

Environment, Energy & Safety Report

Industry Progress Report



AMERICAN
WOOD
COUNCIL

DECEMBER
2020



Introduction

The American Wood Council (AWC) is the voice of North American wood products manufacturing, an industry that provides over 450,000 men and women in the United States with family-wage jobs.¹ AWC represents 86 percent of the structural wood products industry, and members make products that are essential to everyday life from a renewable resource that absorbs and sequesters carbon.

On behalf of the industry it represents, AWC is committed to ensuring a resilient, safe, and sustainable built environment. To achieve these objectives, AWC contributes to the development of sound public policies, codes, and regulations which allow for the appropriate and responsible manufacture and use of wood products. We support the utilization of wood products by developing and disseminating consensus standards, comprehensive technical guidelines, and tools for wood design and construction, as well as providing education regarding their application.

AWC members are very proud of their record of energy management and efficiency, mill safety, and protection of the environment, all while producing

products that are central to the lives and homes of all Americans.

As part of this commitment, the industry has been publicly reporting its performance across a number of environment, energy and safety measures since 2014. This *Industry Progress Report*, our fourth, shows that there have been significant improvements over the last decade in these areas, despite the economic downturn that caused a drop in wood products manufacturing beginning in early 2006. Some of the metrics have leveled off in the last few years reflecting a stabilization of performance and maturing of the regulatory regime after an earlier period of intense change. The Report also provides some economic and employment data for the last decade.

In reviewing our progress, it is important to note that many factors that influence individual parameters play out over extended periods of time, so looking at longer-term trends, rather than focusing on changes between any two years, is encouraged.

¹ Bureau of Economic Analysis (BEA) 2019 Data



Key Findings

14%

*Reduction of Energy Intensity
from Pre-Recession Levels*



3x

*Capital Spending by the U.S. Wood
Products Sector Compared to 2009*



70%

*Energy Needs Met from Biomass
Over the Last 15 Years*

- The broad forest products industry is the largest producer and user of bioenergy of any industrial sector. AWC member companies have met over 70 percent of their energy needs, on average, from biomass over the last 15 years.
- Using biomass from forest products manufacturing residuals displaces fossil fuel use and is a carbon-neutral, renewable fuel source.
- Energy intensity has improved significantly since the 2008-09 recession and is 14 percent below pre-recession levels.
- The 10-year trend in chemical releases has shown significant reductions, which includes formaldehyde and methanol. In 2020, EPA affirmed that emissions from wood product mills met or exceeded Clean Air Act guideposts.
- Worker safety incident rates for member companies are consistently lower than all manufacturing during 2004-2018 and dropped by almost a quarter in the last two years.
- In 2019, the wood products industry accounted for 1.8 percent of U.S. manufacturing GDP.

Environmental Profile

CHEMICAL RELEASES

FORMALDEHYDE

Formaldehyde emissions intensity of reporting AWC members, expressed in Chart 1 as pounds per thousand cubic feet (MCF) of products produced, has declined overall since 2006. The emissions intensity for 2018 is 47 percent lower than that for 2008. The significant decline is likely due to a combination of required state and federal air pollution controls and product reformulation efforts to reduce formaldehyde in resins.

The leveling of emissions since 2012 is indicative of AWC members having met these regulatory obligations and continuing to maintain strict compliance. In 2020, EPA conducted an extensive risk assessment of air emissions from wood product mills including formaldehyde (and methanol) as part of its required Clean Air Act reviews. It found that with the steps the wood products sector has taken, and the inherently lower Hazardous Air Pollutants emissions of wood product mills, risks are within the Clean Air Act's guideposts and current standards are protective of public health.

METHANOL

Methanol emissions intensity, expressed in Chart 2 as pounds per thousand cubic feet of wood products

produced by reporting AWC member companies, remained essentially flat since 2012, indicating AWC members' have met regulatory obligations. The intensity declined from 4.2 pounds/MCF in 2008 to 2.6 pounds/MCF in 2018, a reduction of 39 percent. Given methanol's relatively lower toxicity, industry and regulatory focus has shifted to other performance measures.

Reductions in methanol emissions are likely associated with clean air requirements to capture and destroy methanol from various presses, dryers and other process equipment that went into effect in 2008 and reaffirmed by EPA in 2020 as protective of public health.

