



# Economic and Revenue Forecast



Third Quarter  
Fiscal Year 2014

February 2014



WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**  
Peter Goldmark - Commissioner of Public Lands



February 2014

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*Fiscal Year 2014 – Third Quarter*

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In the final analysis, the views expressed are our own and may not necessarily represent the views of the contributors, reviewers, or DNR.

DNR Office of Budget and Economics

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This Forecast is also available on the DNR website:

[http://www.dnr.wa.gov/BusinessPermits/Topics/EconomicReports/Pages/econ\\_timb\\_rev\\_forcsts.aspx](http://www.dnr.wa.gov/BusinessPermits/Topics/EconomicReports/Pages/econ_timb_rev_forcsts.aspx)

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# Acronyms and abbreviations

bbf	Billion board feet
BLS	U.S. Bureau of Labor Statistics
CAD	Canadian dollar
CNY	Chinese yuan (renminbi)
CPI	Consumer Price Index
CY	Calendar Year
DNR	Washington Department of Natural Resources
ECB	European Central Bank
ERFC	Washington State Economic and Revenue Forecast Council
FDA	Forest Development Account
FEA	Forest Economic Advisors
Fed	U.S. Federal Reserve Board
FOMC	Federal Open Market Committee
FY	Fiscal Year
GDP	Gross Domestic Product
HMI	National Association of Home Builders/Wells Fargo Housing Market Index
IMF	International Monetary Fund
ISM	Institute for Supply Management
LVL	Laminated Veneer Lumber
mbf	Thousand board feet
mmbf	Million board feet
PPI	Producer Price Index
Q1	First quarter of year (similarly, Q2, Q3, and Q4)
QE	Quantitative Easing
RCW	Revised Code of Washington
RISI	Resource Information Systems, Inc.
RMCA	Resource Management Cost Account
SA	Seasonally Adjusted
SAAR	Seasonally Adjusted Annual Rate
TAC	Total Allowable Catch
USD	U.S. Dollar
WDFW	Washington Department of Fish and Wildlife
WWPA	Western Wood Products Association
WTO	World Trade Organization



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## Preface

This *Economic and Revenue Forecast* projects revenues from Washington state lands managed by the Washington State Department of Natural Resources (DNR). These revenues are distributed to management funds and beneficiary accounts as directed by statute. The Forecast revenues are organized by source, fund, and fiscal year.

DNR revises its Forecast quarterly to provide updated information for trust beneficiaries and state and department budgeting purposes. See the Forecast calendar at the end of this section for release dates. We strive to produce the most accurate and objective forecast possible, based on current policy direction and available information. Actual revenues depend on DNR's future policy decisions and on changes in market conditions beyond our control.

This Forecast covers fiscal years 2014 through 2017. Fiscal years for Washington State government begin July 1 and end June 30. For example, the current fiscal year, Fiscal Year 2014, runs from July 1, 2013 through June 30, 2014.

The baseline date (the point that designates the transition from "actuals" to predictions) for DNR revenues in this Forecast is January 1<sup>st</sup>, 2014. The forecast numbers beyond that date are predicted from the most up-to-date DNR sales and revenue data available, including DNR's timber sales results through January 2014. Macroeconomic and market outlook data and trends are the most up to date available as the Forecast document is being written.

Unless otherwise indicated, values are expressed in nominal terms without adjustment for inflation or seasonality. Therefore, interpreting trends in the Forecast requires attention to inflationary changes in the value of money over time separate from changes attributable to other economic influences.

Each DNR Forecast builds on the previous one, emphasizing ongoing changes. Each re-evaluates world and national macroeconomic conditions, and the demand and supply for forest products and other commodities. Finally, each assesses the impact of these economic conditions on projected revenues from DNR-managed lands.

DNR Forecasts provide information used in the *Washington Economic and Revenue Forecast* issued by the Washington State Economic and Revenue Forecast Council. The release dates for DNR Forecasts are determined by the state's Forecast schedule as prescribed by RCW 82.33.020. The table below shows the anticipated schedule for future *Economic and Revenue Forecasts*.

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# Economic Forecast Calendar

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Forecast Title	Baseline Date	Draft Revenue Data Release Date	Final Data and Publication Date (approximate)
February 2014	January 1, 2014	February 10, 2014	February 28, 2014
June 2014	May 1, 2014	June 9, 2014	June 30, 2014
September 2014	August 1, 2014	September 5, 2014	September 30, 2014
November 2014	October 1, 2014	November 7, 2014	November 30, 2014



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## Introduction and Forecast Highlights

**U.S. Economy and Housing Market.** The U.S. economy is still improving in fits and starts. In October 2009, the unemployment rate peaked at 10.0 percent, dropping back to 6.7 percent as of December 2013, while the unemployment rate for recent undergraduates continues to push 13 percent. Year-over-year GDP growth remains modest at below two percent, averaged over the last four quarters ending in December; the recent government shutdown will suppress GDP in this and future quarters. The housing market continues to show positive signs: new housing starts in the 2013 averaged 928,000 (up 18 percent over 2012 and 52 percent over 2011) and average U.S. housing prices have increased in each of the last 22 months through November. The U.S. economy still faces significant challenges. There are still too many unemployed workers, though some have reentered the workforce after having left; the financial and economic crises in Europe are improving, but several European countries remain in recession; China's economy has slowed; and the U.S. government still has not implemented a coherent, growth-driven economic policy.

**Lumber and Log Prices.** Lumber and log prices were up in 2013. While it varied widely, Random Lengths' Coast Dry Random and Stud composite lumber price averaged \$370/mbf—up 20 percent from the 2012 average of \$309/mbf. Pacific Northwest log prices have also moved up sharply after being fairly flat for 2011 and most of 2012. The price for a 'typical' DNR log delivered to the mill climbed dramatically to a nominal high of \$587/mbf in April, the highest price since 2000. The log price then fell a bit before climbing back to \$610/mbf in December, to average \$564/mbf for the year—up 18 percent from 2012's average of \$480/mbf.

**Timber Sales Volume.** FY 14 timber sales volumes expectations are nearer to 524 mmbf than the 540 mmbf projected in the November Forecast. Volumes are still expected to total about 500 mmbf in each of the outlying years.

**Timber Sales Prices.** FY 14 average sales price is now predicted to be about \$345/mbf, up two percent from the \$337/mbf predicted in November. Weighted by volume, sales prices have averaged \$342/mbf in the first seven months of the fiscal year. The predicted sales price for FY 15 is essentially unchanged, at \$382/mbf. Based on changes to anticipated thinning sale volumes and a reassessment of the cyclical nature of lumber, log, and stumpage inventories, future sales prices estimates are lowered to about \$493/mbf in FY 16, and \$401/mbf in FY 17.

**Timber Removal Volume and Prices.** Moderate changes in DNR timber purchasers' harvest plans for volume currently under contract have led to shifts in anticipated timber removal volumes throughout most of the forecast period. Removal volumes for FYs 14-17 are forecast to be 544 (+6), 552 (-19), 515 (-12), and 511 (+10) mmbf. Timber removal prices are projected to be about \$309 (+\$0.3), \$349 (+\$8.0), \$379 (+\$0.9), and \$392 (-\$8.8) per mbf for each fiscal year. These removal prices reflect changes in the removal timing and follow from—and lag behind—the changes projected in timber sales prices.

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**Bottom Line for Timber Revenues.** With the exception of the current year, the above changes to timber sales prices, sales volumes, and harvest timing, effectively reduce projected revenues in the outlying years. The timber revenue projection for the 2013-2015 Biennium is barely changed, at \$360.4 million. Revenues in the 2015-2017 Biennium are predicted to be \$395.1 million, down one percent from \$399.6 million.

**Uplands and Aquatic Lands Lease (Non-Timber) Revenues.** In addition to revenue from timber removals on state-managed lands, DNR also generates sizable revenues from managing leases on uplands and aquatic lands.

Revenues from agricultural and other upland leases are similar to the November Forecast. Agricultural leases—particularly orchard/vineyard and irrigated leases—are projected to generate an additional \$1.4 million in FY 14, whereas commercial leases will contribute about \$0.3 million less in FY 15. Revenues from all of these classes combined are predicted to total \$37.8, \$34.8, \$35.4, and \$35.6 million in FYs 14-17 respectively.

Revenues from aquatic lands are expected to be about the same as predicted in November: about \$30.2 million in FY 14, \$31.5 million in FY 15, \$32.1 million in FY 16, and \$32.4 million in FY 17.

**Total Revenues.** Total 2013-2015 Biennium revenues are projected to be \$494.7 million, up \$0.9 million from the previous projection. Revenues for the 2016-2017 Biennium are expected to total \$530.6 million, down \$4.4 million (one percent) from the November estimate.

**Risks to the Forecast.** Although significant curtailments in timber sales volumes were assumed in the June 2013 Forecast, further reductions due to potential environmental, operational, and policy issues (e.g., riparian management areas and continued timber harvest deferrals pending implementation of a long-term marbled murrelet conservation strategy) remain a real risk. This risk is particularly heavy for FYs 15-17.

While there are downside risks to the demand-side influences of timber sales prices—and therefore to subsequent removal prices—there is also upside potential if the nascent recovery in the U.S. housing market strengthens sooner than anticipated. Supply-side influences of stumpage price—such as timber mix and quality—are difficult to estimate in future years, but are assumed to be about average. Also on the downside are the many challenges to U.S. economic recovery cited above.

Because of the many uncertainties surrounding China's ban of shellfish from the West Coast—not least of all the ban's duration—it is very difficult to forecast the magnitude of the ban's effect on revenues from the sale and harvest of wild geoduck in this and future years. This Forecast includes more conservative volume and price assumptions than did the November Forecast for the remaining two auctions in FY 14. The total geoduck revenue projection for FY 14 is unchanged due to the first two auctions of the year having such high prices; they roughly balance these new, lower assumptions. However, this new forecast assumes that bidders in the next few auctions continue to buy and harvest as they have during the first two months of the ban. Should this prove not to be the case, the \$8.3 million of revenues projected for the remainder of this year may not be realized.

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## Part 1. Macroeconomic Conditions

This section briefly reviews current conditions of the United States and world economies, because they affect the bid prices for DNR timber sales as well as lease revenues from DNR-managed uplands and aquatic lands.

International supply and demand also affect domestic timber stumpage and lumber prices. On the supply side, for example, Canada has a strong influence on the U.S. wood products sectors because it is a major source of lumber entering U.S. markets. On the demand side, China is an important market for natural resources such as logs and geoducks.

*Unless otherwise noted, all years in this section are calendar years.*

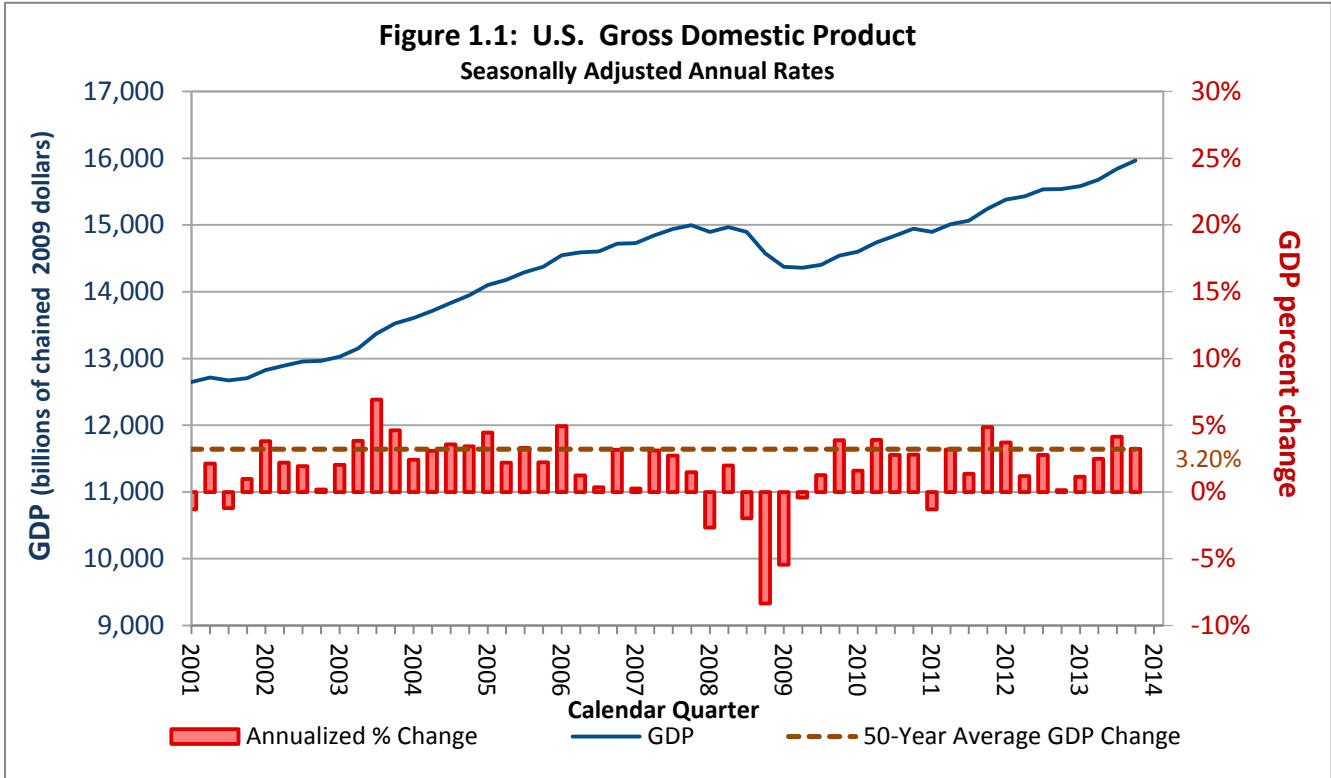
### U.S. economy

**Gross Domestic Product (GDP).** GDP is the total output of goods and services produced by labor and property located in the United States, minus inflation. **Figure 1.1** clearly shows the magnitude of the Great Recession during 2008 and the first half of 2009, when GDP actually declined in five out of six quarters. It took almost four years—until Q4 2011—for real GDP to return to its pre-recession peak (Q4 2007). Since turning positive again in mid-2009, GDP growth has averaged a rather weak 2.3 percent on a real annual basis, compared with an annualized average of 3.2 percent over the last 50 years.

Subdued by the fourth quarter's low annualized growth rate of 0.14 percent, GDP growth in 2012 averaged 1.95 percent. By contrast, the economy grew by 2.7 percent on a year-over-year basis in 2013, despite the Federal shutdown in the fourth quarter of 2013. Looking forward, the October Blue Chip Consensus GDP projections for 2014 averaged about 2.6%. FEA notes that there will likely be weak GDP numbers in the first half of 2014, due to a correction in inventories and weather issues, but that these weak initial numbers will simply be masking improvements in the economy's fundamentals.

**Employment.** The U.S. unemployment rate continues to decline, as shown by the **red** line in **Figure 1.2**, the national unemployment rate, which rose as high as 10.0 percent in October 2009, before falling to 6.6 percent in January. The unemployment rate hasn't been this low since October 2008, but for many people its descent is painfully slow.

There are two major official U.S. employment data series—the household survey and the payroll survey—both maintained by the U.S. Bureau of Labor Statistics. The household survey (or current population survey) is a sample survey of households, and it includes self-employed persons and farm workers. The unemployment, total work force, and labor force participation statistics are derived from the household survey. The payroll survey (or establishment survey) samples firms and does not include self-employed persons or farm workers. Employment statistics by industry sector come

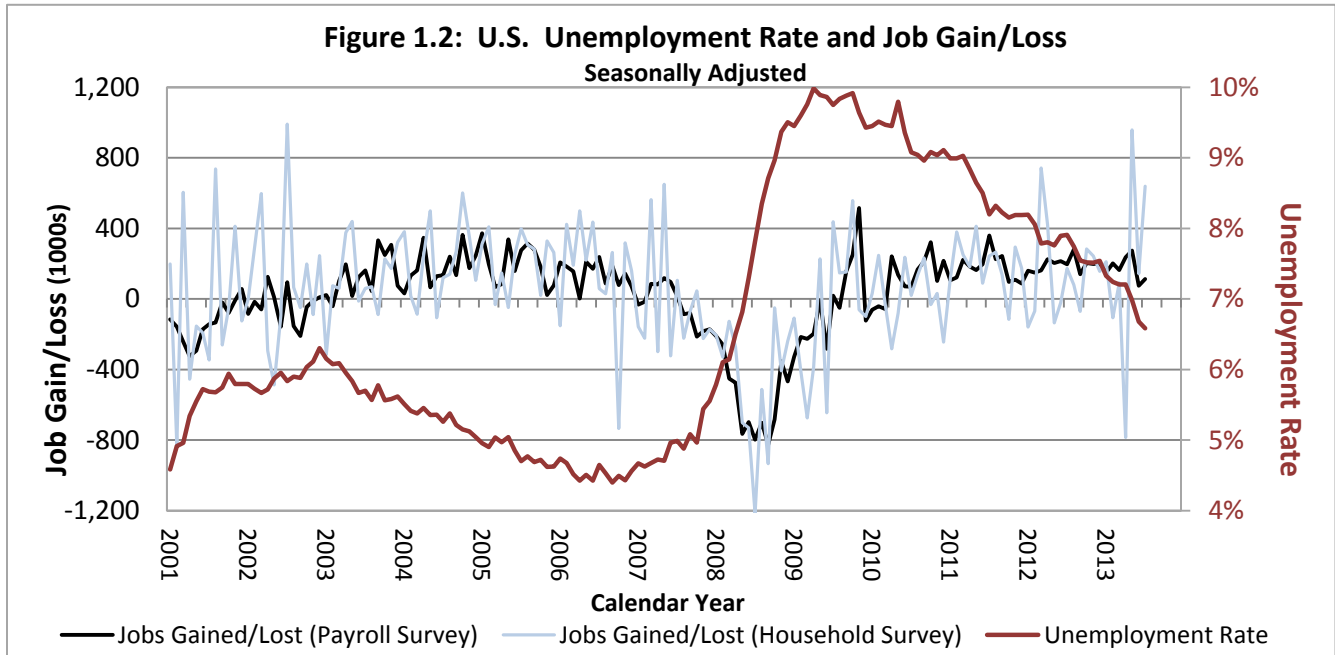


from the payroll survey. **Figure 1.2** shows changes in the number of employed persons, or jobs gained or lost, according to each survey. Many economists favor the payroll survey data as a measure of job growth or to measure monthly changes in employment levels, mostly because its month to month changes are much less volatile.

According to January’s payroll survey, there were 113,000 more jobs in the United States than in December and 2.2 million more than a year earlier. According to the household survey, however, there were 638,000 more employed people in January than in December and only 1.8 million more than the previous year. Moreover, the payroll survey has shown job growth for 38 consecutive months, while the household survey is much more variable and has shown some months of job losses.

While the payroll survey has been showing job growth for 40 consecutive months, the January and December results were surprising and disappointing—December showed only 79,000 jobs created. Despite this, there seems to be a consensus that both employment and the economy are expected to perform better than previous years.

Normally, monthly job growth will increase the employment level and decrease the unemployment rate, which is the number of unemployed persons (the unemployment level) as a percentage of the total work force. Positive month-over-month job gains are the main reason why the unemployment rate in **Figure 1.2** generally moves down from October 2010 onward; however, they are not the only reason for the decline in the unemployment rate. As described below, the last three years have often been abnormal.



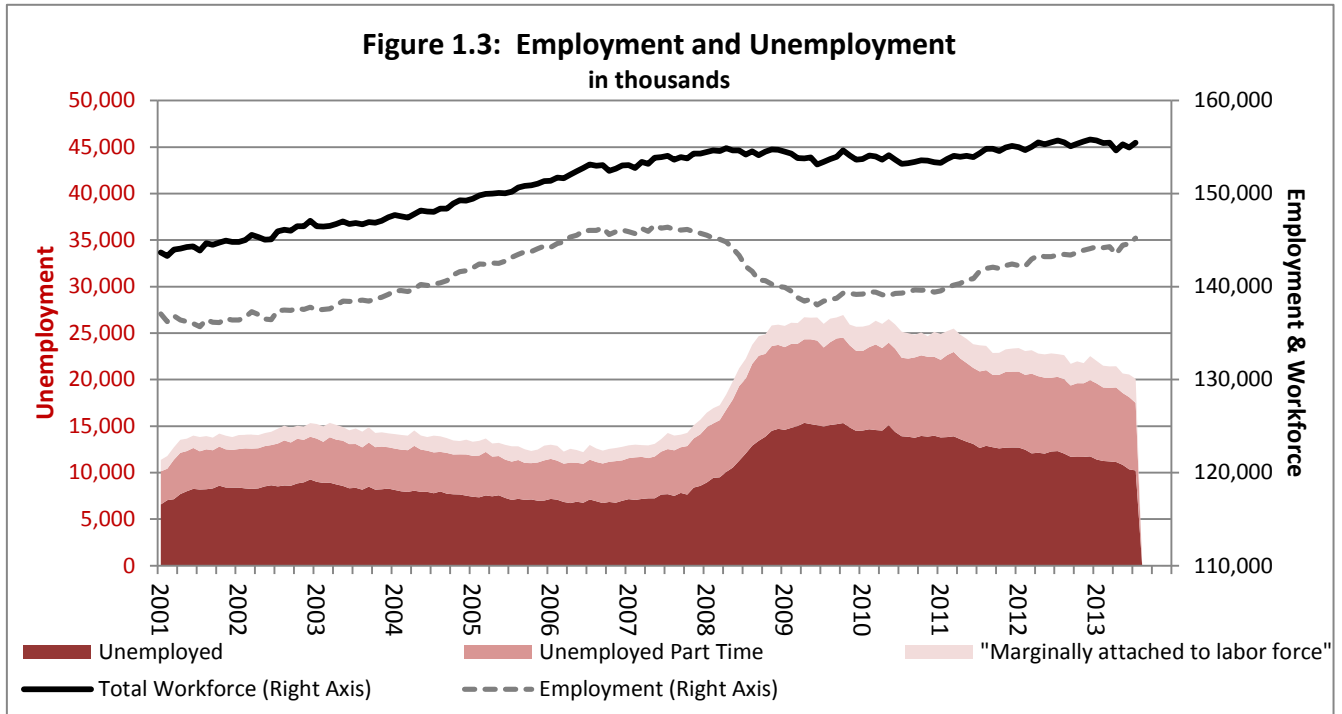
The alternative unemployment rate, U-6, includes unemployment, involuntarily part-time employment, and marginally attached workers, and so provides a more complete picture than January’s 6.6 percent headline unemployment rate. The U-6 rate was 12.7 percent in January, down from 14.4 percent a year earlier and from highs of 17.1 in 2010.

