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Abstract

This report provides general and statistical information on forest products markets in terms of production, trade, consumption, and prices. The current state of the U.S. economy is described. Market developments are described for sawn softwood, sawn hardwood, softwood log trade, wood-based panels, paper and paperboard, fuelwood, and forest product prices. Policy initiatives that can affect domestic markets and international trade in wood products are also discussed in some detail. Estimates are made through the end of the year 2007.

Keywords: production, trade, prices

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Executive Summary

Economic activity in the United States is expected to weaken during the second half of 2007 as noted by the 2.9% projected growth in gross domestic product during the fourth quarter. The U.S. economy will likely expand at a slower rate in 2007 than predicted earlier in the year, according to 53 forecasters surveyed by the Federal Reserve Bank of Philadelphia. Growth in U.S. real output over the near term looks a bit faster and inflation a bit higher than it did during the second quarter. Although forecasters expected a slight rise in the 2007 unemployment rate, measured on an annual-average basis, unemployment is expected to decrease to 4.6% in 2007. The forecasters see prices rising slightly higher in 2007 and then lowering in 2008. With rising mortgage rates, the expectation for returning strength in the housing sector has dampened. If the value of the dollar declines and lumber prices rise, this should bolster U.S. lumber and paper products production and exports.

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U.S. Forest Products Annual Market Review and Prospects, 2004–2008

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General Economic and Major Market Trends

The U.S. economy will grow at a faster rate during the second half of 2007 compared with the first half before slowing slightly in 2008 according to 53 forecasters surveyed by the Federal Reserve Bank of Philadelphia. The forecasters expect real Gross Domestic Product (GDP) to grow at an annual rate of 2.9% in the fourth quarter 2007, for an annual average of 2.1% for 2007. Measured on an annual-average basis, unemployment is expected to be 4.6% for 2007, and forecasters expect unemployment to increase to 4.8% in 2008.

Inflation as measured by the Consumer Price Index is expected to average 3.2% in 2007 and fall to 2.4% in 2008. On an annual-average over annual-average basis, inflation in the GDP price index is projected to remain around 2.5% over the next 5 years (Federal Reserve Bank of Philadelphia 2006).

With a large forest resource and high production and consumption of wood products, the United States continues to play an important role in world forest product markets. The United States has the world's highest consumption of paper and paperboard (about 93 million metric tons in 2006), which is mostly supplied by domestic production and imports from Canada (AF&PA 2005). The U.S. solid wood industry manufactured about 92 million cubic meters of lumber and 30 million cubic meters of structural panel products in 2006. The U.S. forest products industry annually harvests more than 482 million cubic meters of softwood and hardwood timber.

New housing construction weakened during the second half of 2006. It has begun to slowly strengthen during the first quarter of 2007 but remains below year-ago levels. This construction accounts for more than a third of U.S. annual consumption of softwood sawn wood and structural panels and for substantial volumes of other softwood and hardwood products. Total housing starts increased 0.3% in March 2007 to a seasonally adjusted annual rate of 1,491,000 units, continuing the slight increase that began in January. One of four regions in the United States contributed to the March 2007 increase in housing starts. The largest decrease of 5.5% was recorded in the West (371,000 annual rate for March), followed by a loss of 4.1% in the South (765,000 annual rate for March), a loss of 3.7% in the Northeast (129,000 annual rate for March), and a gain of 38.7% in the Midwest

(226,000 annual rate for March). Authorizations for building permits increased in March by 1.8% to a seasonally adjusted 1,569,000. Single-family starts totaled 259,000 through the first 3 months of this year, a 32.2% decrease from the same period one year earlier. Approximately 62,000 multifamily units were begun through March 2007, 24.4% below one year earlier. Both sectors are on course to fall below their 2006 production levels. The housing market began to contract in May 2006, and with the exception of the Midwest, total starts for 2007 will have a difficult time improving in the 2006 performance level.