TOXICS RELEASE INVENTORY

Chart 3 tracks total Toxics Release Inventory (TRI) per thousand cubic feet of wood products production for AWC member companies that reported to the AWC survey. These data, as well as the formaldehyde and methanol emissions data, were obtained from EPA's TRI database.

Total TRI releases intensity has been trending downward since 2003. Between 2008 and 2018, the intensity decreased 46 percent.

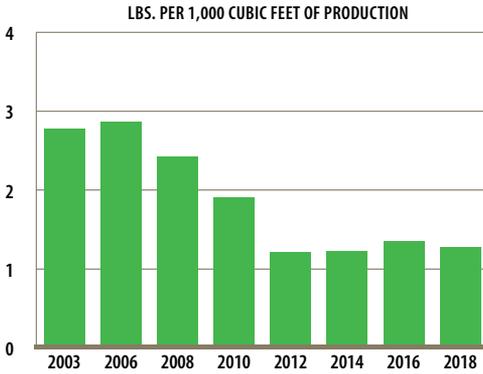


CHART 1

Formaldehyde Releases Intensity

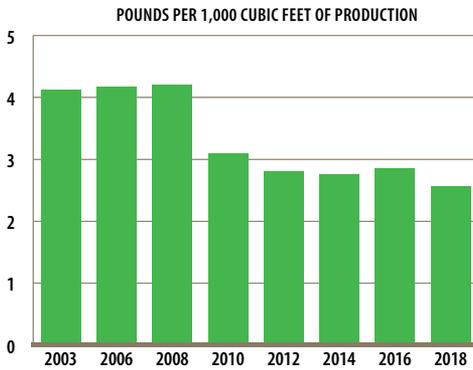


CHART 2

Methanol Releases Intensity

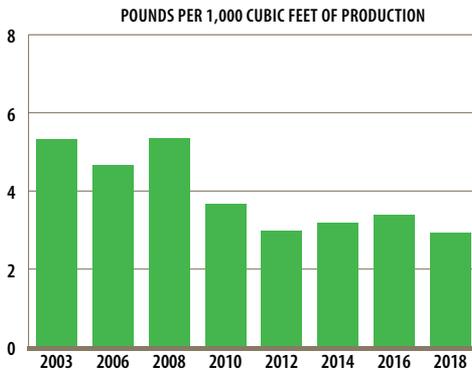


CHART 3

Total TRI Releases Intensity

Source: EPA (for facilities reporting 2010-2018 AWC Environment, Energy and Safety Survey; AF&PA EH&S Survey for previous years)

LIFE CYCLE PERFORMANCE

Developers, builders, designers and consumers increasingly want to know about the environmental impacts of the products used in buildings. Environmental Product Declarations (EPDs) are standardized tools that provide valuable information based on life cycle inventory data. EPDs provide users with a science-based tool to understand and weigh what environmental factors are important to them when making product selections.

Scientists have found that using wood products can reduce U.S. greenhouse gas emissions, with “the most significant climate mitigation potential where it can substitute for more energy intensive materials like concrete and steel in the built environment.”² In addition, they highlight other societal and environmental co-benefits by “sustaining rural economic development and maintaining forests as forests.”³

The North American wood products industry is committed to sustainability in its products and their use. In support of this commitment, and to stimulate product improvement, the industry prepared and has published third-party verified EPDs and Transparency Briefs that capture and describe the environmental performance of many of the products produced.

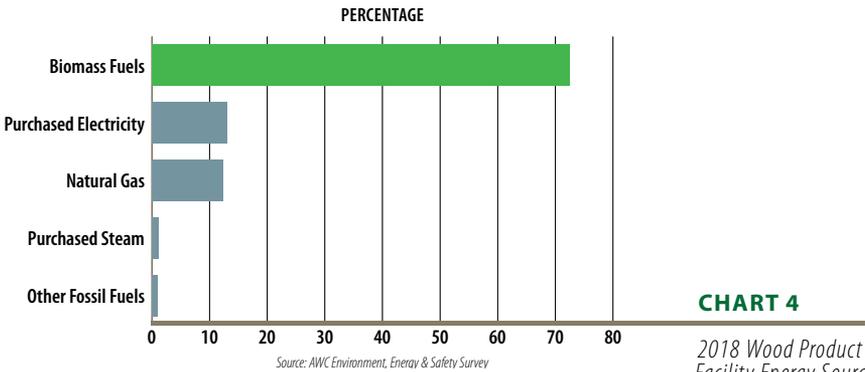
In 2020, AWC released seven updated cradle-to-gate, industry-wide EPDs for wood products, which replaced the 2013 editions previously available. Each EPD includes an example calculation for determining the long-term carbon sequestration of atmospheric CO₂ after considering biogenic carbon emissions during manufacture for the product. This calculation is particularly useful for identifying the long-term benefit of using wood products, which convert atmospheric carbon dioxide, a significant greenhouse gas, to stored carbon.

