



Processing / Products No. 13

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- ▶ Irish timber processors provide a market for the pulp, stake and sawlog harvested each year in Irish forests.
- ▶ In 2006, roundwood production in the Republic of Ireland totalled 3,154 million m³.
- ▶ Irish sawmill output for 2006 is estimated at 1,097 million m³ of sawn timber.
- ▶ In 2006, the Irish panel products sector had a combined output of 938,000 m³.
- ▶ In 2006, imports of forest products into the Republic of Ireland exceeded €759 million.
- ▶ Key drivers of demand for timber products include the housing and timber frame sectors.

Estimated woodflow for the Republic of Ireland for 2006

Gordon Knaggs¹ and Eoin O'Driscoll²

Introduction

At the turn of the 20th century, forests covered less than 1% of Ireland's land area. Today forest cover is 10% and Ireland has a well developed timber processing sector, manufacturing timber products for the construction industry, from floors to roof timbers and windows. This note reviews the flow of roundwood, timber and timber products in the Republic of Ireland for 2006, and details:

- ▶ Timber harvest from Ireland's forests;
- ▶ Sawn timber output from Ireland's sawmills;
- ▶ Residue production;
- ▶ Production of wood-based panels;
- ▶ Timber imports and exports;
- ▶ Housing demand;
- ▶ New developments in timber markets.



▲ I-beams in use on a construction site.

COFORD
 Arena House, Arena Road,
 Sandyford, Dublin 18, Ireland
 Telephone: +353 1 2130725
 Email: info@coford.ie
 http://www.coford.ie

¹ Forest Products Consultant. Email: gordonknaggs@eircom.net

² Drima Market Research. Email: eoin@drima.com

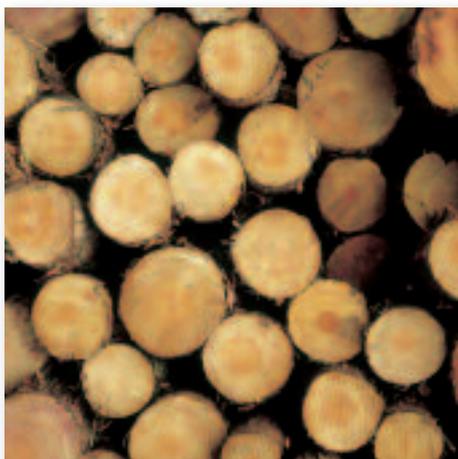
Irish timber processors provide a market for the pulp, stake and sawlog harvested each year in Irish forests. Figure 1 shows the estimated woodflow from Irish forests for 2006.

Timber harvest

In 2006, roundwood processed in the Republic of Ireland totalled 3,154 million cubic metres (m³). Eighty-six percent

Table 1: Republic of Ireland harvest for 2006 (hardwood and softwood combined) by assortment class.

| Product Class | Irish Harvest (overbark m ³) |
|----------------------------------|--|
| Sawlog (>14 cm top diameter) | 2,176,000 |
| Pulpwood (7-13 cm top diameter) | 820,000 |
| Stakewood (7-13 cm top diameter) | 158,000 |



◀ An estimated 3,154 million m³ of roundwood was processed in 2006.

was supplied by Coillte, with the balance coming from the private sector and from imports. The split between sawlog, pulp and stake (for 2006) is shown in Table 1.

The private sector harvest will grow significantly in the coming years. A forecast of the supply from private forests over 2008–2015 is provided in Table 2.

Table 2: Private forestry forecast 2008 – 2015 by volumes (000 m³).

| Year | Softwood forecast | | Hardwood forecast | Total |
|------|-------------------|--------------|-------------------|-------|
| | Thinnings | Clearfelling | | |
| 2008 | 232 | 115 | 34 | 381 |
| 2009 | 302 | 115 | 34 | 451 |
| 2010 | 492 | 115 | 34 | 641 |
| 2011 | 488 | 115 | 34 | 637 |
| 2012 | 654 | 115 | 34 | 803 |
| 2013 | 606 | 115 | 34 | 755 |
| 2014 | 678 | 115 | 34 | 827 |
| 2015 | 1,018 | 115 | 34 | 1,167 |

Source: Gallagher, G. and O Carroll, J. Forecast of Roundwood Production from the Forests of Ireland 2001-2015. COFORD, Dublin.

▶ A commercial Irish forest in Co Wicklow.



