American Forest & Paper Association

BETTER PRACTICES BETTER PLANET 2020

Continuing AF&PA's Commitment to Sustainability

2012 AF&PA Sustainability Report

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AF&PA member companies are required to adhere to and report biennially on a set of Environmental, Health & Safety (EHS) and Sustainable Procurement principles. The information in this report on member performance has been generated through our 2010 EHS performance verification survey of members. Other data is from government agency sources, when indicated.

Introduction

t its core, sustainability is comprised of three pillars — economic, societal and environmental — which are the foundation of sustainable businesses. To the forest products industry, sustainability means that we seek to preserve and grow the economic contribution of the industry and its individual companies to society, work to foster the well-being of our communities, and utilize sustainable manufacturing practices and fiber procurement measures that protect the environment and ensure that our resources will be as available for future generations as they are today.

Members of the American Forest & Paper Association (AF&PA) make products that are essential for everyday life: products that promote literacy, aid communication, protect and transport consumer and industrial products, and provide shelter and housing for people throughout the world. We depend on a sustainable and renewable supply of wood fiber to manufacture these essential paper and wood products.

As a condition of membership, AF&PA member companies must procure their raw material from well-managed forests. Those managed forests ensure that trees — the foundation of paper and wood products — are continually grown to outpace harvesting. More trees are present now than there were 20 years ago, proving that managed forests are working to provide a recurring source of fiber and continuous carbon sequestration.

Paper recovery for recycling has led to a vibrant marketplace for recovered fiber, proof positive that market-based sustainable practices can have a positive environmental impact.

A healthy marketplace and potential for economic success allows for jobs to be created and maintained. Jobs further the personal economic stature of our workers but also provide pride, self-worth and the relief to know that one can provide for their family. Companies in our industry are often the primary employer in rural areas, supporting entire communities — a social contribution to sustainable business practices. Collectively, the forest products industry ranks in the top 10 manufacturing sectors of 47 states.

AF&PA has a long history of setting and achieving goals in areas relating to sustainability. Sustainability is more than just a buzzword for us — it is who we are and how we operate our businesses every day. That we are still making paper and wood products from century to century is testament to our commitment to sustainability. Our record of leadership is clear, and we set out to reach new heights with the launch last year of our sustainability initiative — ***Better Practices, Better Planet 2020***.

Better Practices, Better Planet 2020 is one of the most extensive sets of quantifiable goals of any major U.S. manufacturing industry. Our members have been regularly reporting on progress since adopting the groundbreaking and mandatory AF&PA Environmental, Health & Safety (EHS) Principles in 1998, followed by the adoption of AF&PA's Sustainable Procurement Principles that govern the sourcing of wood for member manufacturing facilities. The Better Practices sustainability goals provide an even stronger platform, which supports individual member company sustainability programs. We are excited about the *Better Practices, Better Planet 2020* initiative, on which we give our first progress report through this 2012 AF&PA Sustainability Report.

The actions that bring us closer to achieving our goals are what makes the achievement possible. To recognize those actions, we have established a new awards program to recognize advancements our members are making in the areas of sustainability and innovation. Those awards will be presented in conjunction with our annual membership meeting.

Challenging economic conditions have continued in the forest products industry since our last report two years ago. Global competitive pressures, manufacturing facility closures and corporate consolidations continue, affecting both profitability and employment. However, the commitment for continued improvements in sustainability performance by member companies is ongoing. In the pages to follow, you will learn the details of our performance as an industry. I encourage you to take note of the progress we've made and to continue to check for up-to-date information on our commitment to sustainability at www.afandpa.org/sustainability.

Donna Harman
President and CEO
July 2012

Executive Summary

This 2012 Sustainability Report, produced by the American Forest & Paper Association (AF&PA), builds upon a strong legacy of pursuing environmental leadership. We are pleased to provide this first progress report on our sustainability initiative: *Better Practices, Better Planet 2020.*

Better Practices, Better Planet 2020

AF&PA is the national trade association advancing a sustainable U.S. pulp, paper, packaging and wood products industry. In March 2011, AF&PA launched *Better Practices, Better Planet 2020*, one of the most extensive set of quantifiable sustainability goals established by a major U.S. manufacturing industry. As part of our commitment to achieve these goals, we have pledged to transparently report our progress.

The *Better Practices, Better Planet 2020* goals and our progress to date are described in this report. In summary, these results include:

Increase Paper Recovery for Recycling

Goal: *Increase our fiber recovery rate to exceed 70% by 2020.*

Progress: 66.8 percent of all paper consumed in the U.S. was recovered for recycling in 2011, nearly doubling our rate of recovery since 1990. Industry-led efforts to increase paper recovery for recycling are among the best examples of protecting our environment and meeting our economic and societal commitments.

Improve Energy Efficiency

Goal: *Improve our industry's energy efficiency in purchased energy use by at least 10% from 2005 to 2020.*

Progress: Our members improved purchased energy efficiency by 8.1 percent from all purchased fuel use compared to the 2005 baseline. Energy use intensity for 2010 was 11.9 million BTUs per ton of production. We will achieve this goal through investments in cost-effective energy efficiency projects and taking other steps to improve efficiency. More than 65 percent of the energy needed to produce paper products is derived from carbon-neutral biomass fuel.

Reduce Greenhouse Gas Emissions

Goal: *Reduce emissions by at least 15% from 2005 to 2020.*

Progress: Our members reduced greenhouse gas (GHG) emissions intensity by 10.5 percent from baseline year 2005: GHG emissions of 0.70 tons CO_2 equivalents per ton of production in 2010 as compared to the 2005 baseline of 0.74 tons CO_2 equivalents per ton of production. With a strong track record in reducing the intensity of GHG emissions, we will accomplish this goal by increasing the amount of energy

PROGRESS AT A GLANCE

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we get from renewable carbon neutral biomass and continuing our progress on energy efficiency.

Promote Sustainable Forestry Practices

Goal: *Increase the amount of fiber procured from certified forestlands or through certified fiber sourcing programs in the U.S. from 2005 to 2020; and work with governments, industry and other stakeholders to promote policies around the world to decrease illegal logging.*

Progress (certified lands and fiber sourcing)**:** AF&PA members are progressing toward achieving the 2020 goal of increasing the amount of fiber they procure from certified lands or through certified fiber sourcing programs. About 24 percent of fiber procured by AF&PA members was procured from third-party certified forestlands in 2010. Regarding fiber procured through certified fiber sourcing programs, the 2005 baseline is 87 percent, while in 2010, more than 96 percent of all fiber was sourced through certified fiber sourcing programs.

Progress (illegal logging)**:** AF&PA members are tracking and reporting on the use of good practices throughout the entire wood supply chain. AF&PA members are supporting and promoting efforts to reduce illegal logging working through the Forest Legality Alliance, an international, multi-stakeholder initiative working to reduce demand for illegally harvested forest products. The Alliance also works to increase capacity for delivery of legal wood and products. AF&PA plays a leadership role by participating in the Forest Legality Alliance Advisory Group.

All members that own forestland are required to conform to credible sustainable forest management programs, and all members who source wood fiber must comply with sustainable procurement principles. Individual member companies work diligently to safeguard against procurement from illegally logged sources.

Strive for the Safest Possible Workplace

Goal: *Establish a vision for zero injuries and measure progress toward that vision by improving our safety incidence rate by 25% from 2006 to 2020.*

Progress: Our members have reduced their Occupational Safety & Health Administration (OSHA) total case incidence rate by 24 percent from the 2006 baseline. AF&PA members have a continuing commitment to our employees and the communities in which we operate to provide a safe and healthy work environment.

Explore Opportunities to Reduce Water Consumption

Goal: *Explore opportunities to reduce the water consumed in our processes and determine whether to set a consumptive use goal in the future.*

Progress: AF&PA members have a long history of gathering data on water quality and quantities of discharges. Last year we pledged to explore opportunities to reduce water consumption. After careful evaluation, due to variations in current mill measurement technology, we felt it most effective to utilize the means by which we have measured water discharge. We have reduced our water use, as measured by the water discharged per ton of product by pulp and paper mills, by 6 percent since 2005. Forest products industry facilities consume little of the water they use to support their manufacturing processes —

returning back to streams 88 percent of the water withdrawn. The forest products industry has invested in cutting-edge technology, and led efforts in water recycling and reduced the amount of water needed to produce a ton of product. AF&PA will continue to report on those efforts.

Sustainability Performance

Sustainability performance is critical to the forest products industry. In this industry, sustainability means preserving and growing the economic contributions of the industry, fostering the well-being of the communities in which we live and work, and ensuring our resources and raw materials will be as plentiful to future generations as they are today. AF&PA members

A member company has developed a comprehensive platform for communicating reliable, fact-based, and holistic information on several of the sustainability issues facing the industry, as those issues apply to its products.

regard each of the three pillars of sustainability — economic, societal and environmental — as critical. The indicators and metrics for each pillar or element of sustainability are carefully tracked through AF&PA's comprehensive platform for sustainability. Elements of the platform include:

- the Association's *Better Practices, Better Planet 2020* goals program;
- our long standing mandatory Environmental, Health & Safety (EHS) Principles;
- AF&PA's Sustainable Procurement Principles for sourcing wood fiber for member manufacturing facilities; and
- our Environmental Leaders and Innovation in Sustainability Awards program.

The Economic Pillar

The economic health of the forest products industry is central to its sustainability.

The industry accounts for 4.6 percent of the manufacturing gross domestic product in the U.S. and employs nearly 900,000 people. Each direct employee supports two to three additional jobs in the supply chain and within local communities. With many companies located in

An $80 million investment at a North Carolina member mill repurposed a paper machine that had been shut down, now producing new fluff pulp products, preserving 500 jobs, and enabling expansion into new product lines.

smaller communities, pulp and paper facilities can offer attractive benefits, providing skilled jobs with significant payrolls. The industry has returned to profitability in 2010 and 2011 following the economic challenges of 2008-2009. The wood products sector is not fully recovered, reflecting the weakness in homebuilding. Overall industry production is greater than 2009 but still lags behind previous highs.

In addition to providing jobs, the paper, paperboard and converted products industries have a positive trade balance for the first time in nearly 100 years. Capital spending was up in 2010 to $5.8 billion but is still below the $6.2 billion average from 2002-2008. Worker productivity at pulp, paper and paperboard mills rose 38 percent from 2000 to 2010.

The Societal Pillar

Societal sustainability has a far-ranging impact with the forest products industry. Many member companies are core components of their communities having provided jobs and taxes there for more than 100 years. The forest products companies provide skilled jobs and continuous worker training. In addition, the jobs bring quality health care to the employees, their families and the community as a whole.

Management works to be accountable and maintain transparency in their relationships and reporting to their home communities, and 90 percent have demonstrated reporting activities. Employee feedback is welcomed and encouraged.

Members encourage employees to volunteer for community programs and provide contributions to local charities. Nearly all member companies have engaged in community public policy development. Community outreach and education programs are part of company activities benefiting schools and the arts.

A member company in Tennessee has donated land and facilities to a cooperative community worker re-training program that will provide skilled personnel to fill paper industry jobs expected to be vacated by retiring baby boomers over the next several years.

Innovation is needed to secure a sustainable future. Member companies support research and development with academic institutions, at the plant level, and through independent research councils. More than 80 percent of members supported research and development activities in 2010.

The Environmental Pillar

Tracking and improving environmental performance is essential and has been a focus of the forest products industry for decades. The industry depends on natural resources and AF&PA members respect the environment, working to maintain and improve those natural resources assuring their availability for future generations. The industry tracks a number of environmental indicators to gauge environmental performance (water, air, and residual material data are intensity-based; chemical release data represent absolute reductions). These include:

- **Water discharges** – Between 2008 and 2010 there was a 7.6 percent reduction in effluent volume. Biochemical oxygen demand (BOD) releases, which can contribute to receiving stream oxygen depletion, have been reduced by 88 percent since 1975 and decreased 1.8 percent between 2008 and

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Progress (illegal logging): AF&PA members are supporting and promoting efforts to reduce illegal logging working through the Forest Legality Alliance, an international, multi-stakeholder initiative working to reduce demand for illegally harvested forest products.

PROGRESS AT A GLANCE

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Goal: *Explore opportunities to reduce the water consumed in our processes and determine whether to set a consumptive use goal in the future.*

Progress: AF&PA members have a long history of gathering data on water quality and quantities of discharges. Last year we pledged to explore opportunities to reduce water consumption. After careful evaluation, due to variations in current mill measurement technology, we felt it most effective to utilize the means by which we have measured water discharge. We have reduced our water use, as measured by the water discharged per ton of product by pulp and paper mills, by 6 percent since 2005.

2010, Total Suspended Solids (TSS) have been reduced 80 percent since 1975 and 10 percent since 2000 but have increased 2.8 percent between 2008 and 2010.

A member's Arkansas mill is successfully recycling 100 percent of its primary wastewater treatment plant fibrous sludge back into process (76 percent) or reuse as renewable energy (24 percent) – avoiding landfilling of 60,000 cubic yards of fiber in 2011.

