk/pdf/WoodPackagingStudy2013.pdf/\\$FILE/WoodPackagingStudy2013.pdf](http://www.forestry.gov.uk/pdf/WoodPackagingStudy2013.pdf/$FILE/WoodPackagingStudy2013.pdf)

<sup>32</sup> At the time of writing, data for 2015 was not available.

<sup>33</sup> <https://www.timcon.org/>

<sup>34</sup> <http://www.forestry.gov.uk/forestry/infd-9hxecv>

<sup>35</sup> <http://www.forestry.gov.uk/website/forstats2016.nsf/LUCContents/7E438519BF75773280257FE0004B2CCF>

### 2.3 €/\$ Exchange rate

Historic rates<sup>36</sup> and forecast movements in the €/£ exchange rate are shown in Table 9<sup>37</sup>; forecast rates are in Table 10<sup>38</sup>.

Table 10: Historic & forecasted €/£ exchange rates by quarter (2015-2017f).

Historic	€/£	£/€	Forecast	€/£	£/€
2015-Q1	0.74	1.36	2016Q4	0.84	1.19
2015-Q2	0.71	1.40	2017-Q1	0.83	1.20
2015-Q3	0.71	1.41	2017-Q2	0.84	1.19
2015-Q4	0.71	1.40	2017-Q3	0.85	1.18
2016-Q1	0.76	1.31	2017-Q4	0.83	1.20
2016-Q2	0.78	1.28			
2016-Q3	0.85	1.18			

### 2.4 Demographics

Net outward migration in the year to April 2015 is estimated to have fallen to 11,600, a decrease of 9,800 on the previous year's figure of 21,400<sup>39</sup>.

## 3.0 Policy measures

The following policy measures influence the Irish forest & forest products sector.

### 3.1 Forest research

The Irish forest research programme is managed by the Research Division of the Department of Agriculture, Food and the Marine (DAFM). The COFORD Council (an advisory body consisting of representatives from the forest sector) advises the Department regarding the scope of forest research and provides advice to DAFM on a range of other issues, including roundwood demand and supply.

Product and processing research and innovation within the forest products sector is supported by Enterprise Ireland<sup>40</sup>.

<sup>36</sup> <https://www.centralbank.ie/polstats/stats/exrates/Pages/default.aspx>

<sup>37</sup> <http://www.centralbank.ie/polstats/stats/exrates/Pages/default.aspx>

<sup>38</sup> [http://www.gbm.scotiabank.com/English/bns\\_econ/fxout.pdf](http://www.gbm.scotiabank.com/English/bns_econ/fxout.pdf)

<sup>39</sup> <http://www.cso.ie/en/releasesandpublications/er/pme/populationandmigrationestimatesapril2015/>

<sup>40</sup> <http://www.enterprise-ireland.com/en/>

### 3.2 Afforestation and forest expansion

Over the period (1981-2015), over 260,000 ha of forest have been established by private growers in Ireland<sup>41,42</sup> of which 245,000 ha have been planted since 1990. 84% of private forest owners are farmers<sup>43</sup>. Much of this area is now entering the thinning phase, but 42% is less than 25 years old<sup>44</sup>. The level of afforestation over the period 2011-2015 is shown in Table 11.

Table 11: Area of new forests planted in the Republic of Ireland by area and by ownership (2011-2015).

Year	State	Private	Total
	Area in ha		
2011	62	6,591	6,653
2012	60	6,592	6,652
2013	3	6,249	6,252
2014	0	6,156	6,156
2015	0	6,293	6,293

#### 3.2.1 Forestry Programme (2014-2020)

The programme is 100% funded from the Irish Exchequer and has been granted State Aid approval by the European Commission<sup>45</sup>. The programme provides for:

- An investment of €482 million in new forests over the programme period.
- The establishment of 44,000 ha of new forests by 2020.
- Building of 700 km of new forest roads by 2020.
- An increase of 20% in annual premium payments (paid over a period of 15 years) and a 5% increase in afforestation grants.
- A 14% increase in the grant aid for the building of forest roads.
- The introduction of new species.
- The promotion of the planting of native tree species.

#### 3.2.2 Native Woodland Scheme

The Native Woodland Scheme<sup>46</sup> is aimed at protecting and expanding Ireland's native woodland resource and associated biodiversity. It is a key biodiversity measure within Ireland's national forest policy. It also supports a wide range of other benefits and functions arising from native woodlands, relating to landscape, cultural heritage, wood and non-wood products and services, traditional woodland management techniques, environmental education and climate change mitigation.

#### 3.2.3 Forest Roads Scheme

The forest roads scheme provides grant-aid to forest owners to improve access to forests and facilitate thinning. There is a once off payment of 80% of eligible costs to a maximum of €40/linear metre payable on satisfactory completion of the project<sup>47</sup>.

<sup>41</sup> [http://www.teagasc.ie/forestry/docs/technical\\_info/articles/Teagasc\\_forestry\\_situation\\_outlook\\_2010.pdf](http://www.teagasc.ie/forestry/docs/technical_info/articles/Teagasc_forestry_situation_outlook_2010.pdf)

<sup>42</sup> <http://www.agriculture.gov.ie/forests/forests-service/forests-service-general-information/forests-statistics-and-mapping/afforestation-statistics/>

<sup>43</sup> [http://www.teagasc.ie/forestry/docs/technical\\_info/articles/IUFRO%20The%20Farm%20Forest%20Resource%20and%20Rural%20Development%20in%20Ireland%202006.pdf](http://www.teagasc.ie/forestry/docs/technical_info/articles/IUFRO%20The%20Farm%20Forest%20Resource%20and%20Rural%20Development%20in%20Ireland%202006.pdf)

<sup>44</sup> [http://www.teagasc.ie/publications/2012/1070/Forestry\\_Outlook\\_JohnCasey.pdf](http://www.teagasc.ie/publications/2012/1070/Forestry_Outlook_JohnCasey.pdf)

<sup>45</sup> <http://www.agriculture.gov.ie/press/pressreleases/2015/february/title.81095.en.html>

<sup>46</sup> <http://www.agriculture.gov.ie/media/migration/forestry/publications/nativewoodlandschememanual/NativeWoodlandSchemeManual2008060911.pdf>

<sup>47</sup> <http://www.agriculture.gov.ie/press/pressreleases/2012/january/title.60877.en.html>

### 3.2.4 Land availability for afforestation

In January 2016, COFORD published its report *Land Availability for Afforestation, exploring opportunities for expanding Ireland's forest resource*<sup>48</sup>. This examined the factors surrounding land availability for afforestation in Ireland.

### 3.3 Sources & uses of wood fibre

Wood fibre sources for the processing and wood energy sectors and residue outturn are shown in Table 12; uses are in Table 13<sup>49,50</sup>. 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<sup>51</sup>

Table 12: Sources of softwood wood fibre (2011-2015).

Fibre source	2011	2012	2013	2014	2015
	000 m <sup>3</sup> OB RWE <sup>52</sup>				
Roundwood	2,740	2,594	2,851	2,949	3,012
Sawmill residues	829	853	897	925	927
Wood-based panel residues	115	104	110	114	114
Residue imports			108	49	47
Harvest residues	40	30	30	60	60
Post-consumer recovered wood (PCRW)	270	250	250	300	300
<b>Total</b>	<b>3,994</b>	<b>3,882</b>	<b>4,246</b>	<b>4,397</b>	<b>4,460</b>

Table 13: Uses of wood fibre (2011-2015).

Fibre use	2011	2012	2013	2014	2015
	000 m <sup>3</sup> OB RWE				
Sawmilling	1,580	1,622	1,710	1,815	1,816
Round stake	116	131	117	147	169
Wood-based panels	1,340	1,276	1,407	1,377	1,370
Wood biomass energy use by the power generation and forest products sector <sup>53</sup>	572	611	704	760	774
Other uses					
Horticultural bark mulch	34	40	50	40	30
Wood chip for commercial biomass use <sup>54</sup>	41	30	100	100	114
Export of forest product residues	196	112	88	88	36
Other uses <sup>55</sup>	115	60	70	70	151
<b>Total</b>	<b>3,994</b>	<b>3,882</b>	<b>4,246</b>	<b>4,397</b>	<b>4,460</b>

<sup>48</sup> <http://www.coford.ie/media/coford/content/publications/cofordarticles/LandAvailabAfforestation130116.pdf>

<sup>49</sup> UNECE Joint Wood Energy Enquiry (2012-2016) and EUROSTAT Joint Forest Sector Questionnaire (2012-2016).

<sup>50</sup> Wood fibre that is reused is counted twice in this model.

<sup>51</sup> UNECE Joint Wood Energy Enquiry (2012-2016) & EUROSTAT Joint Forest Sector Questionnaire (2012-2016).

<sup>52</sup> RWE: roundwood equivalent

<sup>53</sup> Wood biomass energy is used by the forest products sector for process drying, heating and for the generation of electricity. This includes the use of wood biomass energy for co-firing by Edenderry Power.

<sup>54</sup> Primarily used for the production of space or production heat.

<sup>55</sup> Other uses include the production of wood pellets.

## **3.4 Energy policy and support measures**

### **3.4.1 Draft Bioenergy Plan**

In October 2014, the Department of Communications, Energy and Natural Resources (DCENR) published its *Draft Bioenergy Plan*<sup>56</sup>. This strategy examines all aspects of the bioenergy sector so as to inform the actions required to optimise its contribution to achieving the 2020 targets under the Renewable Energy Directive. In early 2015, a Bioenergy Steering Group was formed by DCENR with the purpose of furthering the vision set out in the plan. Four working groups were established, aiming to develop measures on four aspects of bioenergy: electricity and heat, transport, supply, and research & development. Public and private sector stakeholders will contribute to each working group. The Department of Agriculture, Food and the Marine (DAFM) is working closely with DCENR in assessing the potential of bioenergy from the agriculture and forest sectors to contribute to the 2020 targets and is involved in the working groups. Any decisions in relation to future developments in the bioenergy sector will be taken in the context of this exercise<sup>57</sup>.