**Figure 1.3** depicts the composition of the U-6 unemployment level (measured on the left-hand axis) and how persistently high it has been in comparison to the first half of the decade. It also shows how the total workforce (right axis)—the sum of working age people currently working or seeking to work—has been increasing, but at a shallower rate since mid-2008. The total workforce usually moves upward over time since entrants (from population growth, immigration, and returning workers) tend to outnumber those leaving the labor market (see **Figures 1.3** and **1.4**).

The Great Recession expanded the ranks of the long-term unemployed to an extent not seen since the Great Depression. In January 2014, 3.6 million people had been unemployed for over six months. This is an improvement over the peak of 6.7 million in Spring 2010, but it is still far above the 1.3 million average for 2005-2007. Also in January, the average duration of unemployment was 35.4 weeks, which is still near the record high of 40.9 weeks in November 2011. This contrasts with the 17.4-week average for 2005-2007.

Several insights can be drawn from **Figure 1.4**, which compares the growth rates of the working-age population, the total workforce, labor participation<sup>1</sup>, and employment levels. For example, the labor force participation rate line is horizontal when the working-age population and total workforce lines are parallel. The decline in the participation rate that started late in 2008 reflects the drop in the total workforce with respect to the working-age population: during the past several turbulent years, more people than usual have been leaving the job market for economic reasons (i.e., not due to retirement or

<sup>1</sup> The labor market participation rate is the total workforce as a percentage of the working-age population.

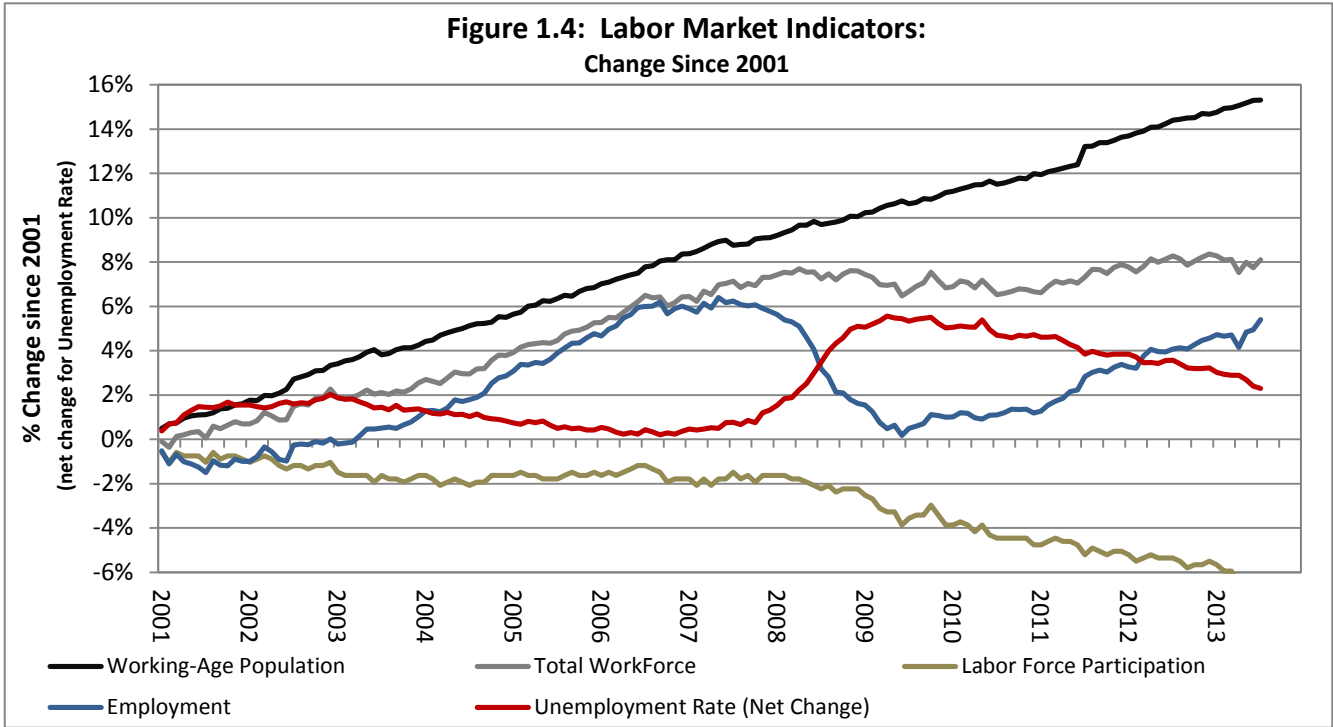


death). In some months the unemployment rate has gone down even though there was little net job change, simply because the total workforce (and labor participation rate) dropped. In this way, monthly variations in the participation rate and total workforce have sometimes exaggerated monthly improvements in the unemployment rate. However, in the past year the participation rate has begun to stabilize and the total workforce is slowly growing—though not yet at a rate to match the growth in the working-age population.

**Consumption.** Real personal consumption expenditures in Q4 2013 were 1.8 percent higher on a seasonally adjusted annual rate. However, on a monthly basis consumer spending on durable goods decreased 0.2 percent in December. The December decrease in durable goods purchases reflects a drop in automobile purchases, following an increase in purchases in November. Spending on nondurable goods increased by 1.0 percent and spending on services was up by 0.4 percent. On average, total real personal expenditures in October 2013, the last full data released by the BEA, were 2.3 percent higher than a year prior.

U.S. consumer confidence was deeply shaken in the recession. The final Thomson Reuters/University of Michigan Index of Consumer Sentiment for June moved up to 85.1, from 84.5 in March. August’s final figure dropped slightly to 82.1 before sliding further to 77.5 in September. Due to further worries about dysfunctional federal governance, October’s index dropped yet lower to 73.2—its lowest value since the end of 2012. Since then consumer sentiment has rebounded and the preliminary index for February stands at 81.2.

**Interest Rates.** Seldom in U.S. history has it been so inexpensive to borrow money. U.S. interest rates remain at or near record lows. The Federal Reserve funds rate has remained in the 0.0-0.25 percent range since December 2008 and the FOMC has pledged to keep rates near zero until the

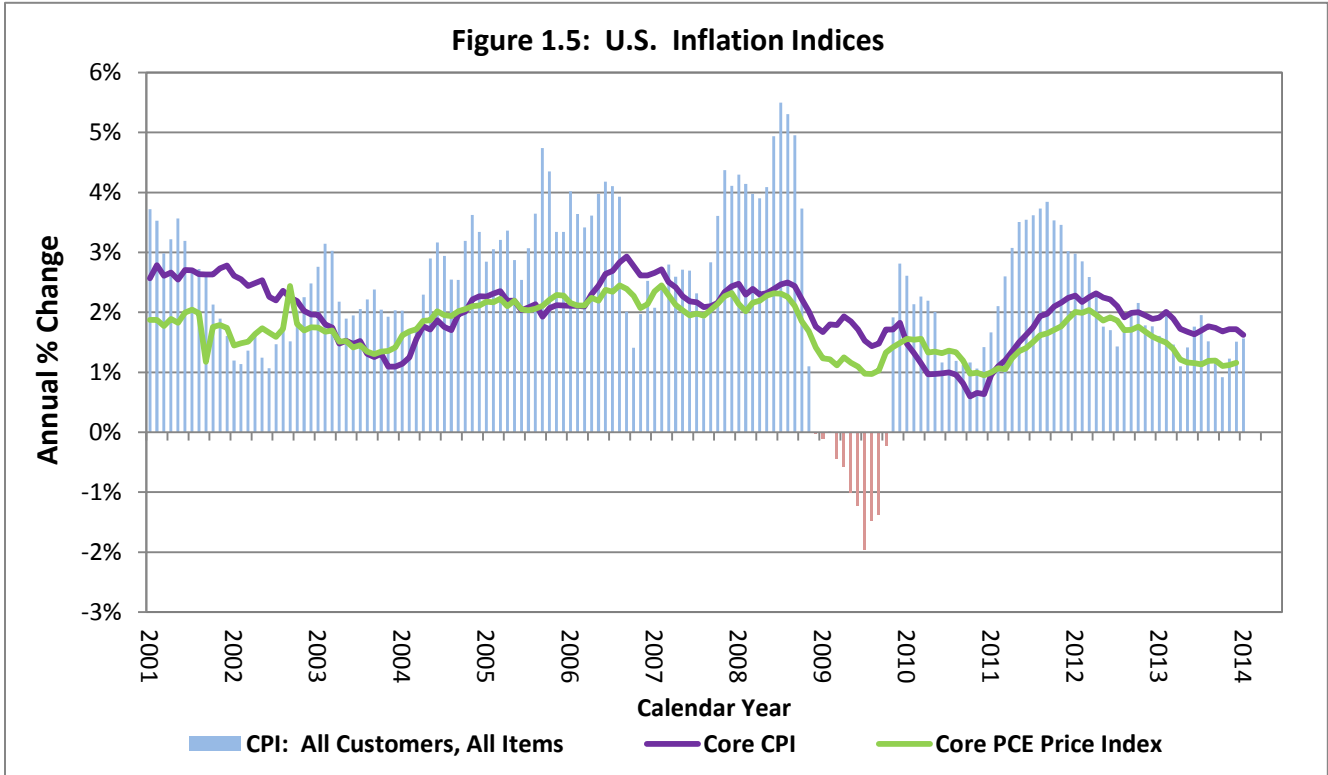


employment situation has improved ‘sufficiently’. Ten-year U.S. Treasury bonds averaged 2.9 percent in January.

Average rates on closed conventional 30-year fixed rate mortgages have recently risen from historic lows after having mostly declined since the middle of 2008 (see **Figure 2.7**). Mortgage rates bottomed out at 3.35 percent in December 2012 and were at 4.28 percent in January, after having risen for most of the year.

**Inflation.** **Figure 1.5** shows several measures of the U.S. inflation rate. The bars—representing “headline” inflation, measured by year-over-year changes in the Consumer Price Index (CPI)—show that consumer prices in the United States fell precipitously beginning in August 2008. The CPI did not recover to its July 2008 level until December 2010. In effect, inflation was zero over that two and one-half year period. The rate of inflation was 1.6 percent for all of 2010, 3.2 percent for 2011, and 2.07 percent for 2012. More recently, the year-over-year change in CPI averaged 1.47 percent in 2013—well below the FOMC’s target. Most economic forecasters see annual inflation of 2.0 percent or below through 2016. In addition to the disappointing employment growth outlined above, these low inflation rates help explain why the FOMC has elected to continue its large-scale asset purchases to stimulate economic recovery.

**Figure 1.5** shows two alternative measures of inflation—core CPI and the core personal consumption expenditures (PCE) price index—that exclude purchases of historically volatile goods such as energy and food and provide a more realistic measure of underlying long-term inflation. The PCE price index is preferred by the Federal Reserve; it shows that long-term inflation has been at or below 2 percent since September 2008 (64 months straight).

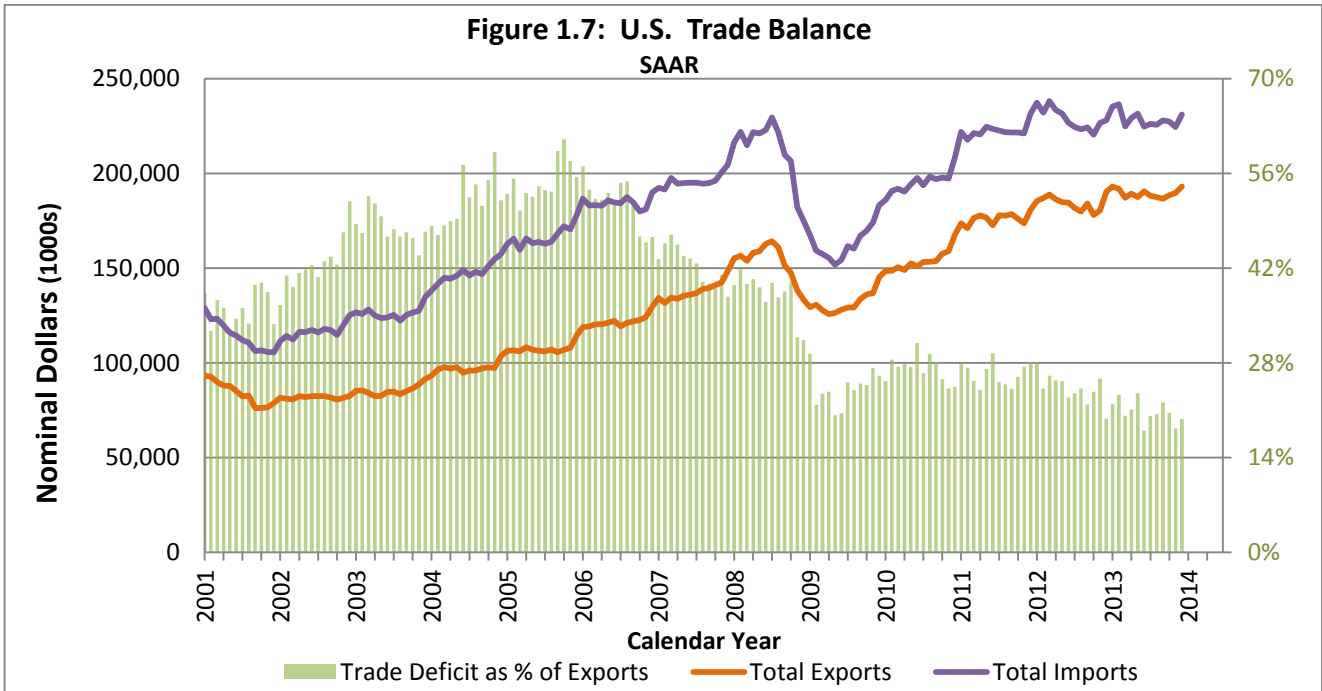
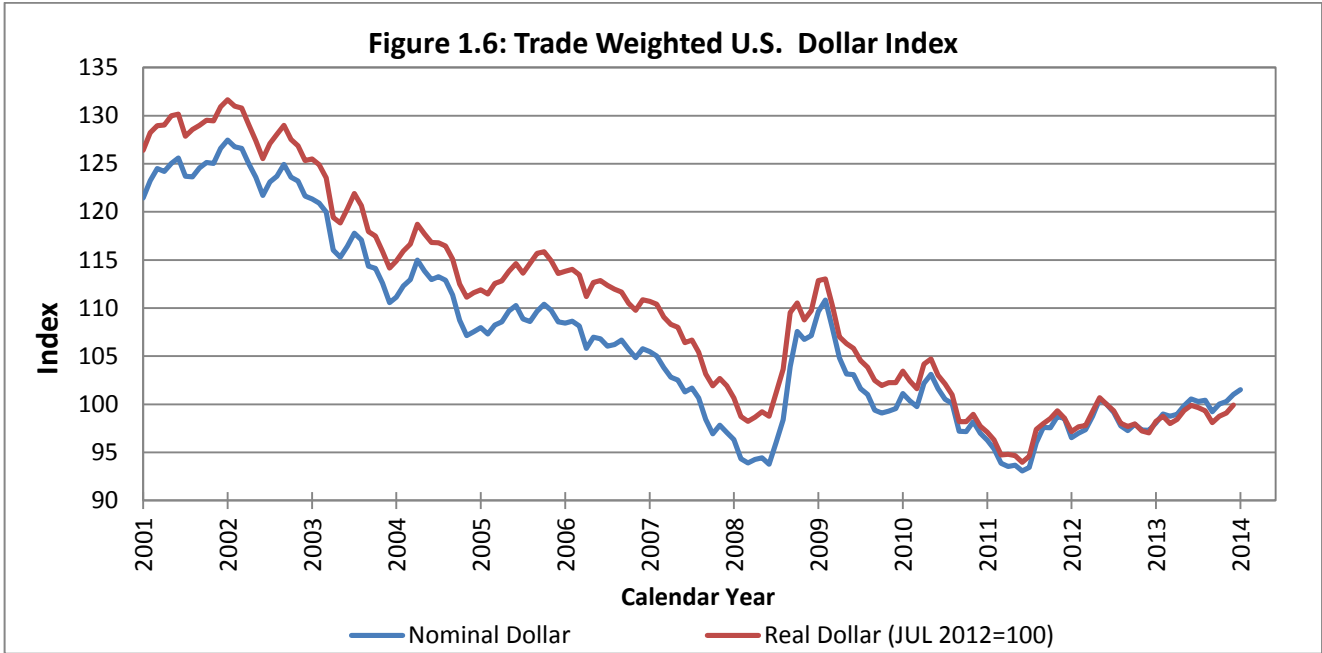


**The U.S. Dollar and Foreign Trade.** Figure 1.6 shows the broad trade-weighted U.S. dollar index for the last 12 years. The broad index is a weighted average of the foreign exchange values of the U.S. dollar against the currencies of a large group of major U.S. trading partners. In July 2011, the index in nominal and real terms fell to its lowest point in the history of the data series, which began in January 1973. At its low, the (real) U.S. dollar index was 29 percent below its early 2002 highpoint. Since July 2011, the dollar has generally strengthened off the bottom.

Declines in the dollar’s trade value make American goods cheaper and more competitive relative to foreign goods. This supports U.S. exports and boosts economic growth. However, it also leads to higher prices for imports, which partly explains why oil and gasoline prices increased in dollar terms from 2009 through much of 2011, while the dollar was weakening (see Figure 1.9).

In 2012, the total U.S. trade deficit was \$540 billion—the difference between \$2.20 trillion in exports and \$2.73 trillion in imports. The United States actually had a \$213 billion surplus on trade in services for 2012, but this was outweighed by the much larger \$797 billion deficit on trade in goods. As shown in Figure 1.7, the U.S. trade deficit as a percent of exports dropped to a cyclical low of 20 percent in May and June of 2009 (compared with a high of 60 percent in September and October of 2005) because imports fell off much more steeply than exports. More recently, this percentage has remained flat, at 27.1, 26.4, and 24.2 percent for 2010, 2011, and 2012 respectively. It has dropped to 20.8 for 2013.





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## World economy

**Europe.** Most forecasts for the U.S. economy cite the ongoing European financial crisis as a significant downside risk. Weakness in Eurozone economies means reduced demand for U.S. exports as well as continued difficulties in addressing their sovereign debt and banking crises. There are renewed questions about whether government austerity is worsening or helping to repair the European economic situation. Though the effects of the financial crisis are still being felt and several key European economies are contracting, the tangible effects on the U.S. economy have not been significant. The good news is that the worst case European scenarios have not yet occurred, despite recurrent crises over the last several years, and there are weak signs that a recovery might be underway (two quarters of tepid growth).

**China.** China appears to have weathered the global economic and financial crisis of the past six years better than virtually every developed country and better than most other emerging economies. However, there are a number of questions about the sustainability of that economic resilience.

The global economic and financial crisis that erupted in 2007 weakened Chinese exports but swift policy action, including massive fiscal stimulus in the form of public infrastructure investment, mitigated the impact on the employment and GDP. As a result, year-average GDP growth remained above 9% in 2008 through 2010, only fractionally below the performance of the previous high-growth decade. However, in 2011 the economy faced sectoral imbalances and appeared to be overheating. The government took corrective action, which contributed to a slowdown that was amplified by a weak and uncertain international environment. Following the slowdown, the policy was reversed mid-2012 and growth troughed at 7.8% that year. More recently, toward the end of July 2013, China faced two straight quarters of slowing growth and enacted a “mini stimulus” that appears to be paying off in higher growth metrics.

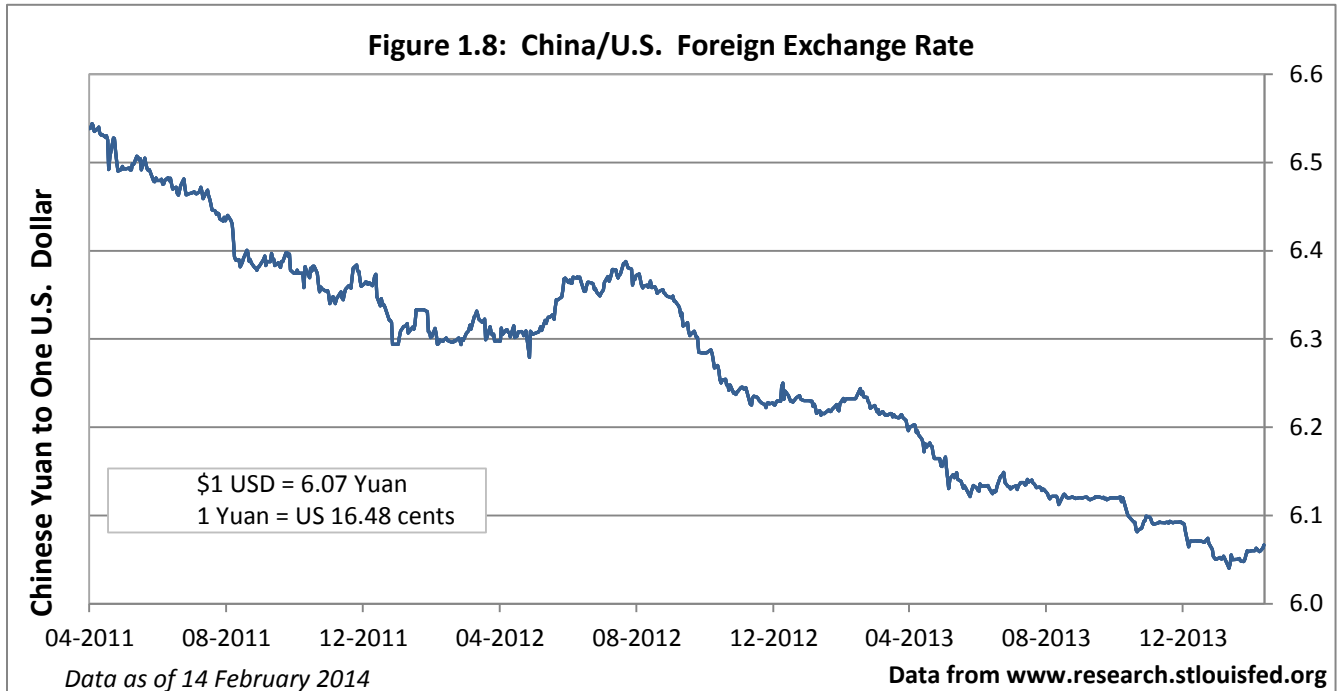
In the near-term, there are a number of risks to China’s continued economic growth as the effects of China’s aggressive investment flow through its economy. For instance, the strong capital build-up has pushed down profit margins in key industries, most notably steel production. There are also concerns about property prices, excessive off-balance sheet financing by the banking system and local governments, alarming levels of non-performing debt, and systemic corruption and waste in local governments and state-owned-enterprises. Over the longer run, inequalities, urban-rural dynamics, rural land ownership, and the aging of the populace will be significant sources of tension.<sup>2</sup>

Despite these issues, the OECD expects Chinese GDP to peak in 2014 at 8.2 percent and then fall to 7.5 percent in 2015.