■ **Air emissions** – Pulp and paper mill sulfur dioxide releases have been reduced 83 percent since 1975 and 22.3 percent between 2008 and 2010. Nitrogen oxides were reduced 47 percent since 1975, and 8.8 percent between 2008 and 2010. Total reduced sulfur compounds have been decreased 50 percent since 2000 but increased 8.7 percent between 2008 and 2010. Wood products facility nitrogen oxides were 27 percent lower in 2010 than in 2000. They increased 2.6 percent between 2008 and 2010, due in part to reduced production levels.

■ **Chemical releases** are also tracked and reported. All manufacturers, including pulp and paper facilities, report chemical release information to the U.S. EPA through the Toxics Release Inventory (TRI) program. This program informs communities about the release and management of chemicals. At pulp and paper mills, 2010 TRI releases were reduced by 38 percent compared with 1999 releases and 17 percent since 2007. At wood products facilities, 2010 TRI releases were 79 percent lower than 1999 and 49 percent lower than 2007 releases. Methanol releases at pulp and paper mills have been reduced by 41 percent since 1999 and by 18 percent between 2007 and 2010. At member wood products manufacturing facilities, reductions were made in both methanol and formaldehyde releases. Between 2007 and 2010, the reductions for these compounds were 59 percent for methanol and 71 percent for formaldehyde.

At a member's Tennessee mill, ash materials are now being beneficially applied to agricultural lands, providing needed alkalinity in naturally acid soils. Crop yields are increased and ash landfilling avoided.

An AF&PA member company has redesigned a drink carton reducing packaging weight 20 percent, energy and CO_2 emissions associated with producing and shipping the cartons 30 percent, and truck traffic on highways for shipping cartons 20 percent.

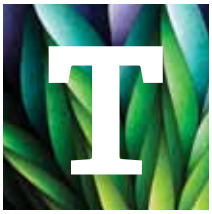
■ **Residual material** from many forest products can be beneficially used as soil amendments to land, such as mulch, used as raw materials or burned for heat recovery.

Looking to the Future

Through the forest products industry's *2010 Forest Products Industry Technology Roadmap*, developed by Agenda 2020, the industry has highlighted research and development (R&D) needs to improve the industry's sustainability. The Roadmap identifies technologies that will enable progress on several sustainability elements. Agenda 2020 developed a list of top priorities and is working with companies, universities, and Federal agencies to initiate collaborative projects that promise widespread benefits to the industry.

As AF&PA members track their progress toward attainment of the *Better Practices, Better Planet 2020* goals, they are committed to holding themselves accountable through a transparent biennial sustainability reporting process. This 2012 sustainability Report is one element in that process. For additional information, please visit the AF&PA website at www.afandpa.org/sustainability.

AF&PA's *Better Practices, Better Planet 2020* Sustainability Goals



The forest products industry has long provided leadership in sustainability, striving to ensure our resources will be as plentiful and available to future generations as they are today. AF&PA members have set goals for performance in pursuit of sustainability, from procurement of raw materials and manufacturing of products to promoting and protecting the health and safety of our workforce, as well as making significant societal and economic contributions to our communities. Previous goals have been met or surpassed.

Our members have furthered their commitment to sustainability by developing and adopting AF&PA's *Better Practices, Better Planet 2020* sustainability goals. This suite of goals is one of the most extensive sets of quantifiable sustainability goals for any major U.S. manufacturing sector. The goals, targeted for achievement by 2020, build upon our past performance and come with a transparent reporting process that will clearly demonstrate our progress through biennial reporting beginning in 2012, with this report.

Increase Paper Recovery for Recycling

Exceed 70% rate of recovery for recycling by 2020

Paper recovery for recycling continues to be a success story, as 66.8 percent of all paper consumed in the U.S. was recovered for recycling in 2011. Our industry has continually nurtured an environment where more paper is recovered. In the two decades we have set and achieved recovery goals, the recovery rate has nearly doubled: proof positive of the value in setting such goals. The recovery of paper products for recycling has fostered a dynamic marketplace that allows recovered paper to find its highest-value end use. The existences of this market in turn helps to encourage more recycling.

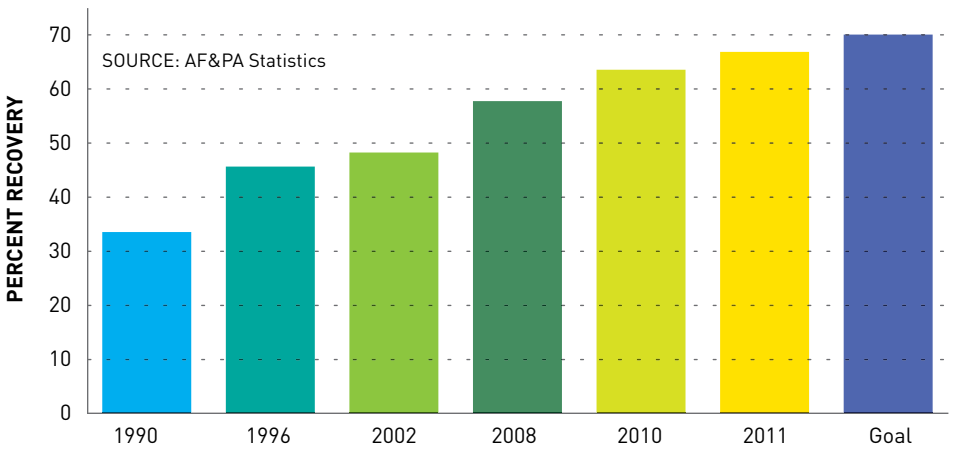
Paper recovery is important to the U.S. economy. It extends the fiber supply and saves landfill space — an average of 3.3 cubic yards of landfill space is saved for each ton of paper recycled. Recovered paper that had been sorted/processed in the United States had a 2010 market value of $8.9 billion, according to the Institute of Scrap Recycling Industries (ISRI). The value of U.S. recovered paper exports totaled $3.8 billion in 2011, according to the Census Bureau.

Our industry-led efforts to encourage and increase paper recovery for recycling are just one of many examples of our dedication to protecting the environment and meeting our economic and societal commitments. Recovering paper for recycling helps the environment by recovering valuable resources and turning them into new products that we use every day. Encouraging and enabling recycling is an integral part of this industry's sustainable practices. Important to the recycling effort is the fact that as of 2010, 87 percent of the U.S. population had access to curbside and/or drop-off paper recycling services.

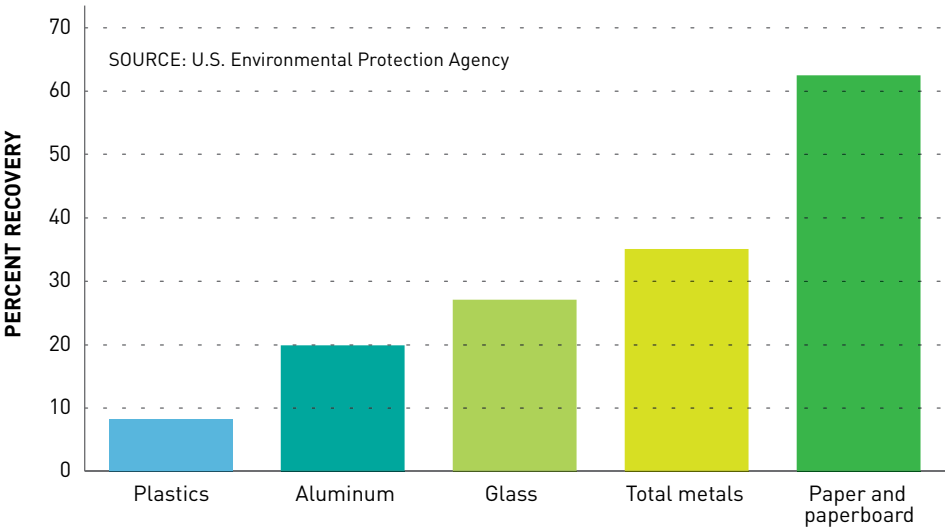
An AF&PA member manufacturer of paper and paper products provides workshops for office workers on enhancing office recycling and reducing waste.

The paper industry's recycling success has provided an example and led the way for all other U.S. recycling efforts. Paper recycling success leads that of all other materials. According to EPA municipal

RECYCLING GOAL PROGRESS



PAPER RECYCLING vs. OTHER MATERIALS



solid waste data for 2010, only 27.1 percent of glass, 19.9 percent of aluminum and 8.2 percent of plastics consumed were recovered for recycling in 2010.[1]

The success in paper recycling is shared by the industry, communities and individuals all working together. AF&PA has carried out programs that educate students and their families about the importance of paper recovery. AF&PA, Kaleidoscope Inc., and the Keep America Beautiful organization have worked together to deliver curricula to the classroom. We also have partnered with the Environmental Paper Network, RecycleMania, the U.S. EPA, and other stakeholders to encourage paper recycling. The annual AF&PA Recycling Awards program provides important recognition and incentives for continuing success.

The 2012 AF&PA Recycling Award winners in each category are:

- **Business:** One American Center, Thomas Properties Group in Austin, Texas for recovering 505 pounds of paper per tenant — 145,000 pounds in all, plus another 206,000 pounds of shredded confidential files.
- **Community:** Naval Air Station Whidbey Island in Oak Harbor, Washington for recovering 2,664,000 pounds of paper and paper-based packaging — 222 pounds per person.
- **School:** Perry High School in Perry, Ohio where 600 students and faculty recovered 280,000 pounds of paper and paper-based packaging — 466 pounds per person.

Having established and exceeded several previous paper recycling goals, AF&PA has once again raised the bar and pledged to maintain its leadership in this important sustainability area. Our new goal to exceed a 70 percent recovery rate for paper will require, and receive, the same commitment and enthusiasm as previous efforts to work with individuals and communities to achieve success.

[1] The U.S. Environmental Protection Agency (EPA), which reported the 2010 paper recovery rate at 62.5 percent, and the U.S. paper industry calculate the paper recovery rate slightly differently. EPA's method excludes so-called "pre-consumer" materials and certain other materials in its calculation; AF&PA includes all recovered paper but uses a broader definition of paper and paperboard consumption.

Increase Our Energy Efficiency

Improve our industry's energy efficiency in purchased energy use by at least 10 percent from 2005 to 2020

Merriam-Webster defines efficiency as the effective operation as measured by a comparison of production with cost. Our quest to improve our energy efficiency in purchased energy will allow for us to produce more with less – providing a cost value and leaving more natural resources for future use. Not to be lost in this equation is the fact that nearly two-thirds of the energy used for production comes from using carbon-neutral biomass onsite. This makes full use of the tree through the manufacturing process. Increasing efficiency gives greater possibility to holding down costs and thereby keeping and creating jobs.

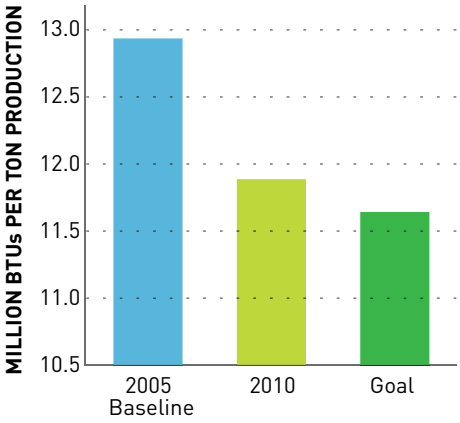
In 2010, purchased energy use was reduced by 8.1 percent compared to the 2005 baseline.[2] The energy intensity rate for 2010 was 11.9 million BTUs per ton of production. The 2020 goal is 11.6 million BTUs per ton of production.

AF&PA member facilities have consistently improved their energy efficiency. Since 1990, member pulp and paper mill purchased energy use per ton of production has been reduced by 25.3 percent and 14.5 percent since 2000.

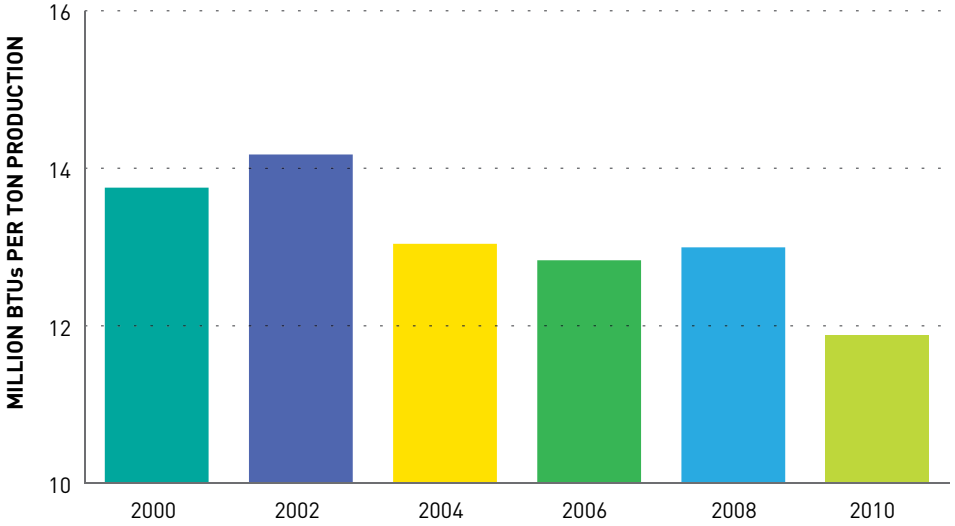
AF&PA members have been consistently working to optimize use of high-efficiency generation measures for decades. Some have formed partnerships with the

[2] The 2005 baseline is derived from the averaging of 2004 and 2006 data as reported by member companies through our regular biennial data collection process. Paper and wood products have very distinct purchased energy profiles; wood products generally require significantly less energy to manufacture than pulp and paper products. Such differences can distort energy efficiency comparisons if there are major changes in the paper-wood production mix, as occurred between the 2005 base year and 2010. Wood's share of the production mix declined significantly due to reduced wood production owing to the housing downturn and changes in AF&PA membership. Thus, the 2005 production mix between wood and paper has been adjusted to be the same as it was in 2010 to ensure a more representative comparison of energy efficiency performance.