Roundwood processed 2006 cubic metres overbark

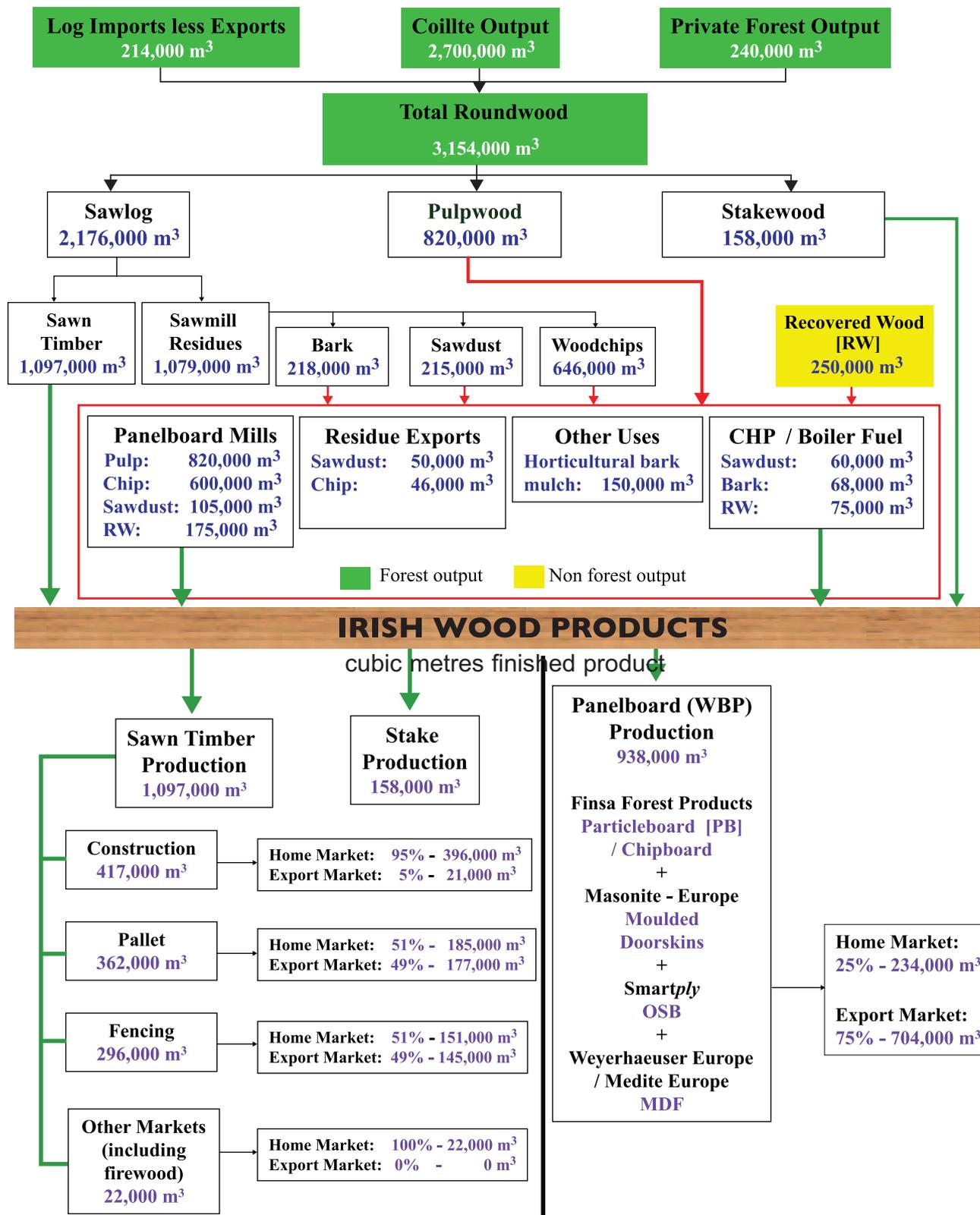


Figure 1: Estimated woodflow (hardwood and softwood) in the Republic of Ireland for 2006.

Sawmilling

Ten sawmills process most of the sawlog output. In 2006, Irish sawmills utilised 2.176 million m³ of roundwood. Irish sawmill output for 2006 is estimated at 1.097 million m³ of sawn timber.

The primary products include construction timber, pallet and fencing products. While Irish construction timber is largely sold on the home market, pallet and fencing products make up the bulk of sawn timber exports.

