The Economic Impact of Eliminating the Percentage Depletion Allowance

National, State and Sector Level Analysis

Report prepared for the National Stripper Well Association

Contacts

Brendan O'Neil
Managing Director
IHS Economics & Country Risk
Brendan.Oneil@ihs.com

Curtis Smith
Sr. Manager, Consulting
IHS Energy Insight
Curtis.Smith@ihs.com

Karen Campbell
Senior Consultant
IHS Economics & Country Risk
Karen.Campbell@ihs.com

For press information, contact:
Jim Dorsey
Senior Manager
IHS Media Relations
Jim.Dorsey@ihs.com

About IHS (www.ihs.com)
IHS Inc. (NYSE: IHS) is a leading source of information and insight in critical areas that shape today's business landscape, including energy and power; design and supply chain; defense, risk, and security; environmental, health, and safety, and sustainability' country and industry forecasting; and commodities, pricing, and cost. IHS has been in business since 1959 and became a publicly traded company on the New York Stock Exchange in 2005. Headquartered in Englewood, Colorado, USA, IHS employs more than 5,100 people in more than 30 countries around the world.

About IHS Global Insight
IHS Global Insight is one of the leading economic analysis and forecasting firms in the world. With over 600 economists, statisticians, and industry specialists in 25 offices worldwide, IHS Global Insight has an established track record for providing rigorous, objective forecast analysis and data to governments and businesses around the world.
Among our areas of expertise are the economic impact, tax implications, and job-creation dynamics within multiple sectors core to national, state and local economies. It helps governments and companies at all levels interpret the impact of proposed investments, policies, programs, and projects.
IHS Global Insight was formed by the merger of DRI and WEFA. The original founder of WEFA was Lawrence R. Klein the 1980 winner of the Nobel Prize in Economics.

Contents

Executive Summary

IHS was commissioned to study the economic impact at both the federal and state level of eliminating the percentage depletion tax credit for US oil and gas producers. In order to accomplish this task, IHS created a base production and drilling forecast case where percentage tax credit would continue to be employed ("base case") and an alternative forecast which eliminated the credit ("non-depletion case"). The differences or "delta" between the two cases could then be further analyzed to determine the loss of production, investment capital, and operating cost that would be associated with eliminating depletion. We determined that eliminating the added cash flow or profit, associated with the percentage depletion affected the forecast by (1) accelerating the abandonment rate of producing wells, and (2) decreasing capital that would normally be available for future investment in drilling. We noted that the latter point had a much greater effect on future production and cash flow.

By the end of the forecast period of 2025, we noted the following if depletion were to be eliminated:

- Producing wells decrease by 4.2%;
- Daily oil production decreases by 3.9%;
- Daily gas production decreases by 2%; and
- New wells drilled in 2025 decrease by 23.5%.

Comparing the two forecasts reveals that over the course of the forecast period, more than 37,000 wells will not be drilled and 644 million barrels of oil and 2.8 tcf of gas will not be produced if the depletion allowance is eliminated. When we compare state totals, Texas will absorb over half the drilling losses and about 45% of the production losses.

Because percentage depletion can only be applied to the first 1000 boe/d of production, it has a much greater impact on smaller operators than larger producers such as the large independent oil companies who can still claim percentage depletion, but only on a small fraction of their daily production. These smaller operators are also concentrated in mature, largely conventional oil and gas producing areas. During 2013 we noted that producers who could claim full depletion operated 26% of the wells, but only accounted for about 5% of the oil and less than 3% of the total US gas production, which suggested that these producers' wells are lower performing and are most likely marginally economic. Consequently, over three fourths of the loss of producing wells and two-thirds of new wells can be attributed to this group.

While wells in the large unconventional plays decline rapidly and ultimately become long-lived, low producers, we see far less impact here than within conventional plays dominated by stripper wells. Wells in these unconventional plays generally perform better than their counterparts in the conventional plays, so there is less chance for pre-mature abandonment due to reduced cash flows, but more importantly these plays are dominated by medium and large independent oil companies which would be far less affected by elimination of depletion, and thus still be able to continue investing in future drilling relatively unimpeded.

As demonstrated by the energy forecasts under the two scenarios, the percentage depletion allowance is an important incentive for independent oil and gas producers to provide the capital to continue to invest in and maintain wells, particularly the marginal wells. The proposal to eliminate the percentage depletion allowance is viewed as a revenue raiser in the federal government budget because by eliminating the tax deduction it raises the effective rate for those previously taking the deduction.