ENERGY IMPROVEMENT GOAL PROGRESS



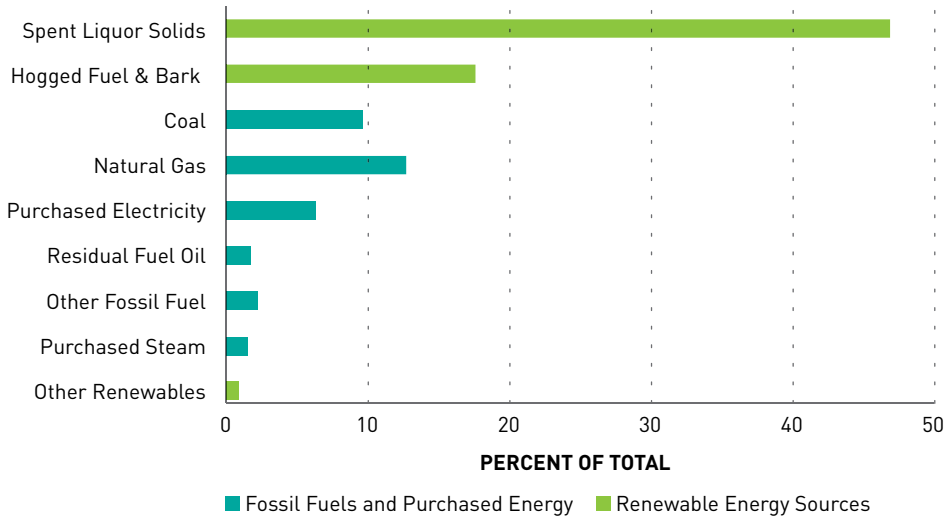
PURCHASED ENERGY USE REDUCTIONS



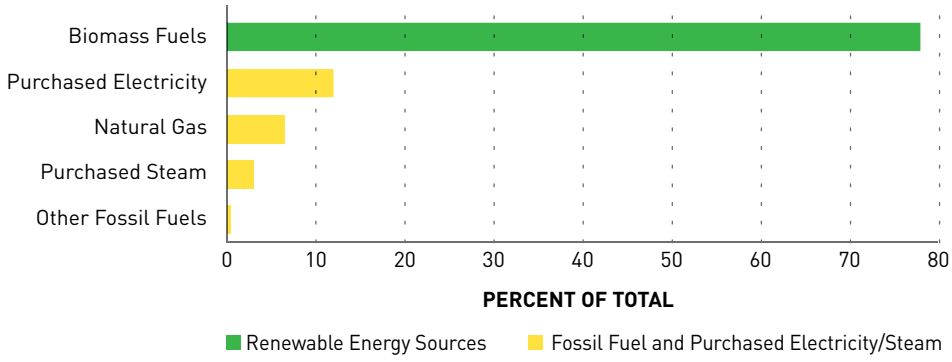
U.S. EPA and the U.S. Department of Energy (DOE) to pursue additional efficiencies through programs such as the EPA Energy Star and the former DOE Save Energy Now program, recently rebranded as the Better Buildings — Better Plants program. When seeking a metric for a new goal that would represent progress towards increased efficiency in the industry's multi-fueled energy generation and use systems, members elected to follow the Save Energy Now energy efficiency methodology for the pulp and paper sector. This DOE methodology recommends tracking purchased energy use. It is regarded as the most sensitive metric due to the higher cost of purchased energy. The rationale is that tracking the most expensive source of energy for the industry will serve as a leveraged driver for further overall efficiency gains. The metric used to establish the baseline, current status, and the goal itself will be based on the total of all purchased fuels (fossil and biomass), as well as electricity or steam purchased from other providers. The DOE methodology also is consistent with that of the EPA Energy Star Guide for the industry.

The forest products industry is a leader in the production of renewable energy. More than 65 percent of the on-site energy needed to produce paper products is derived from carbon-neutral biomass fuel. Carbon-neutral biomass materials include spent pulping liquors, bark, wood, wood scraps, wood byproducts, and process residuals. An additional small but significant amount of energy is produced by other

PULP AND PAPER MILL ENERGY SOURCES



WOOD PRODUCTS FACILITY ENERGY SOURCES

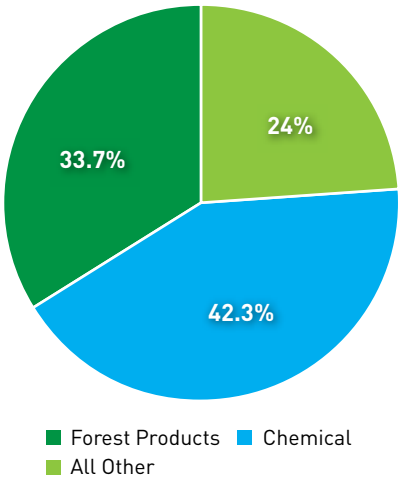


renewable sources such as hydropower. Member pulp and paper mill on-site fossil fuel use, per ton of product, decreased by 30 percent between 1990 and 2010, including a 3.8 percent reduction between 2008 and 2010.

One important way that the forest products industry maintains leadership in energy efficiency is through the production of co-generated energy. Also known as combined heat and power or CHP energy, exhaust steam from electricity generating turbines is used to heat pulp and paper making processes, dry lumber, heat buildings, or is recovered for other purposes. U.S. EPA concludes that, "CHP generation systems achieve fuel-use efficiencies of 50 to 80 percent, compared to average fossil-fueled power plant efficiencies of 33 percent in the United States."[3] In 2010, 97.2 percent of electricity produced by the industry was CHP-generated. According to the U.S. DOE Energy Information Agency (EIA), the forest products industry produced 33.7 percent of CHP power generated by manufacturing facilities. Of all manufacturing sectors, only the chemical industry exceeds the forest products industry in the generation of efficient CHP.

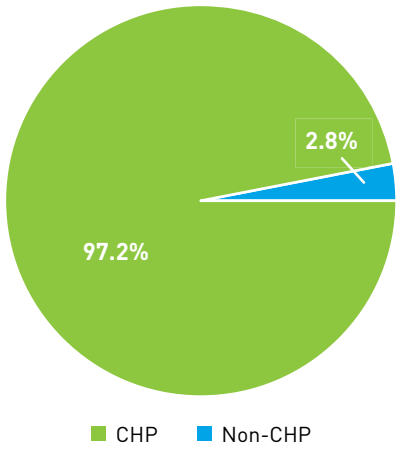
Through an energy and water restructuring program in partnership with the U.S. Department of Energy, a member's Wisconsin paper mill reduced their energy intensity rate 19 percent over a two year period and reduced water use by two million gallons per day.

CHP ENERGY GENERATION BY INDUSTRY



SOURCE: U.S. Department of Energy

FOREST PRODUCTS INDUSTRY CHP ENERGY GENERATION



SOURCE: U.S. Department of Energy

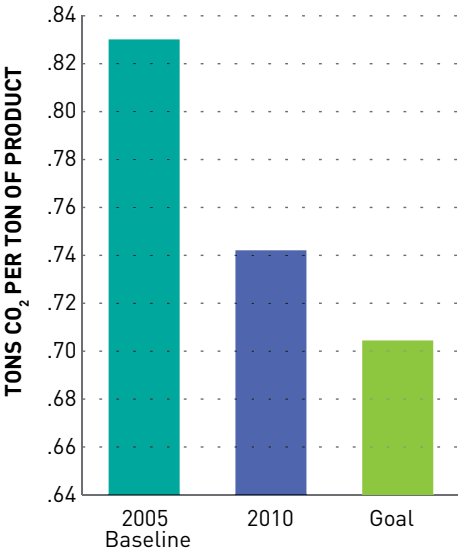
[3] http://www.epa.gov/chp/documents/municipalities_fs.pdf

Reduce Greenhouse Gas Emissions

Reduce greenhouse gas emissions intensity by at least 15 percent from 2005 to 2020

In any discussion on climate and the environment, invariably the need to reduce GHG emissions is broached. It is important to note that the way in which these emissions are reduced can bring additional benefits. Nearly two-thirds of the energy used at member-company pulp and paper mills is generated from carbon neutral biomass, which has captured and sequestered carbon during the growing cycle. An underestimated aspect of such goals is the personal pride felt by those who can say they work in an industry which supports such positive steps in our communities.

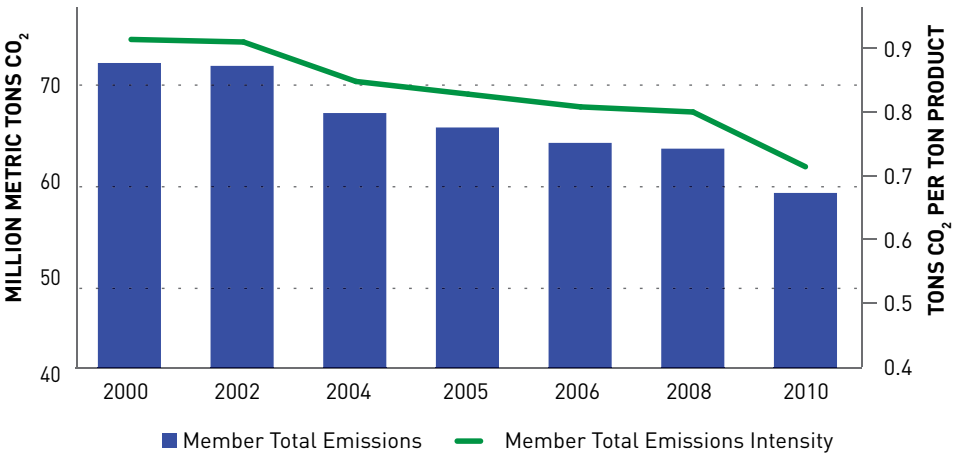
GREENHOUSE GAS REDUCTION GOAL PROGRESS



GHG emissions intensity in 2010 was 10.5 percent lower than in baseline year 2005.[4] The 2005 baseline is 0.83 tons carbon dioxide (CO_2) equivalents per ton of production.

[4] GHG goal reduction performance was calculated with the same production adjustment discussed in note 2.

GREENHOUSE GAS EMISSIONS REDUCTIONS
(TOTAL DIRECT AND INDIRECT)



GHG releases from forest products manufacturing operations are largely driven by fossil fuel use. The industry's long standing reliance on renewable bio-based energy, generated from wood derived fuels, and improvement in energy efficiency have made it a leader in reducing GHG emissions. From 2000 to 2010, total direct and indirect member absolute GHG emissions were reduced by 40 percent and by 27 percent from 2005; much of this reduction is due to lower production and changes in AF&PA membership.

A $300 million GHG emissions reduction program at one member company resulted in a 40 percent reduction between 2000 and 2010 and captured a Climate Leadership Award from U.S. EPA.

The industry's reliance on forest resources plays an important role in reducing climate change impacts. Carefully managed forests that provide the raw materials for our industry absorb carbon dioxide. Collectively, the forests and these products absorb and store over 10 percent of annual U.S. carbon dioxide emissions. In addition, industry efforts to increase society's paper recovery rate is also beneficial because it markedly decreases the amount of paper products that end up in landfills that contribute to GHG emissions as they decompose.

U.S. EPA, the European Union and the United Nations Intergovernmental Panel on Climate Change all recognize that, unlike fossil fuels, biomass is part of the natural carbon cycle. When biomass is burned for energy, the carbon dioxide absorbed from the atmosphere during tree growth is released. When forests are replanted, or allowed to regenerate naturally, that cycle is repeated. So long as forest carbon stocks are stable or increasing — as they are in the United States — biogenic carbon emissions are fully offset by carbon dioxide sequestration in regenerating forests and do not result in a net increase in atmospheric carbon dioxide concentrations. On the other hand, fossil fuel combustion has no such repeating cycle. Stored over millions of years, the GHG released when fossil fuels are burned produces a net carbon dioxide increase in the atmosphere.

A Wisconsin partnership between a member pulp and paper mill and public utility resulted in replacement of several old boilers with a new biomass fueled cogeneration system that created 150 jobs to provide fuel, 450 jobs at the mill, a 30 percent reduction in boiler air emissions, and direct payments to the community and county.