### **3.4.2 Energy Performance of Buildings Directive (EPBD)**

Since January 2007, in line with the European Commission's Energy Performance of Buildings Directive<sup>58</sup> (Directive 2002/91/EC)<sup>59</sup>, the energy efficiency of all new houses and apartments in the Republic of Ireland is assessed and certified by a registered building energy rating (BER) assessor. From 2009, this scheme has been extended for existing dwellings, when they are offered for sale or lease. The BER provides information on the dwelling's energy performance and can be used to demonstrate improvements in energy efficiency over time<sup>60</sup>.

## **3.5 Use of forest-based biomass for energy generation (2015)**

### **3.5.1 Existing use of forest-based biomass for energy generation**

In 2015, 34% of the roundwood used in the Republic of Ireland was used for energy generation, mainly within the forest products sector (Table 14). The use of wood biomass energy in Ireland results in greenhouse gas (GHG) emission savings from the displacement of fossil fuels. As shown in Table 15, the saving in 2015 is estimated as over 0.6 million tonnes of carbon dioxide (CO<sub>2</sub>).

In 2015, the output of the forest-based biomass energy sector grew by 3% over 2014 (Table 15). However, demand for wood-biomass energy from Edenderry Power was reduced in 2015, caused by the outage of the power station to facilitate a boiler upgrade.

In 2015, 237,000 m<sup>3</sup> of firewood was used in the Republic of Ireland to a value of €34 million, showing that it is providing a steady and a growing market for first thinnings (Table 16). 8,000 m<sup>3</sup> of this demand was imported, with the balance being supplied domestically. In addition, firewood is also harvested by forest owners for their own use, but as this is very difficult to quantify it is not included in use data. Wood-biomass fuels used by the sector are shown in Table 14.

---

<sup>56</sup> <http://www.dcenr.gov.ie/energy/en-ie/Renewable-Energy/Pages/Bio-Energy.aspx>

<sup>57</sup> <http://www.agriculture.gov.ie/media/migration/publications/2015/ARO201415230615.pdf>

<sup>58</sup> [www.sei.ie/epbd/](http://www.sei.ie/epbd/)

<sup>59</sup> [ec.europa.eu/energy/efficiency/buildings/buildings\\_en.htm](http://ec.europa.eu/energy/efficiency/buildings/buildings_en.htm)

<sup>60</sup> [http://www.dcenr.gov.ie/NR/rdonlyres/FC3D76AF-7FF1-483F-81CD-52DCB0C73097/0/NEEAP\\_full\\_launch\\_report.pdf](http://www.dcenr.gov.ie/NR/rdonlyres/FC3D76AF-7FF1-483F-81CD-52DCB0C73097/0/NEEAP_full_launch_report.pdf)

Table 14: Use of forest-based biomass and as a proportion of total roundwood harvest (2011-2015)<sup>61</sup>.

Item	2011	2012	2013	2014	2015
	000 m <sup>3</sup>				
Wood-biomass use by the energy <sup>62</sup> and forest products industry	572	611	704	760	774
Roundwood chipped for primary energy use <sup>63</sup>	41	30	100	100	114
Domestic firewood use	214	225	230	235	237
Short rotation coppice (SRC)	5	5	5	5	5
Wood pellets and briquettes	129	144	161	150	154
Charcoal	5	2	1	1	1
<b>Total</b>	<b>966</b>	<b>1,017</b>	<b>1,201</b>	<b>1,251</b>	<b>1,285</b>
Of which supplied from domestic resources	896	910	1,034	1,166	1,110
Roundwood available for processing	2,740	2,594	2,852	2,975	3,016
Firewood used	214	225	230	235	237
<b>Total roundwood use<sup>64</sup></b>	<b>2,954</b>	<b>2,819</b>	<b>3,082</b>	<b>3,210</b>	<b>3,253</b>
Domestic wood-biomass use as a % of roundwood used	30.3	32.3	33.5	36.3	34.1

Table 15: Output use of forest-based biomass and associated greenhouse gas emissions mitigation (2011-2015)<sup>65</sup>.

Item	Unit	2011	2012	2013	2014	2015
		Output				
Heat	TJ	6,604	6,808	7,002	7,562	7,730
Electricity	TJ	378	477	491	530	446
<b>Total</b>	<b>TJ</b>	<b>6,982</b>	<b>7,285</b>	<b>7,493</b>	<b>8,092</b>	<b>8,176</b>
CO <sub>2</sub> abated	000 tonnes	534	557	573	619	625

Table 16: Volume and value of the domestic firewood market in the Republic of Ireland (2011-2015)<sup>66</sup>.

Year	000 m <sup>3</sup> OB	€ million
2011	214	30.97
2012	225	32.56
2013	230	33.33
2014	235	34.05
2015	237	34.34

<sup>61</sup> UNECE Joint Wood Energy Enquiry (JWEE); 2012-2016

<sup>62</sup> Includes co-firing of wood biomass at Edenderry Power; [www.edenderrypower.ie](http://www.edenderrypower.ie)

<sup>63</sup> Primarily used for space and process heating

<sup>64</sup> Roundwood use includes the use of domestically sourced and imported roundwood

<sup>65</sup> UNECE Joint Wood Energy Enquiry (2012-2016)

<sup>66</sup> drima market research study

## 3.6 Renewables and national renewable energy targets

### 3.6.1 Forest-based biomass outlook to 2020

The COFORD report *Mobilising Ireland's forest resource* estimates that by 2020, the demand for roundwood in the Republic of Ireland is set to increase to 4.67 M m<sup>3</sup> (Table 17)<sup>67</sup>. Based on scenario modelling<sup>68</sup>, 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, equivalent to 1.87 million cubic metres<sup>69</sup>. 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<sup>70</sup>. 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. The expected demand for forest-based biomass in 2020 by energy type is shown in Table 18<sup>71</sup>. 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.

The COFORD mobilisation report<sup>72</sup> outlines measures to ensure wood mobilisation reaches forecast levels; (see section 3.9).

Table 17: Estimated roundwood supply and demand in the Republic of Ireland in 2014 and 2020.

Item	2014	2020
	000 m <sup>3</sup> OB	
<b>Roundwood supply forecast (a)</b>	3,064	3,756
<b>Demand forecast and residue offset</b>		
Roundwood for sawmilling <sup>73</sup>	2,059	2,617
Roundwood for boardmills	730	880
Residues for boardmills	670	720
Forest-based biomass <sup>74,75</sup>	994	1,871
Sawmill residue offset <sup>76</sup>	-1,016	-1,315
Boardmill residue offset	-89	-103
<b>Net demand<sup>77</sup> (b)</b>	<b>3,348</b>	<b>4,670</b>
<b>Supply position (a-b)</b>	<b>-284</b>	<b>-914</b>

Table 18: Estimated demand for forest-based biomass for energy production by energy type in the Republic of Ireland in 2020.

Biomass use type	% of total demand
Combined heat & power (CHP)	63
Heat only	31
Co-firing	6
<b>Total</b>	<b>100</b>

<sup>67</sup> <http://www.coford.ie/media/coford/content/publications/projectreports/Mobilising%20Irelands%20forest%20resources%20-%20Digital%20March2015.pdf>

<sup>68</sup> This is based on data available as of 2/11/2010.

<sup>69</sup> [http://www.coford.ie/media/coford/content/publications/projectreports/roundwooddemand2011/COFORD\\_demand01Mar11.pdf](http://www.coford.ie/media/coford/content/publications/projectreports/roundwooddemand2011/COFORD_demand01Mar11.pdf)

<sup>70</sup> This data is based on work which was undertaken by the COFORD Supply Group (2010).

<sup>71</sup> The expected demand for forest-based biomass to 2020 is based on a scenario model which was developed by SEAI; [www.seai.ie](http://www.seai.ie). This is based on data available as of 2/11/2010.

<sup>72</sup> <http://www.coford.ie/media/coford/content/publications/projectreports/Mobilising%20Irelands%20forest%20resources%20-%20Digital%20March2015.pdf>

<sup>73</sup> Source: A survey of the roundwood demand sawmills and boardmills as undertaken by drima marketing (April, 2014).

<sup>74</sup> The estimated demand for wood-based biomass energy in the Republic of Ireland was provided by the Sustainable Energy Authority of Ireland (SEAI); This is based on the best available data available as of April 2014; [www.seai.ie](http://www.seai.ie)

<sup>75</sup> The estimated demand for wood-based biomass energy in Northern Ireland was provided by Action Renewables; (personal communication); This is based on the best available data available as of April 2014; <http://www.actionrenewables.co.uk/>

<sup>76</sup> The estimation of sawmill and boardmill residues is based on the analysis as used for Woodflow (2012); [http://www.coford.ie/media/coford/content/publications/projectreports/cofordconnects/Woodflow%20and%20forest-based%20biomass%20energy%20use%20on%20the%20island%20of%20Ireland%20\(2012\).pdf](http://www.coford.ie/media/coford/content/publications/projectreports/cofordconnects/Woodflow%20and%20forest-based%20biomass%20energy%20use%20on%20the%20island%20of%20Ireland%20(2012).pdf)

<sup>77</sup> Net demand is defined as the demand for wood fibre less (the supply of roundwood from Irish forests + the supply of wood residues from the sawmilling and boardmill sectors).

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

Renewable energy<sup>78,79</sup> contributing to Ireland’s thermal energy requirements is dominated by industrial biomass use, in particular the use of waste wood to produce heat in the manufacture of wood-based panels, joineries and wood processing plants and the use of tallow from rendering plants for heat.

Over the period 2006-2013, the use of RES-H by the services sector grew strongly. This saw RES-E use by the sector grow by 388% to 38 ktoe. This use of biomass was previously supported by the Renewable Energy Heat Deployment (ReHeat) grant scheme which supported wood chip and pellet boilers, solar thermal and heat pump installations. This scheme closed in 2011. One proposal contained in the Draft Bioenergy Plan<sup>80</sup> as published by the Department of Communications, Energy & Natural Resources in October 2014 is the introduction of a Renewable Heat Incentive scheme (RHI). A similar RHI scheme<sup>81</sup> is currently in use in the United Kingdom.

It is proposed, subject to State Aid clearance from the European Commission and further Government approval once the Irish RHI scheme is designed, that the Minister for Communications, Energy and Natural Resources will introduce from 2016 an Exchequer-funded incentive scheme for larger non-ETS industrial and commercial renewable heating installations. This scheme will be designed to reward users for each unit of renewable heat used from sustainable biomass and to deliver the additional heat required in the context of meeting 12% of heat demand from renewable sources by 2020. This scheme will be kept under review to assess its effectiveness<sup>82</sup>.