Our energy analysis shows that this will have damaging effects on the overall production of oil and natural gas, both with lower production and as fewer new wells come online over time. Our economic analysis shows that this impact on independent oil and gas producers ripples through the economy, negatively impacting every major US sector and nearly every state, whether they produce oil and gas or not. In addition, the results show that this will have a net negative impact on federal (as well as state and local)

government revenues. The federal government will lose a net $2.5 billion in tax revenue over the decade and another $1.1 million in royalty revenue from the oil and gas produced on federal land.
Overall, over the next decade (2015-2025) the economic impact of eliminating the percentage depletion allowance will cost the US economy:

- $184.5 billion in Gross Value-Added
- An average 178,000 jobs per year
- $115 billion in Labor Income

Introduction

In 1926, in the face of rising closures of oil and gas wells, Congress passed the Percentage Depletion Allowance. Prior to this, cost depletion was the only means for a natural resource producer to recover the cost of investment through tax deductions. However this did not allow for adequate recovery of the value and so wells were capped and investment was deterred. This is because production from producing wells declines over time and so revenue, royalty, and production taxes also decrease commensurately; however, lease operating or other fixed costs stay constant. This eventually results in negative profit as wells surpass their economic limits. The percentage depletion allowance allows for existing wells to remain in operation longer (changes the point at which wells become unprofitable) and provides incentives for new wells based on higher profitability expectations. According to the NSWA, these marginal wells make up 20% of the independent producers' production.

Today, producers have a choice to use either cost depletion or percentage (value) depletion when calculating their tax liability. The percentage depletion allowance can be taken by anyone with an economic interest in a natural resource such as oil and natural gas, including royalty owners. However it only applies to independent producers; integrated companies, typically large companies involved in many facets of the production process, from exploration to refining, are not eligible for the deduction. Furthermore it is calculated on 15% of gross income from the property up to 1000 barrels of oil per day or 6000 mcf of natural gas per day based on average daily production.

The allowance is not a credit and cannot exceed 65% of net taxable income on all property and is generally limited to 50% of net taxable income per property.[1] However, any unused depletion allowances can be carried forward to future years. The allowance allows independent producers to retain more cash to pay costly maintenance and operational expenses as well as invest in exploration and development of new well formation.

Currently, tax reform proposals in Congress have sought ways to simplify the tax code and lower rates while still remaining revenue neutral for the government; i.e. broadening the tax base. Eliminating the percentage depletion allowance has been one such proposal offered as a potential revenue source to make up lost revenue from other reform proposals. In fact the President's fiscal year 2015 budget proposal included eliminating the percentage depletion allowance for oil and gas producers.[2]

While the tax revenue gained would be relatively small as a percentage of total tax revenue (the Joint Committee on Taxation statically scored it as collecting a total of 16 billion more in revenue over the next 10 years), the impact on the independent well operators and owners would be substantial.[3] In addition, the elimination would have ripple effects throughout the economy with those oil and natural gas producing

[1] http://blog.aicpa.org/2014/03/depletion-deductions-for-landowners-receiving-gas-royalties.html#sthash.dTgeP1HL.dpbs
[2] Percentage depletion allowances are available for other mineral owners as well.
[3] Joint Committee on Taxation (4 April 2014) "Estimated Budget Effects Of The Revenue Provisions Contained In The President's Fiscal Year 2015 Budget Proposal" at https://www.jct.gov/publications.html?func=startdown&id=4585 (retrieved 27 October 2014).

states especially impacted. The employees, suppliers and suppliers' employees would directly and indirectly be negatively impacted due to the decrease in ability to pay the operating costs to maintain wells and capital expenses to invest in new wells. This has further induced effects as the suppliers and employees have less income to purchase the goods and services they need and want each day.

In order to understand these impacts better, The National Stripper Well Association commissioned IHS to estimate the economic effects of eliminating the percentage allowance on the independent oil and gas producers and owners.[4] The analysis was conducted in two phases. First the economics team worked with IHS energy experts to understand the energy context and develop two production and new well formation forecast scenarios. The first scenario is the current policy - production and new well forecasts based on the percentage depletion allowance continuing. The second scenario is the proposed policy - the production and new well forecast if the percentage depletion allowance is eliminated. The second phase used the production and capital expenditures forecasts along with IHS data on the detailed operational expenditures for maintaining and building new wells to analyze the economic impact of the alternative scenario relative to the status quo baseline.