The Chinese Yuan has been strengthening against the dollar since mid-2010 when the Chinese government allowed it to begin fluctuating again (see **Figure 1.8**). The Yuan is currently worth ten percent more, relative to the dollar, than it was in July 2010. Critics contend that the Yuan is still artificially weak and that the Chinese authorities need to allow it to strengthen more quickly.

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<sup>2</sup> Adapted from OECD Economic Surveys: China, March 2013.

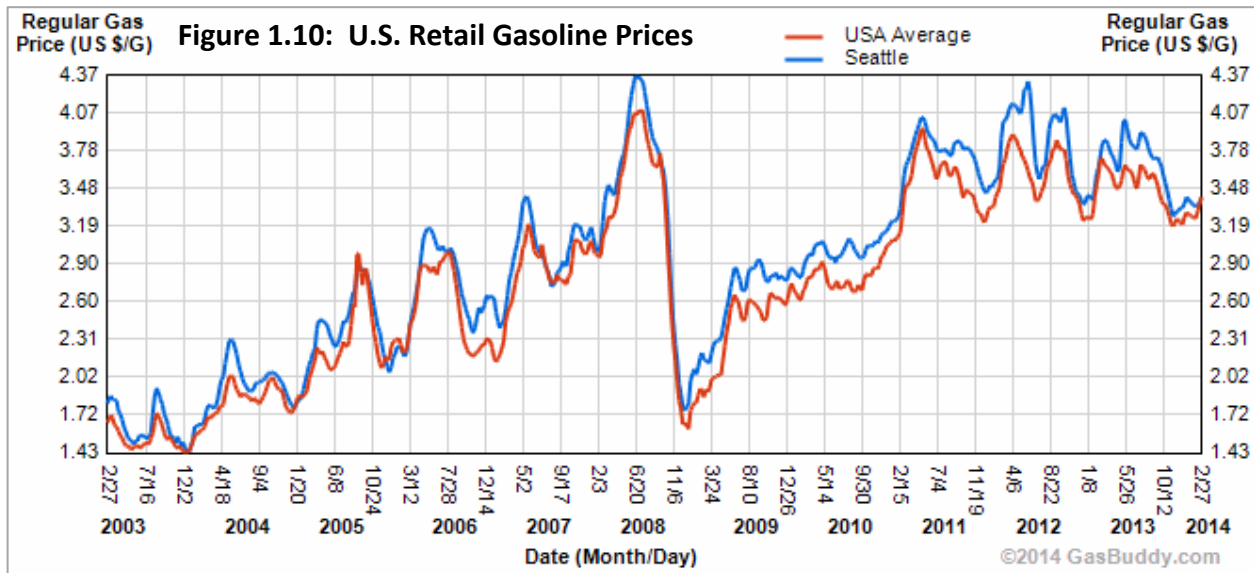
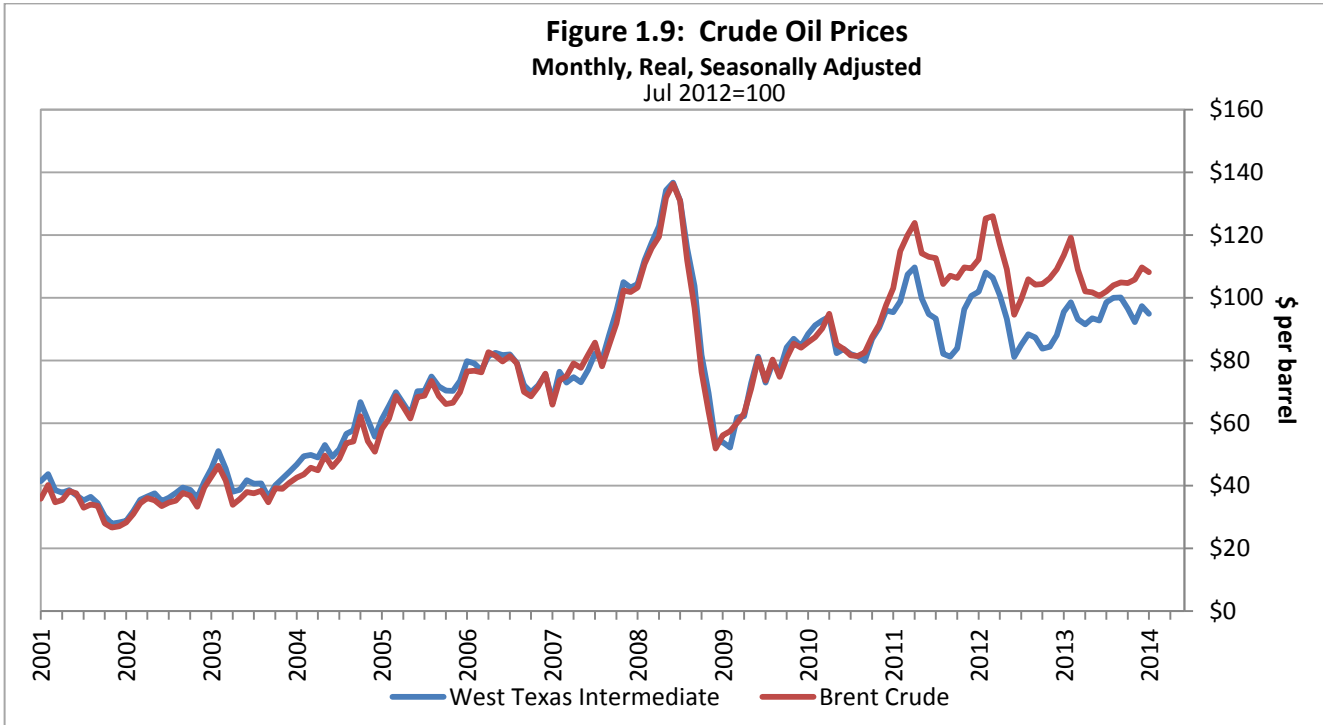


**Japan.** Japanese Prime Minister Shinzo Abe has begun a bold combination of economic policy moves, dubbed “Abenomics”, in an attempt to shake Japan’s economy out of two decades in the doldrums. The “three arrows” of Abe’s economic plan are aggressive monetary easing, very large fiscal stimulus, and structural reforms to boost Japan’s competitiveness (e.g., lifting a ban on the online sale of drugs, easing industrial regulations, etc.). The forceful monetary easing being undertaken by the Bank of Japan is intended to raise inflation in a controlled manner and it is much larger than the U.S. Fed’s attempt at quantitative easing (in percentage terms). While Abenomics initially drove a surge in Japanese consumer confidence, consumer confidence has since fallen to the lowest point since Abe took office on the back of disappointing GDP growth and a number of risks to the policy. Most prominent among the risks are a fast growing trade deficit, a drop in the exchange rate (which helps manufacturers but hurts households), and an upcoming sales tax that will further dampen consumption.

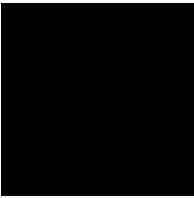
**Petroleum.** Crude oil prices and supply play an important role in the world and U.S. domestic economies, since crude oil and its derivatives affect production, transportation, and consumption. Moreover, oil prices—especially sharp fluctuations—have the ability to influence intangible “forces” such as consumer and producer confidence. **Figure 1.9**, which presents seven years of oil prices by the two most important indicators, the Brent Crude and West Texas Intermediate<sup>3</sup>, shows that 2013 featured the most dramatic crude oil price drop since 2008. These data have been adjusted for seasonality. Brent crude averaged about \$108 per barrel in 2013, compared to about \$111 per barrel in 2012. The lower petroleum prices in 2013 were one of the few points of optimism in the world

<sup>3</sup>As shown in **Figure 1.9**, the Brent Crude and West Texas Intermediate prices were essentially the same until late 2010 when the WTI price started tracking below Brent Crude. The difference in price has developed because unusually large stockpiles of crude oil have built up in the middle of the North American oil supply system and there is a higher price to move this landlocked surplus to market. The Brent Crude price remains more important to the overall U.S. economy as it is the predominant crude oil price benchmark in the world economy.

economy. It is interesting to note that 2013's cheaper crude prices had not translated into cheaper prices at the pump until the last two months (examine the same period from **Figure 1.10**).



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## Part 2. Log, Lumber and Stumpage Prices

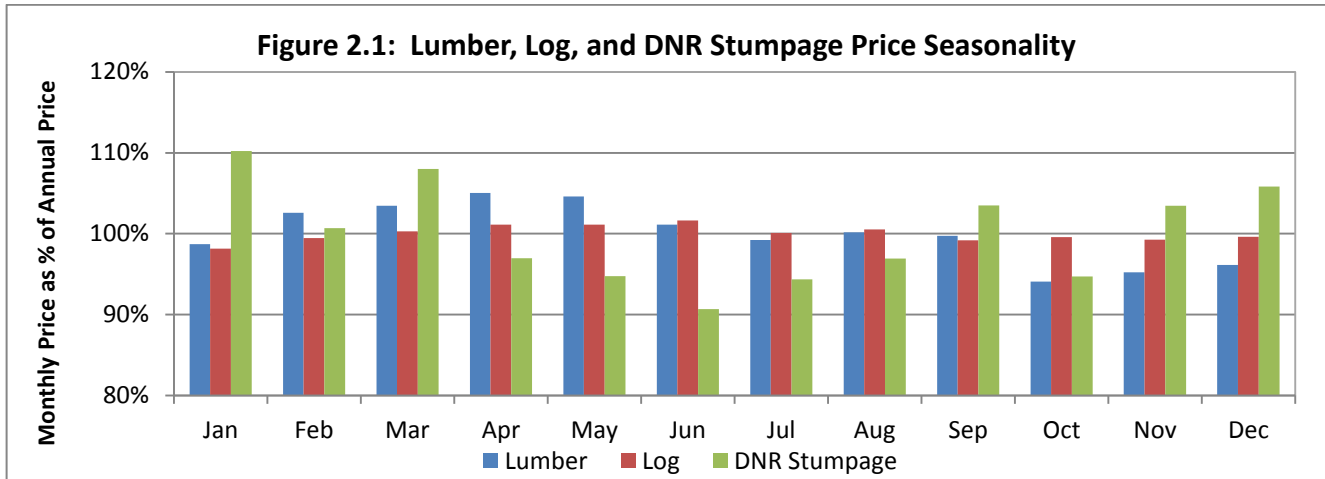
This chapter focuses on specific market factors that affect timber stumpage prices and overall timber sales revenues generated by the Washington State Department of Natural Resources (DNR). Over the past decade, timber stumpage revenues have comprised over 75 percent of DNR's total revenue. DNR is, therefore, vitally concerned with stumpage prices and understanding log prices, lumber prices, and the related supply and demand factors behind all three.

In general, timber stumpage prices reflect demand for lumber and other wood products, timber supply, and regional and local lumber mill capacity. Indeed, there is a consistent, positive relationship between log prices and DNR's stumpage prices, despite notable volatility in DNR's stumpage prices (this is evident in **Figure 2.10**). High log prices make access to logs more valuable and increase purchasers' willingness to pay for stumpage. Volatility in stumpage prices arises not only from log prices, but also the amount of logs held in mills' inventory and from DNR-specific issues, such as the quality of the stumpage mix offered at a given auction.

The relationship between lumber prices and log prices is less consistent. Lumber prices are significantly more volatile and both the direction and size of price movements can differ from log prices. Lumber prices tend to lead log prices because it takes time for mills to process the logs into lumber and mills will often have an inventory of logs, so they do not always need to bid up log prices to take advantage of high lumber prices.

There are differences in average annual monthly price volatility between lumber, logs and stumpage, as illustrated in **Figure 2.1**. These prices are affected by a degree of seasonality that is largely the result of when each of these commodities will be used. For instance, lumber prices tend to peak in spring, when housing construction picks up, and declines until fall as the demand wanes. DNR stumpage price volatility is also affected by the firefighting season and the quality of the stumpage mix, which varies throughout the year but tends to be lowest from August through September.

This chapter begins with a discussion of the U.S. housing market because it is particularly important to overall timber demand in the U.S. Following that are smaller sections on the export market, mill inventory and supply, all of which influence timber prices, and therefore DNR stumpage prices.



## U.S. housing market

New residential construction (housing starts) and residential improvements are major components of the total demand for timber in the U.S. Historically, these sectors have comprised over 70 percent of softwood consumption—45 percent going to housing starts and 25 percent to improvements—with the remainder going to industrial production and other applications.

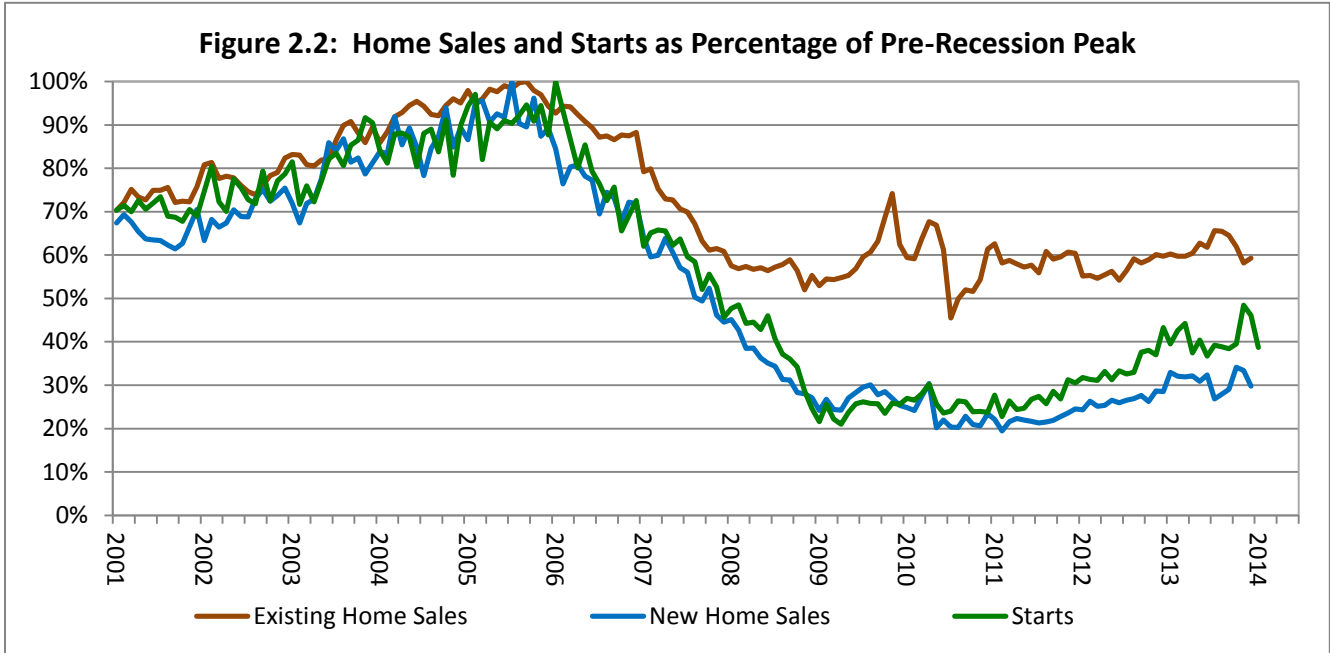
However, the crash in the housing market and the following recession drastically reduced timber demand for new housing—from over 30 billion board feet per year in 2005 to less than 10 billion board feet per year in 2009. This undermined the total demand for lumber, which fell from over 60 billion board feet per year in 2005 to less than 35 billion board feet per year in 2009. Since the trough in 2009, the lumber demand by residential construction has increased slightly, but it was still less than 10 billion board feet at the end of 2012. An increase in housing starts is essential for a meaningful increase in the demand for lumber.

A number of measures suggest the beginning of a modest recovery in the U.S. housing market. **Figure 2.2** compares the trajectories of existing home sales, new home sales, and housing starts as percentages of their pre-recession peaks. The chart shows the increases in all three since 2011, though starts and new home sales have flattened off recently. Recent months have seen declines in all three measures as tight lending standards, increased interest rates, increased prices, and continued weak employment numbers constrain home purchases.

### *Existing Home Sales*

Existing home sales took a sharp upward turn in July to 4.76 million (see **blue** line in **Figure 2.3**) before moderating steadily to 4.05 million (seasonally adjusted annual rate) in January. This decline puts existing home sales below the 4.5 million to 5.5 million range that housing experts think will be the new post-recession “normal” sales rate for existing homes and seems to undermine an earlier upward trend in existing home sales.

However, there are reasons for continued optimism. At 5.10 million units, existing home sales for all of 2013 were 9.1 percent higher than for 2012. Notably, while there are still many distressed sales, the



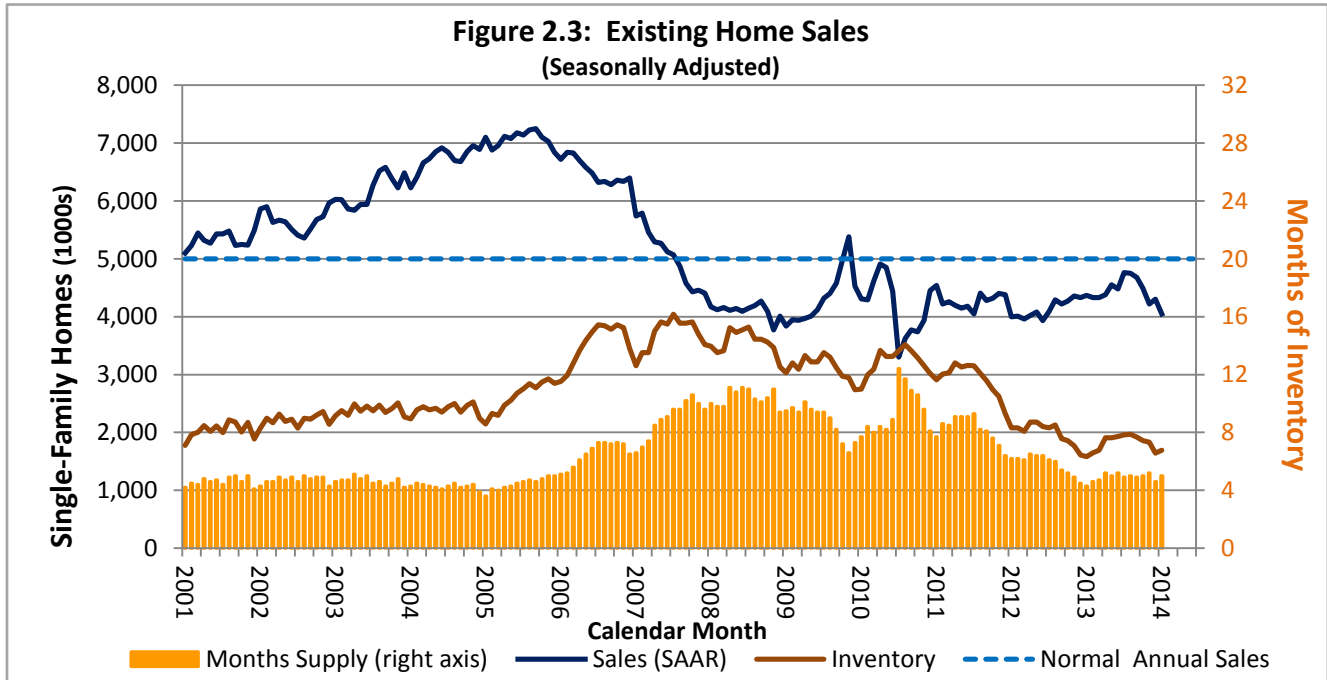
share of distressed sales is down year-over-year nation-wide, 14 percent of sales in December were distressed sales, whereas 24 percent were distressed in December 2012

In January 2013 inventory climbed from an apparent bottom, and 12-year low, of 1.58 million homes to a high of 2.0 million in August—a 27 percent increase (see **brown** line in **Figure 2.3**). This compares with the inventory peak of 4.0 million existing homes in July 2007. Since then, inventories have declined to 1.7 million in January 2014; although lower than the 2007 peak, this is nevertheless a year-on-year increase of 1.6 percent.

The months’ supply of housing—the number of months it would take to clear the inventory of used homes on the market at current sales rates—has again declined after having risen from an apparent low of 4.3 months in January 2013. The months’ supply in January 2014 was estimated at 5.0 months (see **orange** bars in **Figure 2.3**). This measure peaked at 12.4 months less than three years ago in July 2010.

Low inventories and a low months’ supply will continue to put upward pressure on house prices. House price increases through 2013 may have encouraged some homeowners to list their houses for sale. Higher prices also helped millions who were “underwater” in their mortgages move to a position where the house is now worth more relative to the amount owned, enabling some to list their house for sale now. This suggests a potential return to a more normal housing market, where home owners are able to make rational decisions about when or whether they wish to sell—as opposed to being forced to sell or remaining ‘underwater’ to avoid taking a loss or damaging their credit.

