OIL AND GAS OPERATIONS

Updated Economic Assessment of Colorado Oil and Gas Industry in 2013

Conducted by:

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SUMMARY

The Business Research Division of the Leeds School of Business, University of Colorado Boulder has published multiple papers on the economic and fiscal contributions of the oil and gas industry in Colorado, as well as forward-looking economic scenarios under varying policy outcomes. This summary, which updates a number of the oil and gas economic and fiscal metrics based on 2013 data, will be used as context for an update of alternative production scenarios that will be modeled using REMI. The scenarios will be available in August 2014.

Overall, Colorado's oil and gas industry continued to expand in 2013, building on growth that transpired following a dip in production during the recession. More drilling permits were recorded in 2013 than 2012, and oil production increased while gas production fell compared to 2012. Weld County and Garfield County continue to be the center of new activity, garnering more than four out of five drilling permits.

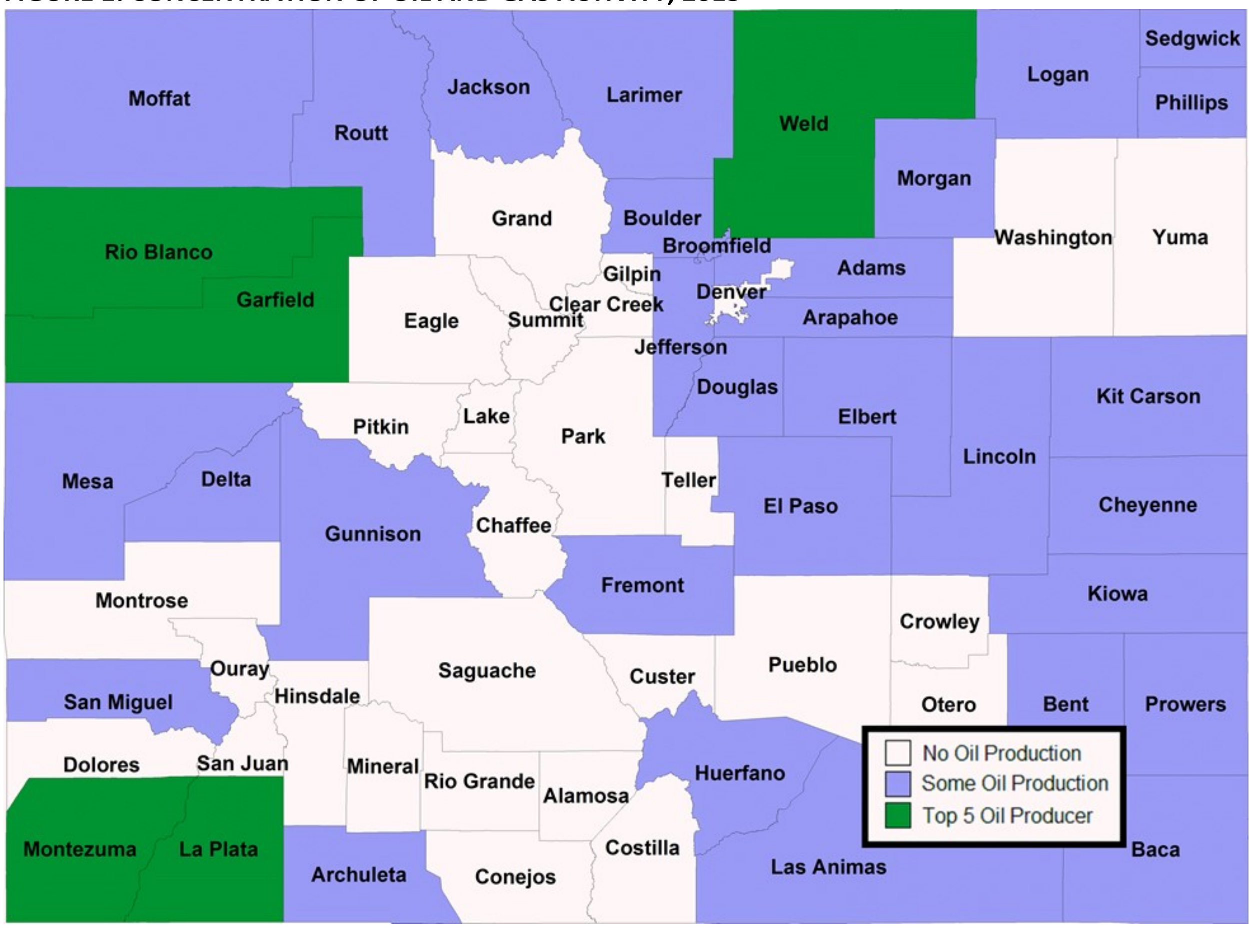
Employment and wages grew in the upstream and midstream industry sectors in 2013 (Extraction, Drilling Wells, Support Activities, Oil and Gas Pipeline and Related Structures Construction, and Pipeline Transportation). An estimated 33,897 people worked in the upstream and midstream oil and gas industry in 2013, earning total wages of $3.5 billion, or $104,626 per worker. The year marked the greatest number of industry workers on record in Colorado. Wage growth in the industry outpaced wages growth for the state overall (4% compared to 0.6%).