Wind energy<sup>83</sup> dominates the renewable electricity sector (RES-E) sector. Over the period 1990-2013, the output of the renewable energy has grown eight fold, from 697 GWh to 5,601 GWh. Most of this increase has taken place since 2000.

### 3.6.3 Renewable energy targets

The national renewable energy targets for the Republic of Ireland are shown in Table 19<sup>84</sup>.

Table 19: Renewable energy targets for the Republic of Ireland to 2020 by type.

RES type	2015	2016	2017	2018	2019	2020
	%					
Renewable heat (RES-H)	8	9	10	10	11	12
Renewable electricity (RES-E)	34	36	38	40	42	44
Renewable energy used in transport (RES-T)	7	7	9	9	10	11
Overall RES	12	12	13	14	15	16

### 3.7 Meeting national renewable energy targets

Ireland’s progress towards meeting its biomass energy targets is shown in Table 20<sup>85</sup>.

Table 20: Progress towards meeting Ireland’s renewable energy targets (2010-2020).

RES type	2010	2011	2012	2020
	% of target			
RES-E normalised	14.9	17.6	19.6	40
RES-T	2.6	3.6	3.8	10
RES-H	4.3	4.7	5.2	12
Directive (2009/29/EC)	5.5	6.4	7.1	16

<sup>78</sup> [http://www.seai.ie/Publications/Statistics\\_Publications/Renewable\\_Energy\\_in\\_Ireland/Renewable-Energy-in-Ireland-2012.pdf](http://www.seai.ie/Publications/Statistics_Publications/Renewable_Energy_in_Ireland/Renewable-Energy-in-Ireland-2012.pdf)

<sup>79</sup> At the time of writing, data for 2014-15 was not available.

<sup>80</sup> <http://www.dcenr.gov.ie/NR/rdonlyres/4B809564-5709-41C1-AB37-3CF772ECD693/0/BioenergyPlan.pdf>

<sup>81</sup> <http://www.rhincenive.co.uk/>

<sup>82</sup> <http://www.dcenr.gov.ie/NR/rdonlyres/4B809564-5709-41C1-AB37-3CF772ECD693/0/BioenergyPlan.pdf>

<sup>83</sup> [http://www.seai.ie/Publications/Statistics\\_Publications/Renewable\\_Energy\\_in\\_Ireland/Renewable-Energy-in-Ireland-2012.pdf](http://www.seai.ie/Publications/Statistics_Publications/Renewable_Energy_in_Ireland/Renewable-Energy-in-Ireland-2012.pdf)

<sup>84</sup> [http://www.mnag.ie/workshop\\_2010\\_7\\_2172276902.pdf](http://www.mnag.ie/workshop_2010_7_2172276902.pdf)

<sup>85</sup> [www.seai.ie](http://www.seai.ie)

### 3.8 Forecast of roundwood demand

By 2020, the demand for roundwood is set to increase to 6.41 M m<sup>3</sup> (Table 21)<sup>86</sup>. Based on scenario modelling<sup>87</sup>, 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<sup>88</sup>.

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. The expected demand for forest-based biomass in 2020 is shown in Table 18<sup>89</sup>. 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.

The COFORD Mobilisation Report<sup>90</sup> details how the maximum volume of roundwood can be harvested (see section 3.9).

Table 21: Estimated roundwood demand on the island of Ireland in 2014 and 2020.

Item	2014	2020
	000 m <sup>3</sup> OB	
<b>Roundwood supply forecast (a)</b>	3,623	3,830
<b>Demand forecast and residue offset</b>		
Roundwood for sawmilling <sup>91</sup>	2,699	3,283
Roundwood for boardmills	730	880
Residues for boardmills	670	720
Forest-based energy <sup>92,93</sup>	1,912	3,259
Sawmill residue offset <sup>94</sup>	-1,295	-1,633
Boardmill residue offset	-89	-103
<b>Net demand<sup>95</sup> (b)</b>	<b>4,597</b>	<b>6,406</b>
<b>Supply position (a-b)</b>	<b>-974</b>	<b>-2,097</b>

Table 22: Estimated demand for forest-based biomass for energy production on the island of Ireland in 2020.

Energy type	Estimated demand 000 m <sup>3</sup> OB/annum	% of total demand
Combined heat & power (CHP)	1,550	50
Heat only	1,425	46
Co-firing	109	4
<b>Total</b>	<b>3,084</b>	<b>100</b>

In 2016, a new roundwood production forecast for the period 2016-2035 was published by COFORD<sup>96</sup>. It shows that by 2035, total roundwood production on the island of Ireland is forecast to reach 7.9 million cubic metres, an increase of 219% on the 3.6 million cubic metres which was harvested in 2015.

<sup>86</sup> <http://www.coford.ie/media/coford/content/publications/projectreports/Mobilising%20Irelands%20forest%20resources%20-%20Digital%20March2015.pdf>

<sup>87</sup> This is based on data available as of 2/11/2010.

<sup>88</sup> This data is based on work which was undertaken by the COFORD Supply Group (2010).

<sup>89</sup> The expected demand for forest-based biomass to 2020 is based on a scenario model which was developed by SEAI; [www.seai.ie](http://www.seai.ie). This is based on data available as of 2/11/2010.

<sup>90</sup> <http://www.coford.ie/media/coford/content/publications/projectreports/Mobilising%20Irelands%20forest%20resources%20-%20Digital%20March2015.pdf>

<sup>91</sup> Source: A survey of the roundwood demand sawmills and boardmills as undertaken by drima marketing (April, 2014).

<sup>92</sup> The estimated demand for wood-based biomass energy in the Republic of Ireland was provided by the Sustainable Energy Authority of Ireland (SEAI); This is based on the best available data available as of April 2014; [www.seai.ie](http://www.seai.ie)

<sup>93</sup> The estimated demand for wood-based biomass energy in Northern Ireland was provided by Action Renewables; (personal communication); This is based on the best available data available as of April 2014; <http://www.actionrenewables.co.uk/>

<sup>94</sup> The estimation of sawmill and boardmill residues is based on the analysis as used for Woodflow (2012); [http://www.coford.ie/media/coford/content/publications/projectreports/cofordconnects/Woodflow%20and%20forest-based%20biomass%20energy%20use%20on%20the%20island%20of%20Ireland%20\(2012\).pdf](http://www.coford.ie/media/coford/content/publications/projectreports/cofordconnects/Woodflow%20and%20forest-based%20biomass%20energy%20use%20on%20the%20island%20of%20Ireland%20(2012).pdf)

<sup>95</sup> Net demand is defined as the demand for wood fibre less (the supply of roundwood from Irish forests + the supply of wood residues from the sawmilling and boardmill sectors).

<sup>96</sup> <http://www.coford.ie/media/coford/content/publications/2016/CofordRoundwoodProd1635020916.pdf>

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 30 years on foot of state/EU and private sector investment<sup>94</sup>). Considerable scope exists to expand wood energy production, and this is in addition to supplying the roundwood needs of sawmilling and board manufacture<sup>97</sup>.

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

### 3.9 Mobilising roundwood supply – the COFORD wood mobilisation report

Recent work undertaken by COFORD shows that the following challenges need to be overcome if the forecast roundwood harvest from the Irish private forest estate is to be realised. These include:

- Improving the accessibility (for timber harvesting) of the Irish private forest estate;
- Continuing Forest Service grant assistance for the development of forest roads;
- Developing a “standardised low cost” roundwood sales system which facilitates roundwood sales in the Irish private forest estate, and;
- The combination of private woodlots into larger sales units which can be harvested more economically.

In March 2015, the then Minister of State for Forestry Tom Hayes TD launched a COFORD report on the mobilisation of roundwood<sup>98</sup> to meet growing demands for wood fuel, wood-based panels and sawn timber. The report has been authored by the COFORD wood mobilisation group which comprised growers and processors, Coillte, Teagasc, the Northern Ireland Forest Service and officials from the Forest Service.

The report analyses the full range of issues impacting on the level of wood mobilisation including: current and projected roundwood supply/demand dynamics and measures, forest rotation length, forest roads and roading, provision of harvest information to growers, road haulage and transport technology, training, environmental designations and research and development. It addresses these and other topics through 40 specific recommendations.

Demand by indigenous industry for forest fibre on the island of Ireland already exceeds the capacity of state and private forests to meet it, as evidenced by roundwood imports. Current high levels of harvest and demand reflect well on the quality of roundwood that is coming to the market from Irish forests, as well as the level of investment in supply chain management, processing technology and marketing by the processing sector.

A tight supply has meant that large sawlog is being imported for further processing, while wood fuels such as firewood and pellets are also being imported to meet the increasing levels of demand. While a level of imports is likely to continue, from a national economic perspective, and to build the significant role that forests play in climate change mitigation, the best source of wood for sawn timber, panels, fuel and other products is from Irish forests.

In that regard, the recommendations in the Government forest policy review (*Forests, products and people*)<sup>99</sup> to invest in increasing the forest resource from the current 11% of the land area, to 18% by mid century, with one of the main drivers being to provide for a sustainable level of increase in wood supply, need to be implemented.

Despite relatively high stumpage prices in recent years there are parcels in the public and private estates that are not being harvested. The public sector forecasted volume (and in some years the private forecast) includes roundwood that is not coming to market. This presents a challenge for both forecasting and wood mobilisation.

The particular challenge for the private sector is to mobilise the forecasted near ten-fold increase in roundwood production between now and the end of the next decade.

A key issue that the COFORD Wood Mobilisation Group has addressed, in consultation with stakeholders, is how to remove barriers to wood mobilisation, in order to enable forecast levels of wood production to be met and exceeded. In this context, it is important to point out that increasing harvest levels over and above the net realisable volume levels in the All Ireland forecast would not be at the expense of a sustainable level of wood production. In fact, the second National Forest Inventory (NFI)<sup>100</sup> has shown that the annual harvest in the Republic is less than half of the wood increment at a national level.