Purchases by private investors have slowed in recent months. Previously, private investors moved into depressed housing markets and purchased large numbers of lower-priced foreclosed residential properties, funding a bet on long term recovery in housing prices by renting in the short term to potential buyers still locked out of the housing market. These investors have been driving many



housing markets: in 2012, they accounted for 30 percent of home purchases in Miami and 23 percent in Phoenix. On one hand, the investors may have set a floor under the housing market, contributing to the recovery in some key markets. On the other, there is concern about the impact on the housing market when the investors begin selling.

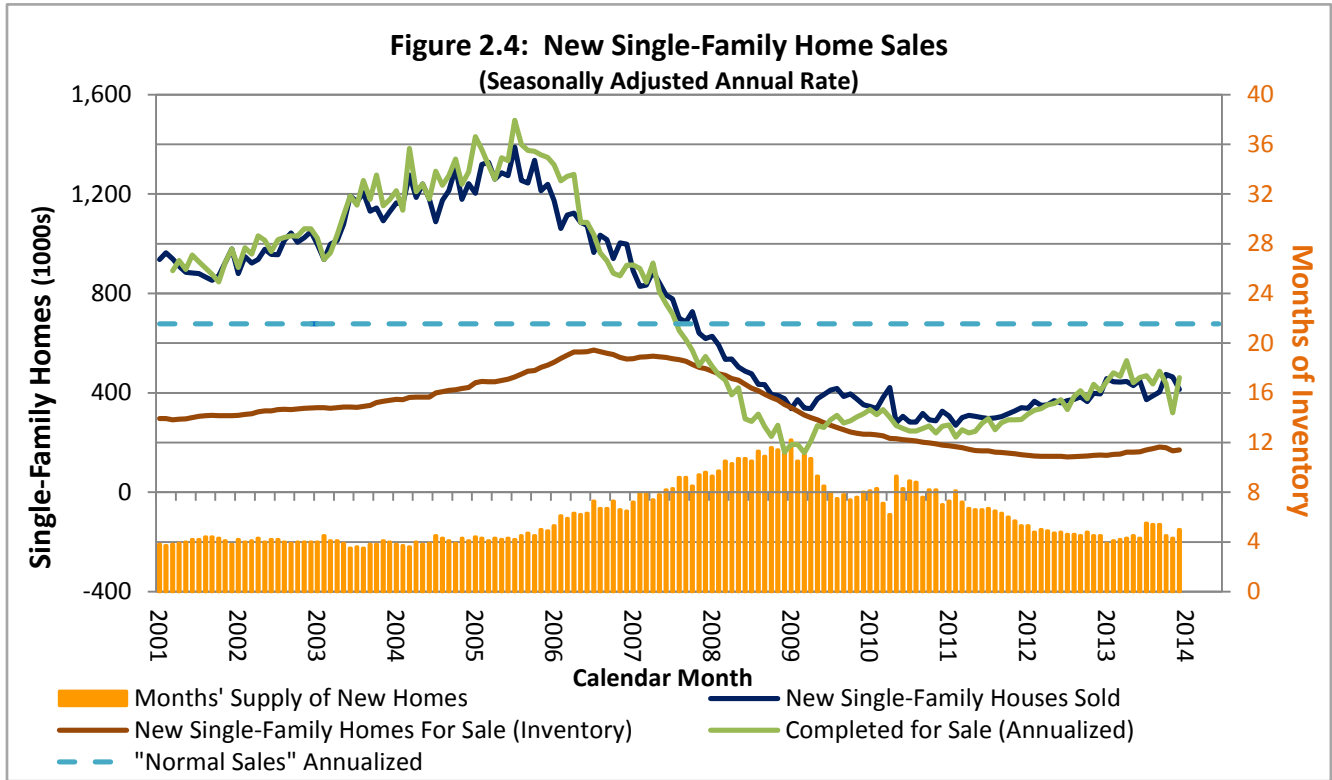
***New Home Sales***

The blue line in Figure 2.4 shows that new home sales bottomed out in mid-2010 and that they have been trending upward since late 2011. Calendar year 2011 was the lowest year on record with only 306,000 new homes sold, compared with the long-term (1963-2010) “normal” rate of 678,000 per year. New home sales were about 368,000 in 2012 and they averaged 432,000 in 2013.

As low as new home sales have been, new house construction (green line in Figure 2.4) was even lower from early 2007 through mid-2011. Since the number of new homes sold exceeded the number of new homes built for the five year period, the inventory of newly built homes for sale (brown line) declined over the period. It appears the inventory of new homes has now bottomed out, reaching a low of 142,000 homes in July 2012. In December 2013, inventory had risen to 171,000 homes—still a low number by historical standards and actually a decrease from the September 2013 high of 182,000 houses. These inventories are still far lower than the high of 570,000 in the summer of 2006.

Total months’ worth of inventory of new homes for sale seems to be climbing from its low of 3.9 months in January 2013 (orange bars in Figure 2.4). This measure is dependent not only on the current inventory but the rate of sales of new homes. In December 2013, there were 5.0 months’ worth of inventory—somewhat above the pre-2006 average. Reducing the inventory (supply) of existing and new homes for sale is essential to the U.S. housing market recovery because it increases the need for new house construction.





**Shadow Inventory**

The inventories of existing and new homes discussed above are made up of those housing units that are currently listed for sale (“on the market”). While it exists even in normal times, the “shadow inventory”—housing units not currently on the market, but expected to be listed in the next few years—has gained attention as an important measure of the health of the housing market. CoreLogic tracks the shadow inventory, which it defines as being composed of bank-owned properties, REO (or “real estate owned”), properties in the process of foreclosure, and properties with seriously delinquent mortgages of over 90 days<sup>4</sup>. As of October 2013, the shadow inventory as defined by CoreLogic had declined to 1.7 million housing units, down 43 percent from its January 2010 peak of 3.0 million. Through November 2013, there were 812,000 homes in some stage of foreclosure, compared to 1.2 million in the same period of 2012.

A large shadow inventory leads to a large number of distressed sales (including short sales) and therefore pushes home prices down. The decline in the excess shadow inventory is relieving some of the downward pressure on house prices.

<sup>4</sup> Other definitions of “shadow inventory” include other residential properties such as those with less seriously delinquent mortgages that will become seriously delinquent, condos that were converted to apartments and that are expected to be converted back in the next few years, investor-owned rental properties, and homes that owners want to sell but that are not yet on the market.

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## *Household formation*

Under typical conditions, household formation (or the growth in the number of households) is the key driver of U.S. housing starts. However, the Great Recession caused atypical conditions that have continued for several years. Due to job and income losses and greater precarity, household formation lagged as people doubled up and younger people, who were hit especially hard, moved back in with their parents or otherwise shared housing. Net immigration from Mexico also approached zero during the Recession, slowing household formation.

The reduction in demand for home purchases contributed to the surge in the inventory of available housing units and the significant drop in housing starts. Typical annual U.S. household formation generally ranges between 1.2 and 1.3 million. In the depth of the Recession, formation dropped dramatically to 0.4 million in 2009 and to 0.5 million in 2010. With ‘pent-up’ demand, household formation returned to near the 1.2 million level in 2012, before receding below one million in 2013.

Looking forward, increased rates of household formation, while dependent on continued recovery in the U.S. labor market, will help to remove the extra housing stock and to drive construction of new houses. Unfortunately, formation growth has apparently stalled in 2013. FEA forecasts that household formations will average 1.24 million from 2013 to 2018. The net effect of household formation and other demand factors is an FEA estimate of demand of about 1.5 million conventional housing units per year from 2010-2020.

## *Housing Starts*

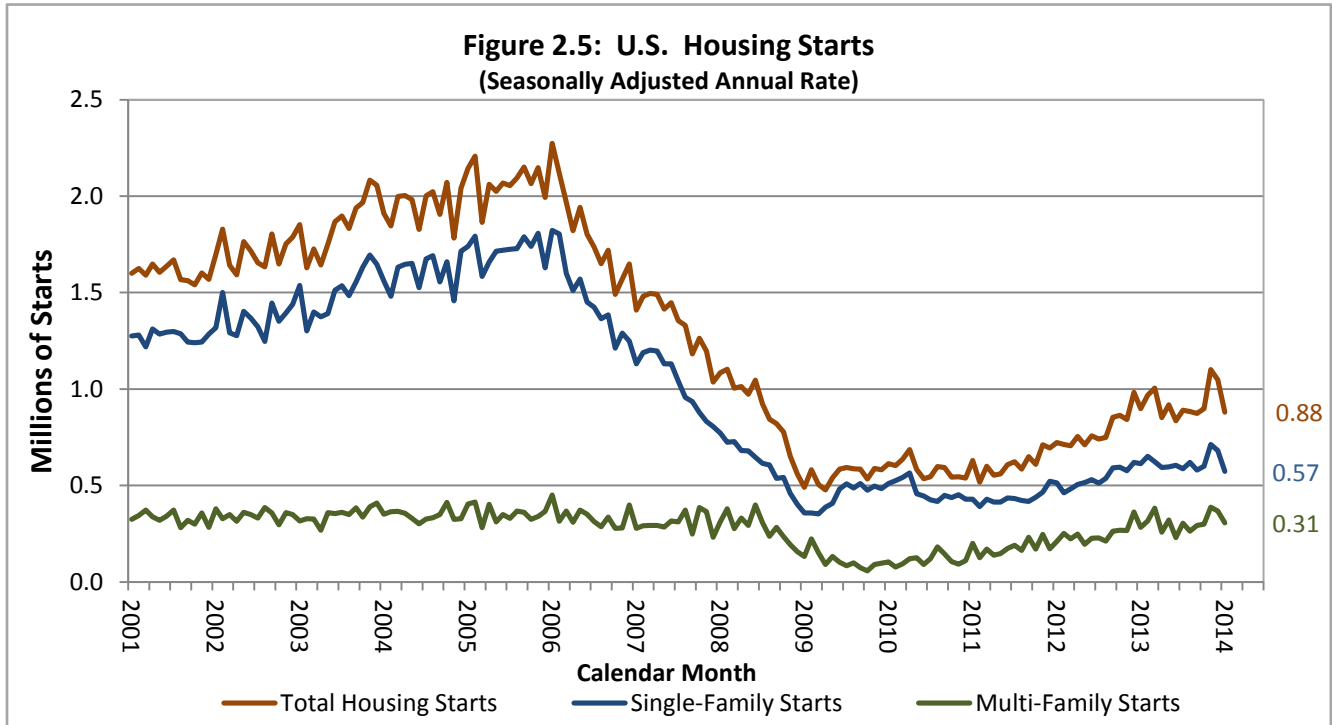
*There are several reasons for the recent weakness: weather (probably a small factor), higher mortgage rates, and higher prices (homebuilders raised prices sharply in 2013). But the fundamentals of household formation and housing supply suggest a significant increase in housing starts over the next few years.*

*Bill McBride  
CalculatedRisk  
19 February 2014*

U.S. housing starts picked up in 2012 and continued to rise in 2013, after having moved more or less sideways at a historic low level in the three previous years (see **Figure 2.5**). In April 2009, U.S. housing starts fell to 478,000 (seasonally adjusted annual rate), the all-time record low since the Census Bureau began tracking housing starts in 1959. New housing starts averaged 931,000 (SAAR) for 2013, a level not seen since mid- 2008.

In the 2009-2011 housing market trough, single family starts (**blue** line) averaged 440,000 per year (SAAR). The annualized rate of single family starts was up to 537,000 in 2012 and averaged 622,000 in 2013. Multifamily starts for 2012 averaged 247,000 on an annualized basis, compared with the average of 148,000 in the three-year 2009-2011 trough. Multifamily starts were up to an annual average of 309,000 in the first eight months of 2013.

Homebuilder confidence in the market for newly-built single-family homes, as measured by the Housing Market Index (HMI), has pulled back from its August high of 58 to a preliminary value of 46



for February 2014<sup>5</sup>. While this is a significant drop, the current HMI still shows higher homebuilder confidence than the average for every month between 2012 and 2013. In fact, June 2013 was the first time the HMI rose above 50 since April 2006, reflecting the better market conditions that builders were seeing as demand for new homes increased. Additionally, there were a number of weather events through December and January that may have artificially depressed the outlook of homebuilders. The HMI averaged 15-16 for years 2008-2011, when the housing market was the most depressed.

In the last six months, home builders scrambled to ramp up production but faced delays because of the difficulty in finding construction workers and in obtaining permits from suddenly overwhelmed local authorities. After six years of low levels of new home building, skilled labor is scarce. Many workers have returned to Mexico and others have pursued work in Texas and North Dakota’s oil and gas fields, where jobs have become more plentiful. Others are hesitant to return to construction work after experiencing the employment upsets of the recession and are content to stick with lower-paying but more secure jobs. The decline in the HMI suggests that there may be some slackening of the demand for construction workers and permits – this may also slow the rate of house price increases.

In sum, household formation, pent-up home ownership demand, and a slowly recovering U.S. labor market support projections of increased housing starts, with a consensus of near 1.0 million in 2014. Tempering the housing starts forecast are the sluggishness and shakiness of the macroeconomic recovery; the stressed financial situation of young adults caused by unemployment, lower quality jobs, and student loan debt; and generally poor wage and income growth.

<sup>5</sup> The Housing Market Index is produced monthly by the National Association of Home Builders and Wells Fargo. An index of above 50 indicates that more builders view sales conditions as good than poor. <http://www.nahb.org>

While the longer-term outlook for housing starts is optimistic, in the short term household formation will continue to be constrained. FEA projects housing starts of 1.11 million units for 2014 and outlined the positive and negative influences on housing starts summarized in **2.1** below.

**Table 2.1: Summary of major housing market influences**

Positive influences	Negative influences
Strong 2013 Q4 starts	Continued tight lending standards
Significantly higher Q4 new home sales	Slow household formations
Rising builder confidence	Rising mortgage rates as Fannie Mae/Freddie Mac increase their fees in 2014
Decent employment growth of 180,000-190,000 per month	

Source: FEA Lumber Advisor, January 2014

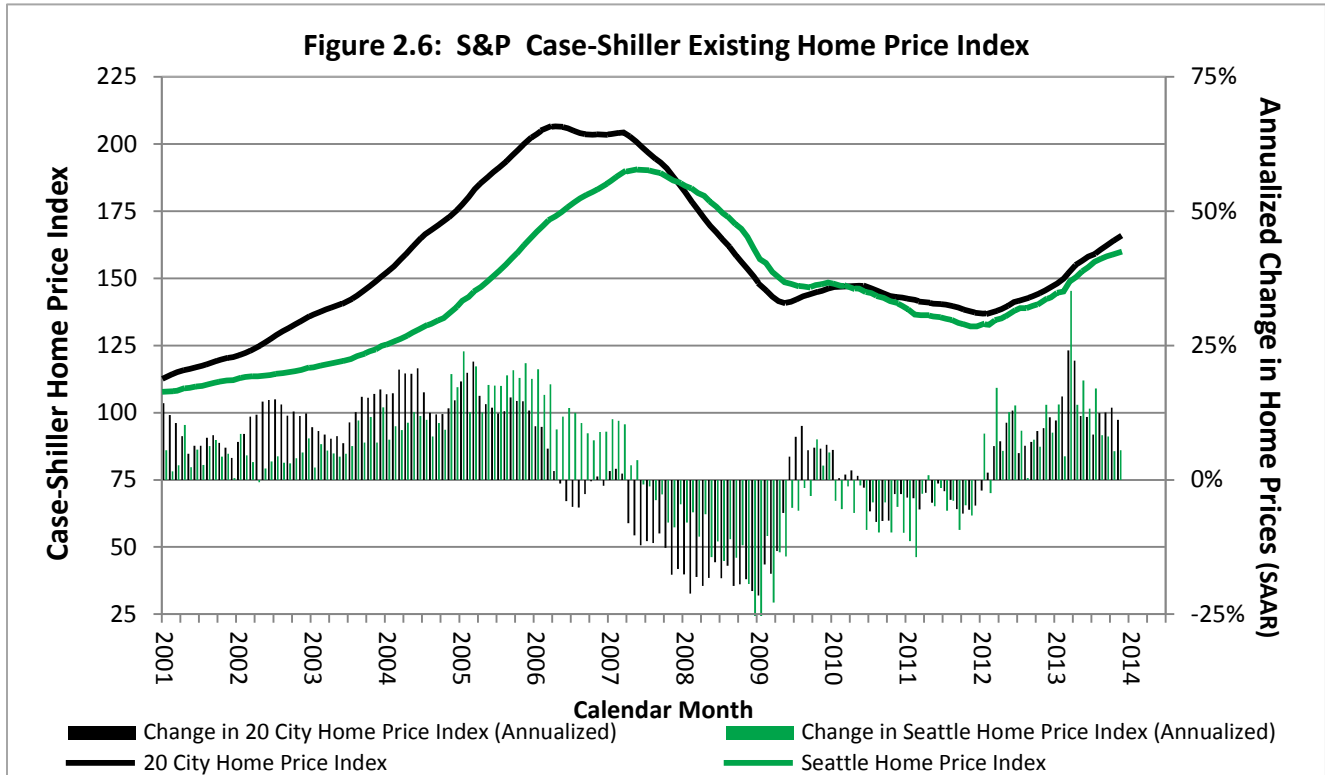
### ***Housing Prices***

*“Affordability issues will help put the brakes on many markets that saw huge appreciation rates, like California and the Southwest, creating volatility that could potentially cause whiplash for homebuyers and sellers... At the same time, we expect more homes to be available this year as more sellers enter the market and more homes get built, and a decline in investor competition should make for a more hospitable market for many buyers.”*

*Stan Humphries  
Chief Economist, Zillow Inc.  
23 January 2014*

U.S. housing prices have continued to climb in the last year after six unprecedented years of falling and flat prices. **Figure 2.6** charts the seasonally adjusted S&P/Case-Shiller Home Price Indices for the 20-city composite, which represents national existing home price trends. The 20-city composite index has increased every month since bottoming out in January 2012—its lowest point since October 2002, almost ten years earlier. The most recent release includes data through November 2013 and shows a year-over-year increase of 13.7 percent. With the recent increase in prices, the average existing house in the U.S. in November was worth 77 percent of its value at the peak of the real estate bubble in April 2006, up from the price bottom of 67 percent in March 2012. Nationally, as reported by the National Association of Realtors, the 2013 fourth quarter median home price for an existing single-family home was \$196,900, or 10.1 percent greater than 2012’s fourth quarter median price of \$178,900.

Seattle house prices are following a similar trajectory, having increased 12.4 percent year-over-year as of November. When Seattle prices bottomed in February 2012—at their lowest point since June 2004—the average existing house in Seattle was worth only 70 percent of the May 2007 peak (see **Figure 2.6**). As of November, the average Seattle home was worth 92 percent of its peak price.



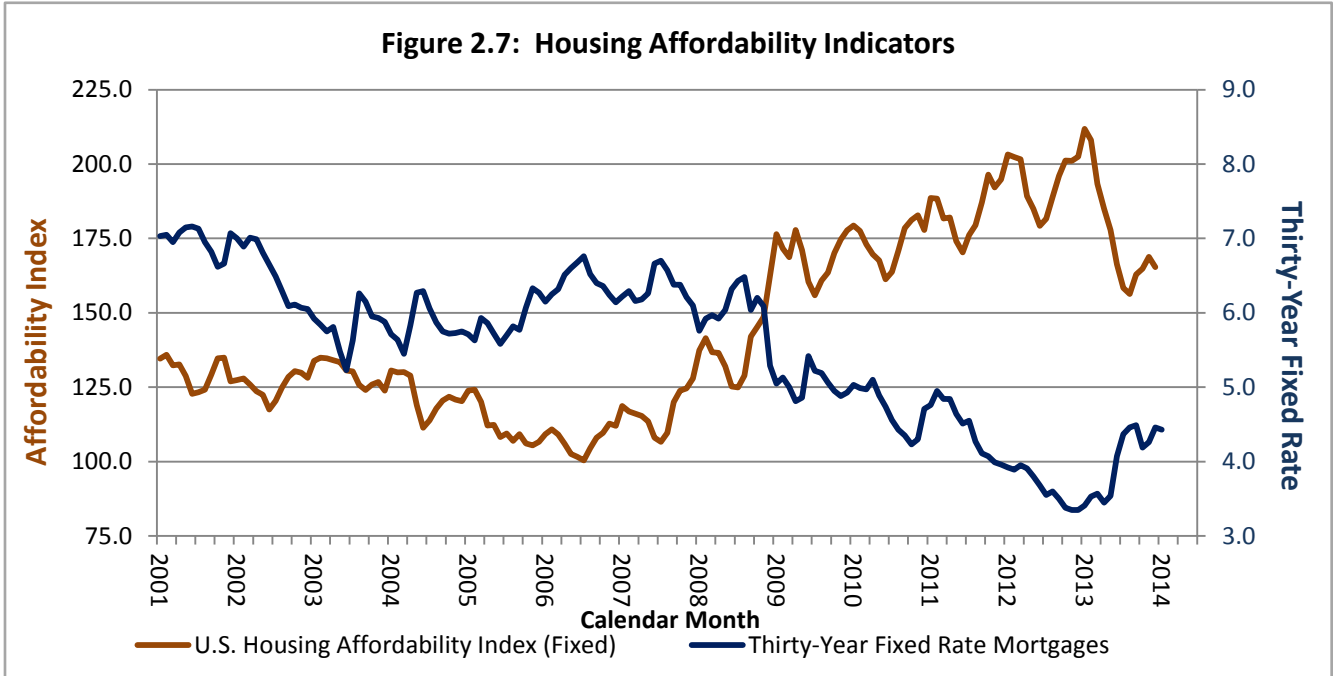
**Housing Affordability**

The National Association of Realtors’ (NAR) U.S. Housing Affordability Index—which is based on the relationship between the median home price, the median family income, and the average mortgage interest rate—is a useful, though imperfect, measure of how affordable or attainable houses are to the average American. A higher index value reflects greater household purchasing power and therefore improved affordability of the typical home, though it says nothing about whether the median income family can actually conjure up the 20 percent down payment that the index assumes. Examining the data series over time can reveal the overall trend of housing affordability, even though the individual values can be misleading.