The following sections detail these two phases, the assumptions, methodologies, and findings from the analysis. The final section concludes. All dollar figures are in real 2014 dollars unless otherwise noted.

The energy context

IHS applied a number of assumptions and methodologies in order to develop the two production and drilling cases described in the introduction. This section sets forth how these cases were created and includes a discussion and a comparison of the two cases.

IHS approach and methodology

IHS uses its "best in class" production and well databases, as well as proprietary forecasting methodologies and tools, to develop production and drilling forecasts. We have also developed methods for determining related capital and operating expenses which are then applied to these forecasts. Since assumptions related to production depletion are the main considerations in developing the forecasts, these were vetted with NSWA prior to developing the forecasts. Assumptions for developing the forecasts include the following:

- We would focus strictly on percentage depletion.
- Depletion would be applied at the full 15% rate to operators with less than a combined 1000 bbl/d and/or 6000 mcf/d during 2013. We noted that a barrel of oil equivalent (boe) conversion of gas to oil is 6 mcf of gas for 1 barrel of oil.
- For operators with greater than this production volume, a smaller percentage would be calculated and applied based on multiplying 15% by the ratio of 1000 boe/d divided by the operator's average daily production through 2013.
- The statute states that if cost depletion is more advantageous, it should be used in lieu of percentage depletion. Therefore we assumed that well payout would occur on average in 3 years; thus, depletion would be applied at the beginning of the fourth full year of a well's production for all wells with less than three years of production history and for all forecasted wells.
- Since percentage depletion is a tax deduction, the actual amount of additional revenue would be calculated by multiplying the depletion amount by 35%.

Stages employed to create the forecasts

Since a final deliverable of this study was to analyze economic impact by state, individual forecasts were created for each producing state. For large producing states such as Texas, we subdivided forecasts into 2

[4] Mining and other depletable resource industries are excluded from this analysis, though eliminating the percentage depletion allowance could affect these industries as well.

or more regions so that we could capture differences in geologic provinces or basins within the forecasts. When completed, these forecasts were then rolled up to create a total US onshore production forecast. Our initial task was to create a base case forecast through 2025 which would incorporate the major aspects of depletion. Thereafter, we could modify these aspects to develop the non-depletion case by eliminating these aspects. We employed the following stages to build the cases:

- Retrieving and preparing data and information
- Calculating percentage depletion for each operator
- Creating a production forecast from currently producing wells
- Generating a forecast of new wells and their associated production
- Calculating cash flow or profit with and without depletion

Retrieving and preparing data

Various types of information were required as input to the models used to generate the state level production and drilling forecasts. These included the following:

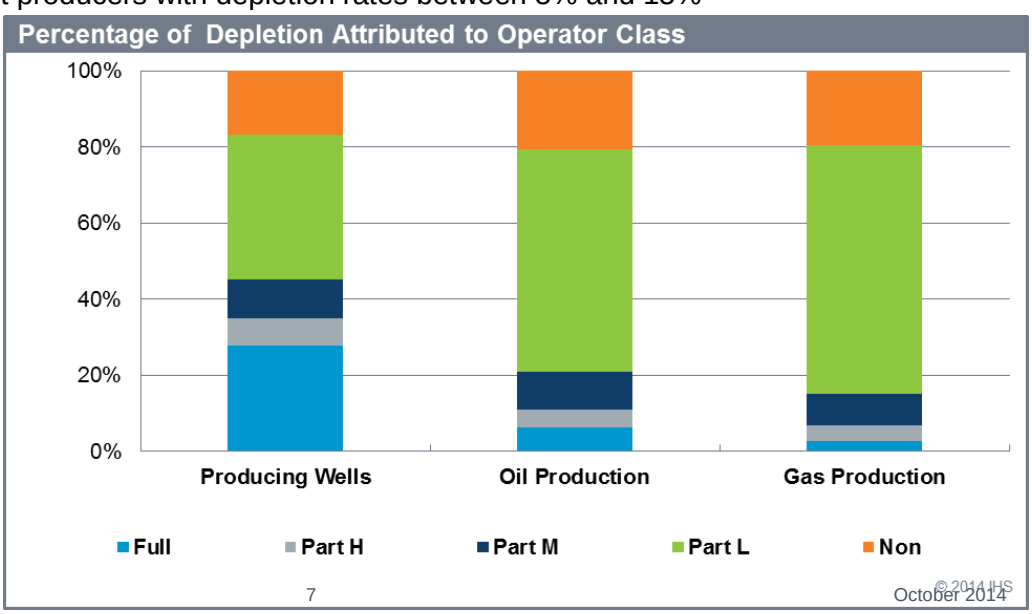
- Historical production data from the nearly 750,000 actively producing wells in the onshore US.
- Average fixed and variable operating expenses obtained from the EIA, which are based on average total depth and well location.
- Forecasts of oil and gas prices with appropriate price differentials.
- Determination of severance and ad valorem tax, as well as typical royalties.