The public revenue stream, related to upstream and midstream activities, was estimated at more than $1.1 billion in 2013, the largest source of which was the tax on production.

Production and Drilling

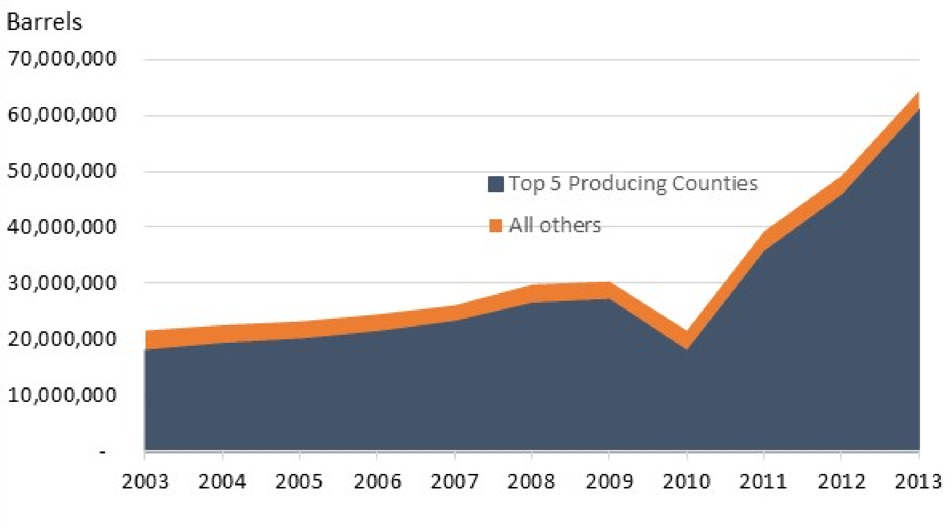
Most oil production in Colorado occurs on the Eastern Plains and most gas production occurs on Colorado's Western Slope according to county-level production data from the Colorado Oil and Gas Conservation Commission (COGCC). Data from the Department of Local Affairs, Division of Property Taxation, show most oil and gas assessed values (88%) are concentrated in five counties: Weld, Garfield, Rio Blanco, La Plata, and Montezuma (Figure 1). In 2013, oil production increased (Figure 2), marking three consecutive years of growth following the recession, while gas production fell (Figure 3).

FIGURE 1: CONCENTRATION OF OIL AND GAS ACTIVITY, 2013



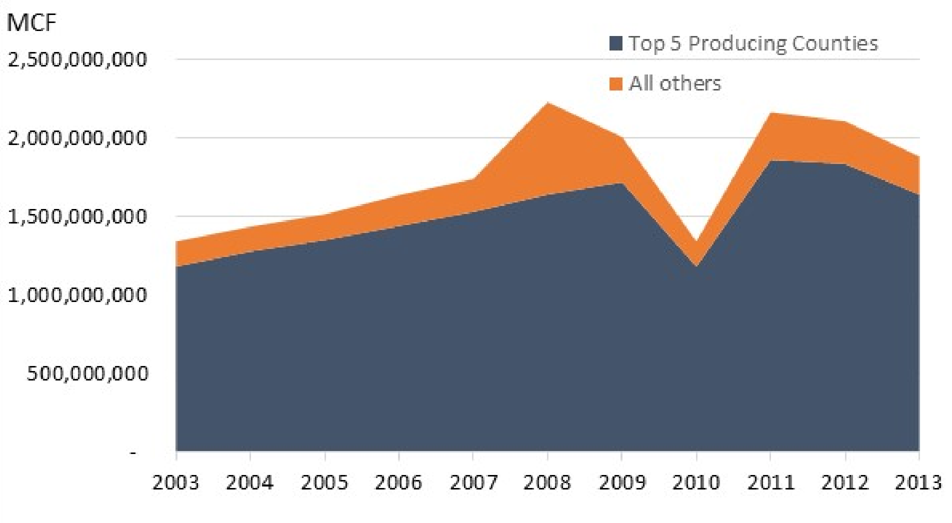
Source: Department of Local Affairs, Division of Property Taxation, 2013 Annual Report.