The index rose to a record high of 209.0 in January 2013 and is now at 165.41 in December, up from a recent low of 156.3 in August (see **Figure 2.7**). The income required to purchase a median-priced house (\$197,900) has increased year-over-year from \$30,816 in December 2012 to \$38,112 in December 2013. This is still lower than the average qualifying income needed to buy the median house in 2008, \$46,000, or 2007, \$53,000. While the qualifying income is now much lower, median family income is now around \$64,000, very similar to the average of \$63,000 in 2008 and \$61,000 in 2007. In short, median wages have stagnated.

Home buying affordability seems to have peaked in late 2012; both home prices and mortgage rates are trending upward. Although U.S. 30-year fixed mortgage loan rates<sup>6</sup> remain at historically low levels,

<sup>6</sup> The data series cited here is the national average effective rate on closed fixed-rate 30-year conventional home mortgage loans by all major lenders as reported by the Federal Housing Finance Agency.



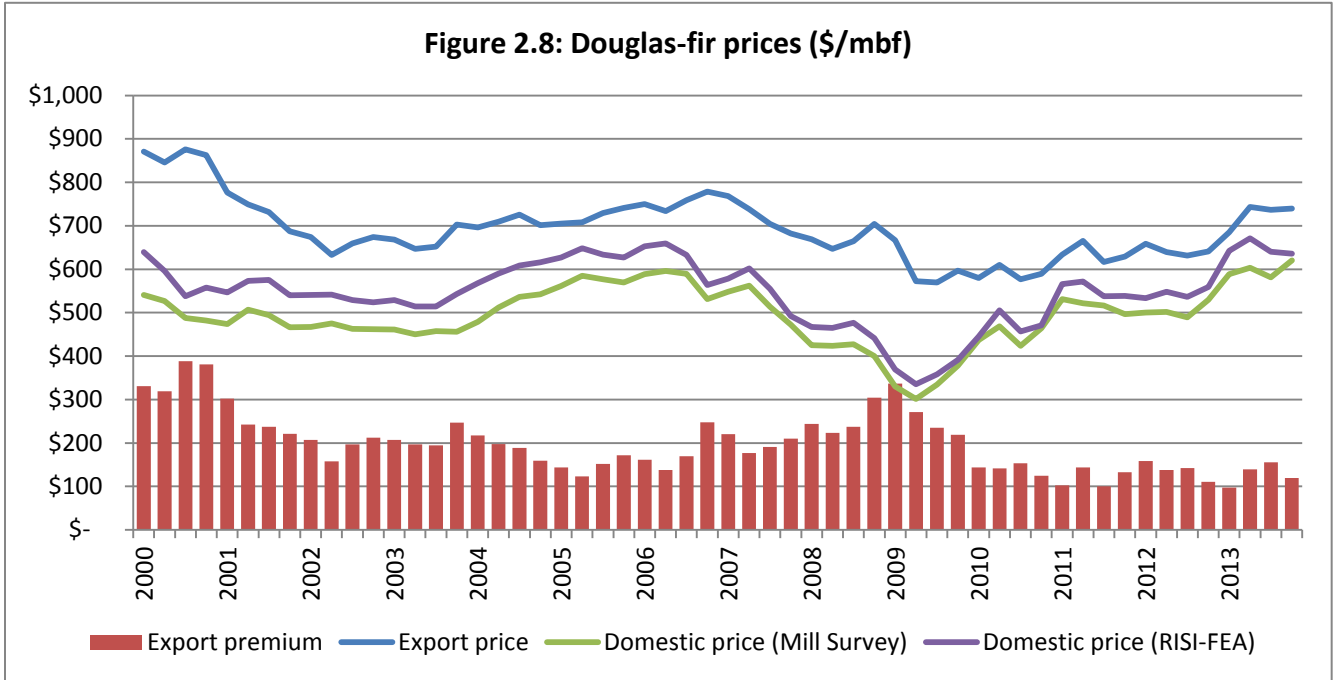
they have been rising recently, and were 4.46 percent in December. These are up from a low of 3.43 percent in December 2012. The 30-year fixed mortgage rate has been below 5 percent for 42 consecutive months. Including both the rise in home prices and mortgage rates, the cost of a mortgaged median priced house in December 2013 was around \$47,000 more than it was in December 2012.

While most analysts expect the housing recovery to continue over the long term, concerns remain over recent increases in interest rates and the continued poor employment situation. This is reflected in the median housing price, which has pulled back from its recent high of \$214,000 in June 2013 to \$198,000 in December. Richard Green, Director of the University of Southern California’s Lusk Center for Real Estate, argues that lack of strong wage growth should put the brakes on housing price hikes. "Ultimately, people do not have the income," Green said.<sup>7</sup>

While it appears that increasing interest rates may have impaired sales in recent months, over the long term they may not hurt the housing recovery very much for two reasons. First, Neil Irwin, an economist at the Washington Post, argues that “as long as home prices remain below the level where affordability is out of reach, and so long as mortgage rates are rising because the economy is on the mend, the housing market should be able to withstand the blow.” Second, Andrea Heuson, Finance Professor with the University of Miami, notes that “Interest rates have been so low for so long that anyone who qualifies for a mortgage already has one.”<sup>8</sup>

<sup>7</sup> “Southland home prices soar 24.7% in May from a year earlier”, Los Angeles Times, June 11, 2013.

<sup>8</sup> <http://www.interest.com/mortgage/advice/affordable-housing-pipedream/>



That the affordability index is still favorable suggests that Americans are holding back from buying houses because of other factors such as tight credit standards, difficulty building up a down payment, and lack of confidence in future job prospects.

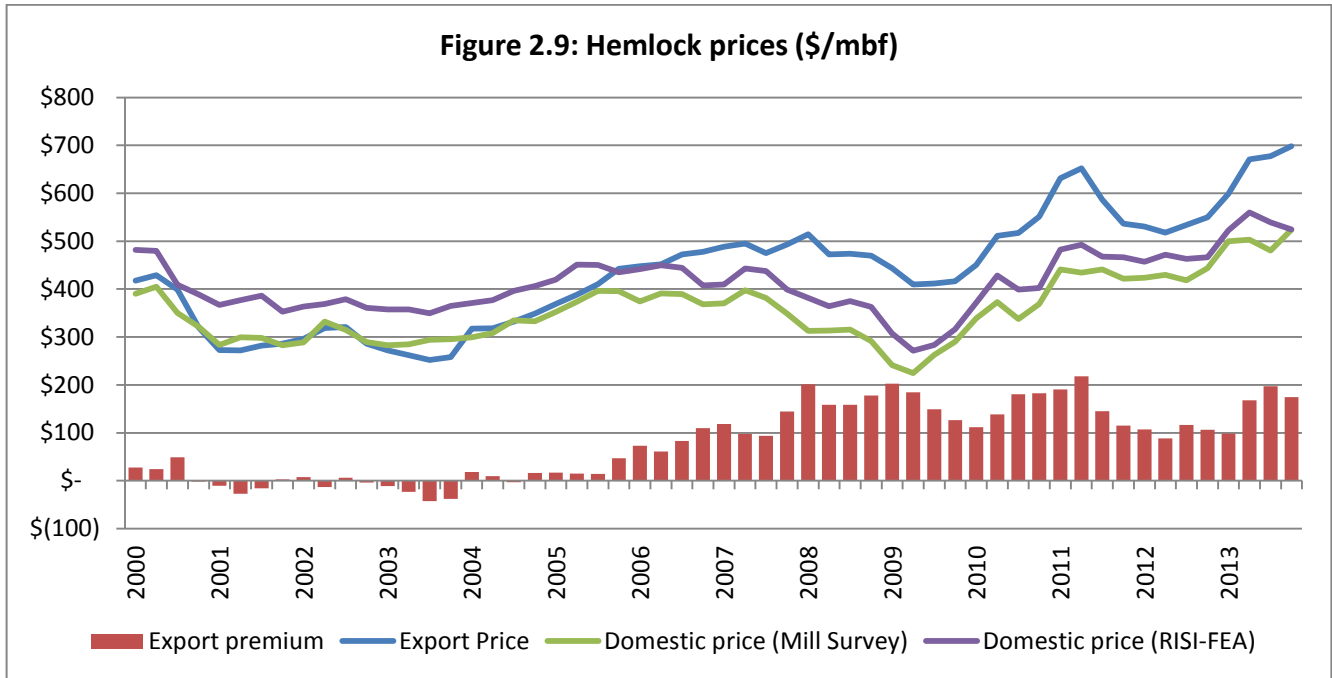
### Export markets

While logs from public lands west of the 108<sup>th</sup> meridian cannot be exported by Federal law, log exports have an indirect, but real, impact on DNR stumpage prices. Foreign purchasers compete with domestic purchasers for privately sourced logs. Strong export competition for private logs will pull more of the supply from the domestic market—reducing the overall number of logs available to the domestic market and raising all domestic prices. However, changes in domestic prices do not arise from changes in export prices in a one-to-one relationship.

While export prices are usually higher than domestic prices, a difference which is referred to as the ‘export premium’, both prices tend to cycle together. The export premium exists primarily due to the characteristics of the export markets, which often include a demand for higher quality wood, a high value placed on long-term contracts, and high transaction costs.

Between 2002 and 2007, the export premium was between 10-20 percent for Douglas-fir while export and domestic prices for hemlock were consistently very close. Both export and domestic prices fell following the economic downturn in 2008, but the drop in export prices was more muted. For instance, the export price for Douglas-fir logs dropped 26 percent from 2007 to 2009 while the domestic price dropped 44 percent (**Figure 2.8**).





Following a surge in demand from China, export prices increased rapidly through 2011-12, with hemlock increasing 44 percent (see **Figure 2.9**) and Douglas-fir by 16 percent. The initial increase in demand was for hemlock logs, but as hemlock prices approached Douglas-fir prices the demand for Douglas-fir logs increased. By 2012, the Douglas-fir premium was near its historic average. In 2012, export and domestic prices for both hemlock and Douglas-fir softened and the price spread between the species returned to its historical average.

Looking forward, the export premium will likely shrink due to strong domestic demand from recovering markets. Strong domestic prices will make export logs less competitive internationally, but much will depend on supply constraints from key international suppliers. In the long run, the export premium will likely shrink yet more as West Coast log exports face stronger international competition.

### Production capacity

Lumber mills have excess capacity because of layoffs and shift reductions caused by reduced production during the Great Recession. Capacity utilization in the U.S. Coast region (western Washington and western Oregon) softwood lumber mills dropped to 57 percent in the bottom of the U.S. wood products industry in 2009. In 2013, with some mills closed permanently and remaining mills adding shifts and workers, RISI expects capacity utilization to approach 79 percent. Lumber prices should be driven higher as capacity utilization of Coast region lumber mills is predicted to rise. In the meantime, lumber prices are expected to be especially volatile as mills and the supply chain adapt to increased lumber demand and production.

The recession in the forestry and wood products sector affected not only the mills but also the logging workforce and infrastructure. Many loggers and log truckers have left the industry and may not return. Logging firms have delayed investments in facilities, roads, and equipment in order to eke through the



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tough times. This will limit the firms' ability to increase production quickly and will add to the price volatility expected over the next couple of years.

## Timber supply

Timber supply is up in the Coast region, as well as in the competing U.S. Inland and South timber regions, because timber landowners reduced harvests during the recession in response to low prices. Although timber growth has exceeded timber harvest since the beginning of the recession, increasing the potential timber inventory, strong log exports in the U.S. West Coast have constrained the growth of the timber inventory in that region. Thus the deferred volume in the Coast region is not as great as in other regions. FEA expects that harvesting on the U.S. West Coast will soon exceed growth, which will begin to deplete the inventory.

The timber resources of British Columbia have been devastated by the mountain timber beetle, which has destroyed about a third of province's timber resources<sup>9</sup>. This has increased British Columbia's timber supply since 2007. Timber killed by beetles must typically be harvested between 4 and 10 years after being killed, so the government increased the allowable harvest to ensure that the dead timber was not wasted. FEA forecasts that British Columbia's timber supplies will start declining as early as 2015. The supply from Canada will be further diminished by Quebec's allowable annual cut being reduced by implementation of Bill 57 in 2013 and may be additionally reduced by Plan Nord.

However, as the domestic market strengthens, offshore imports of softwood lumber are likely to rebound sharply, according to FEA. FEA notes that imports increased nearly 50 percent in 2013. They expect that imports will increase by about 46 percent per year between 2014 and 2018, ending up around three billion board feet.

Decreasing Canadian timber supplies in the long term will likely outweigh the effects of the increase in supply from the U.S. Coast region, such that overall supply will be diminished.

## Price outlook

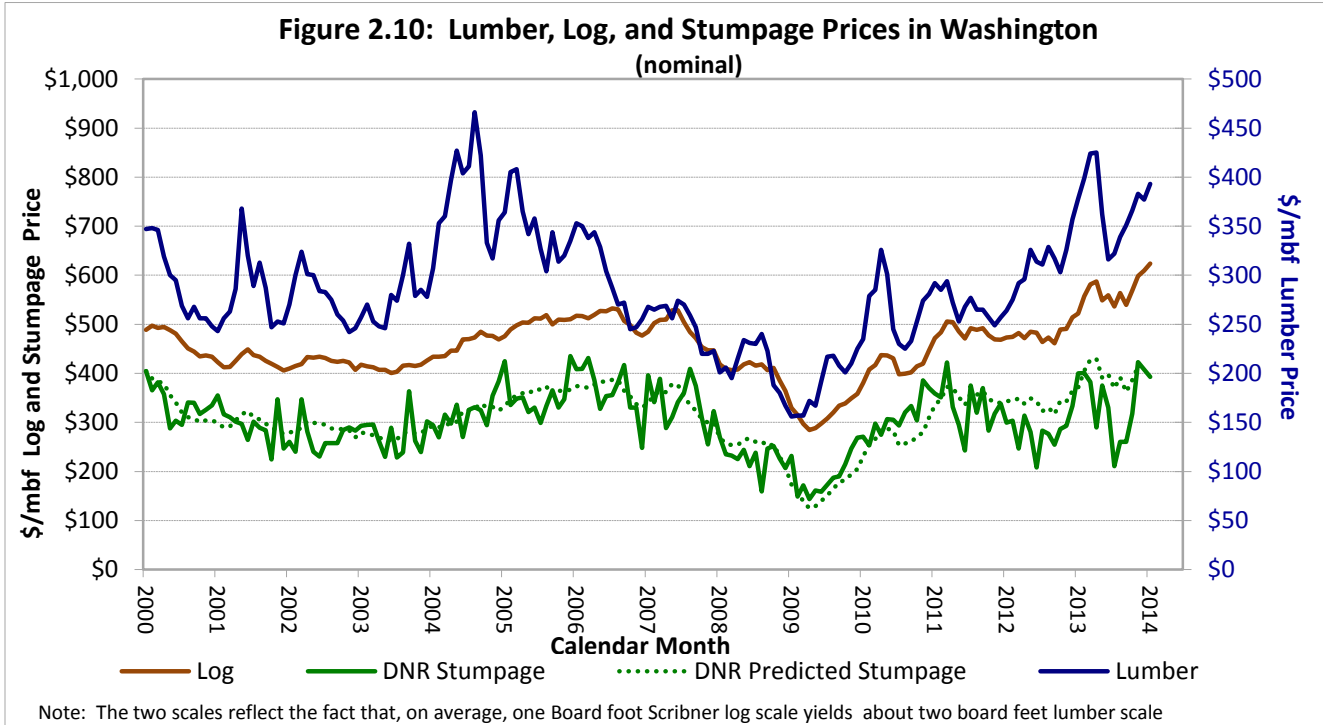
### *Lumber Prices*

As shown in **Figure 2.10**, lumber prices have increased substantially since they bottomed out at \$156/mbf in January 2009. The lumber prices shown on the chart are from Random Length's Coast Dry Random and Stud price series.

After some extreme volatility in 2010, regional lumber prices generally rose through 2011 and 2012. More recently, they hit \$425/mbf in April 2013, an impressive 44 percent year-over-year increase. The lumber price fell off steeply to \$362/mbf in May but a drop in this time period was predicted by forest economists because of the jerky response of bringing lumber production back on line. FEA forecasts flat lumber price growth over 2014 because mills and dealers are now better adapted to the

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<sup>9</sup> FEA Quarterly Timber Forecast Service, Q3 2013

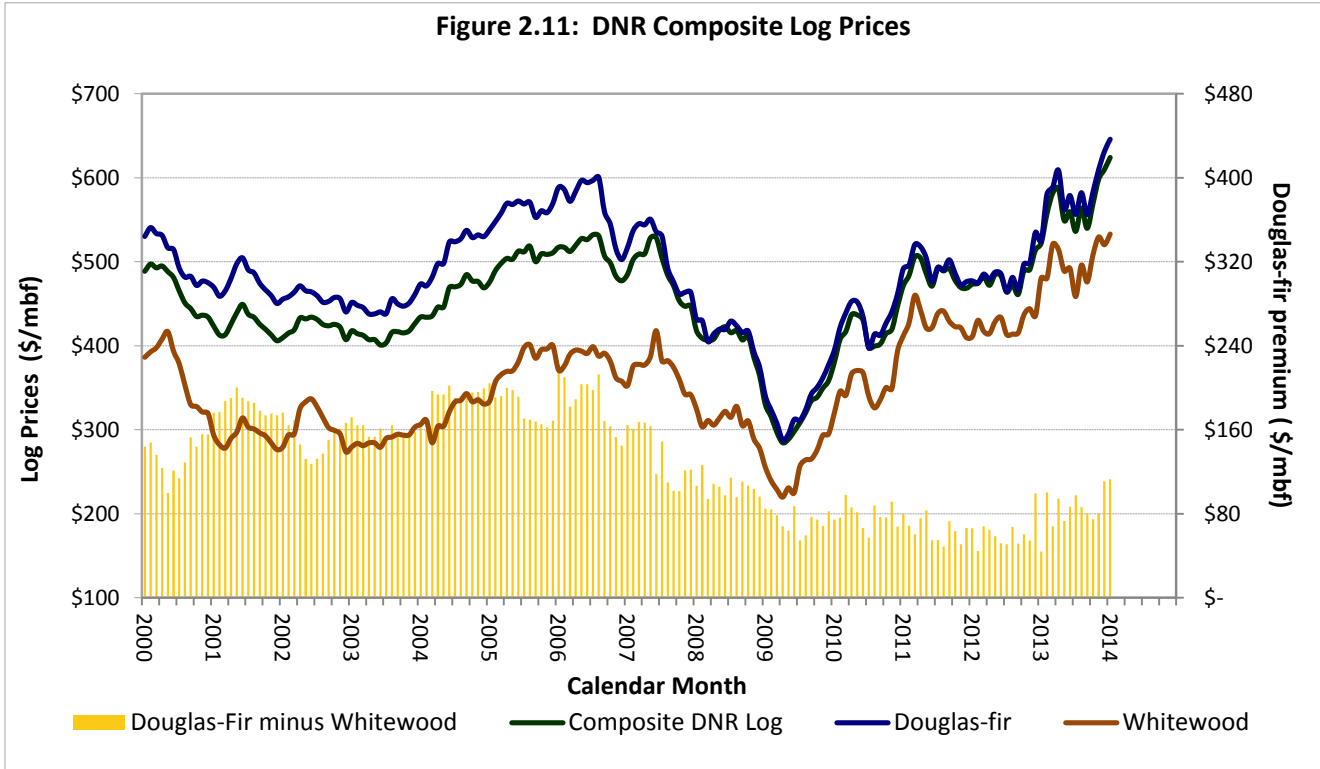


surprising lumber demand of 2013. However, they expect that lumber prices will climb through 2015-2017 on the back of stronger housing markets and constraints on capacity.

**Log Prices**

**Figure 2.11** presents prices for Douglas-fir, hemlock, and DNR’s composite logs. DNR’s “composite log price” is calculated from prices for logs delivered to regional mills, weighted by the average geographic location, species, and grade composition of timber typically sold by DNR. In other words, it is the price a mill would pay for delivery of the typical log harvested from DNR-managed lands. The dark green line for the DNR composite log price on **Figure 2.11** is the same as the brown line on **Figure 2.10**. All three log prices hit their post-2000 lows in April 2009, with the composite log falling to \$284/mbf. After rising through the rest of 2009, 2010, and into 2011, log prices generally moved sideways until the fall of 2012. From there, composite log prices climbed dramatically to a nominal high of \$587/mbf in April 2013, the highest price in the period since 2000, but fell back until the end of the 2013. At the end of 2013 the composite log prices climbed above \$600/mbf and in January reached \$624/mbf.

Note the diverging trend between lumber and log prices from late 2011 into 2013 (see **Figure 2.10**); it suggests that potential profit margins for lumber mills in the Pacific Northwest have increased throughout this recent period.