In recent years, some sawmills have diversified into new products and markets which include:

- ▶ The development of a combined heat and power (CHP) facility by Grainger sawmill. This uses sawmill residues to produce both electrical (2 megawatts) and thermal (4 megawatts) energy. It is estimated that the facility uses up to 50,000 tonnes of forest and sawmill residues per annum. The Grainger CHP plant at Enniskeane, Co Cork is a joint venture between Grainger and the SWS Group.
- ▶ In Northern Ireland, the sawmilling group Balcas has installed and commissioned two new plants in parallel; a wood fuelled CHP (combined heat and power) plant and a wood pellet production facility (with a capacity of 50,000 tonnes of pellets per annum).

Residues and recovered wood

Sawmill residues include bark, sawdust and wood chip. In 2006, the output of residues from Irish sawmills was estimated at 1.079 million m³. Recovered wood (RW) obtained by chipping used pallets and timber sourced from construction waste is estimated to have added a further 250,000 m³ of feed stock.

Sawmill residues and recovered wood are primarily used as a feedstock for board mills. A small volume of wood residues is exported. However, in recent years, other uses for wood residues have emerged, including:

- ▶ Bark mulch;
- ▶ Wood pellets;
- ▶ Biomass/combined heat and power/boiler fuel.



- ▶ Pallet and decking are among the many products of Irish sawmills.



CHP is the generation of thermal and electrical energy in a single process, normally using fossil fuels, such as natural gas. In this way, more efficient use can be made of the energy available from the fuel. CHP installations can typically convert between 80% and 90% of the energy in the fuel into electrical power and useful heat. This compares with conventional power generation, which has a delivered energy efficiency of only around 30%.

Moreover, evidence from the paper and board sectors shows that CHP can reduce total site energy bills by as much as 30%.

Biomass CHP plants use renewable fuels to generate heat and electricity. These fuels are derived from four main sources:

- ▶ Forest thinnings and harvesting residues;
- ▶ Agricultural residues;
- ▶ Waste and processing residues;
- ▶ Residues from crop processing.

From an environmental point of view a wood biomass CHP plant has a number of advantages over a fossil fuel plant, including:

- ▶ Wood is a renewable source of energy, which is carbon neutral.
- ▶ Generating one megawatt (MW) of electricity from wood would save emissions of 7,500 tonnes of carbon dioxide (the main greenhouse gas) a year.

Wood-based panels (WBP)

In 2006, the Irish panel products sector had a combined output of 938,000 m³. The sector is an active buyer of both pulpwood and sawmill residues (i.e. sawdust, woodchip and bark). The estimated roundwood requirement of WBP mills in the Irish Republic is 1.7 million m³ per annum.

Products manufactured by the sector include chipboard/particleboard, Oriented Strand Board (OSB), Medium Density Fibreboard (MDF) and moulded door facings. The sector is export orientated, selling more than

75% of its product in overseas markets. The Irish panel board sector is comprised of the companies listed in Table 3.

Imports and exports of forest products

The breakdown of Irish forest product imports and exports for 2006 is shown in Table 4.

The majority of the timber produced by Irish sawmills was sold on the home market. Sawn timber exports were dominated by pallet and fencing products. Wood-based panels were responsible for 66% of the value of Irish timber exports. The total value of exports in 2006 was €363 million.

In 2006, imports of forest products exceeded €759 million. Pulp and paper products were responsible for close to 50% of imports with sawn timber and wood-based panels accounting for the remainder.

Table 3: Wood-based panel manufacturers in the Republic of Ireland.

| Company | Established | Product(s) | Location |
|------------------------------------|-------------|---------------------------------|------------------------|
| Finsa Forest Products ³ | 1984 | Chipboard/particleboard | Scariff, Co Clare |
| Masonite Ireland Ltd | 1997 | Moulded door facings | Drumsna, Co Leitrim |
| Medite Europe ⁴ | 1983 | Medium Density Fibreboard (MDF) | Clonmel, Co Tipperary |
| Smartply Europe ⁵ | 1995 | Oriented Strand Board (OSB) | Slieverue, Co Kilkenny |

Table 4: Irish timber imports and exports for 2006.

| Item | Unit of measurement | Import Volume | Import Value €000 |
|-------------------------|----------------------|---------------|-------------------|
| Sawnwood | 1,000 m ³ | 995 | €238,584 |
| Wood-based panels | 1,000 m ³ | 384 | €141,247 |
| Pulp and paper products | 1,000 tonnes | 495 | €361,845 |
| Total for 2006 | | | €759,662 |
| Item | Unit of measurement | Export Volume | Export Value €000 |
| Sawnwood | 1,000 m ³ | 392 | €52,092 |
| Wood-based panels | 1,000 m ³ | 827 | €240,108 |
| Pulp and paper products | 1,000 tonnes | 67 | €70,887 |
| Total for 2006 | | | €363,087 |

Source: Aggregated CSO data.