Promote Sustainable Forestry Practices

To increase the amount of fiber procured from certified forestlands or through certified fiber sourcing programs in the U.S from 2005 to 2020 and work to decrease illegal logging

Sustainable forestry practices in the United States and around the world have long been supported by AF&PA members that participate in certified forest programs and encourage certified fiber sourcing through their supply chains. All AF&PA members that own forestland are required to conform to a credible sustainable forest management program. The land stewardship ethic of these programs integrates reforestation, as well as the nurturing and harvesting of trees for useful products, with conservation of soil, air and water, along with protection of wildlife and fish habitat

Through sustainable forest practices, we are able to provide renewable natural raw materials for production of recyclable paper and packaging products, as well as energy-efficient and environmentally beneficial building materials. For paper and wood products, the connection to trees is as strong as any product can have to the base resource. Whether using virgin fiber or recovered fiber, trees are the root resource. Trees used to make paper and wood products are grown in managed forestlands for the purpose of manufacturing. Without a regular harvesting of trees to manufacture products, those managed forestlands would likely be sold or used for other purposes such as development or agriculture — purposes that would not include the consistent replanting of trees.

A forest products company working with a foundation planted 650 chestnut saplings on a protected plot where the saplings can be monitored for health and survival to reestablish this historic tree.

So, counter to the prevalent myth that using paper is somehow bad for the environment, market demand for paper products drives the need to plant more trees.

Members that source wood fiber from forests owned by others must comply with sustainable procurement principles. These principles require providing information to landowners for reforestation following harvest, for the use of best management practices, and for identification and protection of important habitat elements for wildlife and biodiversity, including Forests with Exceptional Conservation Value.

Forestry Goal

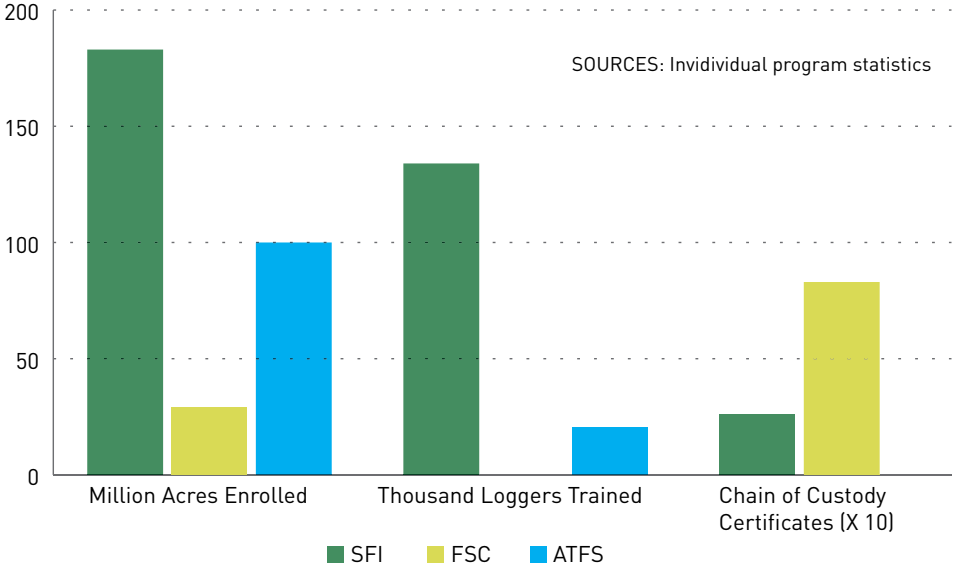
AF&PA's forestry goal is to increase the amount of fiber procured from certified forestlands or through certified fiber sourcing programs in the United States by 2020 and to work with governments, industry and other stakeholders to promote policies around the globe to decrease illegal logging

For the amount of fiber procured from certified lands, data collected from members shows that about 23 percent and 24 percent of fiber procured by AF&PA members is procured from third-party certified forestlands in the baseline year of 2005 and in 2010, respectively. Regarding fiber procured through certified fiber sourcing programs, the 2005 baseline was 87 percent, which increased in 2010 to more than 96 percent.

AF&PA members strongly support and encourage the use of forestry best management practices and track and report on the use of such practices throughout the entire wood supply chain. The AF&PA Sustainable Procurement Principles reach beyond the requirements of analyzing legality, by requiring that wood obtained through its fiber sourcing program is received from suppliers trained in the area of sustainable forestry practices and principles; through the use of qualified logging professionals; by providing research funding for forestry; and through similar efforts to improve forest practices on lands that are not certified.

AF&PA members also support programs that maintain verifiable monitoring programs, supply regionally appropriate information so landowners can identify and protect/create habitats and riparian

NORTH AMERICAN SUSTAINABLE FORESTRY MANAGEMENT PROGRAM STATISTICS



zones, and promote conservation of biodiversity. AF&PA members also must comply with applicable federal, provincial, state, and local forestry and related environmental and social laws and regulations.

Forest Certification

United States: While only 20% of timberland in the United States is certified, there is more forestland in the United States today than there was just 20 years ago. For the past 100 years, total forest area has been stable and actually grew by 2 million acres from 2000 to 2005.

More than 56 percent of U.S. forests are privately owned, much of it by family forest owners. Most family forest owners manage their lands responsibly, but many do not participate in a forest certification program for various reasons, including costs and land management objectives. Family forest owners have many reasons for owning forests, including beauty and scenery, protection of nature and biodiversity, family heritage and legacy, investment, hunting and fishing. Timber production is not a top priority for many family forest owners; however, those who are actively managing their forests often seek help from foresters who support the practice of sustainable forestry.

Worldwide: Certified forests are primarily located in industrialized countries that have a strong rule of law – like the United States, Canada and a number of European and Scandinavian countries. Only 10 percent of the world's forests are certified to any standard.

Programs utilized by AF&PA members include:

- Sustainable Forestry Initiative® (SFI®);
- Forest Stewardship Council® (FSC®) program;
- American Tree Farm System (ATFS); and
- Programme for the Endorsement of Forest Certification (PEFC™)-endorsed programs.

Illegal Logging

Illegal logging harms the environment and damages the reputation of the forest

products industry. AF&PA members support and promote efforts to reduce illegal logging in a number of ways, including: working with governments and other stakeholders to promote policies that reduce illegal logging around the world; and through participation in the Forest Legality Alliance. The Alliance is an international, multi-stakeholder initiative working to reduce demand for illegally harvested forest products. AF&PA plays a leadership role in the Alliance by participating in its Advisory Group. The Alliance is pursuing:

- Education among supply chains regarding demand-side legality policies and providing new tools for increasing supply chain transparency and legality.
- Equipping supply chain participants with tools to keep illegally harvested wood out of the market.
- Demonstration pilot projects to identify feasible and cost-effective ways to reduce and mitigate unintended burdens on wood importers and producers.

Individual member companies work diligently to safeguard against procurement from illegally logged sources. From careful legal records and specific identification of source, mills or forest landowners vigilantly document sources, especially sources outside the United States and Canada. Companies assess the risk of sourcing to avoid illegal logging and carefully conduct risk assessments of suppliers. They work with forestry agencies in their investigations and can serve as external advisors on illegal logging to corporate customers. Many require suppliers to sign agreements that wood is from legally harvested sites, often using third-party certification of chain of custody and fiber sourcing standards.

Strive for the Safest Possible Workplace

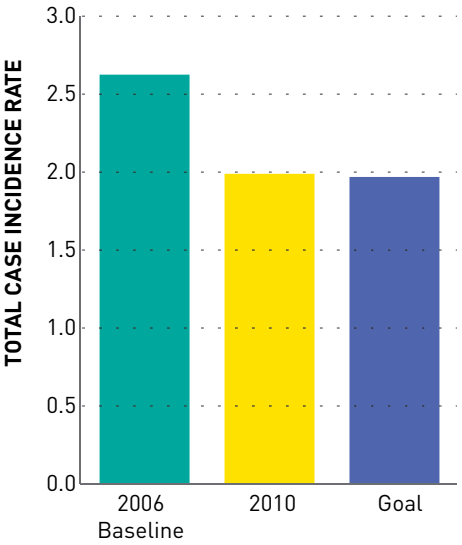
A vision for the industry of zero injuries and measuring progress toward that vision by setting a goal to further improve our safety incidence rate[5] by 25 percent from 2006 to 2020

The safety of our employees is paramount to the success of our businesses, the efficiency with which we operate, and the viability of the livelihood we provide our people and the communities in which we live and operate. We want our employees to operate in a safe working environment. A safe employee is a happy employee, which in turn is a productive employee.

Compared to the 2006 baseline, AF&PA members have reduced their incidence rate by 24 percent.[6] This substantial progress is due to worker training, increased automation, and a host of injury preventive measures and safeguards that have been instituted over the years.

AF&PA members continue their strong commitment to providing a safe and healthy work environment for their

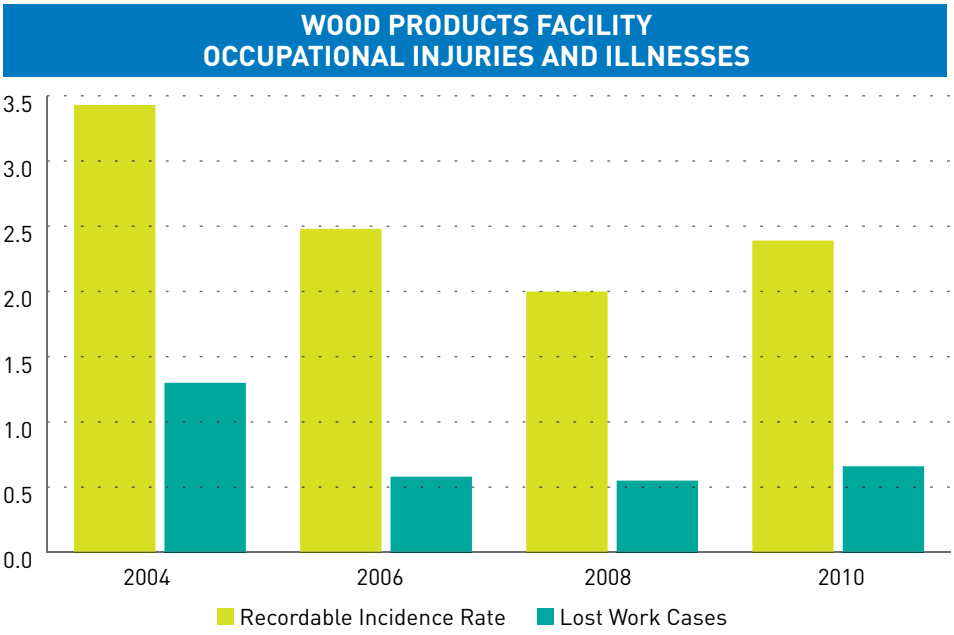
WORKER SAFETY GOAL PROGRESS



PULP AND PAPER MILL OCCUPATIONAL INJURIES AND ILLNESSES

[5] The incidence rate is the number of recordable injuries and illnesses occurring among a given number of full-time workers (100 full-time workers or 200,000 hours) over a given period of time (one year). This rate is often referred to as the Total Recordable Case Rate. These cases are recorded through the OSHA 300 Log that employers are required to maintain for each physical location they operate.

[6] Paper and wood sector incidence rates were weighted in proportion to 2010 total hours worked in the respective sectors.



employees and to the communities which they serve. In accordance with AF&PA's mandatory EHS Principles, members have reported adherence for 2010. Members have confirmed that health and safety policies are in place and that the companies perform frequent safety audits. Health and safety incidents are reported to senior managers, and health and safety reports are available to the public. Member companies have received honors for their health and safety performance.

Occupational Safety & Health Administration (OSHA) recognizes industrial facilities that implement enhanced safety programs and maintain on the job injury and illness rates below national Bureau of

An AF&PA member company pulp mill has operated for more than four years without a recordable injury and has won its state Labor and Safety Award for three consecutive years.

Labor Statistics averages for their respective industries. This recognition includes enrollment in OSHA's Voluntary Protection Program (VPP). As of February 29, 2012, safety programs at 71 pulp and paper mills were recognized as outstanding and enrolled in this prestigious Department of Labor program. In addition, 80 wood products facilities and five logging yards were also enrolled. As in the past, the forest products industry had the second larg-

A member company corporate safety program focus has achieved world class performance — reducing work accident incidence rate 70 percent over the past 10 years to a level less than 1.0.

est number of facilities registered by VPP; only the chemical industry has more.

Maintaining safe and healthy workplaces and communities are a top priority for AF&PA members. Members carefully keep track of job safety performance and provide programs designed to maintain and improve health both in the plant and out in the communities which they serve.

Explore Opportunities to Reduce Water Consumption

Explore opportunities to reduce the water consumed in our processes and determine whether to set a consumptive use goal in the future.

Using water in an efficient manner in the manufacturing process is responsible stewardship of local resources.

AF&PA members have gathered data on water quality and quantities of discharges for many decades. Pulp, paper and wood products mills consume little of the water they use to support their manufacturing processes. They return 88 percent of the water they withdraw back to receiving streams.