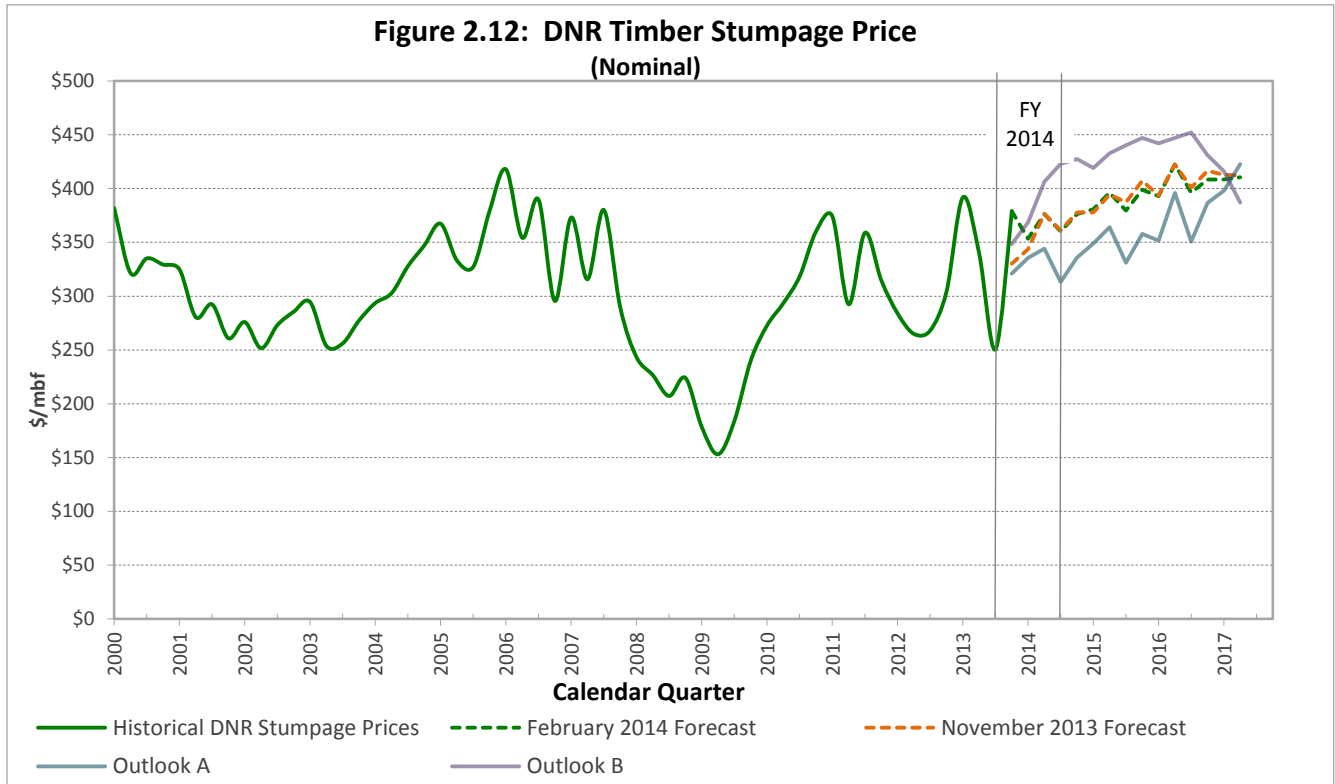
**Stumpage Prices**

Timber stumpage prices are the prices that successful bidders pay for the right to harvest timber from DNR-managed lands. **Figure 2.10** shows monthly nominal prices for DNR stumpage prices since 2000 in **green**. Like the log price, DNR stumpage prices bottomed out in April 2009 at \$144/mbf. Seven months into FY 2014, the average DNR stumpage price weighted by volume is \$342/mbf, up from the \$308/mbf average at the time of the November Forecast and the \$246/mbf average from the September Forecast. Lower prices in the beginning of the fiscal year were primarily due to a high proportion of thinning sales.

At any time, the difference between the delivered log price (in **brown** on **Figure 2.10**) and DNR’s stumpage price (in **green**), is equivalent to the sum of logging costs, hauling costs, and harvest profit. Taking the average of these costs over 12 years and subtracting it from the log price line gives us an inferred or estimated DNR stumpage price, as shown by the green dotted line. Stumpage prices from actual DNR timber sales in 2012 were generally lower than stumpage prices inferred from log prices, which suggested that an upward market “correction” would be forthcoming. This correction seems to have occurred, except for an anomalous result in the April 2013 and the low prices due to sales composition in the early months of FY14.

**DNR Stumpage Price Outlook**

**Figure 2.12** shows DNR’s historical timber stumpage prices (the solid **green** line, which is a quarterly version of the line in **Figure 2.10**), the price outlook as of the November 2013 Forecast (**orange**



dashed line), and our updated price outlook<sup>10</sup> (green dashed line). There are modest adjustments to both the FY 2014 and FY 2015 stumpage prices that are not obvious on the chart. These changes will be explained in Part 3.

DNR currently contracts with two forest economics consulting firms that provide log and timber stumpage price forecasts, as well as valuable insights into the housing, lumber, and timber markets. By modeling DNR’s historical data on their price forecasts, we arrive at two alternative stumpage price outlooks—named Outlook A and Outlook B in **Figure 2.12**. Outlook A predicts relatively flat average prices through the forecast period, with considerable volatility that represents the market finding new equilibria in the face of a series of demand changes and supply adaptations. Outlook B reflects an assumption that demand will outpace supply through late 2014, and it incorporates a business cycle downturn from 2015 forward. The updated DNR Forecast represents a middle ground between these two outlooks. Furthermore, the ascent of our forecast stumpage prices slows down in outlying years to account for increasing uncertainty, particularly in timber mix brought to auction.

**Figure 2.12** shows the outlying years of the updated Forecast culminating in DNR stumpage prices at or above the highest achieved in the past twelve years – including at the height of the real estate boom in 2006-07 – despite the reduced expectations for FYs 2012 and 2015.

<sup>10</sup> This updated price outlook is the basis for the timber revenue changes discussed in the next section.



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## Part 3. DNR's Revenue Forecast

This Revenue Forecast includes revenues generated from timber sales on trust uplands, leases on trust uplands, and leases on aquatic lands. In the final summary table, it also forecasts revenues to individual funds, including DNR management funds, beneficiary current funds, and beneficiary permanent funds.

Some caveats about the uncertainty of forecasting DNR-managed revenues are summarized near the end of this section.

### **Timber revenues**

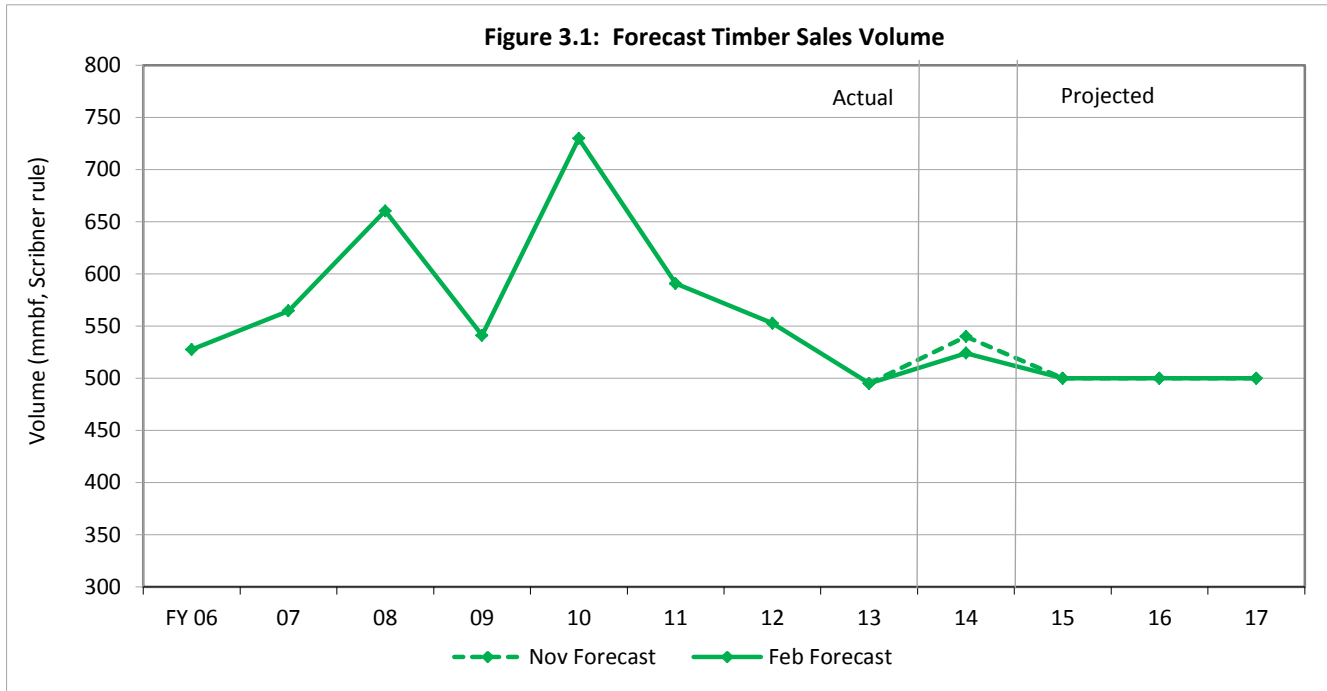
DNR sells timber through auctioned contracts. With the approval of the Board of Natural Resources, DNR determines the total volume to be offered for sale each month and the minimum bid for each timber sale. The sale is awarded to the highest bidder and the average sales price (\$/mbf), or stumpage price, is set by the result of the auction. DNR collects a 10 percent initial deposit at the time of sale and holds it until the sale is completed. Revenues are collected at the time of harvest (removal). The initial deposit is credited as the last 10 percent of timber is harvested.

Contracts for DNR timber sales sold in FY 2013 varied in duration from three months to three and a half years, with an average (weighted by volume) of about 21.5 months. The purchaser determines the actual timing of harvest within the terms of the contract. As a result, timber revenues to beneficiaries and DNR management funds lag sales and are subject to purchaser's perceptions of current market conditions.

For the purposes of this chapter, timber that is sold but not yet harvested is referred to as "volume under contract" or as "inventory." Timber volume is added to the inventory when it is sold and placed under contract, and it is removed from the inventory as the timber is harvested.

### ***Timber Sales Volume***

DNR sold 171 mmbf in FY 2014's first seven months of timber sales. Projected timber sales volume for the current fiscal year is 524 mmbf—16 mmbf lower than previously predicted (see **Figure 3.1**). FY 2014 is the last year of the current FY 2005-2014 sustainable harvest decade. If actual timber sales results follow the projections in this Forecast, the shortfall on this decade's 5,500 mmbf target for western Washington will be about 396 mmbf.

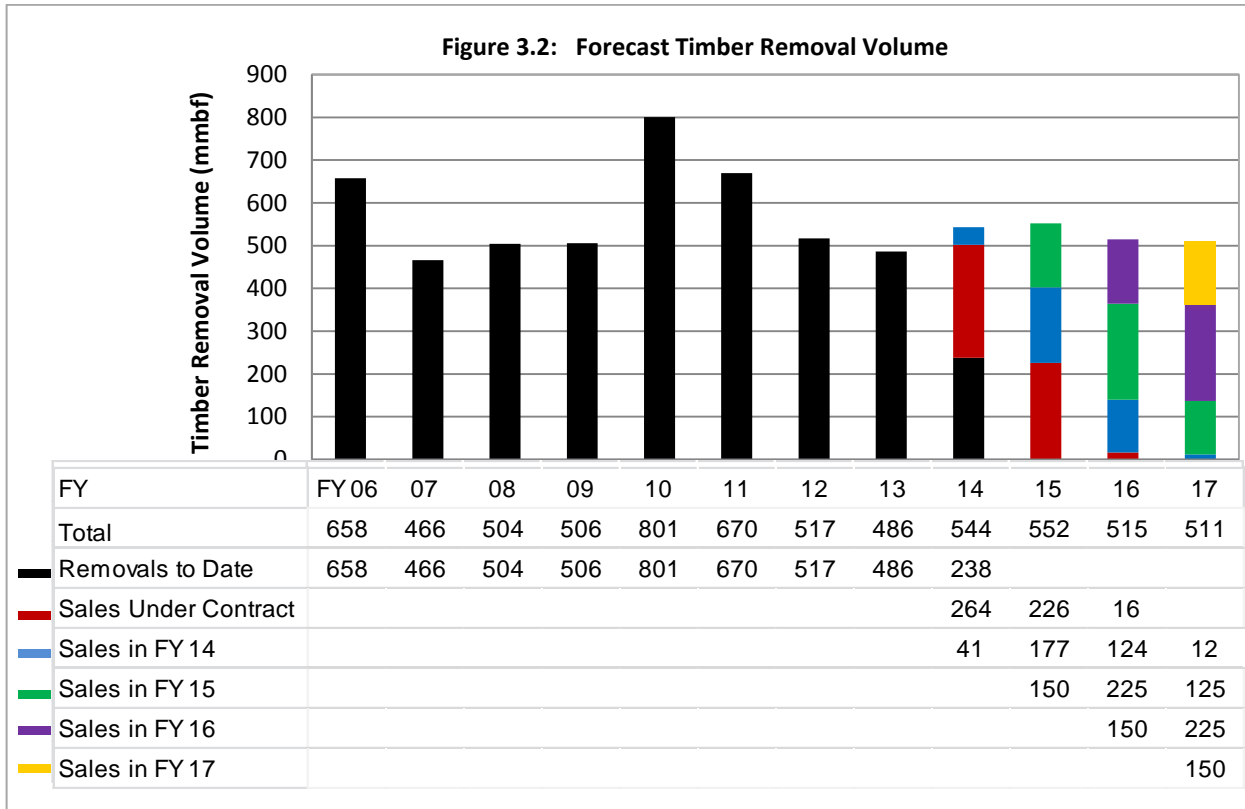


FY 2015 is the first year of the next sustainable harvest decade (FY 2015 through FY 2024) for western Washington. Through the March 2013 Forecast, the Department’s annual Westside sustainable harvest level for FYs 2015-2017 was assumed to be 537 mmbf. This placeholder target was estimated at the beginning of the current FY 2005-2014 from the sustainable harvest model. More recent policy constraints, scenario modeling, and observations from the field suggest that the 537 mmbf assumption was no longer likely. In response to this evidence, in the June 2013 Forecast annual Westside sales volume estimates were reduced to 450 mmbf for FYs 2015-2017. This Forecast assumption will be periodically revisited throughout the official process of determining the next decade’s sustainable harvest levels. Combined with projected eastern Washington timber sales of 50 mmbf for the next several years, we arrive at a projected annual timber sales volume of about 500 mmbf for FYs 2015-2017. These projections are presented graphically in **Figure 3.1**.

***Timber Removal Volume***

At the end of December, the Department had 507 mmbf of timber under sales contract, valued at \$159.6 million. This is down from the 536 mmbf in September, valued at \$159.3 million.

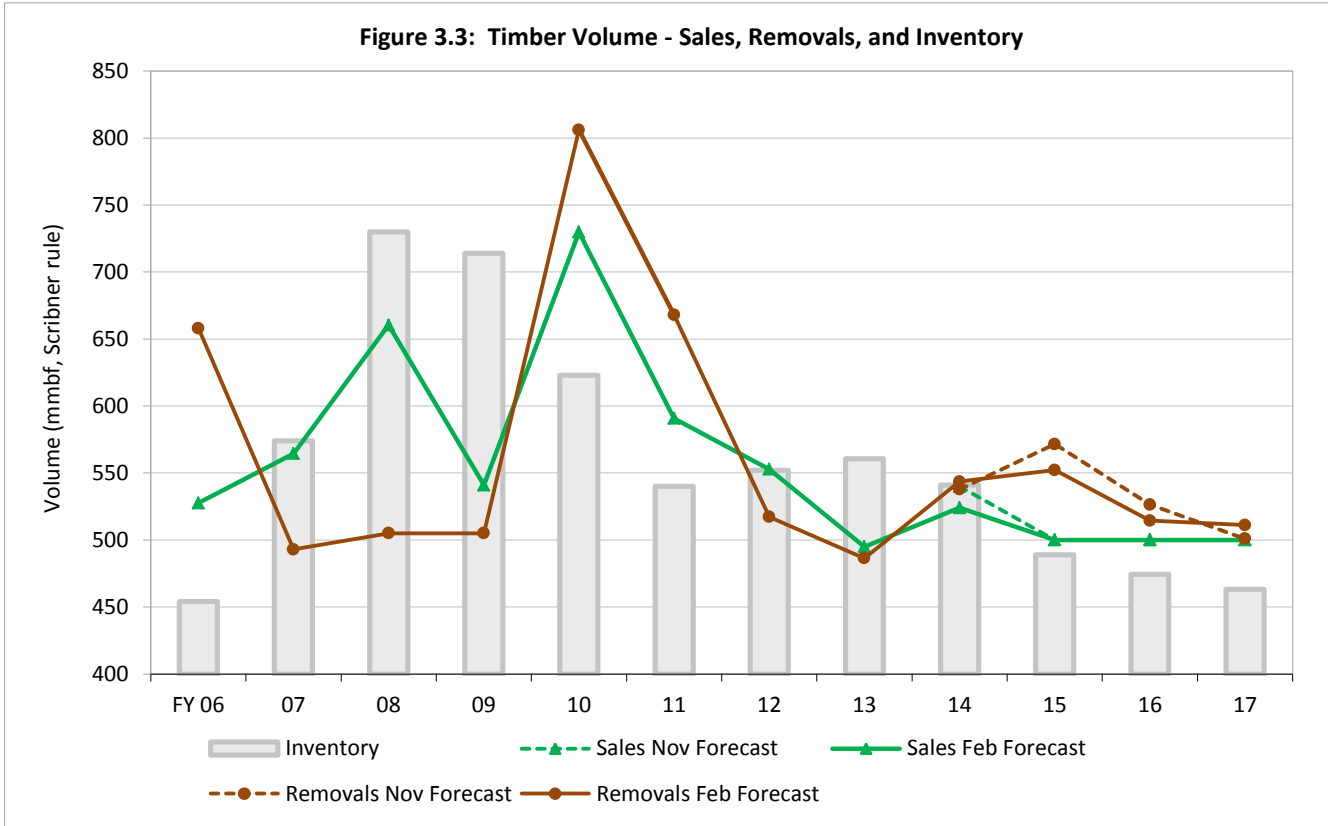
For each Forecast, we survey DNR timber sale purchasers to determine their planned harvest timing for the timber volume they have under contract at the time of the survey. This Forecast’s survey, conducted in the first half of January, indicates that purchasers plan to harvest 264 mmbf, or 52 percent, of the 507 mmbf remaining under contract this fiscal year (FY 2014) and 226 mmbf (45 percent) of the existing inventory in FY 2015 (see **Figure 3.2** for detail).



The survey suggests that a total of about 544 mmbf will be removed in FY 2014: 238 mmbf that timber purchasers have already removed since July, anticipated removals of 264 mmbf from volume under contract as of the end of December<sup>11</sup>, and 41 mmbf from further sales taking place in FY 2014 (see **Figures 3.2 and 3.3**).

The level and timing of projected timber removal volumes have changed in this Forecast in response to purchasers’ plans and the 16 mmbf reduction in FY 2014 timber sales volume. As a result, projected timber removal volumes for the current biennium, 2013-2015, are decreased by 13 mmbf, around two percent, from the November Forecast. Projected volumes across the 2015-2017 Biennium are decreased by two mmbf, or around one percent (see **Figure 3.3**).

<sup>11</sup> The anticipated removals can differ from the purchasers planned removals because the purchasers survey excludes sort sales and purchasers with little volume.



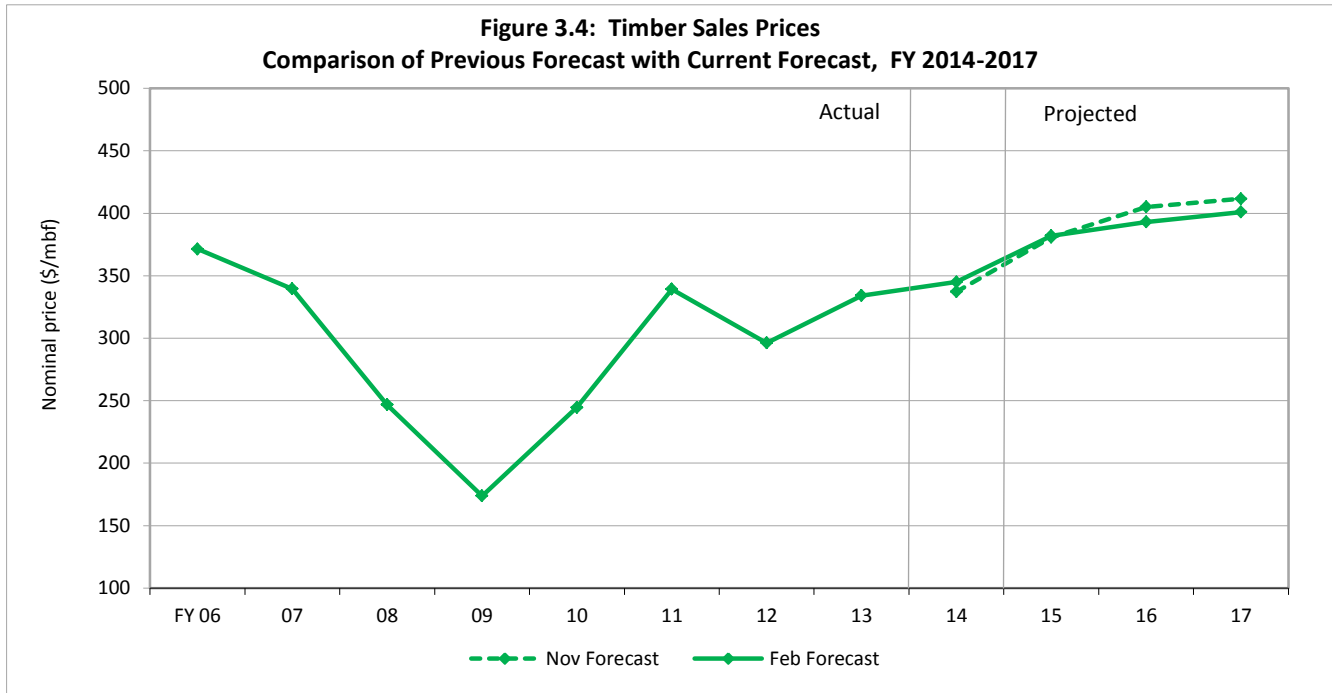
**Timber Sales Prices**

The price results of monthly DNR timber sales (shown in **Figure 2.10** in seasonally adjusted, nominal terms) are quite volatile. In FY 2011, monthly timber sale prices were mostly above \$300/mbf and averaged \$339/mbf weighted by volume, whereas they averaged \$296/mbf in FY 2012 and \$334/mbf in FY 2013 (see **Figure 3.4**).