³ The chipboard plant at Scariff, County Clare was formerly operated by Aicher GmbH/ Chipboard Ltd.

⁴ Medite – Europe Ltd was established in Clonmel by the Medford Corporation in 1983. It was acquired in 2006 as a subsidiary of Coillte.

⁵ The OSB mill at Slieverue was first established as a joint venture between Coillte and Louisiana – Pacific in 1995. Coillte acquired full ownership of the business in May 2002.

Drivers of timber demand

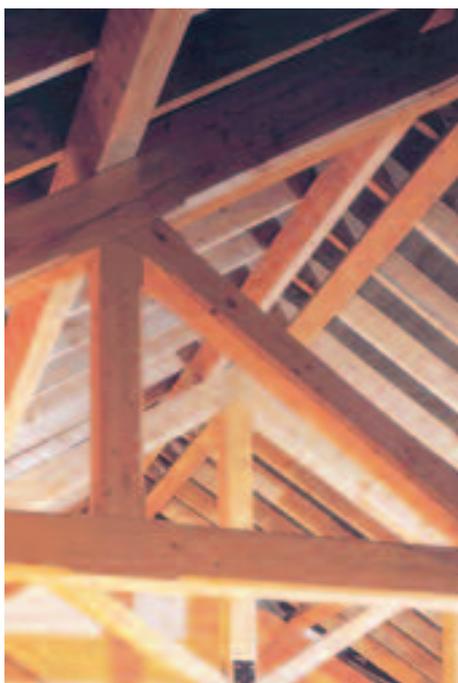
Housing demand

House completions⁶ are an important driver of timber sales. It is estimated that an average new home uses 7 m³ of timber products. As shown in Table 5, Irish house completions have increased more than four fold since 1990. Moreover, Ireland's per capita housing output in 2006 was 20 houses per 1,000 population – four times the European Union (EU) average.

Timber frame housing

Today, timber frame construction is an important part of the Irish construction sector. Europe's largest timber frame manufacturer, Kingspan – Century, has its headquarters in Monaghan. Founded in 1990, the company produces all types of timber frame buildings from new custom homes to large scale housing developments, nursing homes, hotels and multi-storey apartments.

According to the Irish Timber Frame Manufacturers' Association (ITFMA) the number of timber frame house completions has grown from a market share of 15% in 1999 to 30% in 2006. However, there is still significant scope for the expansion of the sector. For example, timber frame housing starts account for 60% of the total Scottish housing market.



- ▶ The housing sector is an important driver of timber demand in the Republic of Ireland.

Table 5: House completion in the Republic of Ireland 1990 - 2006.

| Year | Total Completions | Growth Rate 1990 = 100 |
|------|-------------------|---------------------------|
| 1990 | 19,539 | 100.00 |
| 1991 | 19,652 | 100.58 |
| 1992 | 22,464 | 114.97 |
| 1993 | 21,391 | 109.48 |
| 1994 | 26,863 | 137.48 |
| 1995 | 30,575 | 156.48 |
| 1996 | 33,725 | 172.60 |
| 1997 | 38,842 | 198.79 |
| 1998 | 42,349 | 216.74 |
| 1999 | 46,512 | 238.05 |
| 2000 | 49,812 | 254.94 |
| 2001 | 52,602 | 269.22 |
| 2002 | 57,695 | 295.28 |
| 2003 | 68,819 | 352.21 |
| 2004 | 76,954 | 393.85 |
| 2005 | 80,957 | 414.34 |
| 2006 | 93,419 | 478.12 |

Source: Department of the Environment, Heritage and Local Government.