AF&PA member mills carefully monitor the volume of effluent discharged back into receiving streams. Since consumptive use is low, effluent quantities can be used as a surrogate for quantities of water withdrawn and used in pulp and papermaking systems. Since 1995, the volume of water discharged from member company pulp

An extensive paper industry water use profile for the industry revealed that water used in manufacturing equals about 0.4% of water available from U.S. timberlands.

and paper mills has decreased by 26 percent. Between 2008 and 2010, water discharges were reduced 7.6 percent. Mills recycle the water they use for production of their products many times before it is discharged. For example, at one large integrated (produces both pulp and paper) coated paper mill recent estimates of the amount of water recycled within mill systems was 1,200 percent of the amount of water withdrawn from local supplies. In other words, the water within the system was reused 12 times prior to discharge.

When establishing *Better Practices, Better Planet 2020*, AF&PA members, after

careful consideration, did not initially set a specific numeric goal to further reduce the amount of water used. Instead, they put in place an effort to study whether to set a consumptive use goal. Given that the industry's water consumption is relatively small, measuring that consumption with current water meters was found to be problematic, as the detectable improvements could easily be within the measurement margin of error, and other methods would require more extensive calculations. Further, reducing consumptive use significantly, or to zero, requires making tradeoffs that may have negative economic and environmental implications. Therefore, AF&PA has decided not to set a consumptive use goal but will continue to measure and report effluent discharge data as a surrogate for water use. The effluent measurements are precisely made and are supported by the quality assurance protocols needed to ensure accurate reporting. Using those measurements, we have reduced our water use at member pulp and paper mills by 6 percent since 2005. (The 2005 baseline is the average of 2004 and 2006 data as reported by member companies.)

We will also continue participating in several of the global initiatives underway to quantify impacts from water use, as we believe this is the appropriate direction for measuring water sustainability. In addition, the industry will maintain its commitment to building on our progress in protecting water quality and sustainable utilization of water supplies.

APPENDIX I Sustainability Tracking and Reporting

AF&PA utilizes an extensive set of sustainability indicators and metrics to track and monitor continuous improvement along the sustainability pathway. Results from the 2012 survey of members regarding performance during 2010 are presented in this Appendix. Results are posted for indicators and metrics associated with each of the three sustainability pillars — Economic, Societal and Environmental.

Economic Sustainability Indicators and Metrics

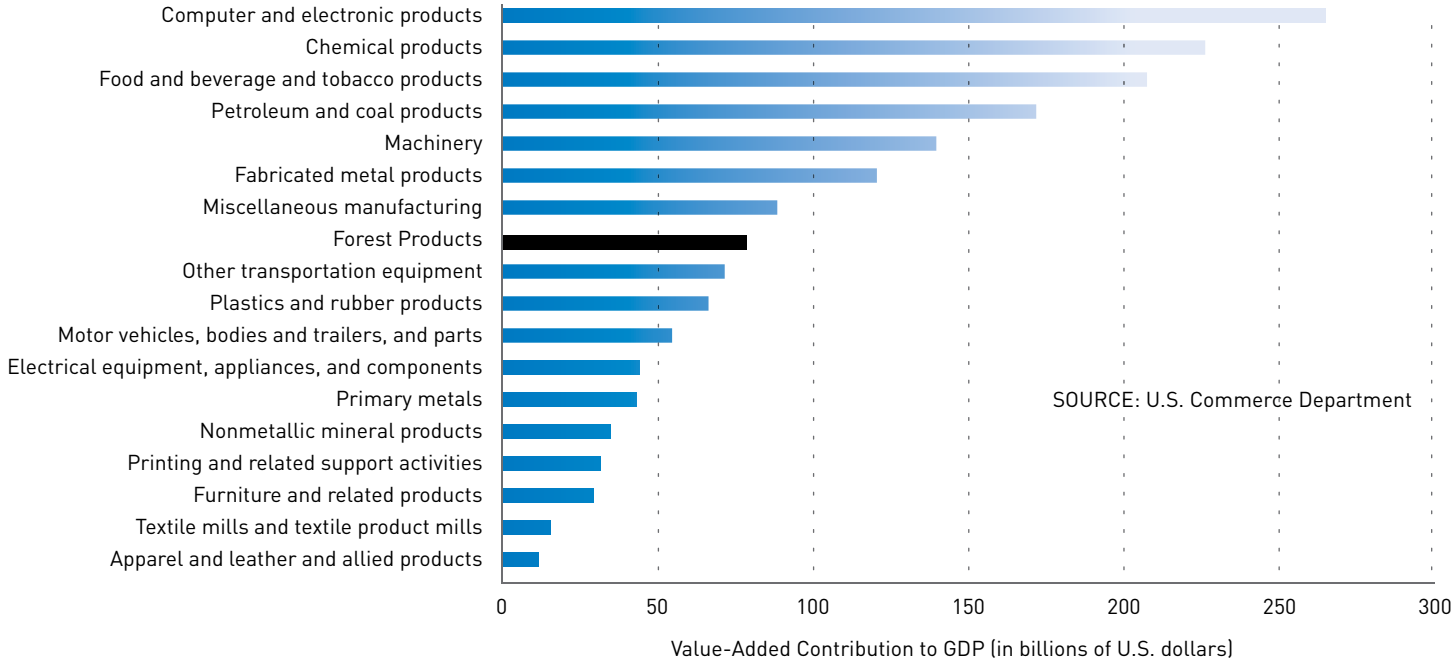
The economic health of the U.S. forest products industry is among the most important elements in its sustainability. The industry struggled during the height of the 2008-2009 recession but returned to profitability in 2010 and 2011. However, some markets have remained challenging: in particular, the wood products sector has not yet made a full recovery due to weakness in homebuilding. Communications papers remain subject to competition from electronic media.

Prospects for the future remain promising, nevertheless, because forest products are essential to everyday life. Paper packaging is used to prevent food spoilage and to protect products during shipment; tissue papers promote sanitation and reduce the spread of disease; and communication papers facilitate the dissemination and preservation of information. Wood products are a leading building material and are made from a renewable, highly energy-efficient resource.

Contribution to U.S. Manufacturing GDP

The forest products industry continues to account for approximately five percent of total U.S. manufacturing gross domestic product (GDP); value added for the industry was about $79 billion. Industry companies produce about $190 billion in products annually and employ nearly 900,000 men and women, exceeding employment levels in the automotive, chemicals and plastics industries. The industry meets a payroll of approximately $50 billion annually and is among the top 10 manufacturing sector employers in 47 states. Approximately 2-3 jobs are supported at upstream suppliers and within local communities as the result of forest products industry employees spending their incomes.

MANUFACTURING CONTRIBUTIONS TO U.S. GDP (2010)



Trade Balance

The U.S. trade balance in paper, paperboard and converted products edged into positive territory in 2009 for the first time in almost one hundred years,

The small 2009 trade surplus of 383,000 tons, or 0.5 percent of domestic production, expanded to 1.9 million tons in 2010. It further increased to 3.3 million tons in 2011, representing four percent of domestic production of paper and paperboard.

With global demand continuing to expand, exports represent a good opportunity for U.S. producers of paper and paperboard.

Paper Industry Production

Though improved from the low point in 2009, U.S. production of paper and paperboard still lags previous highs.

In 2011, production levels were 9.9 percent less than in 1995, 12.2 percent less than in 2006, but four percent greater than 2009.

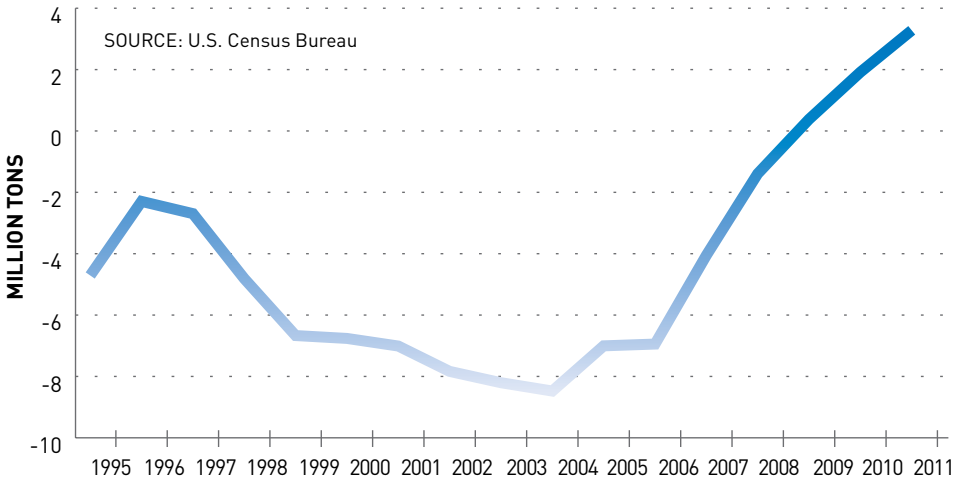
Capital Spending

According to Census Bureau data, capital spending by the U.S. paper industry amounted to $5.8 billion in 2010, up from $4.4 billion in 2009, but still below the annual average level of $6.2 billion from 2002 through 2009.

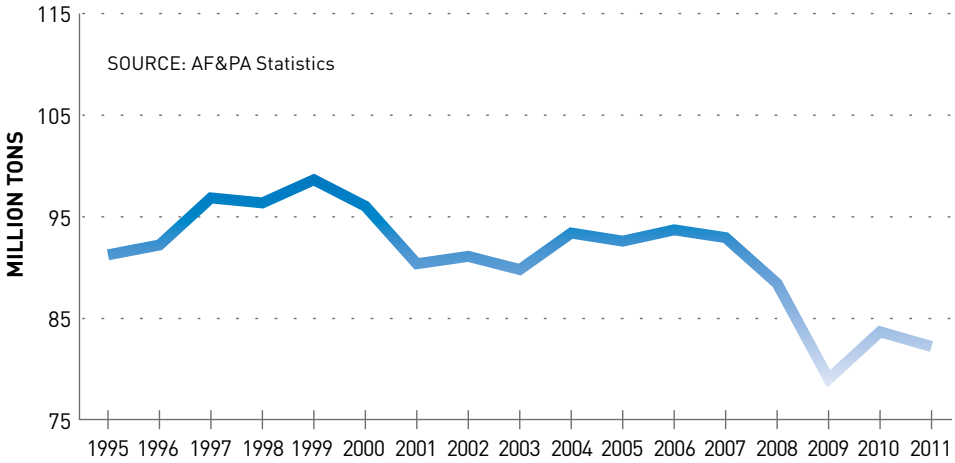
Spending by the wood products sector increased from $1.6 billion in 2009 to $1.7 billion in 2010.

The average level from 2002 through 2009 was $2.8 billion a year.

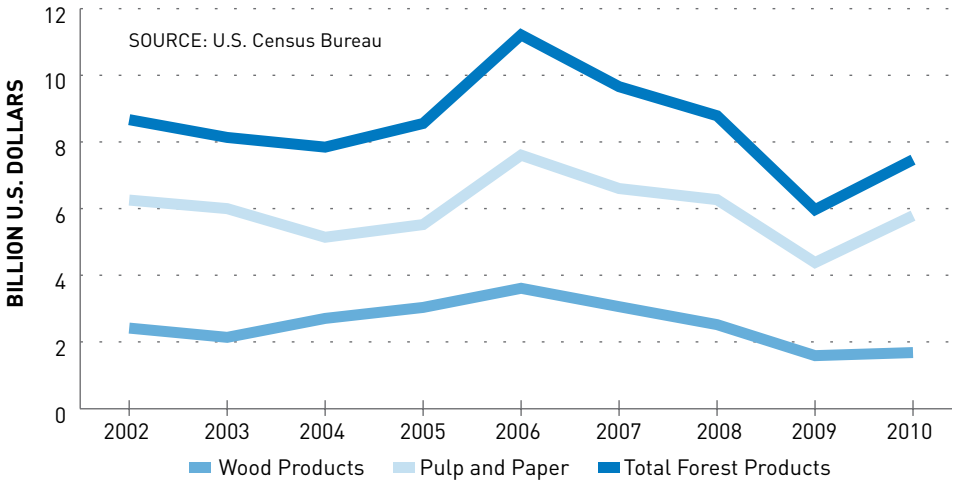
PAPER AND PAPERBOARD TRADE BALANCE IMPROVEMENT



PAPER AND PAPERBOARD PRODUCTION



FOREST PRODUCTS INDUSTRY CAPITAL EXPENDITURES



Worker Productivity

Data compiled by the Bureau of Labor Statistics (BLS) show that labor productivity — output per man-hour — at pulp, paper and paperboard mills rose 38 percent between 2000 and 2010.

Over the same time period, labor productivity rose 24 percent for the entire paper sector (including converting) and was up by 28 percent for wood products manufacturing operations. Worker productivity in all manufacturing sectors increased 6.0 percent between 2009 and 2010, but 9.2 percent in the wood products sector and 6.7 percent for pulp, paper and paperboard mills.

Employment

The Bureau of Labor Statistics reports that 870,000 people were directly employed in the forest products industry in 2011. Though significant reductions have occurred since 2002, employment levels have been more stable since 2009.