All North American wood industry EPDs have been independently third-party verified by UL Environment (ULE), a business unit of Underwriters Laboratories. ULE verifies that EPDs conform to the requirements of ISO 14025, the global standard governing EPDs. ULE’s review looks at both the underlying life-cycle assessments as well as the data reported in the EPDs.

In total, the wood products industry has produced and made available 12 EPDs, which can be found at [awc.org/sustainability/epd](https://www.awc.org/sustainability/epd). AWC is committed to gathering high quality data from mills on a regular basis to update EPDs regularly.

²CORRIM. Re: Science Supporting Harvested Wood Products as a Carbon Negative Technology. December 9, 2020. ³Ibid.

Energy Profile



Wood products facilities use all parts of natural raw materials received. Not only are the raw materials manufactured into products used in everyday life, but facilities then also use the manufacturing residuals to generate most of the energy needed. Data submitted to AWC's Environment, Energy & Safety Survey indicate that member companies met 72.5 percent their energy needs from renewable, carbon neutral biomass energy in 2018.

By using biomass manufacturing residuals, the wood products industry is harnessing the energy value of carbon before it is lost to the atmosphere through other means. The result is that by using biomass, the

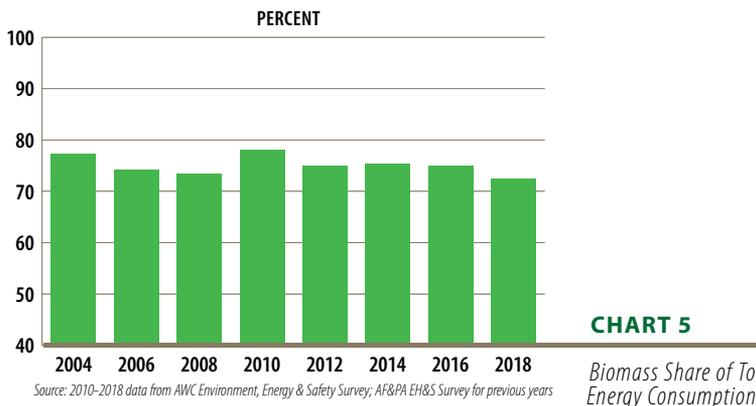
industry displaces fossil fuel use and its associated emissions.

The greenhouse gas reduction benefit of using biomass manufacturing residuals for energy generation by the wood products industry is equivalent to about 24.1 million short tons of carbon dioxide. This is equivalent to removing approximately 4.7 million passenger cars from the road every year.⁴

The next two largest energy source categories in 2018 were purchased electricity at 13 percent and natural gas at 12 percent.

The 2018 data continued the more than decade-long trend, shown in Chart 5, in which wood products

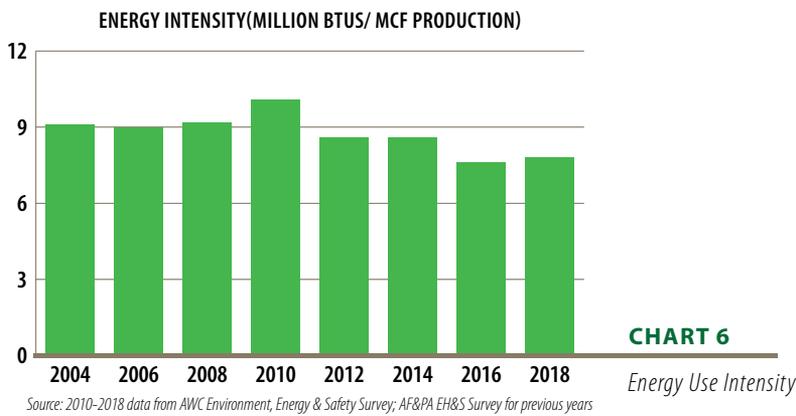
⁴Energy data from 2018 EIA MECS. Biomass residuals emission factor from US EPA GHG reporting program. Passenger vehicle statistics from US EPA GHG Equivalencies Calculator