New developments in timber markets

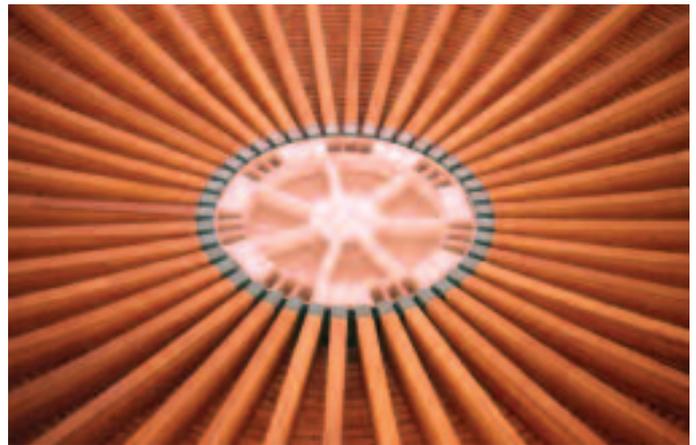
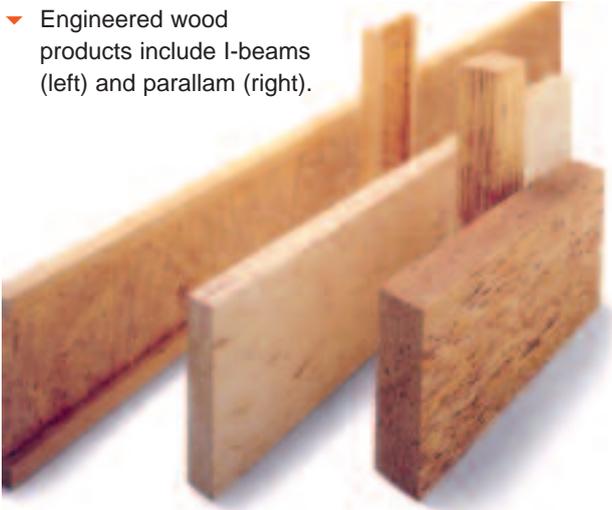
Engineered wood products

Engineered wood products (EWP) are manufactured timber products with defined performance characteristics. They are increasingly being used by timber frame companies, often replacing steel in building systems. EWP products include:

- ▶ I-beam;
- ▶ Glulam;
- ▶ Laminated Veneer Lumber (LVL);
- ▶ Microlam;
- ▶ Parallam;
- ▶ Rim boards;
- ▶ Structural panels: OSB, Plywood.

⁶ Total house completions are based on the number of new dwellings connected by the ESB to the electricity supply. House completions fell in 2007, and are expected to be well below recent years in 2008.

- ▼ Engineered wood products include I-beams (left) and parallam (right).



▲ Glulam beams used to construct a church roof.

Biomass/Bio-energy

Biomass is plant matter including trees, grasses, agricultural crops or other biological material. It can be used as a solid fuel, or converted into liquid or gaseous forms, for the production of electric power, heat, chemicals, or fuels

Types of biomass used to provide bioenergy include:

- ▶ Waste streams, including residues from forestry and related industries;
- ▶ Recovered wood;
- ▶ Agricultural residues and agrifood effluents;
- ▶ Manures;
- ▶ The organic fraction of municipal solid waste;
- ▶ Separated household waste and sewage sludge;
- ▶ Purpose grown energy crops including short rotation forestry, miscanthus grass, etc.

By 2010, Ireland is required to generate 13.2% (11.7% without large hydro-electricity) of its annual electricity requirement from Renewable Energy Sources (RES).

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Web links

The following links provide additional information on the companies and organisations mentioned in this note:

| SECTOR | COMPANY/ORGANISATION | WEBLINK/URL |
|-------------------------------------|--|--|
| Timber growers | Coillte | www.coillte.ie |
| | Irish Timber Growers Association | www.itga.ie |
| | Irish Farmers Association Farm Forestry | www.ifa.ie |
| Sawmilling | Balcas | www.balcas.com |
| | Grainger | www.graingersawmills.com |
| Wood-based panel mills/board sector | Finsa | www.finsa.es |
| | Masonite | www.masonite-europe.com |
| | Medite – Europe | www.medite-europe.com |
| | SmartPly Europe | www.smartply.com |
| Forest research | COFORD | www.coford.ie |
| Timber frame | Kingspan – Century/Century Homes | www.century.ie |
| | Irish Timber Frame Manufacturers Association | www.itfma.ie |
| | UK Timber Frame Association (UKTFA) | www.timber-frame.org |
| Engineered wood products | APA -The Engineered Wood Association (USA) | www.apawood.org |
| | Engineered Wood Products Association (USA) | www.ewpa.com |
| Statistics | Central Statistics Office (CSO) | www.cso.ie |
| | Department of the Environment, Heritage and Local Government | www.environ.ie |
| Biomass/renewable energy/CHP | Irish Wood Energy Research | www.woodenergy.ie |
| | National Renewable Energy Laboratory (USA) | www.nrel.gov/biomass/ |
| | Sustainable Energy Ireland (SEI) | www.sei.ie |
| | SWS Group | www.sws.ie |
| | Wood biomass/CHP | www.sei.ie/uploadedfiles/InfoCentre/WoodfiredCHP9901.pdf |

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