In March 2007, the value of new construction was at a seasonally adjusted \$887 billion, less than 0.5% below the February estimate of \$889.7 billion. (This paper uses the customary U.S. definition of billion as 109.) Residential construction was \$556 billion in March, 1.3% below the February estimate of \$562.9 billion. Nonresidential construction was at a seasonally adjusted \$331 billion in March, 1.4% above the February estimate of \$326.7 billion. The National Association of Home Builders forecast calls for the housing sector to decline, with starts and sales for 2007 ending slightly below 2006 levels.

Investment in residential repair and remodeling remained strong, along with a slight increase, while new residential construction weakened during 2006. Expenditures for improvements and repairs of residential properties were at a seasonally adjusted annual rate of \$228.2 billion in 2006. This estimate is 6.1% below the 2005 estimate of \$233.5 billion. Expenditures for maintenance and repairs to all properties amounted to a seasonally adjusted annual rate of \$53.3 billion during 2006, increasing slightly over the \$53.2 billion during 2005. Improvements amounted to \$174.8 billion in 2006, above the \$161.7 billion in improvements during 2005.

Two of the major indicators of demand for wood products—industrial production and furniture and related products—were lower, while paper products output was higher during the first 4 months of 2007 relative to 2006:

- Industrial production—an important demand determinant for pallet lumber, containerboard, and some grades of paper—decreased 14.1% over the first 4 months of 2007. The production for 4 months was down compared with one year earlier.
- Furniture and related products—a determinant of high-grade lumber production—decreased by 3.2% in the first 4 months of 2007 compared with the 2006 average.

Table 1. Selected U.S. economic indicators, 2003-2007

	Actual			Estimate	
Indicator	2003	2004	2005	2006	2007
^a Gross domestic product (billion 2000 dollars)	10,301	11,704	11,049	11,415	11,658.3
^b New housing starts (thousand units)	1.848	1.956	2.068	1.801	1.480
^b Mobile home shipments (thousand units)	131	131	147	117	105
^a Nonresidential investment in structures (billion 2000 dollars)	243.5	248.7	251.5	298.1	301.5
^c Total industrial production (Index: 2002 = 100)	100.6	104.7	108.2	107.5	113.3
^c Furniture and related products (Index: 2002 = 100)	101.3	101.9	100.7	104.7	103.2
^c Paper products (Index: 2002 = 100)	102.3	104.8	105.4	101.6	100.9

^a Economic Indicators, April 2007.

Paper products output—a determinant of pulpwood and wood residue use, as well as recycled fiber availability and use—increased during the first 4 months of 2007 compared with the 2006 average. The index (2002 = 100) of paper products output for the first 4 months of 2007 was at 105.1, almost 4.7% ahead of the 2006 average.

In summary, the housing sector weakened during the third quarter of 2006, which has continued into the first quarter of 2007. Starts in 2007 will probably fall below year-ago levels as a result of the expected continuation of the housing sector cool-down through the middle of 2007. Although the rate of growth is slowing, most analysts predict that conditions favorable to the growth of timber markets will continue. Selected U.S. economic indicators are shown in Table 1.

Timber Products Production, Trade, and Consumption

Statistics and Prospects

Prospects for wood and wood products are show in Table 2. All volumes are reported in 1,000 cubic meters. Figures for 2007 are estimates.

Sawn Softwood

Housing and other construction markets started off slightly weaker in 2007 but began to increase steadily during the first quarter. Housing is likely to finish the year at slightly lower levels than those recorded a year ago. The decline in the housing sector will have a negative impact on softwood lumber consumption. According to the Western Wood Products Association, during the first 3 months of 2007, softwood lumber consumption decreased 20% from last year, and shipments of softwood lumber from western mills decreased 18.1% during the first 3 months of 2007 compared with 2006 shipments (WWPA 2007). Production decreased during this period in the West as well as the South, 16.9% and 18.4%, respectively. Apparent consumption for the first 3 months of 2007 was 29.9 million cubic meters, 20.3% below the apparent 37.6 million cubic meters for the first 3 months of 2006. The U.S. housing construction industry

is predicted to decline over the second half of 2006. Timber production therefore could also fall after its strong start this year.