---

<sup>97</sup>

<http://www.coford.ie/media/coford/content/publications/projectreports/roundwood/Roundwood%20Prod%20Forecast%20LR%20June%202011.pdf>

<sup>98</sup> <http://www.coford.ie/media/coford/content/publications/projectreports/Mobilising%20Irelands%20forest%20resources%20-%20Digital%20March2015.pdf>

<sup>99</sup>

<https://www.agriculture.gov.ie/media/migration/forestry/publicconsultation/forestpolicyreview/ForestPolicyReviewpublicconsult21Jun2013.pdf>

<sup>100</sup> <http://www.agriculture.gov.ie/media/migration/forestry/nationalforestinventory/2012/Forest%20Inventory%20Main%20Findings.pdf>

### 3.10 National climate change strategy

#### 3.10.1 Climate change bill

In 2015, the government tabled a Climate Action and Low-Carbon Development Bill<sup>101</sup>. The purpose of the Bill is to provide for the approval of plans by the Government in relation to climate change for the purpose of pursuing the transition to a low carbon, climate resilient and environmentally sustainable economy by the year 2050<sup>102</sup>.

The Bill sets out proposed statutory obligations in relation to the development of a National Mitigation Plan, incorporating measures relating to the four sectors responsible for the bulk of Ireland's CO<sub>2</sub> emissions – Transport, Agriculture, Electricity Generation, and the Built Environment. In anticipation of the planned legislation, work has already commenced on the process of developing the Plan, at both sectoral and national level.

The Bill formally obliges the State to adhere to EU targets such as a 20% reduction in emissions by 2020 over 1995 levels.

The other major feature of the Bill is the establishment of an expert advisory council of between nine and 11 members which will advise and make recommendations to the Minister for the Environment. The council has recently taken office.

A National Climate Change Adaptation Framework<sup>103</sup> has been in place since 2012. The aim of this Framework is to ensure that an effective role is played by all stakeholders in putting in place an active and enduring adaptation policy regime.

The first phase, which is already well underway, is focused on identifying national vulnerability to climate change, based on potential impacts relative to current adaptive capacity. The second phase involves the development and implementation of sectoral and local adaptation action plans which will form part of the comprehensive national response to the impacts of climate change.

The Climate Action and Low Carbon Development Bill 2015, sets out proposed statutory provisions requiring the Minister for the Environment, Community and Local Government to make and submit to Government for approval, a national low carbon transition and mitigation plan, to be referred to as the National Mitigation Plan (NMP)<sup>104</sup>.

The NMP will set out Ireland's first statutory low carbon strategy for the period to 2050. Irish forests will continue to play their role in the mitigation of climate change.

#### 3.10.2 Irish forests and climate change

According to the second NFI, Irish forests contained over 380 million tonnes of carbon in 2012. Put in perspective, this is equivalent to 24 times the greenhouse emissions that occurred in the same year. Due to the relatively young age of the forest estate the carbon store continues to accumulate. Latest estimates show that, after taking harvest into account, over 3.8 million tonnes of carbon dioxide (CO<sub>2</sub>) were stored in 2013. When extended to 2030, recent projections submitted under the Greenhouse Gas Monitoring Mechanism Regulation of the EU (525/2013)<sup>105</sup> and the LULUCF Decision (529/2013)<sup>106</sup> show that with continued planting of new forests, more than 51 million tonnes of carbon dioxide (CO<sub>2</sub>) can be removed over that period from the atmosphere by forests and forest products. As forests increase in age and the level of harvest increases the level of carbon dioxide uptake could begin fall off by the end of the next decade. Continued afforestation can help to reduce this decline, as well as providing for sustained levels of wood production in the decades ahead. In this regard the use of forest-based biomass fuels and an increasing use of wood products in construction will assume greater significance in climate change mitigation in the future<sup>107</sup>.

In 2015, 36% of the roundwood used in the Republic of Ireland was used for energy generation, mainly within the forest products sector. The use of wood biomass energy in Ireland results in greenhouse gas (GHG) emission savings from the displacement of fossil fuels. The saving in 2014 is estimated at over 0.5 million tonnes of carbon dioxide (CO<sub>2</sub>), which compares with total emissions of 57.8 million tonnes of carbon dioxide (CO<sub>2</sub>) in the same year.

---

<sup>101</sup> <http://www.housing.gov.ie/environment/climate-change/policy/national-climate-policy>

<sup>102</sup> <http://environ.ie/en/Legislation/Environment/Atmosphere/FileDownload,40047,en.pdf>

<sup>103</sup> <http://www.environ.ie/en/Publications/Environment/ClimateChange/FileDownload,32076,en.pdf>

<sup>104</sup>

<https://www.agriculture.gov.ie/media/migration/forestry/publicconsultation/forestpolicyreview/ForestPolicyReviewpublicconsult21Jun2013.pdf>

<sup>105</sup> <http://rod.eionet.europa.eu/instruments/652>

<sup>106</sup> [http://ec.europa.eu/clima/policies/forests/lulucf/documentation\\_en.htm](http://ec.europa.eu/clima/policies/forests/lulucf/documentation_en.htm)

<sup>107</sup> <http://www.agriculture.gov.ie/media/migration/publications/2015/ARO201415230615.pdf>

A national climate change adaptation framework<sup>108</sup> has been in place since 2012. This provides a strategic policy focus to ensure adaptation measures are taken across different sectors and levels of government to reduce Ireland's vulnerability to the negative impacts of climate change. The aim of this Framework is to ensure that an effective role is played by all stakeholders in putting in place an active and enduring adaptation policy regime. The governance structure provides for climate change adaptation to be addressed at national and local level. Similar to the approach being taken at EU level in the White Paper on Adaptation, it is intended to follow a two-phased approach to adaptation in Ireland.

The first phase, which is already well underway, is focused on identifying national vulnerability to climate change, based on potential impacts relative to current adaptive capacity. Reliable information on the range of socio-economic vulnerabilities, the costs and benefits, and the options available and appropriate to Ireland, are key elements to inform effective adaptation planning. Much work has already been done in recent years, by the Environmental Protection Agency (EPA) and others, to provide the evidence base necessary to inform development of the national agenda. Sufficient high quality data and information already exists to begin the adaptation planning process now. Information dissemination systems are being further developed to inform all levels of decision-making.

The second phase involves the development and implementation of sectoral and local adaptation action plans which will form part of the comprehensive national response to the impacts of climate change.

The Climate Action and Low Carbon Development Bill 2015<sup>109</sup>, published in January 2015, sets out proposed statutory provisions requiring the Minister for the Environment, Community and Local Government to make, and submit to Government for approval, a national low carbon transition and mitigation plan, to be referred to as the National Mitigation Plan (NMP)<sup>110</sup>.

The NMP will set out Ireland's first statutory low carbon strategy for the period to 2050. A primary objective of the NMP will be to bring a clear and strong focus to both the challenges and the opportunities of transitioning to a low carbon future, and the importance of a positively focused and cost-effective national transition agenda. The NMP will also track the implementation of measures already underway and identify additional measures in the longer term to reduce greenhouse gas emissions (GHG) and progress the overall national low carbon transition agenda to 2050.

Irish forests will continue to play their role in the mitigation of climate change.

---

<sup>108</sup> <http://www.housing.gov.ie/environment/climate-change/policy/national-climate-policy>

<sup>109</sup> <http://www.housing.gov.ie/environment/climate-change/policy/national-climate-policy>

<sup>110</sup> <https://www.agriculture.gov.ie/media/migration/forestry/publicconsultation/forestpolicyreview/ForestPolicyReviewpublicconsult21Jun2013.pdf>

## 4.0 Developments in forest products markets

The Irish sawmilling and board manufacturing sector is competitive internationally and has developed major export markets over recent years, including Britain and France but also much further afield. Demand for all wood products remains strong, further growth is anticipated in the years to come as overseas markets for Irish sawn wood and panel board products continue to expand<sup>111</sup>.

### 4.1 Irish roundwood harvest

In 2015, 3.20 million m<sup>3</sup> of roundwood was harvested in the Republic of Ireland (Table 23)<sup>112</sup>. This is the highest level since records began in 1961. Over the same period, 3.02 million m<sup>3</sup> of roundwood was processed<sup>113</sup>, a 2% increase on 2014 (Table 23)

Table 23: Total roundwood harvest (including firewood) in the Republic of Ireland (2011-2015).

Harvest type	2011	2012	2013	2014	2015
	000 m <sup>3</sup> OB				
Coillte	2,492	2,485	2,588	2,517	2,470
Private	460	354	448	597	729
Total	2,952	2,839	3,036	3,114	3,199

In 2012, 3.02 million cubic metres of roundwood was available for processing in the Republic of Ireland<sup>114</sup>, a 2% increase on 2014 (Table 24).

Table 24: Roundwood available for processing in the Republic of Ireland (2010-2015).

Roundwood source	2011	2012	2013	2014	2015
	000 m <sup>3</sup> OB				
Commercial softwood					
Imports less exports	55	-18	49	68	40
Coillte	2,299	2,269	2,474	2,434	2,377
Private sector	386	343	328	447	595
Commercial hardwood					
Imports less exports	0	0	-1	0	0
Coillte	1	1	2	6	3
Private sector	1	1	1	0	0
Total	2,742	2,596	2,853	2,955	3,015

## 4.2 Sawn timber production, consumption, trade and promotion

### 4.2.1 Production

Eight companies supply over 90% of Irish sawmilling output and provide the main market for sawlog and stakewood harvested from Irish forests (Table 25)<sup>115</sup>. The majority of the logs supplied to Irish sawmills are certified to the FSC<sup>116,117</sup> and/or PEFC<sup>118</sup> standard. In addition, Irish sawmills have their own chain of custody (CoC) certification.

In 2015, sawmill roundwood intake was 1.99 million m<sup>3</sup>, which was converted to 0.90 million m<sup>3</sup> of sawn timber<sup>119</sup> and 154,000 m<sup>3</sup> of round stakes (Table 26). 71% of sawmill's roundwood requirement was sold by Coillte, with the balance supplied by the private forest sector, with some imports. .

<sup>111</sup> <https://www.agriculture.gov.ie/media/migration/foodindustrydevelopmenttrademarkets/foodwise2025/report/FoodWise2025.pdf>

<sup>112</sup> Historic harvest and trade data for the period 1961-2015 can be found on the FAOSTAT website: <sup>112</sup> <http://faostat.fao.org/site/626/default.aspx#ancor>

<sup>113</sup> Excluding firewood and hardwood

<sup>114</sup> Firewood is excluded.