We used production history to generate production forecasts of producing wells and applied forecasted oil and gas prices to generate a revenue stream. For the base case, the tax deduction based on the depletion allowance was also added to the revenue stream. The operating costs, taxes and royalties were subtracted from the revenue stream to generate a cash flow or profit. The profit would play a key role in determining abandonment rates and capital available for future drilling. Neither inflation nor cost escalations were used in the forecasts.

Calculating depletion for each operator

We calculated the depletion percentage that each operator could claim by multiplying 15% times a ratio of 1000 boe/d divided by the 2013 average daily combined production of barrels of oil and boe of gas. Based on this derived percentage, an operator was assigned to one of five forecast groups as follows:

- Full – All operators producing less than 1000 boe/d who qualified for the full 15% depletion rate. There were over 13,000 operators that had production in 2013, and of these just over 10,000 were included in this group.
- Part-High – Independent producers with depletion rates between 5% and 15%
- Part-Medium – Independent producers with depletion rates between 1% and 5%
- Part-Low – Independent producers with depletion rates less than 1%. We noted that many of the large independents with high production volumes were included in this group



- Non –Integrated major oil companies that did not qualify for percentage depletion.

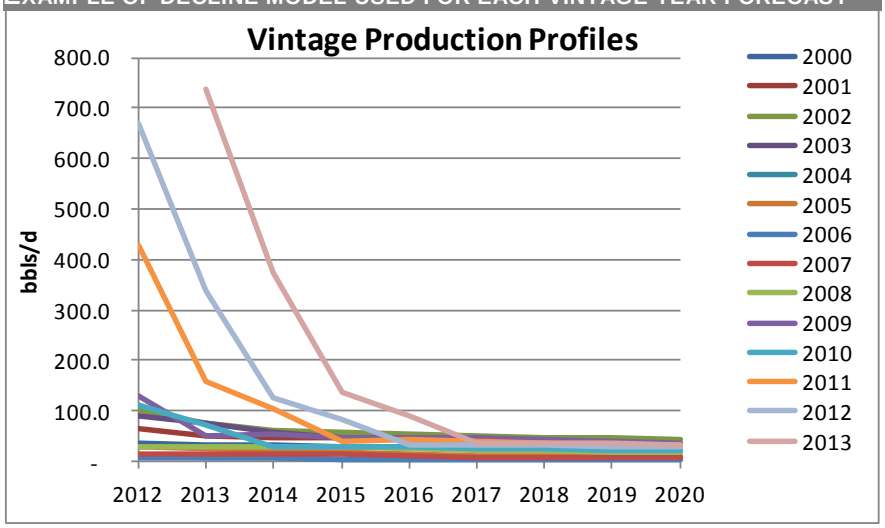
The Figure to the right is a comparison of 2013 operating wells and production by Operator Class. Within each state a separate forecast was created for each of these five operator groups. The total amount of depletion that could be claimed within each group was calculated by multiplying the group total revenue stream by the average depletion for each group within each state.
A key observation we noted was the relative high amount of oil and gas production contributed by producers that could claim little or no depletion allowance as shown in figure 1. On the other hand, 27% of all wells were operated by producers that could claim the full 15% depletion. This suggests that percentage depletion has a much larger impact on revenue associated with operations than on revenue from oil and gas production.