Sawn softwood imports decreased 23.2% during the first 3 months of 2007 relative to the same time period a year ago. The volume of Canadian imports, which constituted 92% of all sawn softwood imports, decreased by 19.3% over this period. Total sawn softwood imports were 53.8 million cubic meters in 2006, a decrease of 6.9% over 2005.

During the first 3 months of 2007, U.S. sawn softwood exports increased 2.6% compared with exports for the same period in 2006. Exports to Canada increased 0.2%, exports to Japan rose 81.3%, and exports to Mexico fell 31.9%.

Production of sawn softwood decreased 17.7% in the first 3 months of 2007 compared with the same period in 2006. In 2006, 90.5 million cubic meters of sawn softwood were produced. Production of sawn softwood for 2007 is forecast to fall below 2006 levels.

Sawn Hardwood

Sawn hardwood production decreased by 1.1% to 26.0 million cubic meters in 2006. Imports in 2006 decreased by 15.8% compared with 2005. During the first 3 months of 2007, exports and imports fell 30.4% and 36.7%, respectively. Exports to European Union countries decreased by 6.6%, and exports to Pacific Rim nations decreased 31%. Given the small decrease in United States production, volatile trade figures, and a declining housing market, apparent consumption for 2007 is forecast to fall below the 2006 volume.

Softwood Log Trade

Softwood log exports to the Pacific Rim increased 23.9% in the first 3 months of 2007 when compared with exports in the same period of 2006. Softwood log exports to the European Union increased by 140%. Total softwood log exports from the United States increased 0.4% in the first 3 months of 2007 compared with 2006 exports; this level remains well below export levels throughout the 1990s. During 2006, the decline in timber harvest from National Forests slowed to

^b National Association of Home Builders, *Housing Economics*, July 2007.

^c Federal Reserve Bulletin, August 2001 through May 2007.

Table 2—Prospects for wood and wood products^a

Sawn softwood			Oriented strandboard (OSB)				
	2005	2006	2007		2005	2006	2007
Production	69,187	65,549	62,007	Production	13,262	13,240	12,277
Imports	58,119	53,724	49,026	Imports	11,485	10,608	9,976
Exports	2,117	2,195	2,202	Exports	155	159	165
Consumption	125,189	117,078	108,831	Consumption	24,592	23,689	22,088
Coniferous logs				Particleboard			
	2005	2006	2007		2005	2006	2007
Production	165,976	157,259	154,879	Production	7,276	7,414	7,362
Imports	2,789	2,399	1,799	Imports	1,285	1,221	1,201
Exports	7,279	7,387	7,422	Exports	95	86	88
Consumption	161,486	152,271	149,256	Consumption	8,466	8,549	8,475
Sawn hardwood				Medium density fiberboard (MDF)			
	2005	2006	2007		2005	2006	2007
Production	27,355	25,986	25,122	Production	3,257	3,400	3,201
Imports	2,537	2,137	2,207	Imports	1,494	1,220	1,196
Exports	3,424	3,373	3,301	Exports	252	307	290
Consumption	26,468	24,750	24,028	Consumption	4,499	4,313	4,107
Hardwood logs				Insulation board			
	2005	2006	2007		2005	2006	2007
Production	57,254	56,593	55,876	Production	2,755	2,755	2,755
Imports	428	252	322	Imports	360	360	360
Exports	2,493	2,205	2,099	Exports	201	201	201
Consumption	55,189	54,640	54,099	Consumption	2,914	2,914	2,914
Coniferous plywood	Coniferous plywood			Roundwood pulpwood			
	2005	2006	2007		2005	2006	2007
Production	12,682	11,884	10,799	Production	144,555	145,567	142,230
Imports	2,143	1,635	1,561	Imports	933	940	899
Exports	364	375	380	Exports	2,758	2,777	2,780
Consumption	14,461	13,144	11,980	Consumption	142,730	143,730	140,349
Non-coniferous ply	wood			Hardboard			
	2005	2006	2007		2005	2006	2007
Production	1,767	1,602	1,542	Production	1,282	1,131	1,089
Imports	4,020	4,496	4,209	Imports	1,412	1,441	1,439
Exports	244	186	177	Exports	317	389	395
Consumption	5,543	5,912	5,574	Consumption	2,377	2,183	2,133