<sup>115</sup> Source: drima market research survey

<sup>116</sup> FSC: Forest Stewardship Council; [www.fsc.org](http://www.fsc.org)

<sup>117</sup> The Forest Stewardship Council (FSC) is an independent, non Governmental, not for profit organisation established to promote the responsible management of the world's forests; [www.fsc.org](http://www.fsc.org)

<sup>118</sup> [www.pefc.org](http://www.pefc.org)

<sup>119</sup> Includes the production of round stake.

In value terms, Ireland became a net exporter of sawn timber in 2010. This was the first time such a trade surplus was recorded, (trade data are available from 1961 from FAO<sup>120</sup>) (Table 29). 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 2014-2015, consumption of sawn timber in the Republic of Ireland grew by 10%. In 2015, 51% 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 28).

The timber products produced by Irish sawmills serve three main markets: construction/structural, pallet/packaging and fencing/outdoor. The output of these products from 2011-2015 are in Table 27<sup>121</sup>.

Table 25: Large and medium sized sawmills on the island of Ireland by location.

Size	Sawmill	Location(s)	Website
Large	Balcas Ltd.	Enniskillen, Co Fermanagh, Northern Ireland	<a href="http://www.balcas.com">www.balcas.com</a>
Large	ECC Timber Products Ltd.	Corr na Móna, Co Galway	<a href="http://www.ecc.ie">www.ecc.ie</a>
Large	Glennon Brothers Ltd.	Longford, Co Longford Fermoy, Co Cork	<a href="http://www.glennonbrothers.ie">www.glennonbrothers.ie</a>
Large	GP Wood Ltd.	Enniskeane, Co Cork Macroom, Co Cork	<a href="http://www.gpwood.ie">www.gpwood.ie</a>
Large	Murray Timber Group	Ballygar, Co Galway Ballon, Co Carlow	<a href="http://www.mtg.ie">www.mtg.ie</a>
Medium	Coolrain Sawmills Ltd.	Coolrain, Co Laois	<a href="http://www.gardendeckingfencing.ie">www.gardendeckingfencing.ie</a>
Medium	Laois Sawmills Ltd.	Portlaoise, Co Laois	<a href="http://www.laoissawmills.com">www.laoissawmills.com</a>
Medium	Woodfab Timber Ltd.	Aughrim, Co Wicklow	<a href="http://www.woodfabtimber.ie">www.woodfabtimber.ie</a>

Table 26: Roundwood available for processing in the Republic of Ireland (2011-2015).

Roundwood source	2011	2012	2013	2014	2015
	000 m <sup>3</sup> OB				
Commercial softwood					
Imports less exports	55	-18	49	68	40
Coillte	2,299	2,269	2,474	2,434	2,377
Private sector	386	343	328	447	595
Commercial hardwood					
Imports less exports	0	0	-1	0	0
Coillte	1	1	2	6	3
Private sector	1	1	1	0	0
<b>Total</b>	<b>2,742</b>	<b>2,596</b>	<b>2,853</b>	<b>2,955</b>	<b>3,015</b>
Of which					
Sawlog	1,575	1,622	1,710	1,815	1,816
Stakewood	115	131	117	133	169
<b>Total use of roundwood by sawmills</b>	<b>1,690</b>	<b>1,753</b>	<b>1,827</b>	<b>1,948</b>	<b>1,985</b>

<sup>120</sup> <http://faostat.fao.org/site/626/default.aspx#ancor>

<sup>121</sup> COFORD Woodflow Connects Series:

<http://www.coford.ie/media/coford/content/publications/woodflow2015/WoodflowCCN2015FirstDraft280716.pdf>

Table 27: Sawn timber and round stake output by product in the Republic of Ireland (2011-2015).

Product(s)	2011	2012	2013	2014	2015
	000 m <sup>3</sup>				
Construction/structural	289	297	313	477	478
Pallet/packaging	251	258	272	207	209
Square edged fencing	206	211	223	203	203
Round stakes	106	119	106	133	154
Other	15	15	16	17	16
Total output	867	900	930	1,037	1,060

#### 4.2.2 Trade

In 2015, exports of forest products from the Republic of Ireland were €355 million, a 4% decline on 2014. Wood-based panels accounted for €190 million, the balance comprising paper and sawn timber exports (Table 29). Export volumes of WBP declined by 8% on 2014, while exports of sawn timber declined by 2.4% over 2014 (Table 28). The decline in the exports of sawn softwood is largely due to the increased use of domestically produced sawn softwood in the Irish market.

In 2015, forest products to the value of €612 m were imported into Ireland. This trade is dominated by the importation of pulp, paper and paper-board products. In 2015, these imports represented 67% of forest product imports into Ireland.

During 2015, consumption of sawn timber in the Republic of Ireland grew by 10%, driven by an ongoing improvement in construction markets. In 2015, 51% of the Irish market for sawn softwood timber was supplied by domestic production with the balance being imported. However, over the same period, only 3% of the Irish market for sawn hardwood was supplied domestically (Table 29).

Table 28: Primary forest products trade, volume and value (2011-2015).

Product	Imports									
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
	000 m <sup>3</sup>					€ million				
Sawn timber	201	145	134	205	227	64	54	51	74	88
Wood-based panels	195	204	194	235	240	68	75	78	98	112
	<b>000 tonnes</b>									
Pulp products	54	47	50	46	51	45	45	41	42	53
Paper and paper-board products	383	415	428	404	427	333	339	340	340	359
Total						510	513	510	554	612
Product	Exports									
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
	000 m <sup>3</sup>					€ million				
Sawn timber <sup>122</sup>	619	534	601	718	701	83	73	81	122	121
Wood-based panels	616	630	665	662	610	179	173	179	199	190
	<b>000 tonnes</b>									
Pulp products	0	0	0	0	0	0	0	0	0	0
Paper and paper-board products	59	68	81	67	86	52	51	59	50	44
Total						308	303	339	370	355

<sup>122</sup> In 2013-2014, the value of sawn timber exports grew by 51%, while volume grew 20%. The difference between value and volume may be due to a combination of changes in the euro/Sterling exchange rate and increases in product prices.

Table 29: Self-sufficiency in sawnwood (2011-2015)<sup>123,124</sup>.

Item	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
	Sawn softwood					Sawn hardwood				
Domestic production	760	782	824	904	904	1	1	1	3	2
Exports	619	534	601	718	700	1	0	0	1	1
Imports	169	116	108	175	194	32	28	26	30	33
Total consumption <sup>125</sup>	310	364	331	361	398	32	29	27	32	34
% of sawn timber market which is supplied by domestic production	45	68	67	52	51	3	3	4	6	3

Table 30: Balance of payments trade in the value of forest products (2011-2015).

Product	2011	2012	2013	2014	2015
	€ million				
Sawn timber	19	19	30	48	33
Wood-based panels	105	104	121	101	78
Pulp products	-45	-45	-41	-42	-53
Paper and paper-board products	-281	-288	-281	-290	-315
Total	-202	-210	-171	-183	-257

#### 4.2.3 Sawn softwood imports

In 2015, Ireland imported 194,000 m<sup>3</sup> of sawn softwood to a value of €58 million. The main softwood exporters to the Irish market for the period 2011-2015 are in Table 31<sup>126</sup>.

Table 31: Main softwood exporters to Ireland (2011-2015).

Exporter	2011	2012	2013	2014	2015
	000 m <sup>3</sup> UB				
Sweden	34	26	28	32	37
Latvia	37	23	22	44	44
Northern Ireland	21	19	17	29	21
Great Britain <sup>127</sup>	23	13	9	14	19
Finland	12	10	8	13	21
Russian Federation	9	8	7	17	21
Germany	19	7	6	10	12
Netherlands			4	7	7
Estonia	4	3	3	3	5
Canada	2	1	1	1	1
Belgium	2		1	2	1
Other					
% of total imports	96	94	97	97	97

#### 4.2.4 Sawn hardwood imports

In 2015, Ireland imported 33,000 m<sup>3</sup> of sawn hardwood to a value €29.4 million, an increase of 10% in volume on 2014. Over the same period, 16,000 m<sup>3</sup> of tropical hardwoods were imported to a value of €12.4 million. This was a 19% increase on the volume of tropical hardwood imported in 2014. The main hardwood exporters to the Irish market for the period 2011-2015 are shown in Table 32<sup>128</sup>.

<sup>123</sup> Central Statistics Office; ([www.cso.ie](http://www.cso.ie)) & EUROSTAT Joint Forest Sector Questionnaire (2012-2016)

<sup>124</sup> Central Statistics Office; ([www.cso.ie](http://www.cso.ie)) & EUROSTAT Joint Forest Sector Questionnaire (2012-2016)

<sup>125</sup> Total consumption is calculated as: domestic production + (imports-exports).

<sup>126</sup> Source: Central Statistics Office (CSO); ([www.cso.ie](http://www.cso.ie))

<sup>127</sup> Data on sawn timber which is imported from Northern Ireland is treated separately from that which is imported from Great Britain.

<sup>128</sup> Sources: CSO Trade Statistics ([www.cso.ie](http://www.cso.ie)) & EUROSTAT JFSQ for Ireland (2012-2016)

Table 32: Main hardwood exporters to Ireland (2011-2015).

Exporter	2011	2012	2013	2014	2015
	000 m <sup>3</sup> UB				
United States	10	10	9	11	10
Cameroon	11	9	7	12	14
Northern Ireland	4	2	5	2	2
China	0.3	1	1		
Canada	1	1	1	1	1
Great Britain <sup>129</sup>	2	1	1	1	1
Ivory Coast	1	1		1	1
Germany	1			1	1
% of hardwood imports	95	88	92	95	91

#### 4.2.5 Promotion

In September 2015, Enterprise Ireland<sup>130</sup> hosted three Irish construction sawnwood exporters at Timber Expo<sup>131</sup> which took place at the NEC in Birmingham, UK: Glennon Brothers<sup>132</sup>, GP Wood Ltd.<sup>133</sup> and MTG (Murray Timber Group)<sup>134</sup>.

### 4.3 Value added products - wooden furniture

In 2015, wooden furniture to the value of €224 million was imported into the Republic of Ireland. Over the period 2014-2015, net imports for wooden furniture grew by 11% (Table 33)<sup>135</sup>.

Table 33: The value of wooden furniture imports & exports to/from the Republic of Ireland (2011-2015).