FIGURE 2: SUM OF OIL PRODUCTION BY COUNTY IN COLORADO



Source: COGCC.

FIGURE 3: SUM OF GAS PRODUCTION BY COUNTY IN COLORADO



Source: COGCC.

Based on drilling permits, new activity is also geographically concentrated—five counties represented more than 90% of permits in 2013 and 2014 (through July 14, 2014), and two counties (Weld and Garfield) represented more than 83% of permits (Figure 4). Drilling permits in Colorado peaked in 2008, at 8,027, and totaled 4,025 in 2013—the second-lowest number of permits in the past six years. Year-to-date 2014 is on par with 2013 permits as of July 14, 2014 (Figure 5).

FIGURE 4: COLORADO OIL AND GAS DRILLING PERMITS BY COUNTY, 2013

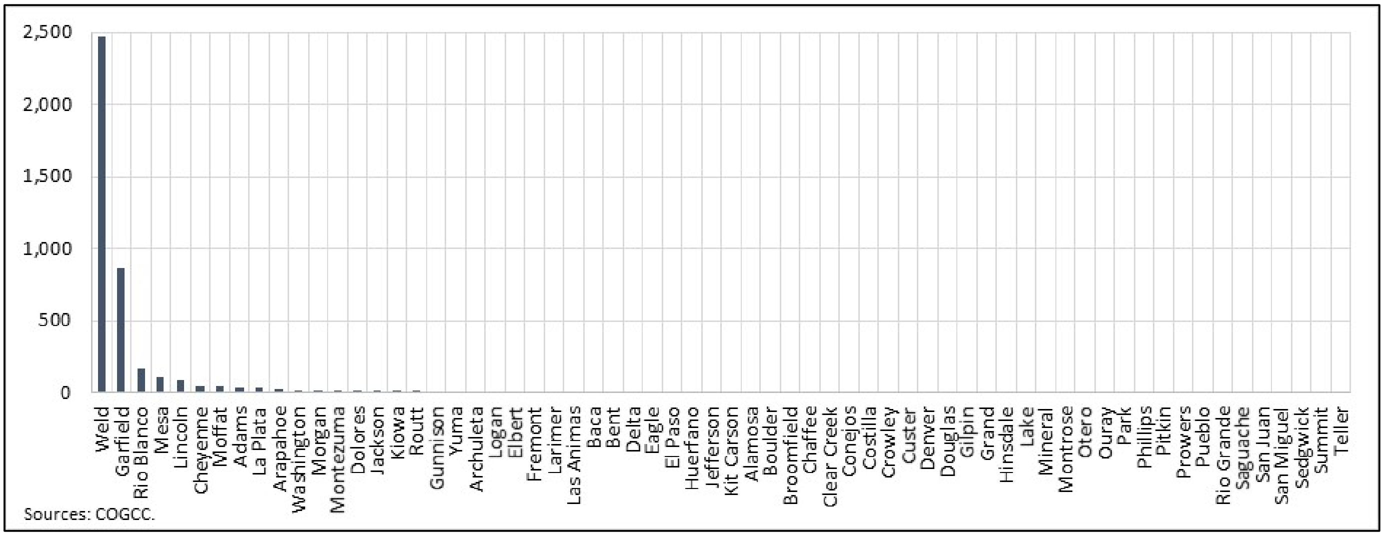
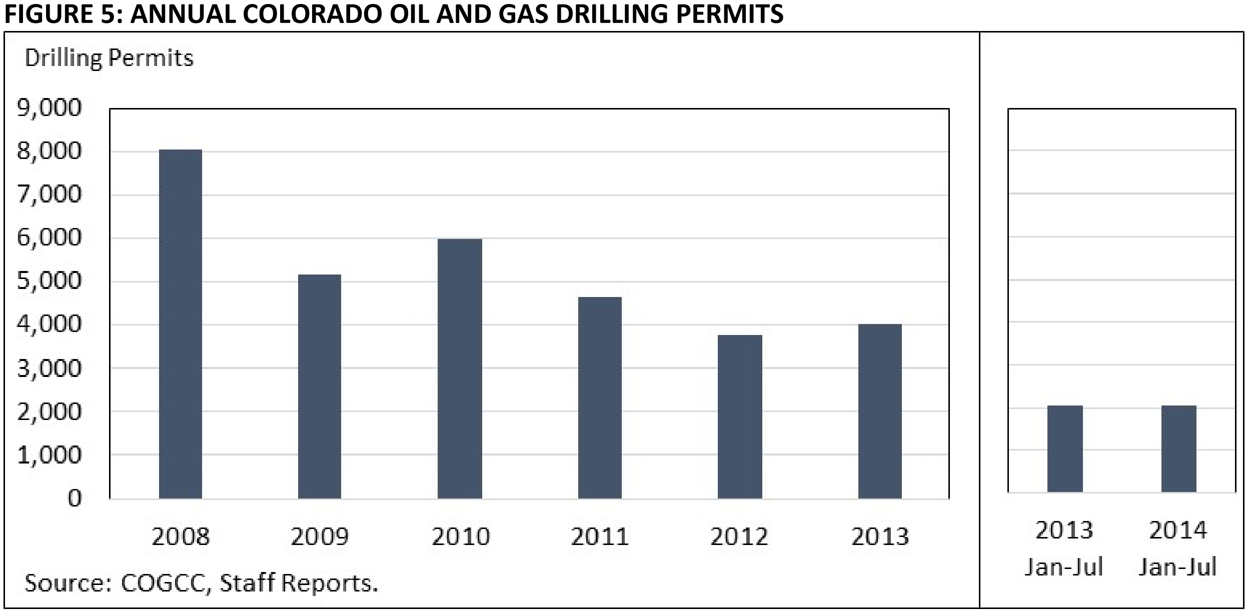
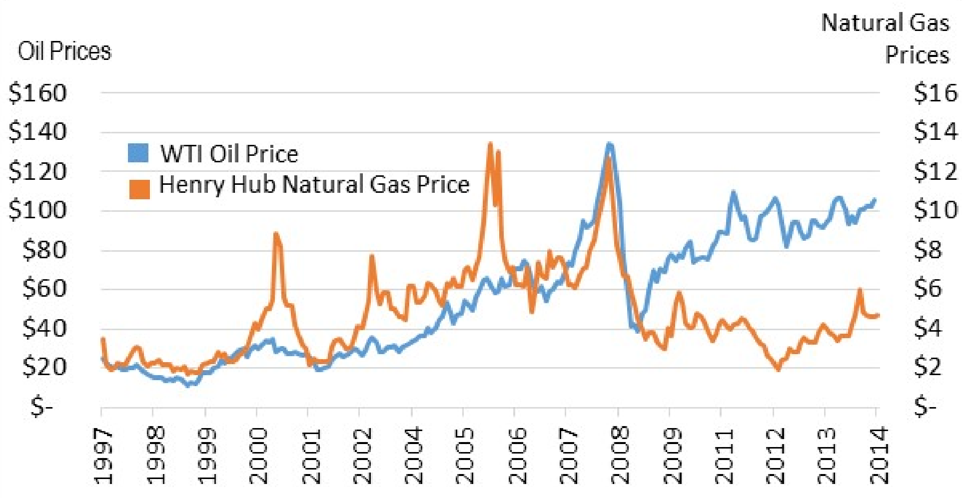