Forecast of currently producing wells and abandonment

Within each state and operator class, a forecast of producing wells, associated production and cash flow was created by grouping wells by vintage year, beginning in the year 2000. This was done in the following way:

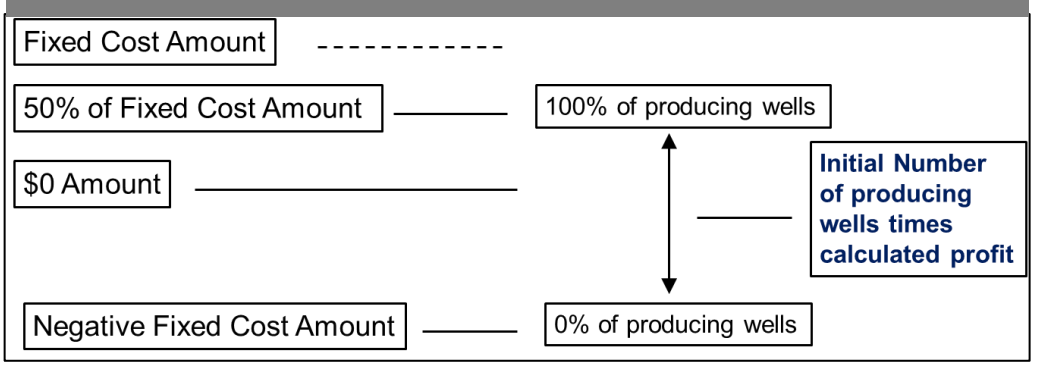
- Applying a production decline model for oil and gas to each vintage year forecast based on historical trends (see figure 2) and multiplying this by respective commodity prices to generate an average well revenue stream;
- Generating a cash flow or profit by multiplying the revenue by the number of wells and then deducting taxes, royalties and operating expense; and
- Calculating the income tax savings revenue generated by percentage depletion and then adding this to the cash flow for the base case to increase overall profitability.

EXAMPLE OF DECLINE MODEL USED FOR EACH VINTAGE YEAR FORECAST



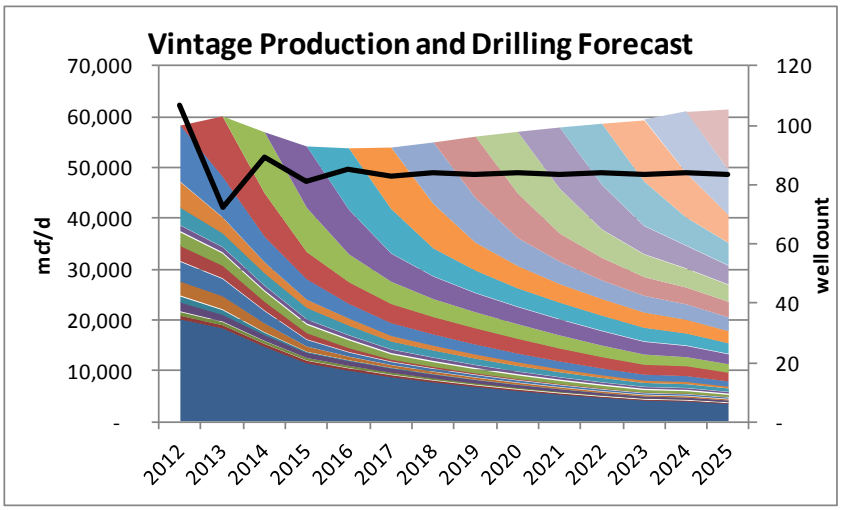
Since production from producing wells within each vintage group declines over time, revenue, royalty, and production taxes also decrease commensurately; however, lease operating or fixed cost stays constant. This eventually results in negative profit as wells surpass their economic limits. Since we know that in the real world, wells are not all abandoned at once within a common group, we established a well abandonment rate based on a sliding scale which compared profitability with fixed cost. Abandonment of some wells would begin to occur once profit reached 50% of fixed costs, and then well counts would continue to decrease as profits deteriorated over time. Once profit reached a negative 100% of the fixed costs, then all wells within the vintage group would be abandoned.

PROFIT AND FIXED COST SCALE USED TO DETERMINE WELL ABANDONMENT



Future drilling forecasts

Forecasts of future drilling were created for each state and operator group by analyzing recent drilling trends and determining the number of wells which would likely be drilled in each subsequent year until 2025. The production decline profiles for oil and gas were applied to generate a production stream for each future vintage year (see figure 4). Well abandonment rates previously calculated were also applied to the forecasts.