As discussed in **Part 2**, the U.S. housing market is showing signs of improvement and is likely to continue to strengthen over the forecast period. The timing and magnitude of the recovery in housing construction remain uncertain, but when domestic demand for lumber strengthens, it exerts upward pressure on stumpage prices via higher log prices. This effect on stumpage prices is lagged, but the length of the lag is shorter when mills have less log inventory, as they have now. Among other things, **Figure 2.10** illustrates this sensitivity.

The FY 2014 average DNR timber sales price projection is raised from \$337/mbf to \$345/mbf in this Forecast, reflecting increases in the predicted market prices in calendar year 2015 (see **Figure 3.4**) and supportive auction results in the past three months. Timber sales in FY 2014 through January have averaged \$342/mbf. Sales through October had only averaged \$274/mbf, so low because there was an unusually large percentage of forest improvement thinnings. The average jumped to \$309/mbf through November due to the November auction’s high average price of \$423/mbf.





***Timber Removal Prices***

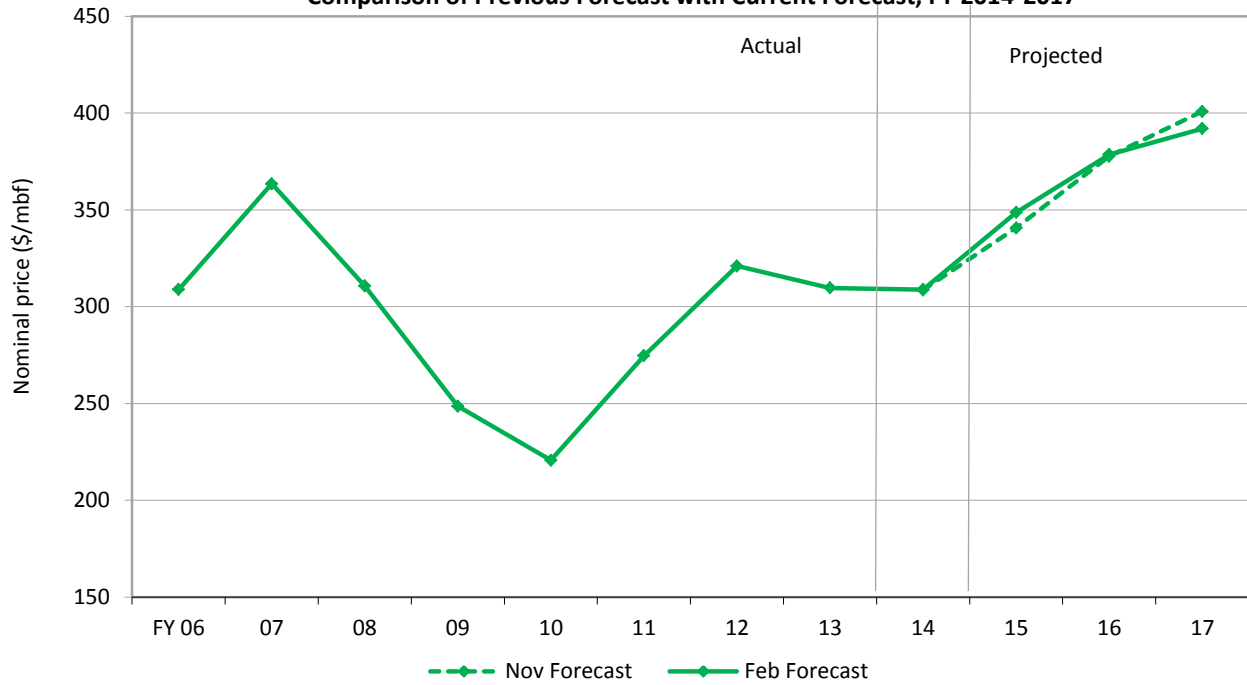
Timber removal prices are determined by sales prices, volumes, and harvest timing. They can be thought of as a moving average of previous timber sales prices, weighted by the volume of sold timber removed in each time period. The removal volumes used to calculate the weights are shown in **Figure 3.2**. There is a smoothing out and a lag of timber removal prices compared to timber sales prices. For example, sales prices bottomed at an average annual price of \$174/mbf in FY 2009 (see **Figure 3.4**). However, removal prices bottomed out in FY 2010 at \$221/mbf on an annual basis, which was \$47/mbf higher and came a year after the bottom for annual sales prices (**Figure 3.5**). **Figure 3.5** shows that future removal prices are changed only modestly from the November Forecast, despite the changes in expected sales prices and volumes.

***Timber Removal Revenues***

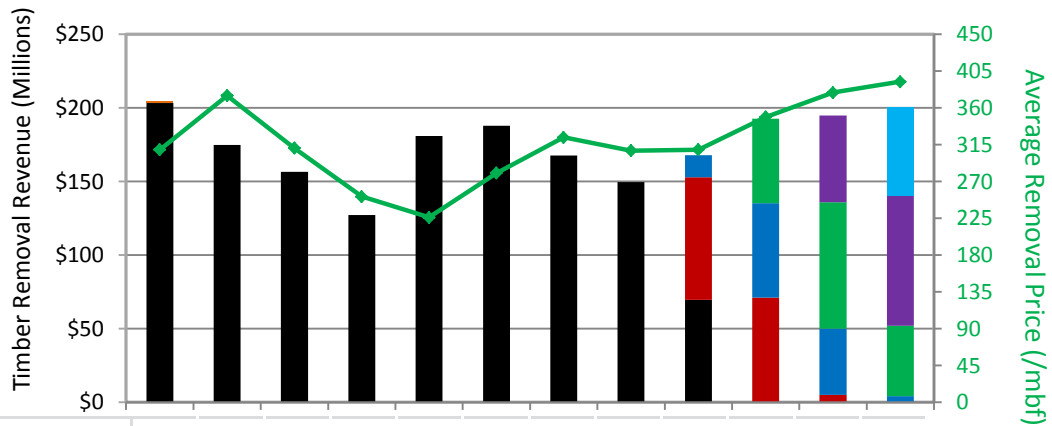
**Figure 3.6** shows projected annual timber removal values, broken down by the fiscal year in which the timber was sold (“sales under contract” are already sold as of January 1, 2014). About \$70 million, or around 42 percent, of the projected \$168 million timber harvest revenue this fiscal year (FY 2014) has already been harvested, and about 52 percent (\$98 million) will come from previously sold timber sales currently under contract and from sales in the next few months.

The projected 2013-2015 Biennium timber revenues have been reduced from \$360.6 million to \$360.2 million—a decrease of \$0.2 million or less than one percent (see **Figure 3.7**). In the 2015-2017 Biennium, forecast timber removal revenues are projected to be down one percent or \$4.2 million, from \$399.6 million to \$395.1 million.

**Figure 3.5: Timber Removal Prices**  
**Comparison of Previous Forecast with Current Forecast, FY 2014-2017**

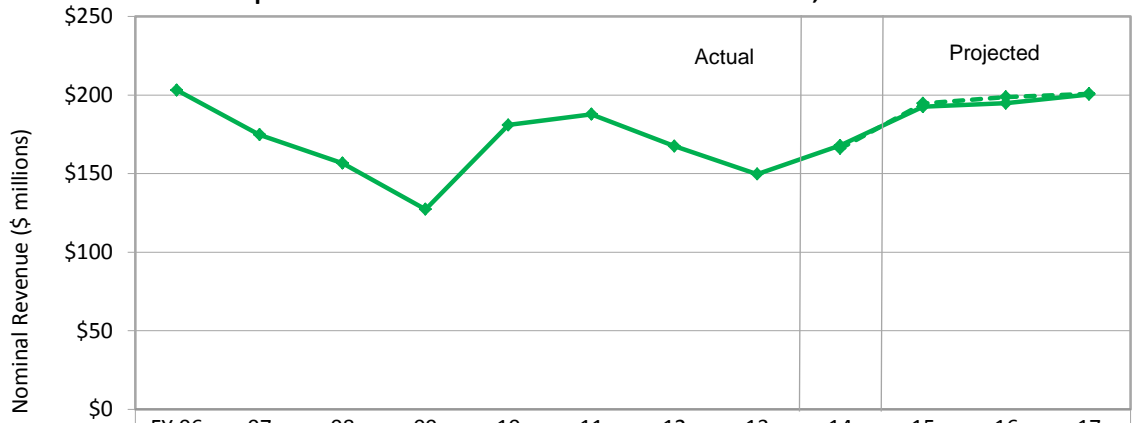


**Figure 3.6: Forecast Timber Removal Value**



FY	FY 06	07	08	09	10	11	12	13	14	15	16	17
Total	203	175	157	127	181	188	168	150	168	193	195	200
Removals to Date	203	175	157	127	181	188	168	150	70			
Sales Under Contract									83	71		
Sales in FY 14									15	64	45	
Sales in FY 15										57	86	48
Sales in FY 16											59	88
Sales in FY 17												60

**Figure 3.7: Timber Removal Revenues**  
**Comparison of Previous Forecast with Current Forecast, 2014-2017**



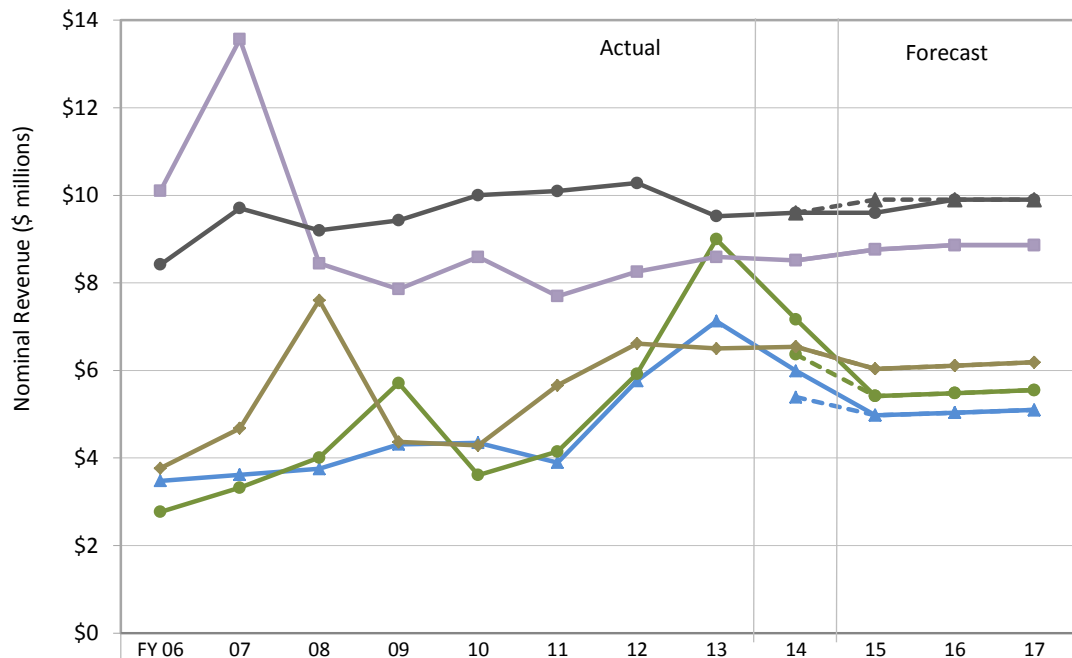
Nov Forecast									165.9	194.7	198.8	200.8
Feb Forecast	203.2	174.7	156.6	127.2	181.0	187.8	167.5	149.7	167.9	192.5	194.8	200.4
Change									1.9	-2.1	-4.0	-0.4
Percent Change									1%	-1%	-2%	0%

## Upland lease revenues

Upland lease revenues are generated primarily from leases and the sale of valuable materials—other than timber—on state trust lands. In this Forecast, upland lease revenues are divided into two overarching categories: agriculture and other. Each of these is further divided. Presenting the data this way better reflects the size and constitution of the uplands revenue sources.

The changes in upland lease revenues from the previous Forecast are: a \$0.6 million increase in irrigated lands revenue in FY 2014; a \$0.8 million increase in orchard/vineyard revenue for FY 2014; a \$0.3 million reduction in commercial lease revenues in FY 2015 (see **Figure 3.8**). Orchard/vineyard leases are dependent upon product prices in the previous year and the increase in revenue is due to higher than expected prices for orchard products, particularly apples, in 2013. The decrease in expected commercial lease revenue is due to some properties remaining vacant longer than anticipated.

**Figure 3.8: Upland Lease Revenue**  
Comparison of Previous Forecast with Current Forecast, FY 2014-2017



	FY 06	07	08	09	10	11	12	13	14	15	16	17
---▲--- Irrigated Nov									5.4	5.0	5.0	5.1
—▲— Irrigated Feb	3.5	3.6	3.8	4.3	4.3	3.9	5.8	7.1	6.0	5.0	5.0	5.1
---●--- Orchard/Vineyard Nov									6.4	5.4	5.5	5.5
—●— Orchard/Vineyard Feb	2.8	3.3	4.0	5.7	3.6	4.1	5.9	9.0	7.2	5.4	5.5	5.5
---◆--- Dryland/Grazing Nov									6.5	6.0	6.1	6.2
—◆— Dryland/Grazing Feb	3.8	4.7	7.6	4.4	4.3	5.7	6.6	6.5	6.5	6.0	6.1	6.2
---■--- Other Nov									8.5	8.8	8.9	8.9
—■— Other Feb	10.1	13.6	8.4	7.9	8.6	7.7	8.3	8.6	8.5	8.8	8.9	8.9
---▲--- Commercial Nov									9.6	9.9	9.9	9.9
—●— Commercial Feb	8.4	9.7	9.2	9.4	10.0	10.1	10.3	9.5	9.6	9.6	9.9	9.9

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	FY 2011	FY 2012	FY 2013	Percent of FY 2011-13 Total
Agricultural	\$13,058,000	\$17,471,000	\$21,623,000	67.1%
Irrigated	3,895,000	5,762,000	7,127,000	21.2%
Orchard/Vineyard	4,148,000	5,922,000	8,996,000	24.1%
Dryland	5,015,000	5,788,000	5,658,000	20.8%
Grazing	663,000	850,000	843,000	3.0%
Special forest products	424,000	567,000	576,000	2.0%
Special use	1,818,000	2,132,000	1,779,000	7.2%
Communication site	3,958,000	3,814,000	4,190,000	15.1%
Right-of-way	433,000	634,000	588,000	2.1%
Mineral, oil, and gas	282,000	147,000	61,000	0.6%
Rock, sand, and gravel	595,000	877,000	908,000	3.0%
Other <sup>12</sup>	181,000	221,000	488,000	0.6%
<b>Total</b>	<b>\$21,420,000</b>	<b>\$26,541,000</b>	<b>\$31,214,000</b>	

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<sup>12</sup> “Other” is composed of smaller miscellaneous revenue sources including habitat and conservation leases, trespasses, assessment payments, pass-through power charges, biomass, and others.

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## Aquatic lands revenues

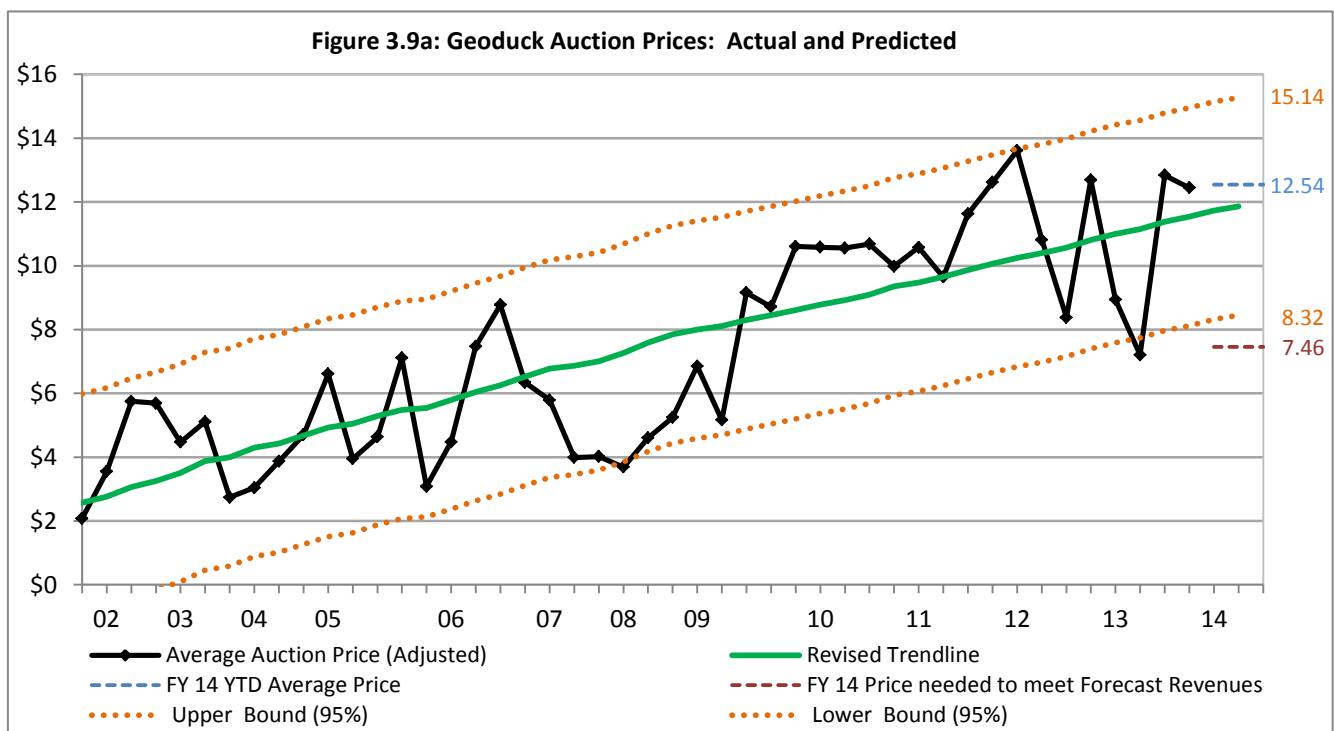
DNR manages 2.6 million acres of state-owned aquatic lands. Very broadly, aquatic lands revenues are generated in two ways: geoduck sales and harvest revenue, and lease and other revenue. The lease and other revenues are comprised of:

1. Water dependent leases (e.g., marinas and buoys);
2. Non-water dependent leases (e.g., structures related to upland uses);
3. Aquaculture leases (e.g., oyster and salmon ‘farming’);
4. Easements (e.g., power line rights-of-way); and
5. Other (e.g., sand and gravel sales and trespass settlements).

The expected revenues from these lease sources are unchanged in this Forecast.

The rights to harvest geoducks are sold at several auctions throughout the year. There are currently four geoduck auctions planned for FY 2014. The first was held September 5<sup>th</sup> and sold 452,000 pounds at an average price of \$12.84/lb. This price was on the high side of our expectations. The second auction, took place November 21, selling 490,000 pounds at an average of about \$12.44/lb—also on the high side. At the time of the November Forecast only the results from the first auction were available. Given that auction’s modest volume compared to the whole year and given the significant price volatility inherent in geoduck markets (see **Figure 3.9a**), the November projection for FY 2014’s average auction price of \$9.20/lb remained unchanged from September’s.

In early December, the Chinese government declared import restrictions on shellfish from most of the West Coast of North America, citing health concerns from high levels of paralytic shellfish poisoning toxin (PSP) and arsenic. Negotiations to resolve this issue are under way, but the ban has already



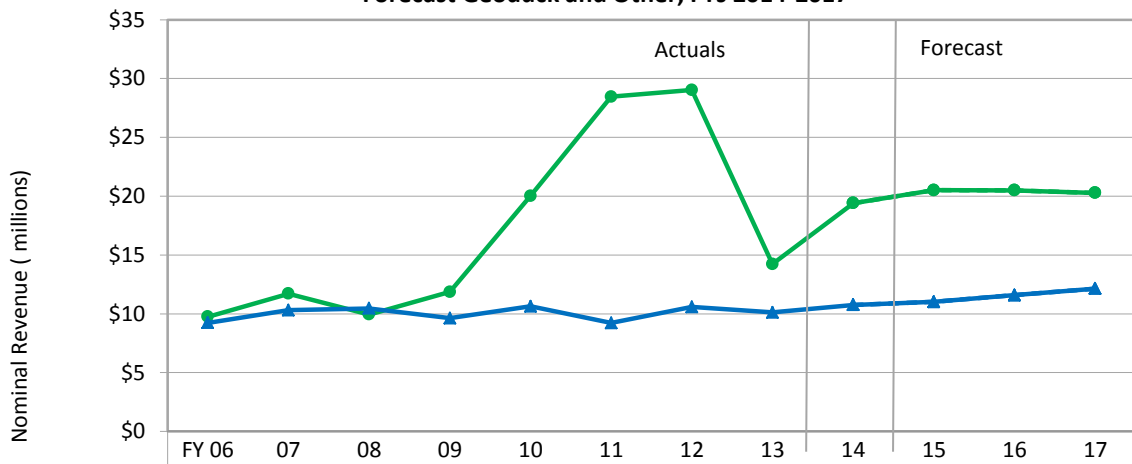
resulted in about \$1 million in refunded or foregone revenue from the last of the September poundage. Almost all of the poundage from the November auction was harvested in January, in time for the Chinese New Year; apparently, geoduck brokers and exporters were able to find sufficient supply routes. DNR is currently planning to bring nearly 1.2 million pounds forward for sale between the February 25 and April 30 auctions. The duration of the import restriction, its effect on prices, and its effect on sales volumes are all unknown to market participants. For FY 2014, this Forecast uses a moderately more conservative estimate of sales volume and assumes that, combined, the next two auctions will average \$7.50/lb or higher. Such a low price has only occurred once in the past five years (see **Figure 3.9a**). Projections of price and volume remain the same in outlying years, and will incorporate changes in market data and the results of trade negotiations as soon as either becomes available.

Overall, expected geoduck revenues remain unchanged for FYs 2014-2017 (see **Figure 3.9b**).