Item	2011	2012	2013	2014	2015
	€ million				
Imports	147	152	163	195	224
Exports	25	26	34	37	48
Net imports	122	126	129	158	176

<sup>129</sup> Data on sawn timber which is imported from Northern Ireland is treated separately from that which is imported from Great Britain

<sup>130</sup> <http://www.enterprise-ireland.com/en/>

<sup>131</sup> <http://www.tjonline.com/features/irish-mills-make-a-stand-4386512/>

<sup>132</sup> <http://www.glennonbrothers.ie/>

<sup>133</sup> [www.gpwood.ie](http://www.gpwood.ie)

<sup>134</sup> [www.mtg.ie](http://www.mtg.ie)

<sup>135</sup> Source: EUROSTAT JFSQ for Ireland (2012-2016).

#### 4.4 Wood residues

Wood residues are primarily used as fuel for sawmill kilns and for process heat in the manufacture of wood-based panels (WBP). Post-consumer recovered wood (PCRW) is used for wood energy and in the manufacture of wood-based panels. In 2015, the production of wood residues increased by 5.5% in 2014 over 2014 (Table 34).

Table 34: Production of wood residues (2011-2015).

Residue type	2011	2012	2013	2014	2015
	000 m <sup>3</sup>				
Bark	236	232	243	219	238
Wood chip	510	524	552	576	590
Sawdust	198	201	212	244	285
Post-consumer recovered wood (PCRW)	270	250	250	300	300
Total	1,214	1,207	1,257	1,339	1,413

#### 4.5 Wood-based panels (WBP)

Wood-based panel manufacturers and their products are outlined in Table 35<sup>136</sup>.

Table 35: Wood-based panel manufacturers in the Republic of Ireland.

Manufacturer	Established	Product(s)	Location
Masonite Ireland	1997	Thin MDF/Moulded door facings	Drumsna, Co Leitrim
Medite-Europe	1983	Medium Density Fibreboard (MDF)	Clonmel, Co Tipperary
SmartPly Europe	1995	Oriented Strand Board (OSB)	Slieverue, Co Kilkenny

In 2015, 769,000 m<sup>3</sup> of wood-based panels (WBP) were produced from an intake of 1.37 million m<sup>3</sup> of wood fibre<sup>137</sup>, a 4.6% increase over 2013. A very high proportion (79%) of WBP manufacture was exported; 610,000 m<sup>3</sup>, to a value of €190 million (Table 36)<sup>138</sup>. 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 36: Production and exports of wood-based panels in and from the Republic of Ireland (2011-2015).

Item	Unit	2011	2012	2013	2014	2015
Production	000 m <sup>3</sup>	736	704	739	773	769
Export volume	000 m <sup>3</sup>	616	630	665	662	610
Export value	€ million	173	179	199	198	190

In 2015, development work continued on the €59 million upgrade of SmartPly's OSB mill near Waterford. By year-end, the building work for housing the new line was almost completed. Installation of the new equipment including a forming-line, press and saw-line was close to completion by year-end and on track for a Q1 2016 start-up. This is expected to deliver significant operational efficiencies and underpin new product development. This line produced its first board in April 2016<sup>139</sup>.

#### 4.6 Pulp & paper

All pulp and paper used in the Irish market is imported. In 2015, pulp & paper imports represented 67% of Irish forest product imports (by value). Over this period, 478,000 metric tonnes of pulp and paper products, to a value of €382 million, were imported into Ireland. This was an increase of 7.9% over 2014.

<sup>136</sup> EUROSTAT/FAO Joint Forest Sector Questionnaire (JFSQ) for Ireland (2012-2016)

<sup>137</sup> Includes pulpwood, wood chips, sawdust and post-consumer recovered wood (PCRW).

<sup>138</sup> EUROSTAT Joint Forest Sector Questionnaire (2012-2016)

<sup>139</sup> [http://www.coillte.ie/fileadmin/user\\_upload/pdfs/Annual\\_reports/Coillte\\_Annual\\_Report\\_2015\\_Web.pdf](http://www.coillte.ie/fileadmin/user_upload/pdfs/Annual_reports/Coillte_Annual_Report_2015_Web.pdf)

## 4.7 Builders merchanting

The reduction in Irish building output has had a significant knock on effect on the Irish builder's merchant sector and on its suppliers. However, the sector is showing ongoing signs of recovery.

The Grafton Group is Ireland's largest builders merchant. Its 2015 annual report stated that 'its merchanting business in Ireland reported a significant increase in revenue and operating profit for the second successive year against the backdrop of a strong recovery in the economy and generally good but competitive market conditions'<sup>140</sup>.

## 4.8 Voluntary forest certification

### 4.8.1 Schemes

In 2011, Coillte (the State forestry board)<sup>141</sup> celebrated 10 years of FSC certification for its forests which have been certified to the Forest Stewardship Council (FSC) standard since May 2001. The certificate is issued for a period of five years. In 2006, Coillte successfully retained its FSC certificate following a full audit of its forests. In the interim years, audits were carried out on Coillte's forests to ensure that FSC criteria were being met<sup>142</sup>. In late 2012, a new FSC standard for Ireland was launched.

In 2012, PEFC International announced the endorsement of the Ireland Scheme for Sustainable Forest Management<sup>143,144</sup>. In 2014, Coillte became dual PEFC and FSC certified<sup>145</sup>.

To date, certification has not been a major issue for private forest owners. However, as the private forests' contribution to the national yearly harvest increases, certification is likely to become an issue<sup>146</sup>. Currently about 6,500 hectares of private forest is certified<sup>147</sup>.

### 4.8.2 Forest Service certification initiative

The Forest Service, Department of Agriculture, Food and the Marine is currently undertaking a pilot forest certification project. This aims to develop voluntary certification within the private forest estate in Ireland. The North East Forestry Group<sup>148</sup> and the Forestry Owners Cooperative Society<sup>149</sup> are both taking part in a pilot project in which the template will be tested and two certification groups for private forest owners will be established. This project will lay the groundwork for future groups to emerge and will provide the tools for owners and forestry professionals to apply for voluntary forest certification s<sup>150</sup>.

### 4.8.3 Certified forest products

All major sawmills and panel mills have chain-of-custody procedures associated with product certification. The demand for certified timber products in the Irish market is still relatively small and there is no strongly developed public procurement policy for them.

---

<sup>140</sup> <http://www.graftonplc.com/~media/Files/G/Grafton/agm/2016/Annual-Report-2015.pdf>

<sup>141</sup> [www.coillte.ie](http://www.coillte.ie)

<sup>142</sup> [http://www.coillte.ie/coillteforest/responsible\\_forest\\_management\\_and\\_certification/certification\\_introduction/](http://www.coillte.ie/coillteforest/responsible_forest_management_and_certification/certification_introduction/)

<sup>143</sup> <http://www.pefc.org/news-a-media/general-sfm-news/news-detail/item/904-the-future%E2%80%99s-looking-greener-in-ireland>

<sup>144</sup> [http://www.itga.ie/Conference2013/PEFC\\_Certification\\_WilliamMerivale.pdf](http://www.itga.ie/Conference2013/PEFC_Certification_WilliamMerivale.pdf)

<sup>145</sup> [http://www.coillte.ie/coillteforest/responsible\\_forest\\_management\\_and\\_certification/certification\\_introduction/](http://www.coillte.ie/coillteforest/responsible_forest_management_and_certification/certification_introduction/)

<sup>146</sup> [http://www.teagasc.ie/forestry/docs/advice/Teagasc\\_Situation\\_Outlook\\_Forestry\\_2012.pdf](http://www.teagasc.ie/forestry/docs/advice/Teagasc_Situation_Outlook_Forestry_2012.pdf)

<sup>147</sup>

<https://www.agriculture.gov.ie/media/migration/forestry/forestservicegeneralinformation/Annual%20Forest%20Sector%20Statistics%20%202015.pdf>

<sup>148</sup> [http://northeastforestrygroup.ie/North\\_East\\_Forestry\\_Group\\_Home.html](http://northeastforestrygroup.ie/North_East_Forestry_Group_Home.html)

<sup>149</sup> <http://focs.ie/56/>

<sup>150</sup> <https://www.agriculture.gov.ie/press/pressreleases/2016/june/title.98416.en.html>

## 5.0 Irish forests and the environment

The Irish forest sector has strong environmental and non wood benefits. Sustainable forest management is implemented through national legislation, guidelines and procedures<sup>151</sup>

Ireland's forests and afforestation programme (see Section 3.2) provide for the conservation and enhancement of biodiversity at both a local and a national level.

It has been estimated that 18 million people visit Irish forests for recreation purposes each year. This activity has been valued at €97 million, which in turn generates €268 million in economic activities in rural communities<sup>152</sup>.

Ireland's afforestation programme, existing forests, and the use solid wood products jointly contributed to an estimated removal of 3.7 million tonnes of CO<sub>2</sub> from the atmosphere in 2014. A comprehensive outline of climate change mitigation actions and forest sink projections are contained in the submission made by Ireland on LULUCF actions to limit or reduce emissions and maintain or increase removals from activities defined under Decision 529/2013/EU<sup>153</sup>. Total emissions in the same year are likely to be in range 58-59 million tonnes CO<sub>2</sub> equivalent<sup>154</sup>.

## 6.0 Recent developments

### 6.1 National Forest Inventory (NFI)

The primary purpose of the NFI is to assess on an ongoing basis changes to the forest estate. The first phase of the NFI<sup>155</sup>, completed in 2006, was the starting point against which subsequent stages are measured and compared. The field data collection for the second phase was completed in December 2012, followed by the publication of the results in 2013<sup>156</sup>. Standing merchantable volume<sup>157</sup> was 97 million m<sup>3</sup>; gross annual volume increment between 2006 and 2012 was 7.7 million m<sup>3</sup>. The mean annual standing volume<sup>158</sup> felled within this period was 3.6 million m<sup>3</sup>.

The third NFI cycle commenced in 2015 and is expected to be finished 2018. It will facilitate the monitoring of the national forest estate, including the assessment of standing roundwood stocks and annual increment as an input to the assessment of sustainable forest management at the national level<sup>159</sup>. Other important functions of the NFI include:

- Compliance with international and national reporting obligations, e.g. FAO; EUROSTAT, UNECE, UNFCCC, the EU LULUCF Decision;
- The national roundwood production forecast, which is a prerequisite for national forest industry planning and development.