FIGURE 5: ANNUAL COLORADO OIL AND GAS DRILLING PERMITS



Average prices for oil (WTI) and for gas (Henry Hub) were higher in 2013 compared to 2012. Prices are also higher through June 2014 year-to-date compared to the same period in 2013 (Figure 6).

FIGURE 6: AVERAGE OIL AND GAS PRICES



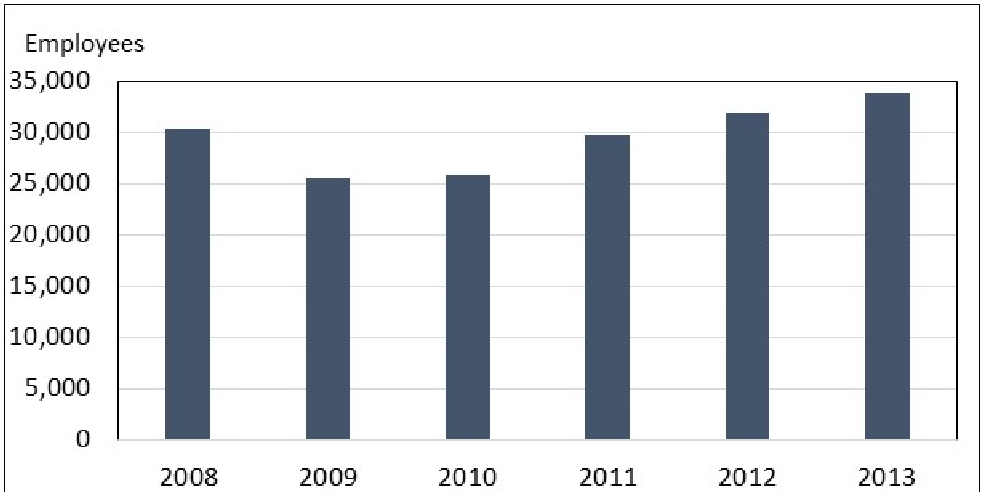
Source: Energy Information Administration.