However, these downside risks to geoduck revenues are important to consider but difficult to forecast:

1. Harvests (and therefore revenues) could be deferred or lost if geoduck beds are closed due to occurrence PSP toxin.
2. A further slowdown in China’s economic growth could lower demand for this luxury good in its largest market.
3. In light of recent WDFW surveys of closed south Puget Sound geoduck tracts showing declining recovery rates, and of evidence of active poaching, future commercial harvest levels may be further reduced.

**Figure 3.9b: Aquatic Lands Revenues  
Forecast Geoduck and Other, FYs 2014-2017**



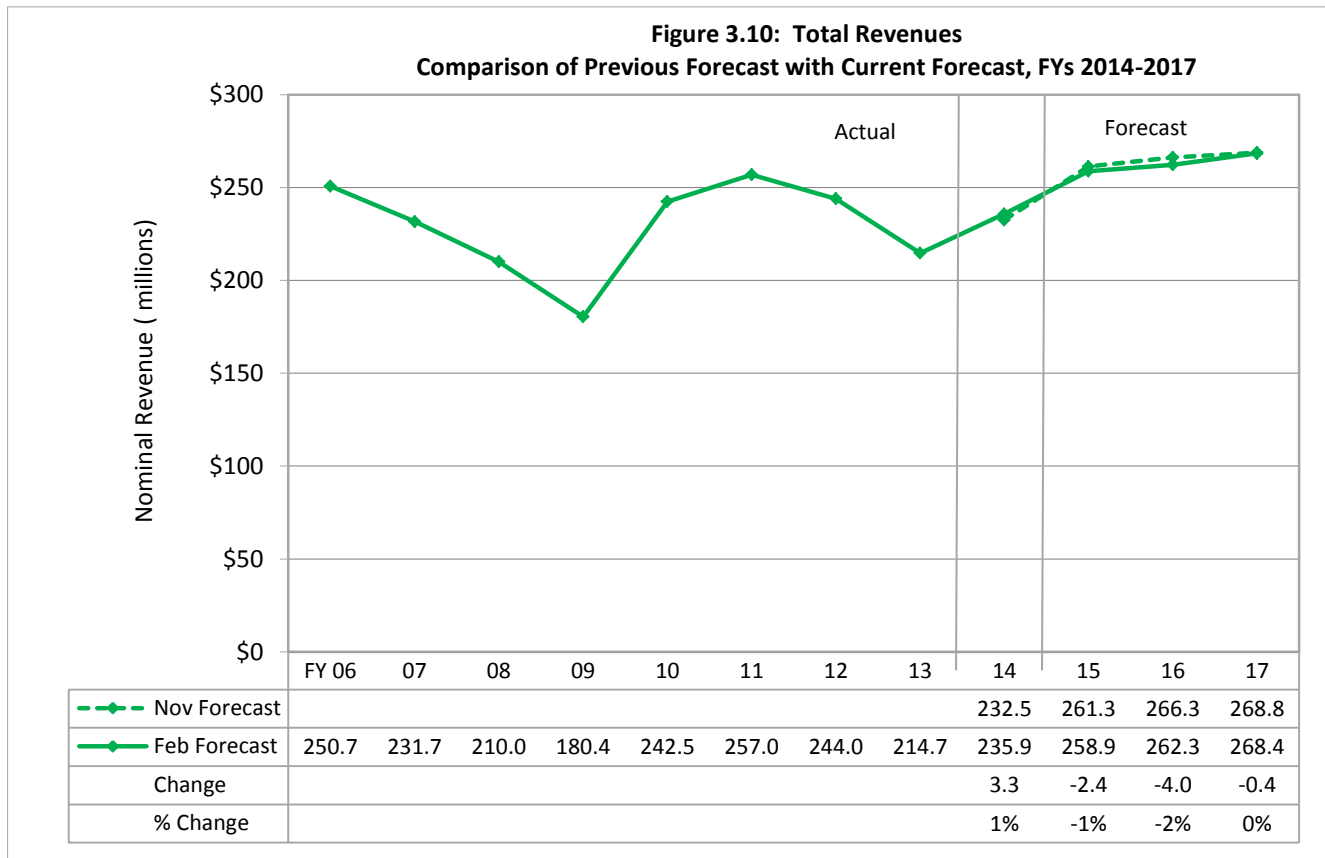


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## Total revenues from all sources

Total forecast revenues for the 2013-15 Biennium (FYs 2014 and 2015) are up from the previous Forecast by \$0.9 million (less than one percent) to \$494.7 million. Revenues for the 2015-2017 Biennium (FYs 2016 and 2017) are projected to be down by \$4.4 million (around one percent) to \$530.6 million. The vast majority of the overall revenue changes are driven by a reallocation of planned timber harvests and by a reduction to FY 2014 timber sales volume.



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## Some caveats

DNR strives to produce the most accurate and objective projections possible, based on the Department's current policy directions and available information. Actual revenues will depend on future policy decisions made by the Legislature, the Board, and DNR, as well as on market and other conditions beyond DNR's control. Listed below are issues that could potentially impact future revenues from DNR-managed lands:

**U.S. and Global Economic Crisis.** There are still too many unemployed workers, though some of reentered the workforce after having left; the financial and economic crises in Europe are improving, but several European countries remain in deep recession; China's economy has slowed; and the U.S. government has still not implemented a coherent, growth-driven economic policy.

**Timber Sales Volume.** Although significant curtailments in timber sales volumes were assumed in the June 2013 Forecast, further reductions are possible. These reductions would be due to potential environmental, operational, and policy issues (e.g., riparian management areas, and continued timber harvest deferrals pending implementation of a long-term marbled murrelet conservation strategy). This risk is particularly heavy for FYs 2015-2017.

**Geoduck Markets.** It is unclear how and when the ongoing Chinese import restriction will be resolved, or what affect it will have on sales prices, sales volumes, and final harvests. It has already reduced potential revenue from previous auctions.

As events and market conditions develop, DNR will incorporate new information into future Forecasts. At this point, we judge the downside to the overall forecast to be slightly greater than the upside because of the risks to the timber sales volume (and therefore to timber removal volume and revenues) as well as the ongoing weakness and vulnerabilities of the U.S. and world economies that affect the housing market, and therefore stumpage prices.

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## Distribution of revenues

The distribution of timber revenues by trust are based on:

- The volumes and values of timber in the inventory (sales sold but not yet harvested) by trust;
- The volumes of timber in planned sales for FYs 2014 and 2015 by trust, and relative historical timber prices by DNR region by trust; and
- The volumes of timber by trust for FYs 2015-2017 based on provisional output of the sustainable harvest model<sup>13</sup> and relative historical timber prices by DNR region by trust.

Since a single timber sale can be worth over \$3 million, dropping, adding, or delaying even one sale can represent a significant shift in revenues to a specific trust fund. Distributions of upland and aquatic lease revenues by trust are assumed to be proportional to historic distributions unless otherwise specified.

**Management Fee Deduction.** The underlying statutory management fee deductions to DNR as authorized by the legislature are 25 percent or less, as determined by the Board of Natural Resources (Board), for both the Resources Management Cost Account (RMCA) and the Forest Development Account (FDA). In budget bills, the Legislature has authorized a deduction of up to 30 percent to RMCA since July 1, 2005, now in effect through the 2013-2015 Biennium.<sup>14</sup>

At its April 2011 meeting, the Board adopted a resolution to reduce the RMCA deduction from 30 to 27 percent and the FDA deduction from 25 to 23 percent. At its July 2011 meeting, the Board decided to continue the deductions at 27 percent for RMCA (so long as this rate is authorized by the legislature) and at 23 percent for FDA. At its October 2011 meeting, the Board approved a resolution to reduce the FDA deduction from 23 to 21 percent. The Board decided in July 2013 to raise the FDA deduction to 25 percent and the RMCA deduction to 29 percent.

Given this background of official actions by the legislature and the Board, the management fee deductions assumed in this Forecast are:

	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>
FDA	21	25	25	25	25
RMCA	27	29	29	29	29

By using 29 percent for the RMCA deduction in FYs 2014-2017, the Forecast assumes that the Legislature will approve RMCA deductions of up to 30 percent for the 2015-2017 Biennium in their biennial budget bills, continuing its practice which started in FY 2006.

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<sup>13</sup> DNR and the Board of Natural Resources have not yet determined the sustainable harvest level for the FY 2015-2024 biennium.

<sup>14</sup> The Legislature most recently authorized the RMCA deduction of up to 30 percent, making it effective through the entire 2013-2015 Biennium, in the FY13-15 operating budget, Sec. 1001, 2ESSB 5034.

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# Revenue forecast tables

**Tables 3.1 and 3.2** on the following pages provide Forecast details. **Table 3.1** focuses on the source of revenues—timber sales and removals, uplands leases, and aquatic lands leases. **Table 3.2** focuses on the distribution of revenues to various state accounts—DNR management funds, beneficiary current and permanent funds, and the Aquatic Lands Enhancement Account. Both tables include historical and projected figures.

## February 2014 Forecast by Source (millions of dollars)

Changes are from the November 2013 Forecast

Timber Sales	Actuals				Forecast			
	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Volume (mmbf)	730	591	553	495	524	500	500	500
Change					(16)	-	-	-
% Change					-3%	0%	0%	0%
Price (\$/mbf)	\$245	\$339	\$296	\$334	\$345	\$382	\$393	\$401
Change					\$ 8	\$ 1	\$ (12)	\$ (11)
% Change					2%	0%	-3%	-3%
<b>Value of Timber Sales</b>	<b>\$ 178.5</b>	<b>\$ 200.4</b>	<b>\$ 163.7</b>	<b>\$ 165.4</b>	<b>\$ 180.8</b>	<b>\$ 190.8</b>	<b>\$ 196.3</b>	<b>\$ 200.3</b>
Change					\$ (1.3)	\$ 0.6	\$ (6.0)	\$ (5.3)
% Change					-1%	0%	-3%	-3%

Timber Removals	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
Volume (mmbf)	801	670	517	486	544	552	515	511
Change					6	(19)	(12)	10
% Change					1%	-3%	-2%	2%
Price (\$/mbf)	\$221	\$275	\$321	\$310	\$309	\$349	\$379	\$392
Change					\$ 0.3	\$ 8.0	\$ 0.9	\$ (8.8)
% Change					0%	2%	0%	-2%
<b>Timber Revenue</b>	<b>\$ 181.0</b>	<b>\$ 187.8</b>	<b>\$ 167.5</b>	<b>\$ 149.7</b>	<b>\$ 167.9</b>	<b>\$ 192.5</b>	<b>\$ 194.8</b>	<b>\$ 200.4</b>
Change					\$ 1.9	\$ (2.1)	\$ (4.0)	\$ (0.4)
% Change					1%	-1%	-2%	0%

Note: Timber removal revenue includes FIT (forest improvement timber) sale proceeds, timber sales default settlements, and interest and extension charges (approx. \$1-4 million per year).

Excludes Trust Land Transfer, Real Property Replacement Account, and Land Bank property transactions and interest on property replacement funds.

Excludes fire assessments, permits, and fees.

Totals may not add due to rounding.

## February 2014 Forecast by Source (millions of dollars), cont'd.

Changes are from the November 2013 Forecast

	Actuals				Forecast			
	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
<b>Upland Leases</b>								
Irrigated Agriculture	\$ 4.3	\$ 3.9	\$ 5.8	\$ 7.1	\$ 6.0	\$ 5.0	\$ 5.0	\$ 5.1
Change					\$ 0.6	\$ -	\$ -	\$ -
% Change					11%	0%	0%	0%
Orchard/Vineyard	\$ 3.6	\$ 4.1	\$ 5.9	\$ 9.0	\$ 7.2	\$ 5.4	\$ 5.5	\$ 5.5
Change					\$ 0.8	\$ -	\$ -	\$ -
% Change					13%	0%	0%	0%
Dryland Ag/Grazing	\$ 4.3	\$ 5.7	\$ 6.6	\$ 6.5	\$ 6.5	\$ 6.0	\$ 6.1	\$ 6.2
Change					\$ -	\$ -	\$ -	\$ -
% Change					0%	0%	0%	0%
Commercial	\$ 10.0	\$ 10.1	\$ 10.3	\$ 9.5	\$ 9.6	\$ 9.6	\$ 9.9	\$ 9.9
Change					\$ -	\$ (0.3)	\$ -	\$ -
% Change					0%	-3%	0%	0%
Other Leases	\$ 8.6	\$ 7.7	\$ 8.3	\$ 8.6	\$ 8.5	\$ 8.8	\$ 8.9	\$ 8.9
Change					\$ -	\$ -	\$ -	\$ -
% Change					0%	0%	0%	0%
<b>Total Upland Leases</b>	<b>\$ 30.8</b>	<b>\$ 31.5</b>	<b>\$ 36.8</b>	<b>\$ 40.7</b>	<b>\$ 37.8</b>	<b>\$ 34.8</b>	<b>\$ 35.4</b>	<b>\$ 35.6</b>
Change					\$ 1.4	\$ (0.3)	\$ -	\$ -
% Change					4%	-1%	0%	0%

	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
<b>Aquatic Lands</b>								
Aquatic Leases	\$ 10.6	\$ 9.2	\$ 10.6	\$ 10.1	\$ 10.8	\$ 11.0	\$ 11.6	\$ 12.1
Change					\$ -	\$ -	\$ -	\$ -
% Change					0%	0%	0%	0%
Geoduck	\$ 20.0	\$ 28.5	\$ 29.0	\$ 14.2	\$ 19.4	\$ 20.5	\$ 20.5	\$ 20.3
Change					\$ -	\$ -	\$ -	\$ -
% Change					0%	0%	0%	0%
<b>Aquatic Lands Revenue</b>	<b>\$ 30.7</b>	<b>\$ 37.7</b>	<b>\$ 39.6</b>	<b>\$ 24.3</b>	<b>\$ 30.2</b>	<b>\$ 31.5</b>	<b>\$ 32.1</b>	<b>\$ 32.4</b>
Change					\$ -	\$ -	\$ -	\$ -
% Change					0%	0%	0%	0%

<b>Total All Sources</b>	<b>\$ 242.5</b>	<b>\$ 257.0</b>	<b>\$ 244.0</b>	<b>\$ 214.7</b>	<b>\$ 235.9</b>	<b>\$ 258.9</b>	<b>\$ 262.3</b>	<b>\$ 268.4</b>
Change					\$ 3.3	\$ (2.4)	\$ (4.0)	\$ (0.4)
% Change					1%	-1%	-2%	0%

Note: Totals may not add due to rounding.

**Table 3.2: February 2014 Forecast by Fund (In millions of dollars)**

Changes are from the November 2013 Forecast

Management Funds	Actuals				Forecast			
	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
041 RMCA - Uplands	\$ 31.8	\$ 33.9	\$ 29.7	\$ 30.3	\$ 35.0	\$ 37.1	\$ 38.6	\$ 39.7
Change					\$ 1.4	\$ (0.5)	\$ (1.1)	\$ (0.5)
% Change					4%	-1%	-3%	-1%
041 RMCA - Aquatic Lands	\$ 13.9	\$ 17.5	\$ 18.4	\$ 10.7	\$ 13.5	\$ 14.1	\$ 14.3	\$ 14.4
Change					\$ -	\$ -	\$ -	\$ -
% Change					0%	0%	0%	0%
014 FDA	\$ 25.9	\$ 25.8	\$ 20.9	\$ 16.6	\$ 20.4	\$ 24.3	\$ 24.7	\$ 25.9
Change					\$ (0.4)	\$ (0.2)	\$ (0.3)	\$ 0.1
% Change					-2%	-1%	-1%	1%
<b>Total Management Funds</b>	<b>\$ 71.6</b>	<b>\$ 77.1</b>	<b>\$ 69.0</b>	<b>\$ 57.6</b>	<b>\$ 68.9</b>	<b>\$ 75.6</b>	<b>\$ 77.6</b>	<b>\$ 80.0</b>
Change					\$ 1.0	\$ (0.8)	\$ (1.4)	\$ (0.3)
% Change					1%	-1%	-2%	0%

Current Funds	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
113 Common School Construction	\$ 47.9	\$ 56.5	\$ 56.5	\$ 60.5	\$ 60.1	\$ 67.4	\$ 71.2	\$ 71.5
Change					\$ 1.3	\$ 0.6	\$ 0.6	\$ 0.5
% Change					2%	1%	1%	1%
999 Forest Board Counties	\$ 67.9	\$ 70.5	\$ 64.7	\$ 55.4	\$ 54.8	\$ 63.3	\$ 62.4	\$ 64.0
Change					\$ (1.1)	\$ (1.3)	\$ (1.0)	\$ 0.1
% Change					-2%	-2%	-2%	0%
001 General Fund	\$ 5.0	\$ 4.2	\$ 4.5	\$ 2.2	\$ 1.8	\$ 2.5	\$ 3.3	\$ 3.9
Change					\$ 0.2	\$ 0.1	\$ (0.0)	\$ 0.0
% Change					15%	4%	-1%	1%
348 University Bond Retirement	\$ 1.8	\$ 1.3	\$ 0.8	\$ 0.8	\$ 2.0	\$ 2.8	\$ 2.2	\$ 1.8
Change					\$ 0.1	\$ 0.3	\$ 0.1	\$ 0.2
% Change					5%	11%	5%	11%
347 WSU Bond Retirement	\$ 1.2	\$ 1.4	\$ 1.8	\$ 1.6	\$ 1.8	\$ 1.6	\$ 1.6	\$ 1.6
Change					\$ 0.1	\$ (0.0)	\$ -	\$ -
% Change					4%	0%	0%	0%
042 CEP&RI	\$ 5.6	\$ 4.9	\$ 5.0	\$ 5.1	\$ 5.1	\$ 3.5	\$ 4.1	\$ 4.8
Change					\$ 0.7	\$ (0.3)	\$ (0.1)	\$ (0.1)
% Change					15%	-7%	-3%	-2%
036 Capitol Building Construction	\$ 8.7	\$ 8.7	\$ 8.8	\$ 3.7	\$ 7.1	\$ 7.3	\$ 8.4	\$ 9.5
Change					\$ 0.9	\$ 0.0	\$ 0.0	\$ 0.0
% Change					14%	0%	0%	0%
061/3/4 Normal (CWU, EWU, WWU, TESC)	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.2	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.1
Change					\$ 0.0	\$ -	\$ -	\$ -
% Change					6%	0%	0%	0%
Other Funds	\$ 0.1	\$ 0.1	\$ 0.1	\$ 0.4	\$ 1.6	\$ 1.4	\$ 0.3	\$ 0.2
Change					\$ (0.3)	\$ 0.3	\$ 0.0	\$ 0.0
% Change					-18%	23%	17%	1%
<b>Total Current Funds</b>	<b>\$ 138.3</b>	<b>\$ 147.6</b>	<b>\$ 142.3</b>	<b>\$ 129.9</b>	<b>\$ 134.3</b>	<b>\$ 150.0</b>	<b>\$ 153.6</b>	<b>\$ 157.4</b>
Change					\$ 1.8	\$ (0.3)	\$ (0.4)	\$ 0.7
% Change					1%	0%	0%	0%

(Continued)



**Table 3.2: February 2014 Forecast by Fund (In millions of dollars), cont'd**

Changes are from the November 2013 Forecast

Aquatic Lands Enhancement Account	Actuals				Forecast			
	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
<b>02R</b>	<b>\$ 16.8</b>	<b>\$ 20.2</b>	<b>\$ 21.2</b>	<b>\$ 13.6</b>	<b>\$ 16.7</b>	<b>\$ 17.4</b>	<b>\$ 17.8</b>	<b>\$ 18.0</b>
Change					\$ -	\$ -	\$ -	\$ -
% Change					0%	0%	0%	0%

Permanent Funds		FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
601	Agricultural College Permanent	\$ 6.1	\$ 2.9	\$ 3.2	\$ 4.1	\$ 5.7	\$ 7.0	\$ 5.8	\$ 4.3
	Change					\$ 0.2	\$ 0.5	\$ 1.1	\$ 0.9
	% Change					4%	8%	23%	25%
604	Normal School Permanent	\$ 4.0	\$ 3.0	\$ 3.1	\$ 1.4	\$ 2.0	\$ 2.7	\$ 3.0	\$ 3.2
	Change					\$ 0.1	\$ (0.0)	\$ (0.1)	\$ (0.0)
	% Change					4%	-1%	-3%	-1%
605	Common School Permanent	\$ 0.4	\$ 0.2	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3	\$ 0.3
	Change					\$ -	\$ -	\$ -	\$ -
	% Change					0%	0%	0%	0%
606	Scientific Permanent	\$ 5.1	\$ 5.7	\$ 4.6	\$ 7.0	\$ 7.2	\$ 5.6	\$ 4.0	\$ 4.6
	Change					\$ 0.1	\$ (1.9)	\$ (3.0)	\$ (1.6)
	% Change					1%	-25%	-43%	-25%
607	University Permanent	\$ 0.7	\$ 0.3	\$ 0.3	\$ 0.8	\$ 0.6	\$ 0.3	\$ 0.3	\$ 0.5
	Change					\$ 0.2	\$ (0.0)	\$ (0.2)	\$ (0.1)
	% Change					51%	-7%	-37%	-18%
<b>Total Permanent Funds</b>		<b>\$ 16.3</b>	<b>\$ 12.1</b>	<b>\$ 11.4</b>	<b>\$ 13.6</b>	<b>\$ 15.9</b>	<b>\$ 15.9</b>	<b>\$ 13.3</b>	<b>\$ 12.9</b>
	Change					\$ 0.6	\$ (1.4)	\$ (2.2)	\$ (0.9)
	% Change					4%	-8%	-14%	-6%

Total All Funds		FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17
<b>Total</b>		<b>\$ 242.5</b>	<b>\$ 257.0</b>	<b>\$ 244.0</b>	<b>\$ 214.8</b>	<b>\$ 235.9</b>	<b>\$ 258.9</b>	<b>\$ 262.3</b>	<b>\$ 268.4</b>
	Change					\$ 3.3	\$ (2.4)	\$ (4.0)	\$ (0.4)
	% Change					1%	-1%	-2%	0%

Note: Excludes Trust Land Transfer, Real Property Replacement Account, and Land Bank property transactions and interest on property replacement.  
 Excludes fire assessments, permits, and fees.  
 Totals may not add due to rounding.