In 2012, the National Forest Inventory (NFI) estimated that the area of forest was 731,650 hectares or 10.5% of the land area, excluding inland water bodies. Of the total forested area, 653,980 ha comprises areas occupied by trees or potentially occupied by trees, while permanently unstocked open area within the forest (roads, ridelines, powerlines, etc.) comprise 77,670ha. Conifers account for 68.6%, broadleaves 17.5% and mixed forests 13.9% of the stocked forest area<sup>160</sup>.

---

<sup>151</sup> The Environmental Report on the Forest Policy Review can be found at:

<https://www.agriculture.gov.ie/media/migration/forestry/publicconsultation/forestpolicyreview/SEAForestPolicyReviewJune2013.pdf>

<sup>152</sup> <http://www.coford.ie/publications/forestry2030/irishforestryandtheeconomy/>

<sup>153</sup> <http://www.agriculture.gov.ie/media/migration/ruralenvironment/climatechange/InfoonLULUCFactions180315.pdf>

<sup>154</sup> <http://www.epa.ie/pubs/reports/air/airemissions/EPA%202015%20GHG%20Projections%20Publication%20Fin>

<sup>155</sup> <http://www.agriculture.gov.ie/nfi/>

<sup>156</sup> <http://www.agriculture.gov.ie/nfi/nfisecondcycle2012/nationalforestinventoryresultsdata2012/>

<sup>157</sup> [http://www.agriculture.gov.ie/media/migration/forestry/nationalforestinventory/2012/NFI%20Ireland%20Results\\_v12%20V%20Final.pdf](http://www.agriculture.gov.ie/media/migration/forestry/nationalforestinventory/2012/NFI%20Ireland%20Results_v12%20V%20Final.pdf)

<sup>158</sup> Gross commercial volume of trees felled, no adjustment for harvest losses

<sup>159</sup> <http://www.agriculture.gov.ie/media/migration/publications/2015/ARO201415230615.pdf>

<sup>160</sup>

<https://www.agriculture.gov.ie/media/migration/forestry/forestservicgeneralinformation/Annual%20Forest%20Sector%20Statistics%20%202015.pdf>

## 6.2 Forecast of roundwood supply (2016-2035)

In 2016, COFORD published its *All Ireland Roundwood Production Forecast 2016-2035*. This shows that over the period 2016-2035, roundwood production from Irish forests is forecast to double from 3.96 million cubic metres in 2016 to 7.90 million cubic metres in 2035. Almost all of this increase is expected to come from the private sector<sup>161</sup>.

## 6.3 Plant health

The Forest Service of the Department of Agriculture, Food and the Marine has regulatory responsibility for implementing the forestry aspects of the EU Plant Health Directive on protective measures against the introduction into the Community of organisms harmful to plants or plant products and against their spread within the Community. The Forest Service implements the provisions of the Directive relating to timber, wood packaging material (pallets, crates etc) and surveys of the national forest estate for quarantine pests and diseases<sup>162</sup>.

An ash dieback survey was undertaken by the Forest Service in 2015. This included a targeted survey of forestry plantations with imported ash (97 locations) and a systematic survey of 376 National Forest Inventory (NFI) points (153 forest locations and 223 hedgerow locations) across the country<sup>163</sup>.

Following the introduction of national measures to regulate the disease in October 2012, an 'All Ireland Chalara Control Strategy' was published in July 2013. This strategy was developed jointly with Northern Ireland's Department of Agriculture and Rural Development. The Department also co-operated with the UK authorities in inputting in a 'Pest Risk Analysis for *Hymenoscyphus pseudoalbidus* for the UK and Ireland'. Surveying for the disease continued during 2015 and appropriate measures were implemented.

Further to the adoption of the 'All Ireland Chalara Control Strategy' in July 2013, which was developed jointly with the Department of Agriculture and Rural Development (DARD) in Northern Ireland, the Department continued its co-operation with the UK authorities throughout 2015.

Since the first finding in Ireland of *Phytophthora ramorum* in Japanese larch in 2010 the Forest Service has continued to conduct annual ground and aerial surveys of larch with the assistance of the Air Corps and Coillte. At the start of 2015 the disease had been confirmed present in Japanese larch at 44 locations, up from 26 at the start of the previous year. Up to 12 November 2015 the disease has been confirmed present at an additional 3 locations, bringing the total number of confirmed locations in Ireland to 47 and affecting approximately 311ha of forest<sup>164</sup>.

Under the International Plant Protection Convention's international standard for the 'Regulation of Wood Packaging Material in International Trade (ISPM No. 15)', the Forest Service is responsible for the scheme in Ireland. 47 Irish companies are currently registered in Ireland to produce wood packaging material to ISPM No. 15 thus facilitating the export of goods worldwide from Ireland on compliant pallets and crates.

During 2015 in excess of 700 site visits were conducted for specific plant health reasons.

---

<sup>161</sup> <http://www.coford.ie/media/coford/content/publications/2016/CofordRoundwoodProd1635020916.pdf>

<sup>162</sup> <http://www.agriculture.gov.ie/media/migration/publications/2015/ARO201415230615.pdf>

<sup>163</sup>

<https://www.agriculture.gov.ie/media/migration/forestry/forestservicgeneralinformation/Annual%20Forest%20Sector%20Statistics%20%202015.pdf>

<sup>164</sup>

<https://www.agriculture.gov.ie/media/migration/forestry/forestservicgeneralinformation/Annual%20Forest%20Sector%20Statistics%20%202015.pdf>

## 7.0 Economic impact of the Irish forestry & forest products sector

### 7.1 Value of the Irish forestry and forest products sector

In 2012, the Irish forest sector generated approximately €2.29 billion in value to the Irish economy<sup>165</sup>.

### 7.2 Employment

The Irish forestry and forest products sector employs over 12,000 people, the majority in rural Ireland (Table 37)<sup>166,167</sup>. A study which carried out by University College Dublin (UCD) estimated that an annual afforestation programme of 15,000 ha would on average, create 490 direct jobs. Most of these jobs would be based in rural communities in forest establishment, forest management, timber harvesting, and road haulage and in timber processing. The study indicated that for every 100 jobs in the forestry sector that an extra 70 full-time equivalent jobs are provided in other sectors of the economy<sup>168</sup>.

Table 37: Employment in the forestry and forest products sector in the Republic of Ireland.

Sector	No employed
Forestry development sector	3,125
Forest products sector	3,907
Indirect/contract employment	4,907
Total	11,939

<sup>165</sup> COFORD Forestry 2030 papers updated ([www.coford.ie](http://www.coford.ie))

<sup>166</sup> [http://www.forestry.ie/forestry\\_economy.htm](http://www.forestry.ie/forestry_economy.htm)

<sup>167</sup> Dr Áine Ní Dhubháin and Dr Richard Moloney, COFORD FORECON Project (2010 overview) <http://www.coford.ie/media/coford/content/researchprogramme/projectreports/forecon2008.pdf>

<sup>168</sup> Dr Áine Ní Dhubháin and Dr Richard Moloney, COFORD FORECON Project (2010 overview) <http://www.coford.ie/media/coford/content/researchprogramme/projectreports/forecon2008.pdf>

## 8.0 Research & innovation

### 8.1 Innovation in forest products and markets

Irish timber processors have continued to invest in innovation in processing and products<sup>169</sup>.

- Such new products include the development of eased edge structural carcassing<sup>170</sup> by the Murray Timber Group (MTG).
- Other timber processors including GP Wood<sup>171</sup> have grown their market share in the UK.
- In addition, the Irish forestry and forest products sector has developed new markets for its products and services. These include the ongoing development of the French market by Glennon Brothers<sup>172</sup>.
  - In 2014/2015, Glennon Brothers invested €13 million in its new planing facility at its Fermoy sawmill.
- Over the past 3 years, Masonite Ireland has developed 2 new door facings. These have enabled it to develop new markets in India and continue to grow their export sales steadily.
- In April 2016, SmartPly commissioned its new €59 million OSB line.
- In October 2015, Medite SmartPly (formerly Coillte Panel Products) and the Galway Mayo Institute of Technology (GMIT) Letterfrack signed a collaboration agreement to develop research and innovation initiatives regarding the use of sustainable Irish wood-based materials<sup>173</sup>.
- In 2015, Medite SmartPly extended its range of fire retardant MDF and OSB for use in shop-fitting, furniture and construction.
- Dempsey Timber Engineering (DTE)<sup>174</sup>, a subsidiary of Glennon Brothers continued to grow its market in the UK.
- Laois Sawmills has developed new markets for wood residues and wood pellets<sup>175</sup>.
  - In 2014, Laois Sawmills won the manufacturing category at the Small Firms Association's (SFA) National Small Business Awards.
- Woodfab Timber<sup>176</sup> has installed a combined heat and power (CHP) plant at its facility in Aughrim, Co Wicklow, thus enabling it to reduce its energy costs.

### 8.2 Innovation in wood mobilisation/Teagasc *Talking Timber* events

In September 2016, Teagasc, (the Agriculture and Food Development Authority) in association with the Forest Service and the Irish timber industry, held two regional timber marketing events in counties Clare, Donegal and Kerry. More than five hundred forest owners, with forests coming up for thinning, attended the events. The forest and wood processing sector was strongly represented at both events enabling forest owners with roundwood for sale to contact buyers in their area<sup>177</sup>.