^aAll volumes are reported in 1,000 cubic meters. Figures for 2007 are estimates.

a lower rate than that in previous years. The largest volume of decline has been occurring in the Pacific Northwest. The U.S. South continues a steady increase in softwood log production, in part because of the private sector's ability to respond to the harvest decline in the West.

Hardwood Log Trade

Hardwood log exports decreased as well as imports during the first 3 months of 2007. Exports decreased 11.5% and imports decreased 42.2%, compared with this period in 2006. During the first 3 months of 2007, exports to the Pacific Rim increased 13.7% and exports to the European Union increased 26.8%. During 2006, hardwood log imports from Canada decreased 45.4% from the previous year. In the first 3 months of 2007, hardwood log imports from Canada fell 41.0%, compared with the same period in 2006. Canada traditionally provides about 95% of U.S. imports.

Pulpwood

Roundwood production for pulp and wood-based panel mills was 177 million cubic meters in 2006, up from 2005. Roundwood pulpwood is expected to continue to increase slightly during 2007. Pulpwood supplied from residues is decreasing relative to roundwood. The roundwood portion of pulpwood was 147 million cubic meters in 2006, a 1.4% increase from 2005 (based on pulpwood receipts data from the Forest Resources Association). Trade patterns have continued to have a significant impact on paper and paper-board production and have affected pulpwood use. Exports of paper, paperboard, and converted products decreased by 0.6% in 2006. Imports of paper and paperboard decreased by 1.4% during 2006. With a strong dollar and the renewed strength of the U.S. economy, paper and paperboard production increased 0.8% in 2006.

Softwood Plywood

Softwood plywood production was 11.9 million cubic meters in 2006, according to APA—The Engineered Wood Association (2007). This level of production was 6.3% below 2005. The volume of softwood plywood production fell throughout the 1990s, and the decline has continued through 2006. Softwood plywood production for the first quarter of 2007 decreased by 10.6% compared with the first quarter of 2006. The APA—The Engineered Wood Association's forecast that plywood production would decrease in 2007 is supported by the decline in production during the first quarter of this year.

Softwood plywood imports decreased in 2006 compared with 2005 data, while softwood plywood exports increased. Imports fell by 23.7% and exports rose by 3.2%. Softwood plywood imports decreased 55.3% while exports increased 15% during the first 3 months of 2007. Plywood exports to Canada decreased by 21.8% during the first 3 months of 2007, and plywood imports from Canada increased 43.2%. Apparent consumption of softwood plywood is expected to increase in 2007, even as more market share for structural panels continues to be taken by oriented strandboard (OSB).

Oriented Strandboard

According to APA—The Engineered Wood Association, OSB production for the first 3 months of 2007 was 9.4% below production, compared with this same period in 2006. In 2006, 13.2 million cubic meters of OSB were produced, compared with 13.3 million cubic meters in 2005.

In 2006, structural panel consumption decreased 4.6% to 35.2 million cubic meters. OSB consumption totaled 22.1 million cubic meters, just below its record of 22.5 million cubic meters, and constituted 63% of the structural panel total, a 2% share increase from 2005. Because OSB now accounts for 63% of structural panel consumption (2% rise from 2005), OSB consumption is expected to continue to exceed plywood consumption. Structural panel production over the first 3 months of 2007 was 19% below the year earlier level.

Hardwood Plywood

Hardwood plywood production, including core material such as softwood plywood and OSB, was estimated at 1.6 million cubic meters in 2006, down from 2005 production. Hardwood plywood imports increased 14.6% in 2006, compared with 2005. If this trend continues, hardwood plywood imports will likely exceed 4.0 million cubic meters in 2007.