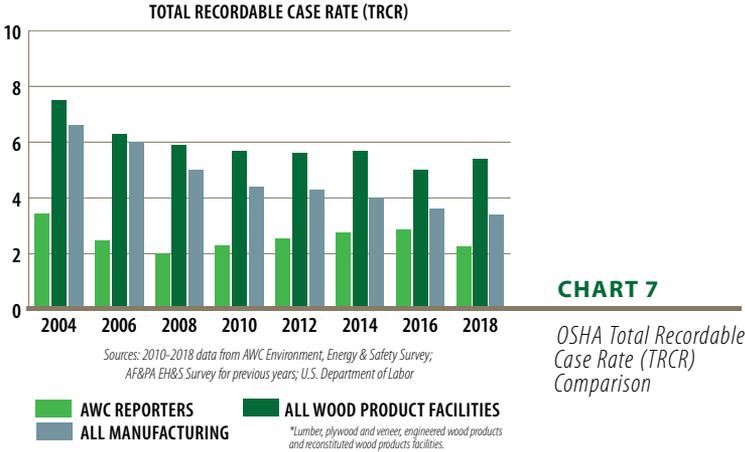
facilities have derived more than 70 percent of their energy needs from carbon neutral biomass. This serves to decrease the use of fossil fuels and reduce the landfilling of biomass residues, thereby conserving landfill space and avoiding production of methane, an even more potent greenhouse gas.

has mostly held steady during the 2004–2014 period, with a 9 percent drop from 2014 to 2018. The energy intensity for 2018, measured as billion BTUs per MCF of production, was 14 percent lower compared to 2004. However, it is noted that energy use is not directly proportional to production and small variations could be attributed to inefficiencies that can occur when facilities operate at lower production levels than normal.

Chart 6 shows energy use trends since 2004 for the wood products sector. Energy use at AWC member facilities



Safety Profile



Since 2004, safety at AWC’s member wood products manufacturing mills has improved by more than 34 percent based on OSHA total recordable case rate (TRCR). The OSHA recordable case rate dropped from 3.4 in 2004 to 2.3 in 2018. This is calculated as the number of recordable cases per 100 full time employees working 40 hours a week and 50 weeks per year.

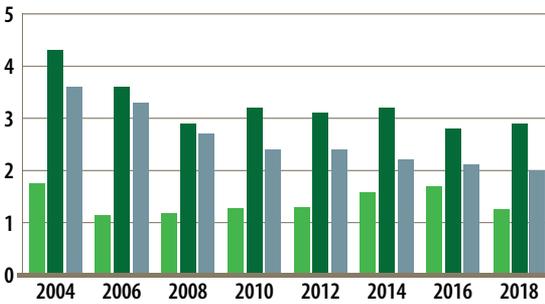
The total recordable case rate for AWC members has been consistently lower than the rate for either the wood products industry as a whole or all manufacturing. The rate had been slowly rising during 2008-2016, increasing 45 percent. However, the rate dropped almost 22 percent in 2018, compared to 2016, which is encouraging.

For 2018, data reported by AWC members indicates a recordable case rate of 2.3. This is lower than the 3.4 rate for all manufacturing reported by the Bureau of Labor Statistics (BLS). The estimated 2018 recordable case rate for all U.S. wood products facilities, not just AWC members, is 5.4.

The Days Away from Work, Restricted and Transfer (DART) case rate is a measure for severe injuries in the workplace. These are cases where the injured person could not work or had to be re-assigned or transferred to perform other functions.

Data reported by AWC members indicates a 2018 DART case rate of 1.3, which is below the 2018 rate of 2.0 for all manufacturing reported by the

DAYS AWAY FROM WORK, RESTRICTED AND TRANSFER (DART) CASE RATE



Sources: 2010-2018 data from AWC Environment, Energy & Safety Survey; AF&PA EH&S Survey for previous years; U.S. Department of Labor

AWC REPORTERS **ALL WOOD PRODUCT FACILITIES**
ALL MANUFACTURING

**Lumber, plywood and veneer, engineered wood products and reconstituted wood products facilities.*

CHART 8

OSHA Days Away, Restricted and Transfer (DART) Case Rate Comparison

Bureau of Labor Statistics (BLS). It is also well below the estimated 2.9 DART case rate for all wood products facilities in the U.S. making similar products as AWC members.