---

<sup>169</sup> [http://www.ibec.ie/IBEC/Press/Publicationsdoelib3.nsf/vPages/Newsroom-forestry-sector-looks-to-export-market-for-growth-10-09-2012/\\$file/IFPPA+Report+2012+Final.pdf](http://www.ibec.ie/IBEC/Press/Publicationsdoelib3.nsf/vPages/Newsroom-forestry-sector-looks-to-export-market-for-growth-10-09-2012/$file/IFPPA+Report+2012+Final.pdf)

<sup>170</sup> [www.mtg.ie/construction\\_timber.html](http://www.mtg.ie/construction_timber.html)

<sup>171</sup> [www.gpwood.ie](http://www.gpwood.ie)

<sup>172</sup> [www.glennonbrothers.ie/press/france2.html](http://www.glennonbrothers.ie/press/france2.html)

<sup>173</sup> <http://www.coillte.ie/aboutcoillte/news/article/view/coillte-and-gmit-letterfrack-collaboration-for-research-and-innovation-in-sustainable-irish-wood-bas/>

<sup>174</sup> <http://www.dte.ie/v2/default.php?content=index.php>

<sup>175</sup> <http://www.laoissawmills.com/pellets1/wood-pellets/>

<sup>176</sup> <http://www.woodfabtimber.ie/>

<sup>177</sup> <https://www.teagasc.ie/news--events/news/2016/talking-timber.php>

## 9.0 References

- Budget 2016; Economic Outlook and Fiscal Developments in Ireland, Department of Finance, Dublin  
[http://www.budget.gov.ie/Budgets/2016/Documents/Economic\\_Developments\\_and\\_Outlook\\_for\\_Ireland\\_pub.pdf](http://www.budget.gov.ie/Budgets/2016/Documents/Economic_Developments_and_Outlook_for_Ireland_pub.pdf)
- Central Statistics Office. 2016. Irish Trade Statistics for 2015; Personal communication.  
[www.cso.ie](http://www.cso.ie)
- COFORD. 2011. All Ireland roundwood demand forecast 2011-2020. Authored by the COFORD Roundwood Demand Group.  
[http://www.coford.ie/media/coford/content/publications/projectreports/roundwooddemand2011/COFORD\\_demand01Mar11.pdf](http://www.coford.ie/media/coford/content/publications/projectreports/roundwooddemand2011/COFORD_demand01Mar11.pdf)
- COFORD Land Availability Working Group. 2016. *Land Availability for Afforestation - Exploring opportunities for expanding Ireland's forest resource*. COFORD, Dublin.  
<http://www.coford.ie/media/coford/content/publications/cofordarticles/LandAvailabAfforestation130116.pdf>
- COFORD. 2015. Mobilising Ireland's forest resource; Authored by the COFORD Wood Mobilisation Group (2015).  
<http://www.coford.ie/media/coford/content/publications/projectreports/Mobilising%20Irelands%20forest%20resources%20-%20Digital%20March2015.pdf>
- Coillte. 2012-2016. Coillte Annual Reports (2011-2015)  
<http://annualreport2011.coillte.ie/>  
[http://www.coillte.ie/aboutcoillte/publications/annual\\_reports/2012\\_reports/](http://www.coillte.ie/aboutcoillte/publications/annual_reports/2012_reports/)  
<http://annualreport2013.coillte.ie/>  
[http://www.coillte.ie/fileadmin/user\\_upload/pdfs/Annual\\_reports/4462\\_Annual\\_Report\\_2014\\_ENGLISH\\_30th\\_July\\_2015.pdf](http://www.coillte.ie/fileadmin/user_upload/pdfs/Annual_reports/4462_Annual_Report_2014_ENGLISH_30th_July_2015.pdf)  
[http://www.coillte.ie/fileadmin/user\\_upload/pdfs/Annual\\_reports/Coillte\\_Annual\\_Report\\_2015\\_Web.pdf](http://www.coillte.ie/fileadmin/user_upload/pdfs/Annual_reports/Coillte_Annual_Report_2015_Web.pdf)
- Department of Agriculture, Food and the Marine. 2015. Annual Review & Outlook for Agriculture, Food and the Marine 2014/2015  
<http://www.agriculture.gov.ie/media/migration/publications/2015/AROFinalVersion2015Amended210915.pdf>
- Department of Agriculture, Food and the Marine. 2014. Forest Research Ireland (FORI), Meeting the needs of Ireland's forest sector to 2017 and beyond, through research and innovation;  
<https://www.agriculture.gov.ie/media/migration/research/whatsnew/ForestResearchIreland20143Layout1091014.pdf>
- Department of Agriculture, Food and the Marine. 2016. Ireland's Forests, Annual statistics 2015  
<https://www.agriculture.gov.ie/media/migration/forestry/forestservicgeneralinformation/Annual%20Forest%20Sector%20Statistics%20%202015.pdf>
- Department of Communications, Energy and Natural Resources. 2007. Energy Future for Ireland, the Energy Policy Framework; (2007-2020),  
[http://www.seai.ie/About\\_Energy/Energy\\_Policy/European\\_Union\\_Drivers/EnergyWhitePaper12March2007.pdf](http://www.seai.ie/About_Energy/Energy_Policy/European_Union_Drivers/EnergyWhitePaper12March2007.pdf)
- Department of Communications, Energy and Natural Resources. 2012. Strategy for Renewable Energy (2012-2020).  
[http://www.dcenr.gov.ie/NR/rdonlyres/9472D68A-40F4-41B8-B8FD-F5F788D4207A/0/RenewableEnergyStrategy2012\\_2020.pdf](http://www.dcenr.gov.ie/NR/rdonlyres/9472D68A-40F4-41B8-B8FD-F5F788D4207A/0/RenewableEnergyStrategy2012_2020.pdf)
- Department of the Environment, Heritage and Local Government. 2007. Ireland National Climate Change Strategy (2007-2012). [www.environ.ie/en/PublicationsDocuments/FileDownload.1861.en.pdf](http://www.environ.ie/en/PublicationsDocuments/FileDownload.1861.en.pdf)
- Department of Finance. 2014. Irish Stability Programme update.  
<http://www.finance.gov.ie/what-we-do/economic-policy/publications/presentations/irelands-stability-programme-april-2014-update>
- Department of the Taoiseach. 2014. Construction 2020, a Strategy for a Renewed Construction Sector.  
[http://www.taoiseach.gov.ie/eng/Publications/Publications\\_2014/Construction\\_Strategy\\_-\\_14\\_May\\_2014.pdf](http://www.taoiseach.gov.ie/eng/Publications/Publications_2014/Construction_Strategy_-_14_May_2014.pdf)
- Dineen, D, Howley, M, Holland, M. 2015. Sustainable Energy Authority of Ireland. 2015. Renewable energy in Ireland, 2013 update.  
[http://www.seai.ie/Publications/Statistics\\_Publications/Renewable\\_Energy\\_in\\_Ireland/Renewable-Energy-in-Ireland-2013-Update.pdf](http://www.seai.ie/Publications/Statistics_Publications/Renewable_Energy_in_Ireland/Renewable-Energy-in-Ireland-2013-Update.pdf)
- Duffy, D. Foley D. McQuinn, K., Morley, C. 2016. Economic & Social Research Institute (ESRI); Quarterly Economic Commentary (QEC), summer 2016.  
<https://www.esri.ie/pubs/QEC2016SUM.pdf>

EUROSTAT/FAO Joint Forest Sector Questionnaire (JFSQ) for Ireland (2012-2016)  
<http://faostat3.fao.org/browse/F/FO/E>

Environmental Protection Agency (EPA). 2013. Ireland's Greenhouse Gas Emission Projections (2014-2035).  
<http://www.epa.ie/pubs/reports/air/airemissions/irelandshgmissions2014-2035.html#.Vfl7wm-FPcA>

Knaggs, G., O'Driscoll, E. 2016. Woodflow and Biomass Use in Ireland (2015). COFORD Connects Note; (in press, COFORD), <http://www.coford.ie/media/coford/content/publications/woodflow2015/WoodflowCCN2015FirstDraft280716.pdf>

Moore, N. 2015, Timbertrends. UK Timber Utilisation Statistics (2010-2015) Estimates, Forestry Commission (GB);  
[http://www.forestry.gov.uk/pdf/TimberUtilisationReport2010-2011Estimates.pdf/\\$FILE/TimberUtilisationReport2010-2011Estimates.pdf](http://www.forestry.gov.uk/pdf/TimberUtilisationReport2010-2011Estimates.pdf/$FILE/TimberUtilisationReport2010-2011Estimates.pdf)  
<http://www.forestry.gov.uk/website/forstats2013.nsf/LUContents/45A4416DC7F75A9D8025735600334221>  
[http://www.forestry.gov.uk/pdf/TimberUtilisationReport2013.pdf/\\$FILE/TimberUtilisationReport2013.pdf](http://www.forestry.gov.uk/pdf/TimberUtilisationReport2013.pdf/$FILE/TimberUtilisationReport2013.pdf)  
[http://www.forestry.gov.uk/pdf/Timber\\_Utilisation\\_Report\\_2015.pdf/\\$FILE/Timber\\_Utilisation\\_Report\\_2015.pdf](http://www.forestry.gov.uk/pdf/Timber_Utilisation_Report_2015.pdf/$FILE/Timber_Utilisation_Report_2015.pdf)

National Economic and Social Council (NESC). 2012. Towards a New National Climate Policy: Interim Report of the NESC Secretariat.  
[http://files.nesc.ie/nesc\\_secretariat\\_papers/nesc\\_secretariat\\_paper\\_03\\_2012.pdf](http://files.nesc.ie/nesc_secretariat_papers/nesc_secretariat_paper_03_2012.pdf)

National Housing Agency. 2014. Housing Supply Requirements in Ireland's Urban Settlements (2014-2018).  
<https://www.housing.ie/Housing/media/Media/Publications/Future-Housing-Supply-Requirements-Report.pdf>

The National Recovery Plan (2011-2014)  
<http://www.budget.gov.ie/The%20National%20Recovery%20Plan%202011-2014.pdf>

Nieuwenhuis, M, Hendrick, E., Phillips, H. 2013. Forestry and a low carbon economy – a background paper;  
[http://www.societyofirishforesters.ie/pdf/Journals/Issue\\_70-Abstracts.pdf](http://www.societyofirishforesters.ie/pdf/Journals/Issue_70-Abstracts.pdf)

Organisation for Economic Co-operation and Development (OECD). 2015. OECD Economic Surveys, Ireland.  
<http://www.oecd.org/eco/surveys/Ireland-2015-overview.pdf>

Phillips H., Corrigan E., McDonagh M., Fairgrieve M., Farrelly N., Redmond R., Barrett F. and Twomey M. All Ireland Roundwood Production Forecast (2016-2035). COFORD, Department of Agriculture, Food and the Marine, Dublin.  
<http://www.coford.ie/media/coford/content/publications/2016/CofordRoundwoodProd1635020916.pdf>

Society of Chartered Surveyors Ireland (SCSI). 2015. The Irish Construction Sector Prospects to 2016.  
[https://www.scsi.ie/documents/get\\_lob?id=538&field=file](https://www.scsi.ie/documents/get_lob?id=538&field=file)