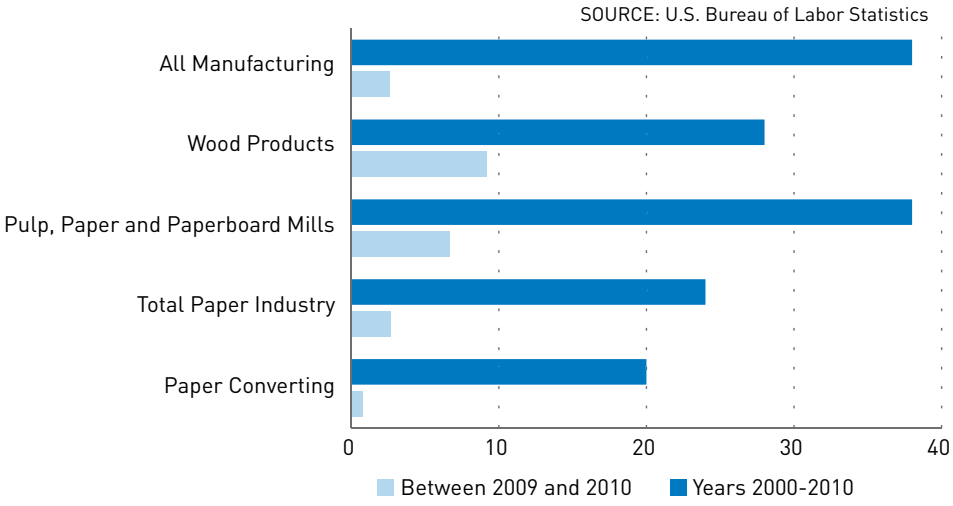
Societal Sustainability Indicators and Metrics

The AF&PA societal indicators relate to how member companies organize themselves to operate in a sustainable manner, work with and equip employees to follow sustainable practices, interact with communities and the general public to keep them informed of the company's progress, and collect feedback relating to needs, concerns, and other reactions. The emphasis that companies put on individual elements contained within these indicators can vary from year to year. The results displayed here reflect activities for 2010.

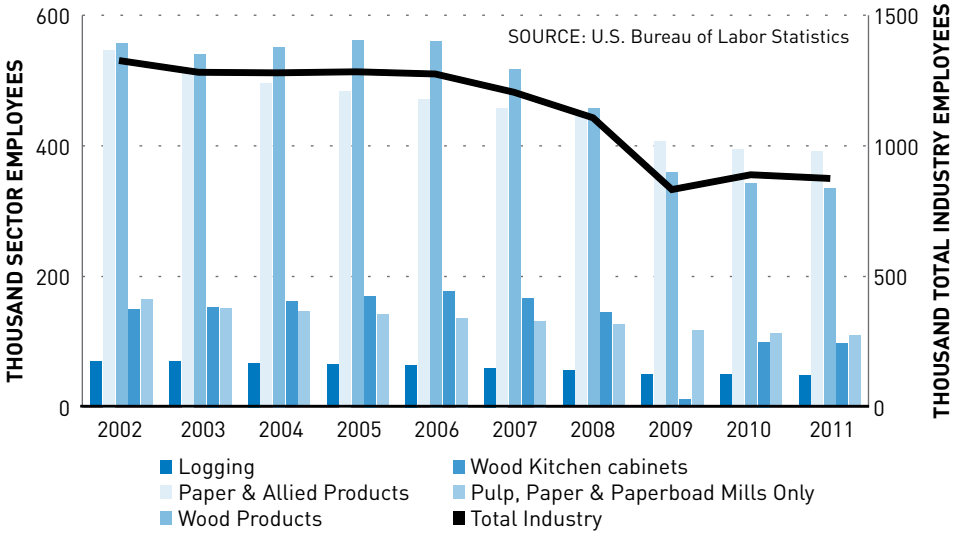
Corporate Governance

To achieve sustainability, companies must involve everyone in this pursuit. They establish formal policies, provide for accountability, work to maintain good employee involvement and employee relations, and collaborate with their communities and the public. Metrics included in the corporate governance indicator are:

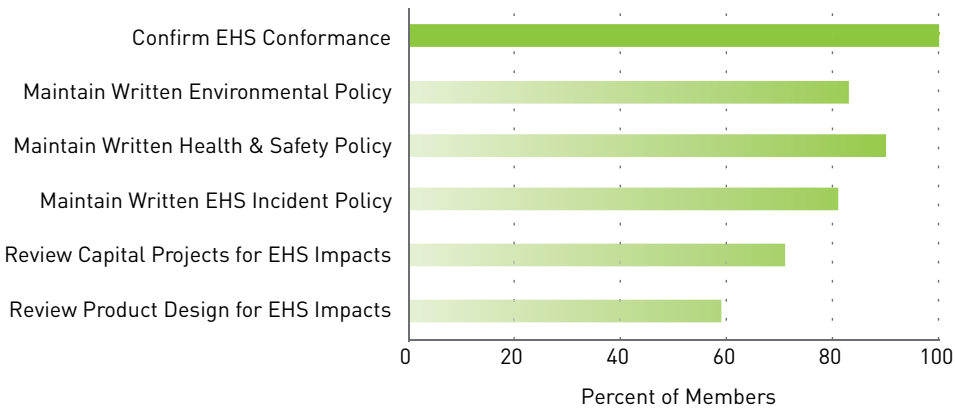
FOREST PRODUCTS INDUSTRY PRODUCTIVITY INCREASES



FOREST PRODUCTS INDUSTRY EMPLOYMENT



EHS PRINCIPLES CONFORMANCE



- Adherence to the AF&PA Environmental, Health & Safety (EHS) principles. (A mandatory requirement of AF&PA membership, these principles are displayed in Appendix II.)
- Accountability and senior management reporting
- Member employee involvement programs

Companies fulfill their obligations in ways that best fit their needs.

Public Engagement

Maintaining open and transparent relationships with the communities within which member companies operate and with the public at large is a critical sustainability function. Metrics included in the public engagement indicator are:

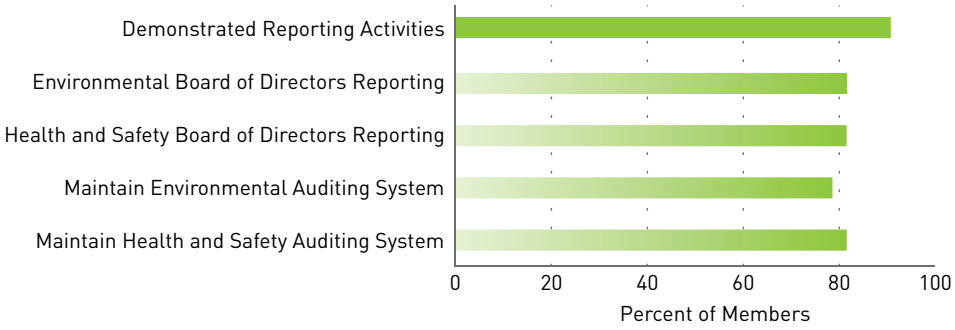
- Public engagement and reporting
- Public policy participation
- Member community outreach and social support

In 2010, AF&PA members were involved through the measures shown in the charts at right and on the next page.

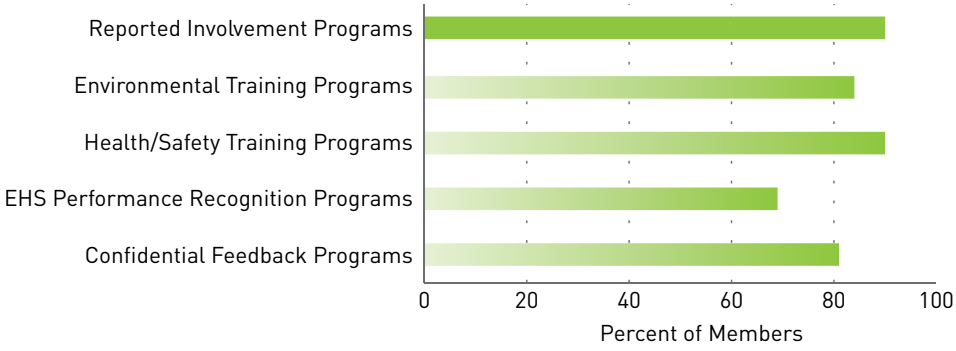
Innovation

Innovating to improve processes and plan for future needs and circumstances is an important part of sustainability. The progress made on making the industry more sustainable through reductions in purchased energy, greenhouse gas emissions, and water demand is evidence of innovation in recent years. Looking to the future, support for research and development (R&D) is the primary metric for the innovation indicator. AF&PA members participate in a wide variety of R&D efforts. Some are pursued in-house, some by industry-sponsored or independent research organizations [National Council for Air and

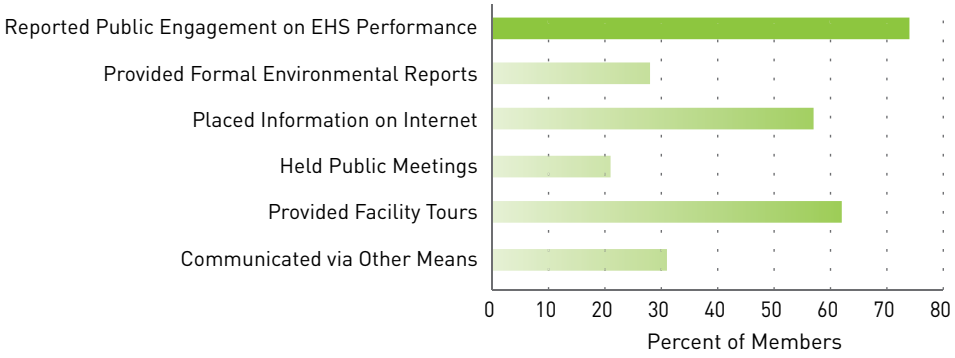
ACCOUNTABLITY AND SENIOR MANAGEMENT REPORTING



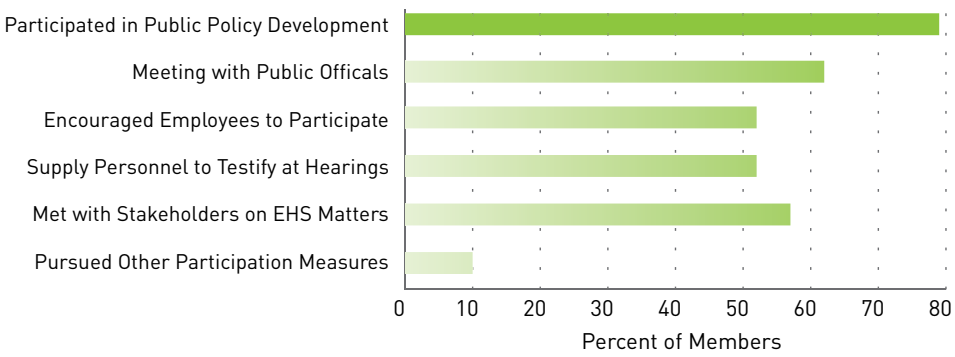
EMPLOYEE INVOLVEMENT PROGRAMS



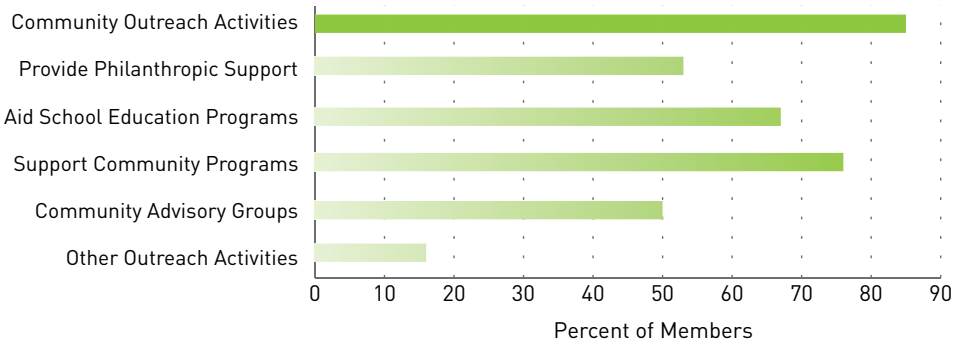
PUBLIC ENGAGEMENT AND REPORTING



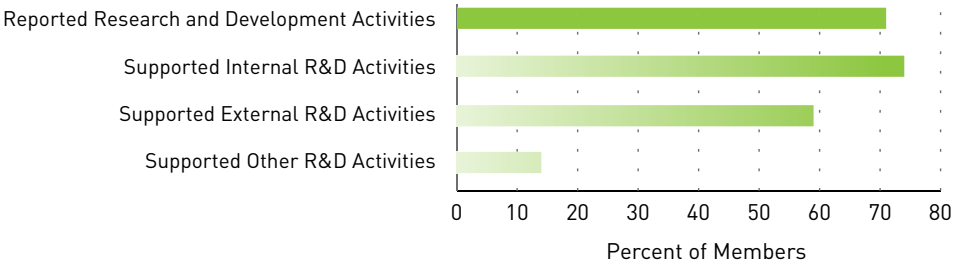
PARTICIPATION IN PUBLIC POLICY DEVELOPMENT



COMMUNITY OUTREACH AND SOCIAL SUPPORT ACTIVITIES



RESEARCH AND DEVELOPMENT ACTIVITIES



Stream Improvement (NCASI), Agenda 2020 Technology Alliance, etc.], and others at academic institutions [Institute of Paper Science and Technology (IPST) at Georgia Tech, Empire State Paper Research Institute at SUNY ESF, and undergraduate/graduate forest products focused programs at several major U.S. colleges and universities]. In 2010, members supported R&D as shown in the figure above.