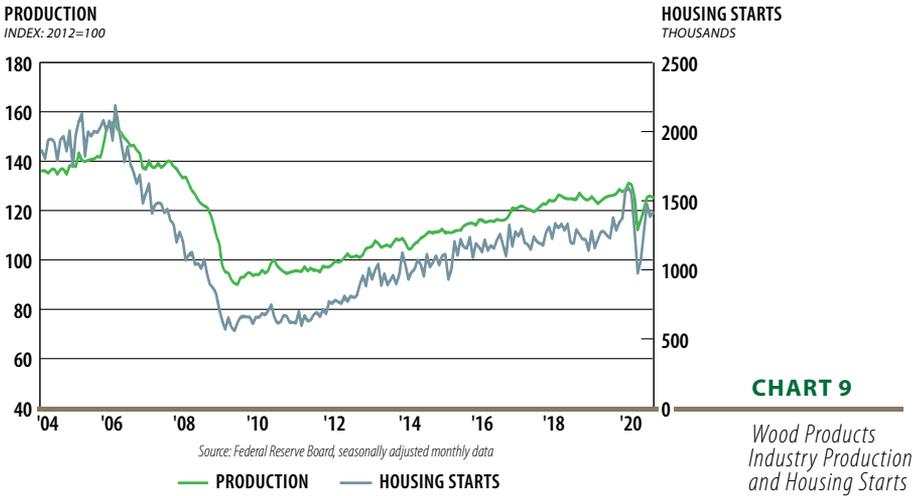
The DART case rate for AWC members declined more than 35 percent between 2004 and 2006. However, since 2006 it has been increasing somewhat every year, resulting in a longer-term decline of only 3 percent during 2004-2016. Similar to the recordable rate, the DART rate for AWC members dropped substantially in 2018, reducing 26 percent compared to 2016.

The DART case rate of 2.9 for all wood products facilities indicates that 2.9 percent of employees at these facilities were involved in a workplace injury resulting in lost time from work, reassignment, or transfer

to another job. For AWC members, the DART rate falls to 1.3 percent of employees being similarly affected.

Increases in both DART and TRCR of AWC members during 2008-2016 may be a result of the dramatic increase in hiring of new employees as the industry came out of the recession, the challenge of finding entry level, semi-skilled and skilled workers in a tight labor market and those new employees learning appropriate safety protocols, use of temporary workers having less experience with safety programs as mills expanded production, and greater reporting of events by mills especially with mergers of smaller companies into larger ones. The reduction in 2018 likely reflects the benefits of lessons learned and the experience gained by the workers hired after the great recession.

Economic Profile



PRODUCTION

After dropping nearly 45 percent between 2005 and 2009 due to declines in housing starts and the overall financial crisis, both housing starts and production of wood products have continued to pick back up.

The slow but steady increase in new home construction has clearly lifted demand for wood. U.S. production of wood products rebounded by 48 percent between its mid-2009 low point and the end of 2019, according to Federal Reserve Board data. However, as can be seen from the chart shown below, both housing starts and wood products production remain significantly below

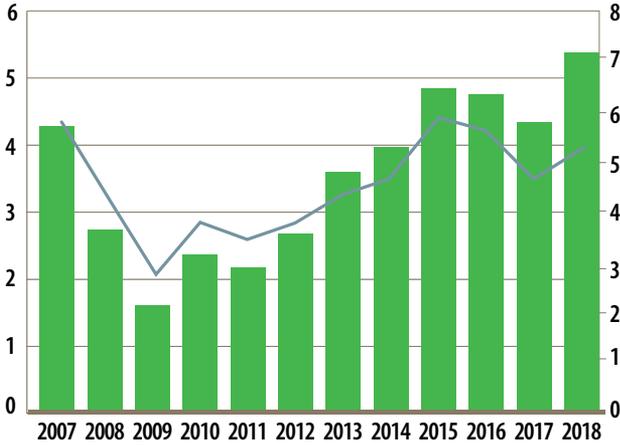
pre-recession levels even with the increased demands for wood products seen during the pandemic.