EMPLOYMENT AND WAGES

The oil and gas industry continued to add jobs in 2013. Examining upstream and midstream employment, including Extraction, Drilling Wells, Support Activities, Oil and Gas Pipeline and Related Structures Construction, and Pipeline Transportation, the industry employed an estimated 33,897 workers in 2013 (Figure 7). Most of these (87%) are counted as covered wage and salary employees by the Department of Labor, and the remainder are estimated as self-employed based on 2012 Census nonemployer statistics. This marks the largest number of upstream and midstream oil and gas industry workers on record in Colorado.

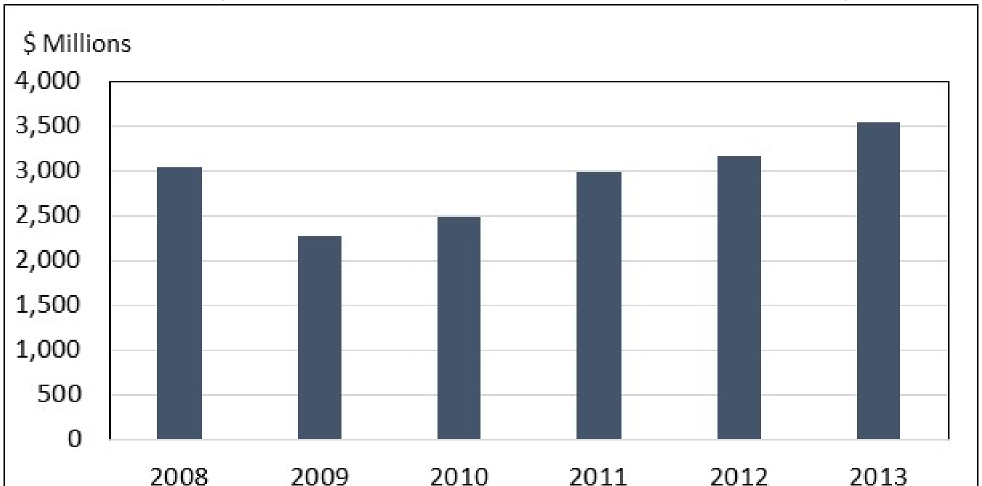
Wages grew in conjunction with employment growth, expanding to $3.5 billion in 2013, and average oil and gas wages for covered workers grew about 4% compared to 0.6% recorded for all industries in Colorado (Figure 8).

FIGURE 7: EMPLOYMENT, STATE UPSTREAM AND MIDSTREAM OIL AND GAS, EMPLOYER AND NONEMPLOYER



Source: Bureau of Labor Statistics, QCEW; U.S. Census Bureau, Nonemployer.
*Select 2012 and all 2013 nonemployer statistics estimated by BRD.

FIGURE 8: WAGES, STATE UPSTREAM AND MIDSTREAM OIL AND GAS, EMPLOYER AND NONEMPLOYER



Source: Bureau of Labor Statistics, QCEW; U.S. Census Bureau, Nonemployer.
*Select 2012 and all 2013 nonemployer statistics estimated by BRD.

PUBLIC REVENUE

The public revenue stream related to upstream and midstream activities was estimated at more than $1.1 billion in 2013 (Table 1). The largest source of revenue was taxes from production.