Particleboard and Medium Density Fiberboard

Information from the Composite Panel Association (2007) indicates that particleboard and medium density fiberboard (MDF) production increased during 2006. Particleboard production was 7.4 million cubic meters, an increase of 1.9%, and MDF production was 3.4 million cubic meters, an increase of 4.4%. During 2006, particleboard imports decreased by 75.7% and MDF imports decreased by 6.1% on a volume basis, compared with 2005. Particleboard exports decreased by 9.1% while MDF exports increased by 22.0%.

Hardboard

Based on data from the Composite Panel Association, 1.1 million cubic meters of hardboard were produced in 2006; this level of production is expected to remain steady in 2007. Hardboard imports decreased 6.7% in 2006 while hardboard exports increased 22.5% in 2006, compared with 2005.

Insulation Board

Information from the AF&PA showed that 2.7 million cubic meters of insulation board was produced in 2006, unchanged from 2005. Production of insulation board has been flat for several years, resulting in a stable level of apparent annual consumption of about 3.0 million cubic meters.

Fuelwood

Using data from a 2005 Department of Energy survey and adjusting for the 2005 winter weather and a declining trend



Figure 1—Recent trends in real producer prices of forest products (deflated with all-commodity producer price index).

in fuelwood use per household, fuelwood consumption was estimated to be 43.8 million cubic meters in 2005—an increase of less than 1.0% from 2004. Households use most fuelwood for heating and aesthetic enjoyment. Industry uses mill residues rather than roundwood for fuel. A small portion of roundwood fuelwood is used for electric power production. Use for electric power is limited by the low cost of coal and natural gas alternatives. Fuelwood consumption for 2006 is estimated to be above the level for 2005 due to rising alternative fuel costs.

Forest Products Prices

Recent trends in the wholesale price of forest products are different across two broad categories: lumber and wood products (such as lumber and wood-based panels) and pulp and paper products (Fig. 1). Throughout the late 1990s, the producer price of lumber and wood products as reflected by the Producer Price Index (PPI) continued to fluctuate around a level reached by the mid-1990s before peaking during the second half of 1999. The PPI for lumber and wood products has continued to increase through the first quarter of 2007. Changes in the price of softwood lumber accounted

for much of this change and most of the volatility in the index. In 1999, the deflated composite price index reached an all-time high (at a level more than 50% higher than that of the base year, 1982), followed immediately by a sustained decline that continued throughout 2000 and into 2004. The PPI reached its lowest level in 5 years during this period. In spite of these sustained low prices, U.S. demand for lumber and wood products during 2000 and into 2005 remained near record levels. In contrast, the PPI of prices in the pulp and paper sector has exhibited considerably less short-term volatility. The period of declining prices from the previous peak (1994–1995) ended in 1997, and by early 1998 the composite index had reached the level of the mid-1990s. In deflated terms, the composite index has had little volatility and a flat to declining trend.

Summary of Timber Products

Economic activity in the United States was strong in 2005 and during the first half of 2006, as evidenced by the predicted year-over-year growth of 3.4%, signaling continued strength in major sectors of the economy. Although GDP growth slowed during the second half of 2006, a number of

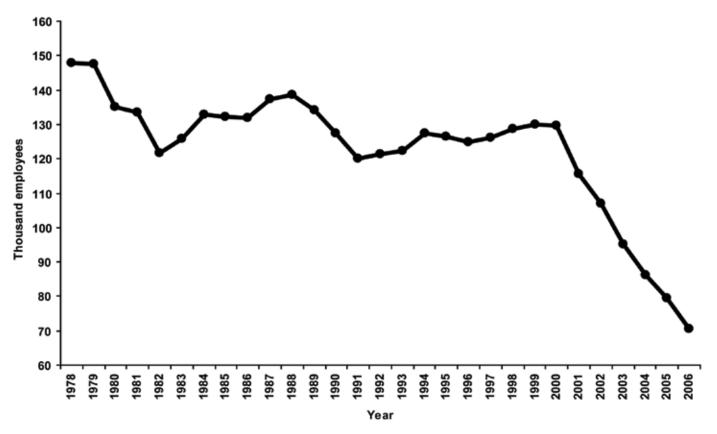


Figure 2—Employment in wood household furniture industry, 1978 to 2005.