The figure above provides an example of a production and drilling forecast (within a state – operator group).

Calculating net profit with and without depletion

The loss of profit due to the removal of percentage depletion affected the forecasts by increasing the abandonment rate for currently producing wells and lowering the expectation of future drilling due to less available capital.

For the base case, additional revenue derived from income tax savings due to percentage depletion was included in the cash flows which lead to higher profitability; however, in the non-depletion case, the lack of this revenue diminished profitability.

Consequently, by using this same sliding scale comparison of profitability to fixed cost, we determined that abandonment rates were increased and production was decreased in the non-depletion case.

We treated capital expenditure as sunk costs for forecasting production from currently producing wells and focused solely on the relationship between profit and operating expense; however, any future drilling and associated production required us to apply capital expenditure to drill and complete the new wells necessary to sustain or increase production. Thus, another severe consequence of diminished cash flow or decreased profit due the lack of revenue from percentage depletion was severe constraint of capital

COMPARISON OF NEW WELLS IN NON-DEPLETION CASE WITH BASE CASE

Vintage Year	Percent of wells for "Full" Group	Percent of wells for "Part- M" Group
2012	100%	100%
2013	100%	100%
2014	95%	99%
2015	94%	99%
2016	91%	99%
2017	87%	98%
2018	80%	97%
2019	72%	95%
2020	61%	93%
2021	48%	91%
2022	36%	87%
2023	25%	83%
2024	18%	78%
2025		

that could be applied to future drilling.

Future drilling in the non-depletion case

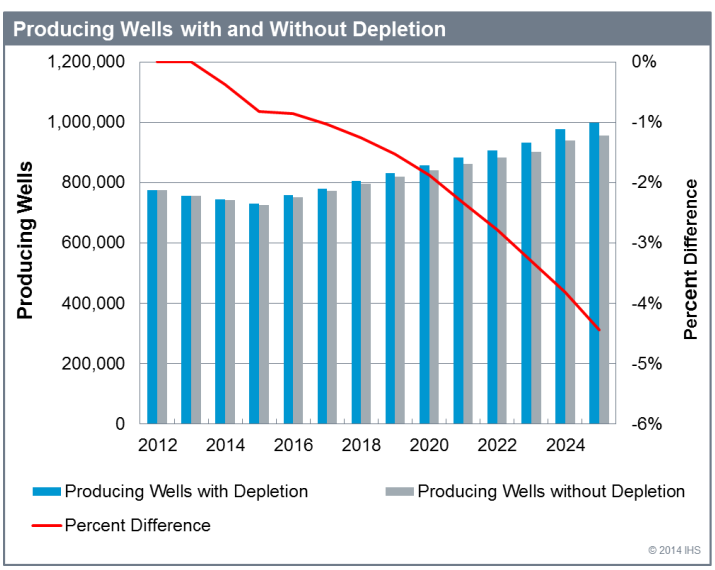
Future drilling for the non-depletion case was determined for each state and operator group. The overall result was that fewer wells were drilled, resulting in less production. Beginning in 2014, the profit obtained without depletion was subtracted from the profit obtained with depletion. This difference was then applied as a reduction to capital expenditure for the subsequent year. Since fewer wells would be drilled in this subsequent year, even less cash flow would be available for drilling in future years. This year-over-year reduction in available capital, ultimately compounds or results in a "snowball effect" over the forecast period. By 2025, significantly fewer wells were being drilled in the non-depletion case then within the base case. In general, operator groups with higher depletion rates, such as the "Full" depletion operator group, would make much deeper reductions in drilling than operator groups with smaller depletion percentages.