The *2010 Forest Products Industry Technology Roadmap*, developed by Agenda 2020 with contributions from more than 100 experts from industry, academia and government, highlights R&D needs to improve the industry's sustainability. The Roadmap identifies technologies that will enable reductions in energy use, water demand, and carbon emissions, as well as opportunities for improving the recovery and reuse of waste wood and paper products. Agenda 2020 developed a list of top priorities and is working with companies, universities, and Federal agencies to initiate collaborative projects that promise widespread benefits to the forest products industry.

Employees of AF&PA members stay abreast of new technical developments through active involvement in technical associations such as TAPPI (Technical Association of the Pulp and Paper Industry) and SWST (Society of Wood Science and Technology).

Environmental Sustainability Indicators and Metrics

AF&PA members have been tracking and reducing environmental releases from forest products industry facilities for decades. Substantial progress has been made, and incremental reductions continue year after year.

Pursuing Pollution Prevention Progress

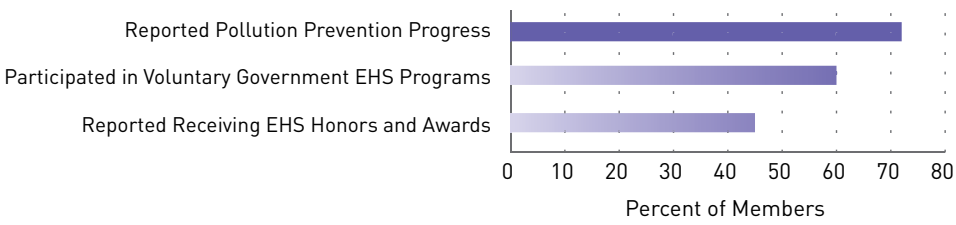
Much of the sustainability effort is focused on the state of the environment and pollution prevention as is expressed through individual environmental indicators and metrics. However, establishing the practice of pursuing pollution prevention is also an important aspect of environmental sustainability. For this reason, AF&PA tracks the commitment of members towards pursuing continuous environmental performance improvement, the expression of the commitment through voluntary government EHS program participation, and the recognition that member companies receive through honors and awards. The 2010 information pertaining to how members advanced this pursuit is shown in the figure below.

Water Discharges

AF&PA members have reduced pulp and paper mill effluent discharge volumes 55 percent since 1975, and the reductions continue. Metrics used to track water discharges are:

- Treated effluent discharge volumes
- Effluent biochemical oxygen demand quantities
- Effluent total suspended solids content

POLLUTION PREVENTION PROGRESS



Since 2000, the number of gallons of treated effluent released per ton of product has been reduced 15 percent. Between 2008 and 2010, a 7.6 percent reduction in effluent volume was achieved.

The reduction of biochemical oxygen demand (BOD) releases has been even more spectacular. Since 1975, the amount of dissolved organic materials that can contribute to receiving stream oxygen depletion has been reduced by 88 percent. Since 2000, an 11 percent reduction has been accomplished. Between 2008 and 2010, BOD releases decreased 1.9 percent.

Total suspended solids (TSS) releases have been reduced 80 percent since 1975 and 10 percent since 2000 but increased 2.8 percent between 2008 and 2010.

Wood products facilities do not generate significant water discharges.

Air Emissions

Air emissions at both pulp and paper mills and wood products plants have been substantially reduced. The air emissions metrics are releases of:

- Sulfur dioxide
- Nitrogen oxides
- Total reduced sulfur compounds (from pulp mills)
- Additional specified air emissions (from wood products facilities)

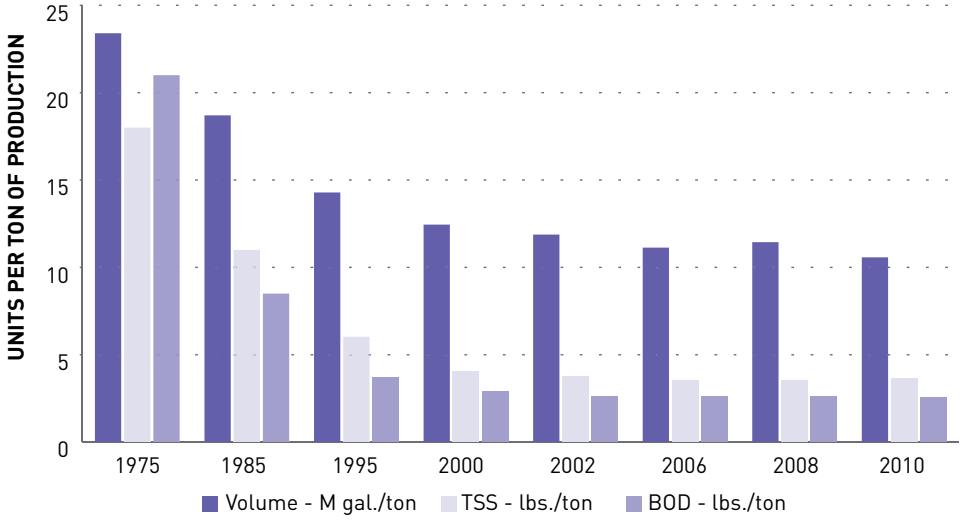
Pulp and paper mill sulfur dioxide (SO_2) releases have been reduced 80 percent since 1975 and 42 percent since 2000. Between 2008 and 2010, SO_2 release rates decreased 22.3 percent.

Nitrogen oxides (NO_x) releases decreased 47 percent since 1975, 23 percent since 2000, and 8.8 percent between 2008 and 2010.

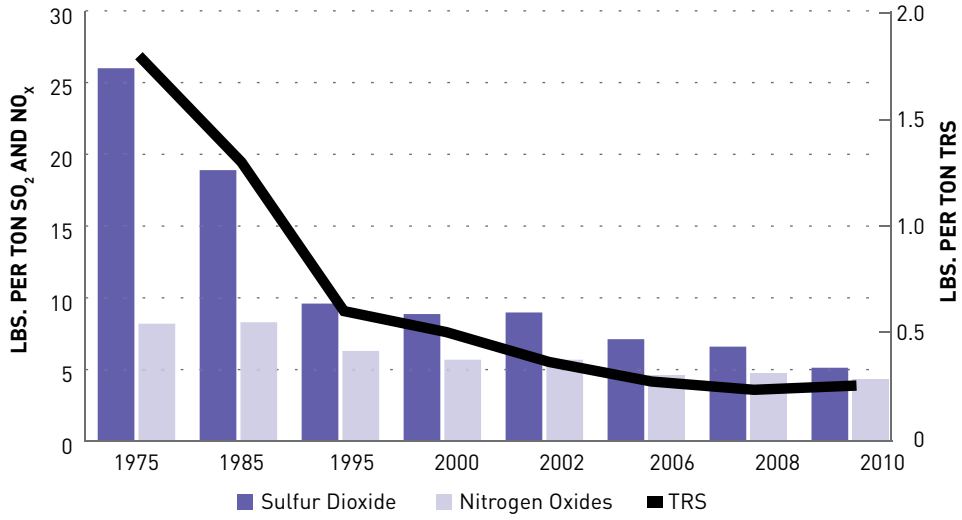
Total reduced sulfur (TRS) compound air emissions at pulp mills have decreased 86 percent since 1975, 50 percent since 2000, but increased 8.7 percent — from 0.23 pounds per ton of pulp produced to 0.25 pounds per ton — between 2008 and 2010.

Wood product facility nitrogen oxides (NO_x) emissions were 27 percent lower in

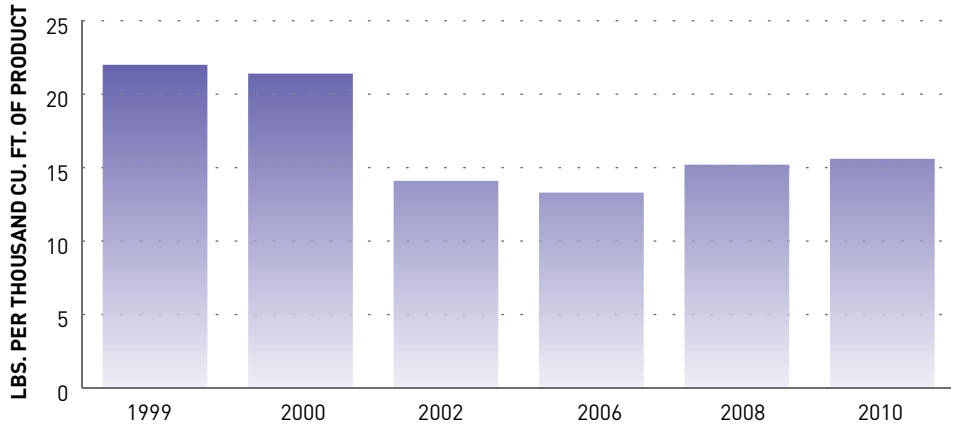
PULP AND PAPER MILL EFFLUENT DISCHARGE REDUCTIONS



PULP AND PAPER MILL AIR EMISSIONS REDUCTIONS



WOOD PRODUCTS NO_x AIR EMISSIONS



2010 than 2000. However, they have been variable over the past few years and increased slightly, 2.6 percent, between 2008 and 2010 due in part to reduced production levels.

Chemical Releases

AF&PA members track, report, and work to reduce releases of chemical substances contained in effluent discharges, air emissions, and those that leave facility premises for treatment. Metrics used to track these materials are:

- Toxics Release Inventory (TRI) quantities
- Adsorbable organic halides (AOX) (in bleached pulp mill effluents)
- Chlorine compound releases (from pulp and paper mills)
- Methanol releases
- Formaldehyde releases (from wood products facilities)

All manufacturers report chemical release information to U.S. EPA through the Agency's Toxics Release Inventory (TRI) program. This database contains information on over 650 substances, reported by thousands of U.S. industrial facilities, and how these materials are managed through recycling, energy recovery, and treatment. A primary purpose behind this reporting program is to inform communities about the release and management of chemical substances in the environment.

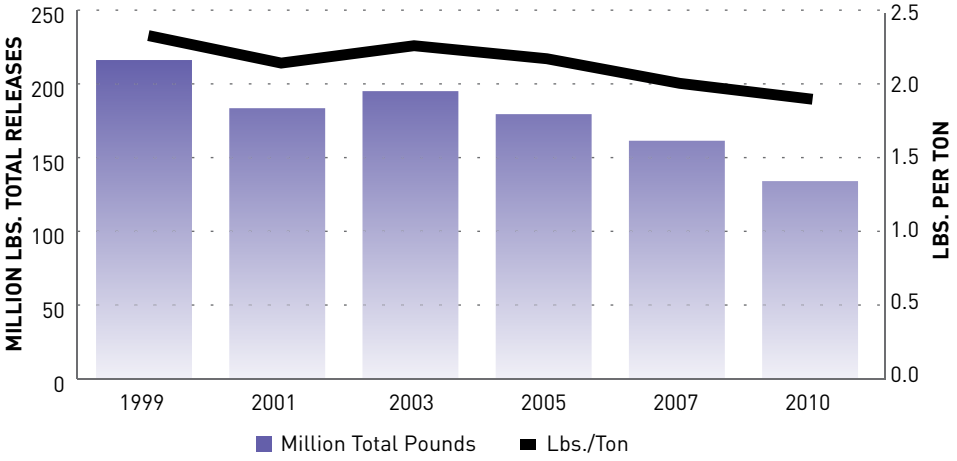
Forest products facilities have made continuous reductions in the quantities of chemical substances released since the inception of EPA's reporting program. At AF&PA member pulp and paper mills, 2010 TRI releases were reduced by 38 percent compared with 1999 releases, 25 percent since 2005, and 17 percent since 2007.

At member wood products manufacturing facilities, 2010 TRI releases were 79 percent lower than in 1999, 65 percent lower than in 2005, and 49 percent lower than 2007 releases. TRI release intensity increased from 2007 to 2010 due to a significant decrease in the number of reporting mills and the production during those years.