factors, such as a weakening housing sector and less favorable monetary policy, are likely to continue to erode activity as the economy moves through the second half of the year. With rising mortgage rates, the expectation for continued strength in the housing sector has declined. The future strength for other domestic and foreign trade sectors of the wood products industry depends on future lumber prices, which have been strong so far this year; the declining housing sector; and the value of the dollar. A decline in the value of the dollar should bolster U.S. wood and paper products exports.

The U.S. furniture industry, in retreat since 1999, continued its decline in 2006 as low-cost furniture imports continue to erode the domestic industry market share. Employment in the domestic furniture industry has fallen by nearly 50% since 1999 (Fig. 2).

Policy Initiatives

Climate Change

The United States has taken a leading role in addressing the issue of climate change and is on track to cut greenhouse gas intensity by 18% by 2012. Greenhouse gas intensity (the amount emitted per unit of economic activity) in the United States declined by 2.0% in 2003 and by 2.5% in 2004. During 2001 through 2006, the U.S. government will have devoted more than \$29 billion to climate programs,

more than any other nation. President Bush announced the Advanced Energy Initiative, which proposed a 22% increase in funding for clean energy technology research, supporting new biofuels such as cellulosic ethanol and biodiesel. The United States is also leading the global effort to promote clean development, enhance energy security, and reduce harmful air pollution worldwide. Multilaterally, the United States provides the most funding of any country for activities under the United Nations Framework Convention on Climate Change and the Intergovernmental Panel on Climate Change.

The 2002 Farm Bill provides nearly \$40 billion in funding over 10 years for conservation on working lands, enabling the federal government, largely through the U.S. Department of Agriculture (USDA), to provide targeted incentives to encourage wider use of land management practices that remove carbon from the atmosphere or reduce emissions of greenhouse gases.

The U.S. federal government supports an extensive array of scientific and technological research on climate change in addition to domestic and international actions to address greenhouse gas emissions and carbon sequestration. The 2003 Strategic Plan for the United States Climate Change Science Program identified 21 synthesis and assessment products that represent principal responses to the top-priority research, observation, and decision support needs

of society. The Climate Change Science Program (CCSP) Synthesis and Assessment Product 4.3 (SAP 4.3) will address the effects of climate change on agriculture, land resources, water resources, and biodiversity. These areas are addressed under the ecosystems, land use, and water research elements of the CCSP. One of the primary goals of these research elements is to enhance understanding and ability to estimate impacts of future climate change on these systems.

Green House Gases

On April 17, 2006, the U.S. Department of Energy issued revised guidelines for the voluntary reporting of greenhouse gas emissions, sequestration, and reductions and implemented the 1605(b) program during 2007. The initial program guidelines were issued in 1994, and over 200 utilities, industries, institutions, and other entities now report annually. The USDA provided the technical methods for estimating greenhouse gas emissions, carbon sequestration, and emission reductions on farm, forest, and grazing lands. The revised guidelines include "state-of-the-science" guidance and tools for estimating emissions from agricultural, forestry, and conservation activities important for carbon sequestration efforts, as well as from other sources of greenhouse gases. As noted in the Forest Appendix of the revised guidelines, international agreements recognize forestry activities as one way to sequester carbon, and thus mitigate the increase of carbon dioxide in the atmosphere; this may slow possible climate change effects. Forest ecosystems and forest products represent a significant carbon dioxide sink in the United States. Over 90% of the sequestration in agriculture and forests occurs in the forest sector, with an additional 7% sequestered in urban trees. Total carbon stocks in forest ecosystems of the conterminous United States are estimated at 184,800 Tg CO2 eq. The net amount of carbon stored in forest ecosystems in the conterminous United States increased by an estimated 547 Tg CO2 eq. This estimate does not include increases in biomass harvested from a portion of U.S. forests, used largely as lumber, panels, paper, and fuelwood. Total net sequestration, or gain in carbon storage, by forest ecosystems and harvested wood products for 2001 was 759 Tg CO2 eq.