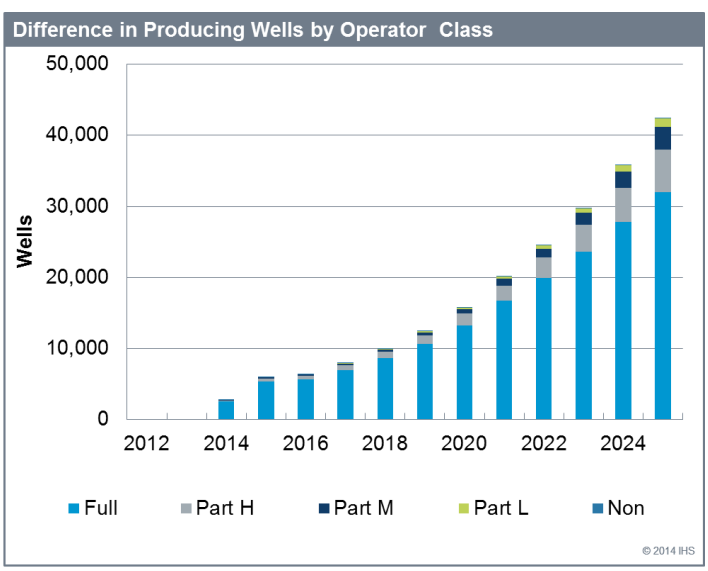
Energy production forecasts

Forecasts for the base case and non-depletion case include the number of producing wells, oil production, gas production and number of new wells. As mentioned earlier, these forecasts were built for each state (by region within large producing states), and within each state the forecasts were segregated into the five operator classes. This allows us to gain an understanding into the relative contributions of each group.

Producing wells

We expect a slight trend reversal in decline of producing wells with gradual increases over the forecast period. This will be caused in part by the very slow abandonment of long-lived wells producing from shale gas and tight oil plays. The non-depletion forecast also shows this increase, albeit at a slower rate due to higher abandonment rates in the non-depletion case. The gap between the two cases will widen, until by the end of the forecast period, there will be approximately 42,000 fewer producing wells in the non-depletion case, which represents a 4.2% decrease in producing wells.



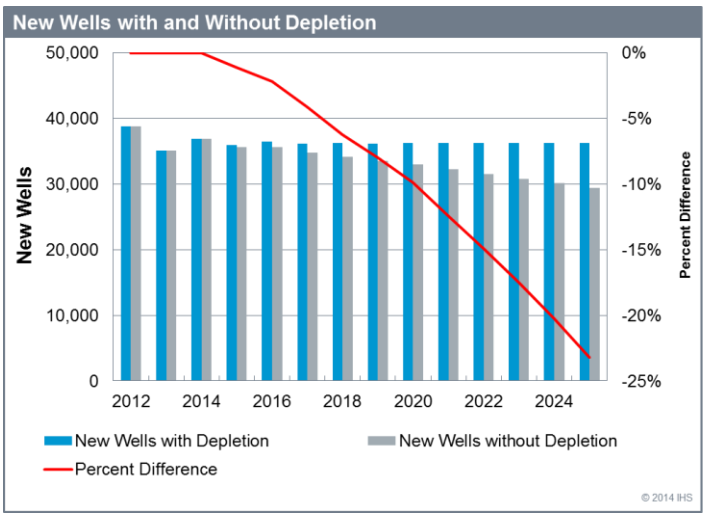


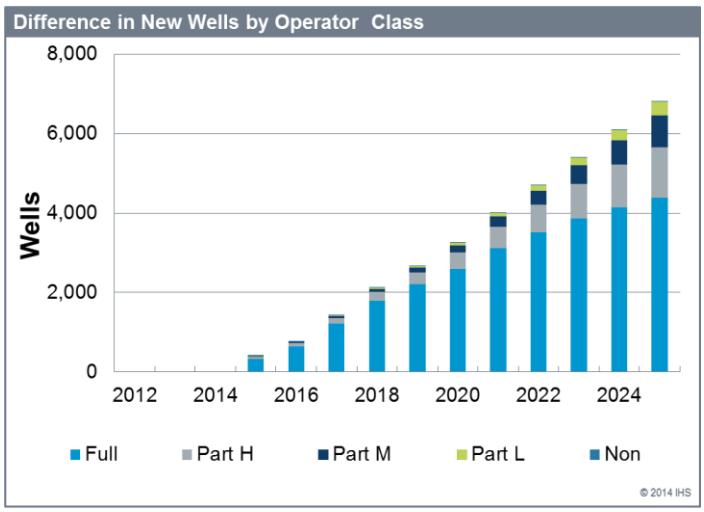
For the "Full" operator class, we can expect a much larger overall reduction in profit; hence, this group will contribute over 68% of the change in well reductions. We have already noted that this group operates a higher percentage of wells compared to the related production percentage, which implies that these wells are lower performing, and more economically marginal. Hence, we would also expect that reduced revenue due to depletion removal would accelerate the abandonment rate.