Coming out of the recession, sales of wood products have also been on the rise, from a low of \$57.6 billion in 2009 to \$92.3 billion in 2019, according to U.S. government data (Quarterly Financial Report for Manufacturing, Mining, Trade and Selected Service Industries).

In 2019, the wood products industry accounted for 1.8 percent of U.S. manufacturing GDP according to data compiled by the Bureau of Economic Analysis (BEA).

CAPITAL SPENDING
\$ BILLIONS

PERCENT OF SALES



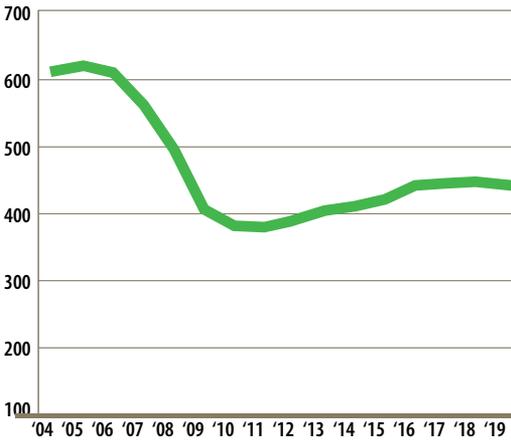
Source: Annual Capital Expenditures Survey & Quarterly Financial Report for Manufacturing, Mining, Trade and Selected Service Industries, U.S. Census Bureau.

■ CAPITAL SPENDING — HOUSING STARTS

CHART 10

Wood Products Industry Capital Spending

THOUSANDS



Source: Bureau of Economic Analysis

CHART 11

Wood Products Industry Employment

\$5.4 billion

*Spent on Capital
Improvements in 2018*



1.8%

*Wood Products Industry Share of
U.S. Manufacturing GDP*



CAPITAL SPENDING

As shown in Chart 10, the wood products industry spent approximately \$5.4 billion on capital improvements in 2018. That level of spending is more than 3 times the recession-period spending low of \$1.6 billion in 2009. In 2018, \$4.7 billion of the industry's capital was used for acquiring equipment, while \$0.7 billion of the spending went for buildings.

EMPLOYMENT

According to BEA data, wood products employment bottomed out at 387,500 workers in 2011 and has been trending considerably higher in recent years as housing starts and industry production recover, but still off the high levels found early in the previous decade.

2020 AWC MEMBERS

Almond Bros. Lumber

Arauco N.A.

Boise Cascade

Canadian Wood Council

Canfor Southern Pine

Charles Ingram Lumber

Collins Companies

Collum's Lumber

D.R. Johnson Lumber

D.R. Johnson Wood Innovations

DS Smith Riceboro Lumber

Georgia-Pacific

Green Bay Packaging

Hampton Resources

Hancock Lumber

Harrigan Lumber

High Cascade/WKO

Hood Industries

Huber Engineered Woods

Hull-Oakes Lumber

Humboldt Redwood

H.W. Culp Lumber

Idaho Forest Group

Idaho Timber

Interfor U.S. Inc.