Carbon is sequestered in growing trees, principally as wood in the tree bole. However, accrual in forest ecosystems also depends on the accumulation of carbon in dead wood, litter, and soil organic matter. When wood is harvested and removed from the forest, not all of the carbon flows immediately to the atmosphere. In fact, the portion of harvested carbon sequestered in long-lasting wood products may not be released to the atmosphere for years or even decades. If carbon remaining in harvested wood products is not part of the accounting system, calculation of the change in carbon stock for the forest area that is harvested will incorrectly indicate that all the harvested carbon is released to the atmosphere immediately. Failing to account for carbon in wood products

significantly overestimates emissions to the atmosphere in the year in which the harvest occurs. Tables of estimates of forest carbon stock are provided for common forest types within each of 10 U.S. regions. Six distinct forest ecosystem carbon pools are listed: live trees, standing dead trees, understory vegetation, down dead wood, forest floor, and soil organic carbon. The Forest Appendix can be found at: http://www.usda.gov/oce/global_change/Forestryappendix.pdf.

Bioenergy

Several recent key laws, Executive Orders, and regulations are helping to drive bioenergy production and use in the United States. This legislation includes the following: Presidential Executive Order 13101, Greening the Government Through Recycling and Waste Prevention (which required federal agencies to give preference in their procurement and grant programs to the purchase of specific recycled content products); Presidential Executive Order 13134, Developing and Promoting Biobased Products and Bioenergy (which set a goal of tripling the U.S. use of bioenergy and bioproducts by 2010); the Biomass Research and Development Act of 2000, (Title III of the Agricultural Risk Protection Act of 2000, P.L.106-224); and Section 9002 of the Farm Security and Rural Investment Act of 2002 (FSRIA), the first farm legislation containing a separate title (Title IX) devoted to energy (which creates a federal government preferential purchasing program for biobased products to help promote emerging markets for these products).

On August 8, 2005, the Energy Policy Act of 2005 (Public Law 109-58) was signed into law. The act promotes investments in energy conservation and efficiency, including provisions for promoting residential efficiency, reducing federal government energy usage, modernizing domestic energy infrastructure, diversifying the nation's energy supply with renewable sources (wind, solar, and biomass energy), and supporting energy-efficient vehicles.

The FSRIA created the U.S. Federal Biobased Products Preferred Procurement Program (FB4P). The FSRIA provides for development of a preferred procurement program for biobased products under which federal agencies are required to purchase biobased products. Research is currently under way on biodiesel fuels, ethanol fuels, and other sources of biomass energy. Associated research is under way on the measurement of atmospheric emissions associated with renewable energy and the potential effects of deregulation of electric utilities on rural communities. On August 17, 2006, the USDA announced two proposed rules under the FB4P that designate 20 items that must receive special consideration by all federal agencies when making purchases. The designation of these 20 biobased items is a major step in advancing the federal preferred procurement program for biobased products. The 20 biobased items include adhesive and mastic removers, insulating foam for wall construction, hand cleaners and sanitizers, composite panels, fluidfilled transformers, biodegradable containers, fertilizers,

metalworking fluids, sorbents, graffiti and grease removers, two-cycle engine oils, lipcare products, biodegradable films, stationary equipment hydraulic fluids, biodegradable cutlery, glass cleaners, greases, dust suppressants, carpets, and carpet and upholstery cleaners. When finalized, 1,500 biobased products will be given procurement preference by federal agencies, generating new economic opportunities for biobased product producers while providing new choices for U.S. consumers. Federal agencies must give preference to designated biobased products in government purchases within one year of publication of the final designation rule. The USDA has assembled a list of biobased items that will be used for designation under the FB4P. The USDA has previously issued final guidelines for the biobased procurement program and developed a model procurement program of training and education to help federal procurement officials and users of biobased products identify and purchase qualifying biobased products. Information on the guidelines and the model program are available at http://www.usda. gov/biobased.