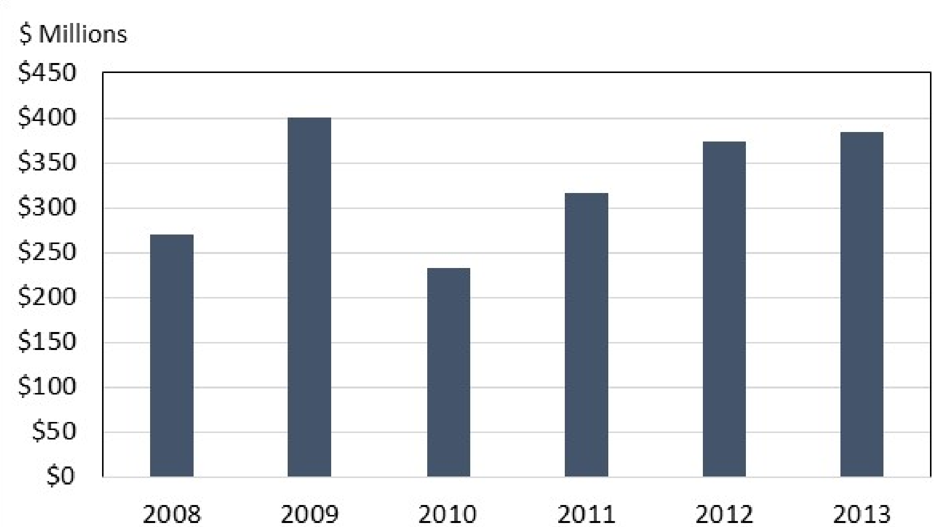
TABLE 1: SUMMARY OF PUBLIC REVENUE, MILLIONS, 2013

Severance	Production	Commercial and Residential	Leases	Royalties	Personal Income	Income	Sales Taxes	COGCC Tax	Total
$170.6	$357.6	$131.0	$61.7	$142.5	$97.8	$20.7	$138.4	$5.9	$1,126.2

Property Taxes

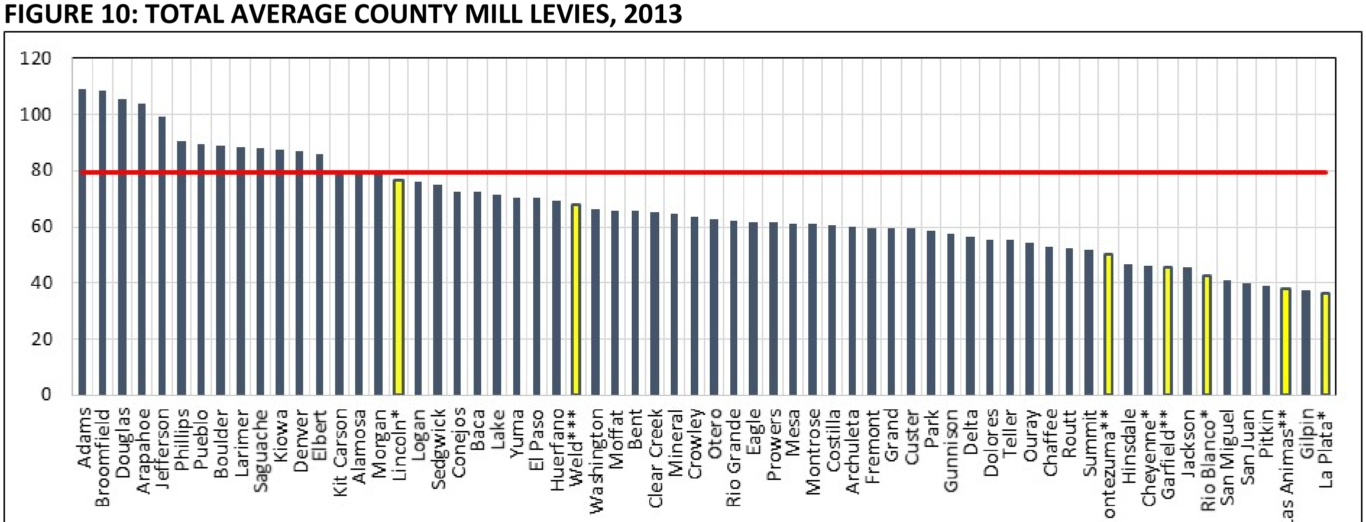
Property taxes are derived from local property assessments for oil and gas. For midstream and upstream activities, property taxes were estimated at $372.8 million in 2012 and $383.3 million in 2013. This was estimated by multiplying county-level oil and gas assessed values by jurisdictional type (county, city, special district, and school district) by the average corresponding mill levy within the county. This yields an estimate of local property taxes that can be aggregated to a state total, which is superior to multiplying the state total assessed values by state average mill levies because counties with the greatest levels of oil and gas production have lower property tax mill levies than the state average (Figure 10). Greater accuracy could be achieved if oil and gas assessed values and corresponding mill levies and exemptions were published for each individual taxing jurisdiction.