Jordan Lumber & Supply

Lampe & Malphrus

LP

Masonite

McShan Lumber

Mendocino Forest Products

Mt. Hood Forest Products

Norbord

Nordic Structures

PotlatchDeltic

Rex/North Florida

Robbins Lumber

Roseburg Forest Products

Seneca Sawmill

Shuqualak Lumber

Sierra Pacific

Stimson Lumber

Swift Lumber

T.R. Miller Mill Company

Vaagen Brothers

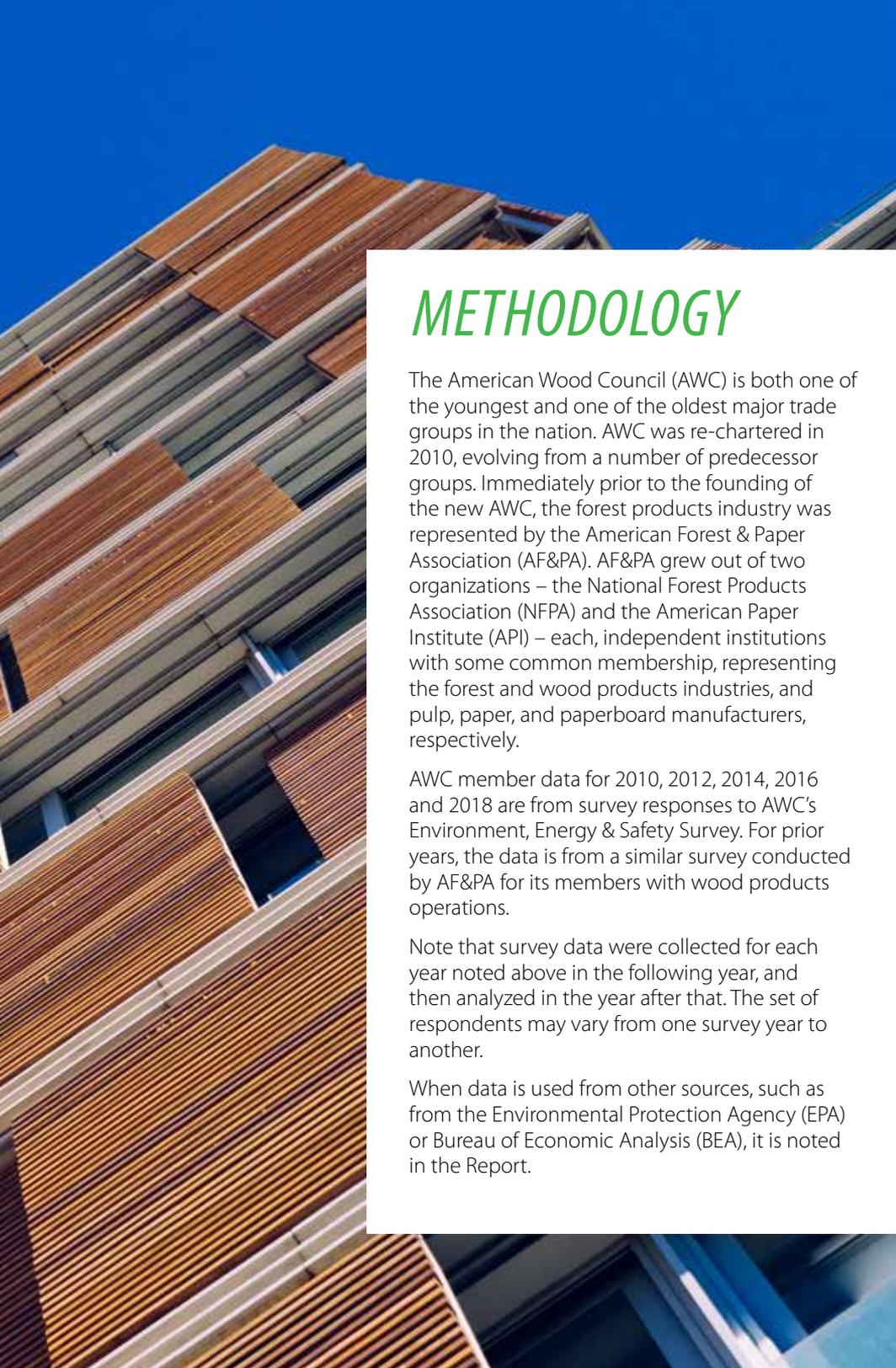
West Fraser

Western Forest Products

Westervelt

WestRock

Weyerhaeuser



METHODOLOGY

The American Wood Council (AWC) is both one of the youngest and one of the oldest major trade groups in the nation. AWC was re-chartered in 2010, evolving from a number of predecessor groups. Immediately prior to the founding of the new AWC, the forest products industry was represented by the American Forest & Paper Association (AF&PA). AF&PA grew out of two organizations – the National Forest Products Association (NFPA) and the American Paper Institute (API) – each, independent institutions with some common membership, representing the forest and wood products industries, and pulp, paper, and paperboard manufacturers, respectively.

AWC member data for 2010, 2012, 2014, 2016 and 2018 are from survey responses to AWC's Environment, Energy & Safety Survey. For prior years, the data is from a similar survey conducted by AF&PA for its members with wood products operations.

Note that survey data were collected for each year noted above in the following year, and then analyzed in the year after that. The set of respondents may vary from one survey year to another.

When data is used from other sources, such as from the Environmental Protection Agency (EPA) or Bureau of Economic Analysis (BEA), it is noted in the Report.



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