U.S.-Canada Softwood Lumber Dispute

On July 1, 2006, United States Trade Representative Susan Schwab and Canadian Trade Minister David Emerson initialed the text of a softwood lumber accord. The agreement reflects a balance of concessions made by both countries to resolve a two-decade old dispute. Under the terms of the agreement, the United States and Canada will end all litigation over trade in softwood lumber and provide for unrestricted trade in favorable market conditions. When the lumber market is soft, Canadian exporting provinces can choose either to collect an export tax that ranges from 5% to 15% as prices fall or collect lower export taxes and limit their export volumes. The agreement will also include provisions to address potential Canadian import surges, provide for effective dispute settlement, distribute the antidumping and countervailing (anti-subsidy) duty deposits currently held by the United States, and discipline future trade cases. Most of the estimated \$5 billion in duties collected since 2002 will be returned to Canadian interests (the importers of record), but \$1 billion will remain in the United States. The U.S. companies that brought the trade complaints will receive \$500 million, \$450 million will be used to fund meritorious initiatives, and \$50 million will be used to establish a bi-national industry council. Since July 1, 2006, the United States and Canada have undertaken a legal review of the text and have been engaged in discussions regarding clarifications to the agreement.

Sources of Information

AF&PA. 2005. Paper, Paperboard, and Wood Pulp—Monthly Statistical Summary. Washington, D.C.: American Forest and Paper Association.

AF&PA. 2005. Wood Statistical Roundup—Monthly and Quarterly Statistical Supplement. Washington, D.C.: American Forest and Paper Association.

APA. 2005. American Plywood Association Economics Report. Tacoma, WA: APA—The Engineered Wood Association.

BEA. 2005. U.S. Bureau of Economic Analysis. International Economic Accounts. Council of Economic Advisors. 2005. Economic Indicators. Washington, D.C.: U.S. Government Printing Office. June 2005.

CPA. 2004. Particleboard and medium-density fiberboard annual production and shipments. [Annually]. Gaithersburg, MD: Composite Panel Association.

DOE. 2005. Monthly Energy Review. DOE/EIA-0035 (2004/04). Washington, DC: Energy Information Administration, U.S. Department of Energy. http://www.eia.doe.gov/emeu/mer/contents.html

Economic Indicators, Council of Economic Advisors. 2006. United States Government Printing Office [Monthly]. September 2006. Washington, DC.

Economic Report of the President. Council of Economic Advisors. 2004. Washington, D.C.: United States Government Printing Office.

Federal Reserve Bank of Philadelphia. 2006. Economic Research, Survey of Professional Forecasters, Third Quarter 2006. www.phil.frb.org/files/spf/survq306.html

Federal Reserve Board. Federal Reserve Bulletin. 2001-2007. http://www.federalreserve.gov/pubs/bulletin/

FRA. 2005. Annual Pulpwood Statistics Summary Report 1999–2003. Rockville, MD: Forest Resources Association.

NAHB. 2005. Housing Economics. Washington, D.C.: National Association of Home Builders. July 2005. www.nahb.org/

Random Lengths. Random Lengths Publications. [Weekly]. Volume 62. February 2006. Eugene, OR.

U.S. Department of Labor, Bureau of Labor Statistics. Producer Prices and Price Indexes. [Monthly and annual] 2005. Washington, D.C. http://www.bls.gov/ppi.

U.S. Federal Reserve System, Board of Governors. 2005. Federal Reserve bulletin [Monthly]. July 2005. Washington, D.C.

WWPA. 2007. Lumber Track. March 2007. Portland, OR: Western Wood Products Association.