FIGURE 9: COLORADO OIL AND GAS PROPERTY TAX ESTIMATES



Data Sources: DOLA, BRD Calculations.

FIGURE 10: TOTAL AVERAGE COUNTY MILL LEVIES, 2013

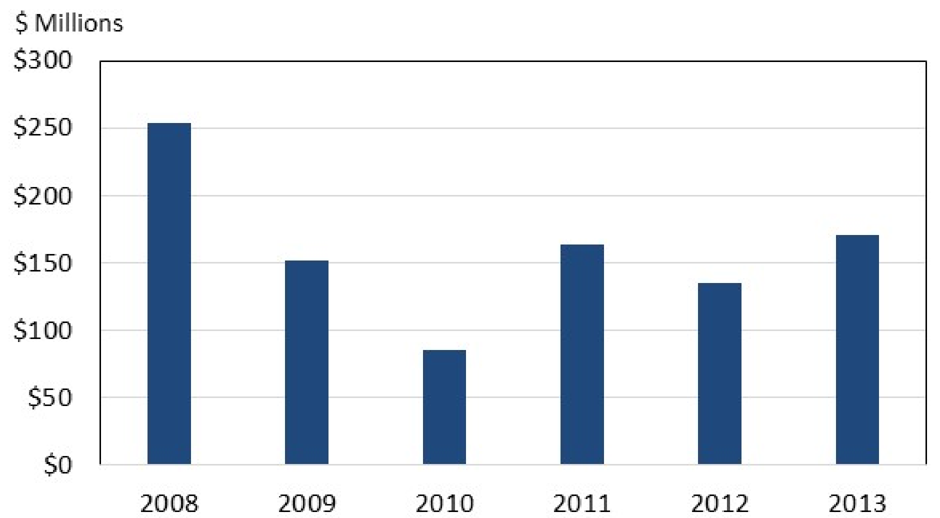


Sources: COGCC; Colorado Department of Local Affairs, Division of Property Taxation. *Top Oil Production **Top Gas Production ***

Severance Taxes

Severance taxes are those that states charge for the removal of nonrenewable natural resources and are reported by the Colorado Department of Revenue for oil and gas, coal, and metals and molybdenum. Severance taxes related to oil and gas in 2012 and 2013 were reported at $134.9 million and $170.6 million, respectively (Figure 11). From 2008 through 2013, the oil and gas industry paid $959.8 million in severance taxes, which represented 93.6% of total severance taxes paid in Colorado from all resources (i.e., oil and gas, coal, metals and molybdenum) over that period.

FIGURE 11: COLORADO OIL AND GAS SEVERANCE TAXES

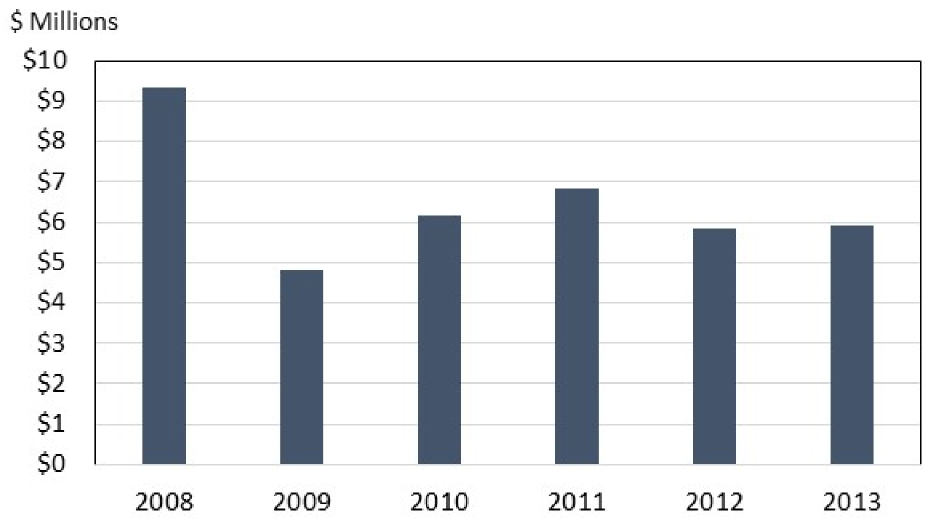


Source: Colorado Department of Revenue.

COGCC Taxes

Oil and gas companies pay COGCC a conservation levy that is designed to offset the expenses of the agency. As of July 2007, the charge is 0.07% of oil, natural gas, and CO2 production sales, less exemptions. The COGCC levy totaled $5.8 million in 2012 and $5.9 million in 2013 (Figure 12).