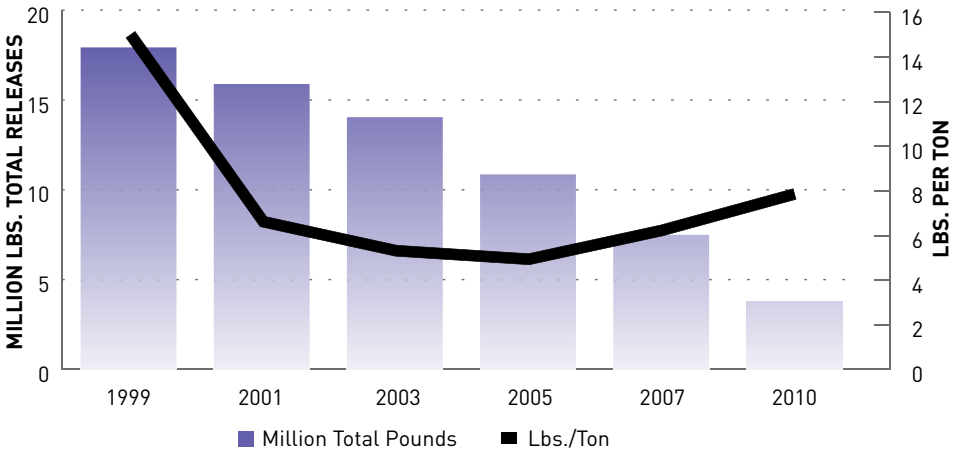
An additional measure of chemical releases from pulp and paper mills is the amount of adsorbable organic halides (AOX), a measure of the presence of chlorinated organic compounds, in bleached pulp mill effluents. Member companies have virtually eliminated AOX releases from pulp mill effluents. Since 2000, AOX releases have been reduced 58 percent. Compared to 2008, AOX releases were again decreased 9.2 percent.

According to U.S. EPA's TRI reports,

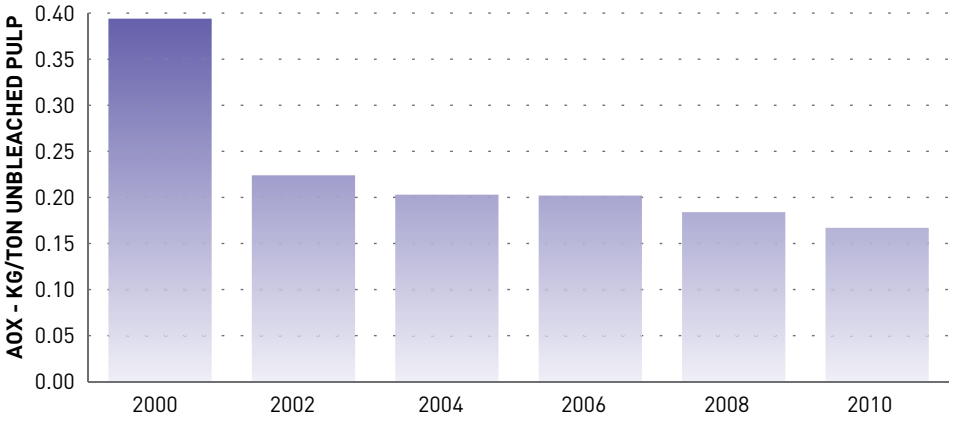
PULP AND PAPER TRI RELEASE REDUCTIONS



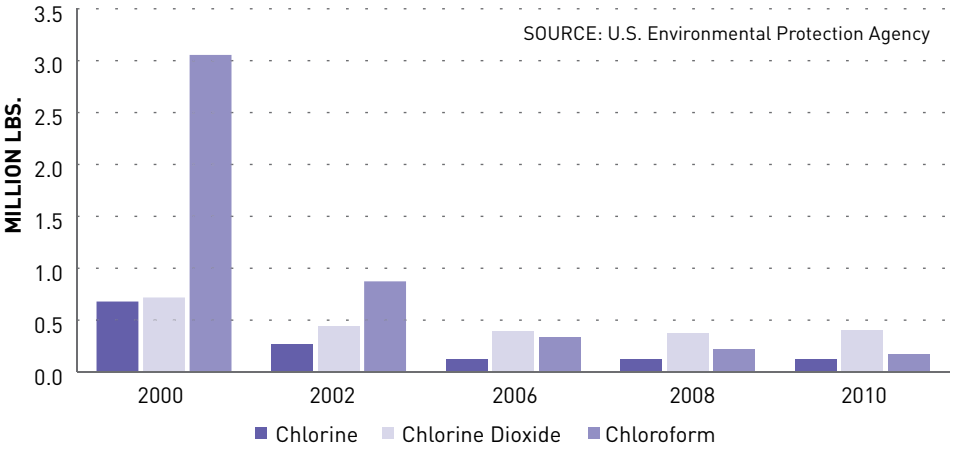
WOOD PRODUCTS FACILITY TRI RELEASE REDUCTIONS



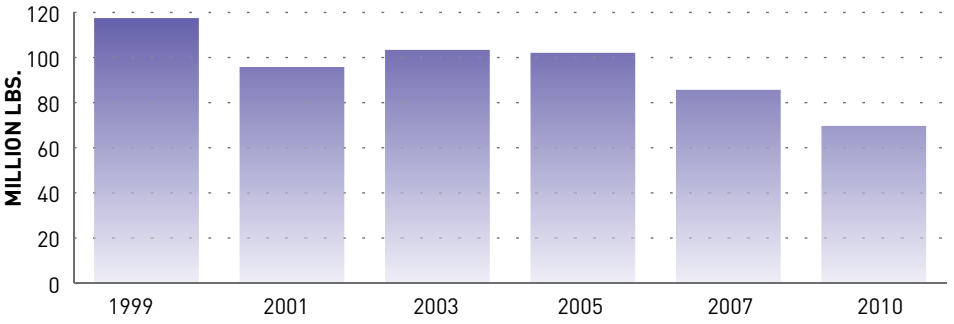
PULP AND PAPER MILL AOX REDUCTIONS



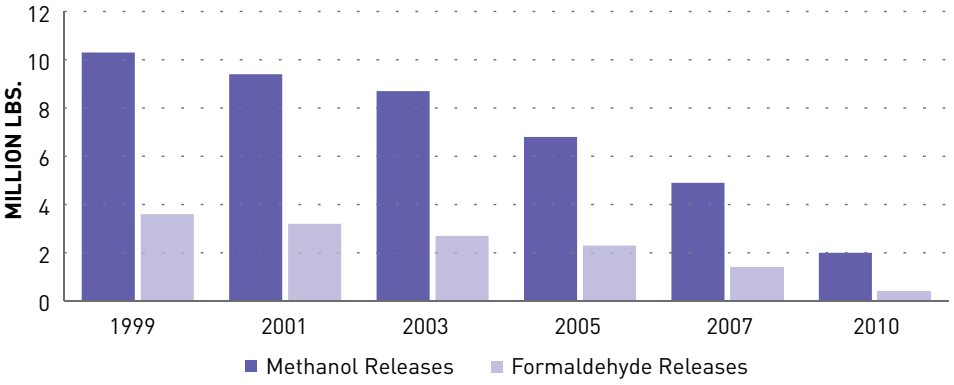
PULP AND PAPER MILL CHLORINE COMPOUND RELEASES



PULP AND PAPER MILL METHANOL RELEASE REDUCTIONS



WOOD PRODUCTS FACILITY METHANOL AND FORMALDEHYDE RELEASE REDUCTIONS



the releases of chlorine, chlorine dioxide, and chloroform from all U.S. pulp and paper mills have been substantially reduced. Since 2000, chlorine releases have decreased 82 percent, chlorine dioxide 44 percent, and chloroform 94 percent. Between 2008 and 2010, chlorine releases decreased 5.6 percent, chlorine dioxide increased 7.3 percent, and chloroform decreased 19.7 percent.

Methanol releases at member pulp and paper mills have been reduced by 41 percent since 1999. A 19 percent reduction was achieved between 2007 and 2010.

At member wood products facilities, substantial reductions have been made in both methanol and formaldehyde releases. Between 1999 and 2010, the reduction in methanol releases was 81 percent, and formaldehyde was reduced 89 percent. Between 2007 and 2010, the reductions for these compounds were 59 percent and 71 percent, respectively.

Beneficial Use of Manufacturing Residuals

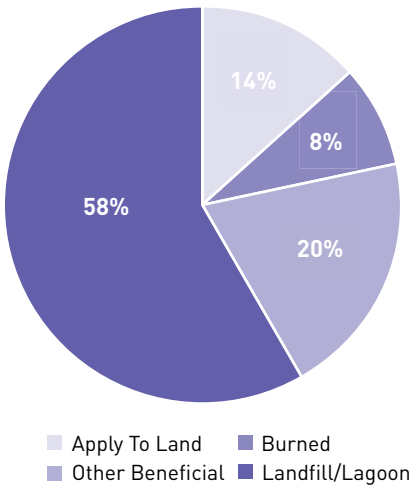
Many forest products residual materials can be beneficially used through application to land as soil amendments, converted to mulch, used as raw materials in other products or burned for heat recovery.

Metrics used for tracking beneficial use are:

- Uses
  - Apply To Land
  - Burned
  - Landfill/Lagoon
  - Other Beneficial
- Quantities of residuals landfilled or lagooned

Landfill and lagoon disposal was the management option used for 58 percent of pulp and paper mill residuals in 2010. The amount of materials beneficially reused varies from year to year. Necessary maintenance actions such as removal of materials from wastewater treatment system ponds and spent pulping liquor ponds were responsible for increased landfill use in 2010.

PULP AND PAPER MILL RESIDUALS MANAGEMENT



APPENDIX II
Elements of the AF&PA Sustainability Platform

American Forest & Paper Association (AF&PA) members must formally agree to adhere to the Association's Sustainable Procurement and Environmental, Health & Safety (EHS) Principles. These self-imposed principles guide and measure progress towards the commitment to protecting the environment, the health and safety of employees, and their communities.

AF&PA Environmental Health & Safety (EHS) Principles

The EHS Principles require members:

1. To make environmental, health, and safety considerations priorities in operating existing facilities, as well as in the planning of new operations.
2. To recognize, in developing and designing products to meet customer needs, the environmental, health, and safety effects of product manufacture, distribution, use, and disposal.
3. To monitor their environmental, health, and safety performance and to report regularly on these matters to their Boards of Directors, as well as to confirm their adherence to these principles annually to the American Forest & Paper Association.
4. To train employees in their environmental, health, and safety responsibilities and to promote awareness and accountability on these matters.
5. To improve environmental, health, and safety performance through support of research and development that advances the frontiers of knowledge.
6. To communicate with employees, customers, suppliers, the community, public officials, and shareholders to build greater understanding on environmental, health, and safety matters.
7. To participate constructively in the development of public policies on environmental, health, and safety matters.
8. To continue to pursue energy conservation, increased energy efficiency, greater utilization of alternatives to fossil fuels; and opportunities for cogeneration of electricity.

AF&PA Sustainable Procurement Principles

1. Take part in the Sustainable Forestry Initiative® program as a program participant; **or**
2. Adhere to the following principles:

i. Support programs that supply regionally appropriate information or services to forest landowners, describing the importance of and providing implementation guidance on best management practices (BMPs); reforestation; afforestation; visual quality management; management of harvest residue; control of invasive exotic plants and animals; characteristics of special sites; and conservation of critical wildlife habitat elements and threatened and endangered species, and Forests with Exceptional Conservation Value.

ii. Encourage landowners to utilize the services of qualified resource professionals and qualified logging professionals in applying principles of sustainable forest management.

iii. Maintain a program for the purchase of raw material from wood producers that have completed training programs and are recognized as qualified logging professionals.

iv. Maintain a program to address adverse weather conditions.

v. Monitor and evaluate the use of BMPs across the wood and fiber supply area.

vi. Monitor the use of BMPs by wood producers supplying the company's facilities and use the information to maintain rates of conformance to best management practices and to identify areas for improved performance.

vii. If the company procures wood fiber outside North America, maintain programs to:

- Promote conservation of biodiversity hotspots and major tropical wilderness areas.
- Ensure fiber sourcing programs support the principles of sustainable forestry, including efforts to thwart illegal logging.
- Assess the risk that fiber-sourcing programs could acquire material from illegal logging.
- Assess the risk that fiber-sourcing programs could take place in countries without effective laws addressing worker safety, fair labor practices, indigenous people's rights, anti-discrimination, anti-harassment, prevailing wages, and workers' right to organize.

viii. Individually and/or through cooperative efforts provide support or funding for forest research to improve forest health, productivity, and sustainable management of forest resources, and the environmental benefits and performance of forest products.

ix. Provide funding and other support for training and education programs to foster improvement in the professionalism of wood producers, including awareness and implementation of sustainable forest management practices.

x. Comply with applicable federal, provincial, state, and local forestry and related environmental and social laws and regulations.

3. Participate in one of the qualifying sustainable forest management programs, including chain-of-custody certification.

INTERNET ADDRESSES FOR FOREST PRODUCTS ORGANIZATIONS

American Forest & Paper Association	www.afandpa.org
Agenda 2020 Technology Alliance	www.agenda2020.org
American Wood Counci	www.awc.org
Center for Paper Business and Industry Studies	www.cpbis.gatech.edu
Institute of Paper Science and Technology	www.ipst.gatech.edu
National Council for Air and Stream Improvement	www.ncasi.org
Society of Wood Science & Technology	www.swst.org
Technical Association of the Pulp and Paper Industry	www.tappi.org

10% total recycled fiber

American Forest & Paper Association

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