FIGURE 12: COGCC LEVY

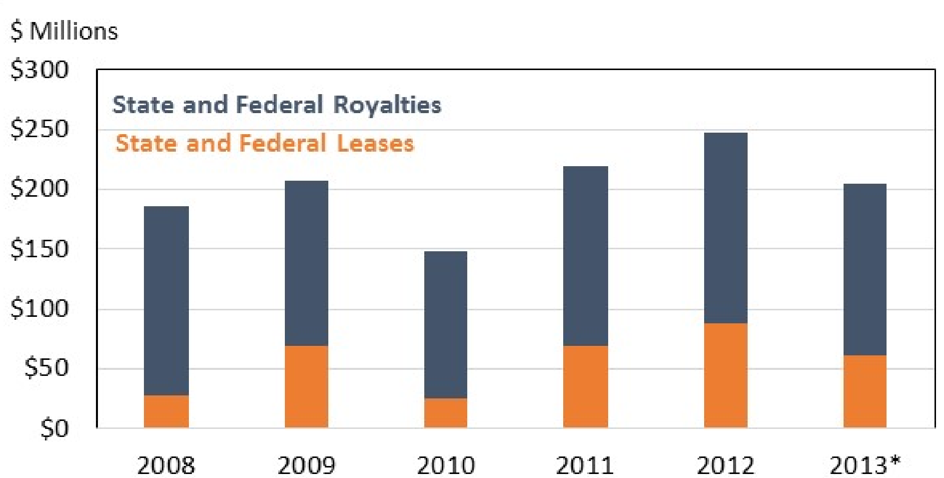


Source: COGCC, Levy.

Public Leases and Royalties

Oil and gas exploration and development on state and federal lands provide revenue through leases, premiums above rents (bonuses), and royalties. Federal disbursements are reported by the Office of Natural Resources Revenue, and Colorado disbursements are reported by the Colorado State Land Board. Federal and state rents and royalties are estimated at nearly $248 million in 2012 and $204 million in 2013 (Figure 13).

FIGURE 13: COLORADO PUBLIC LEASES AND ROYALTIES

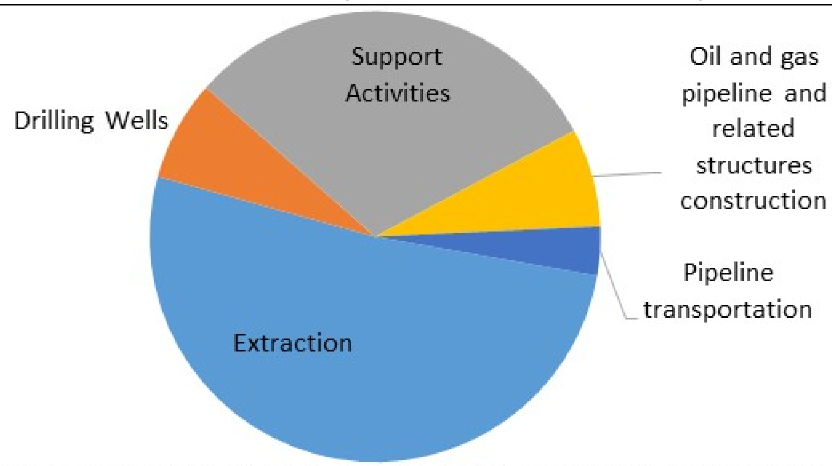


Sources: Office of Natural Resources Revenue and Colorado State Land Board. *2013 federal disbursements are an estimate while data is pending.

Income Taxes

Personal income taxes were estimated by multiplying the average tax rate by income cohort (using the Colorado Department of Revenue, Statistics of Income report) by the corresponding average wage by upstream and midstream industry sector in Colorado. The 2013 estimate of income taxes was nearly $98 million, most of which derived from the Extraction and Support Activities sectors (Figure 14).

FIGURE 14: COLORADO OIL AND GAS, INDIVIDUAL INCOME TAXES, 2013



Source: Bureau of Labor Statistics, QCEW; U.S. Census Bureau, Nonemployer; Dept. of Revenue , Statistics of Income. *Select 2012 and all 2013 nonemployer statistics estimated by BRD.

Other Taxes

Other taxes include commercial and residential property taxes (excluding production), corporate income taxes, and sales taxes. These three revenue streams were estimated using the IMPLAN model based on 2013 employment and projection estimates.

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