Most of the substantial activity in the shale gas and tight oil plays such as the Bakken, Eagle Ford and Marcellus Shale plays is dominated by operator groups Part M and Part L, which claim relatively smaller amounts of depletion. Figure 6 shows that the elimination of depletion will have less effect on this group, which implies that this case will have less impact within the large unconventional plays.

New wells

We expect new well completions to remain relatively flat over the forecast period for the base case, but to be reduced significantly for the non-depletion case. Elimination of depletion will have the most onerous effect on new wells as capital will be severely reduced for new capital spending. This will result in a decrease of nearly 7000 fewer wells being drilled by 2025 which represents a 23.5% reduction in drilling.



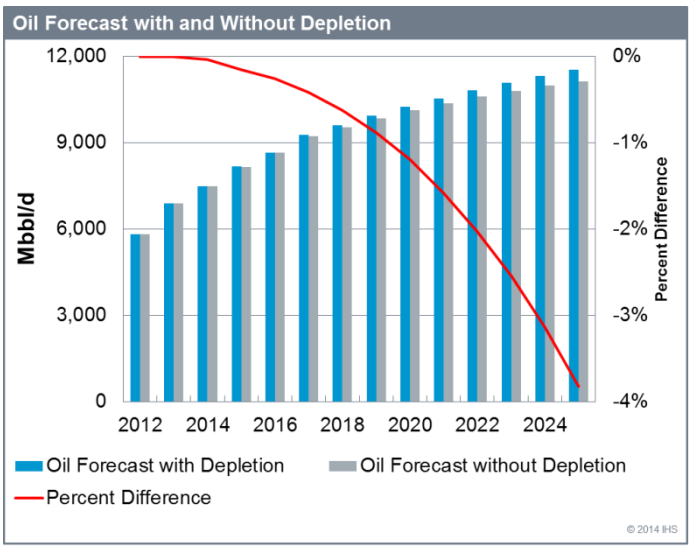


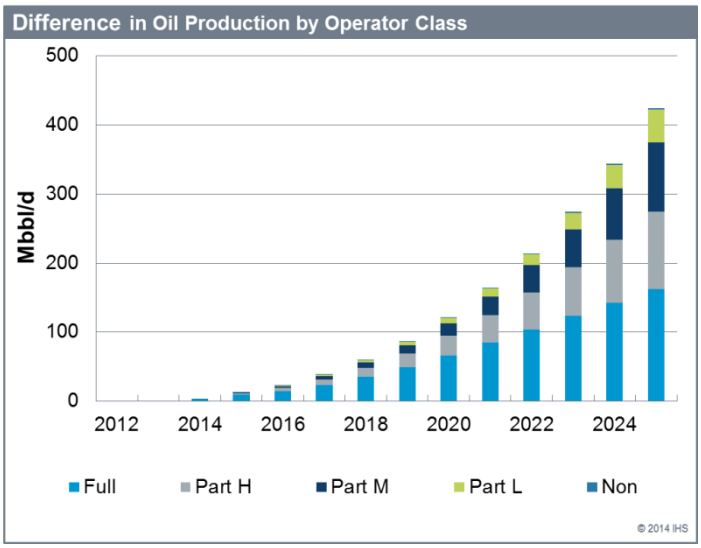
This reduction in drilling will hit the “Full” operator class the hardest as they will absorb nearly two-thirds of the loss (see Figure 7); however, all of the operator classes that can claim some depletion allowance will experience some loss in capital and ability to maintain current drilling rates. Our experience has shown that when reductions in drilling occur, it often takes a few years before production begins to be severely impacted. This “masking” of production loss will eventually catch up resulting in long-term supply shortages.

Oil production

We expect increases in oil production over the forecast period which will come largely from unconventional plays, including tight oil plays. The non-depletion forecast also shows this increase, albeit at a slower rate. The gap between the two cases will widen, until by the end of the forecast period, there will be approximately 410 thousand barrels per day less oil production for the non-depletion case which represents a 3.9% decrease.

As we have noted, larger operators, who can claim a smaller percentage of depletion, tend to have better performing wells overall; consequently while forecasted reductions in the number of producing wells and new wells may be relatively small for these operators, compared with decreases for the “full” operator class, similar reductions in production are forecasted for each of the operator groups (see Figure 8). These findings would suggest that all operators, regardless of the amount of claimed depletion have a stake in continuing to be able to claim the depletion allowance.

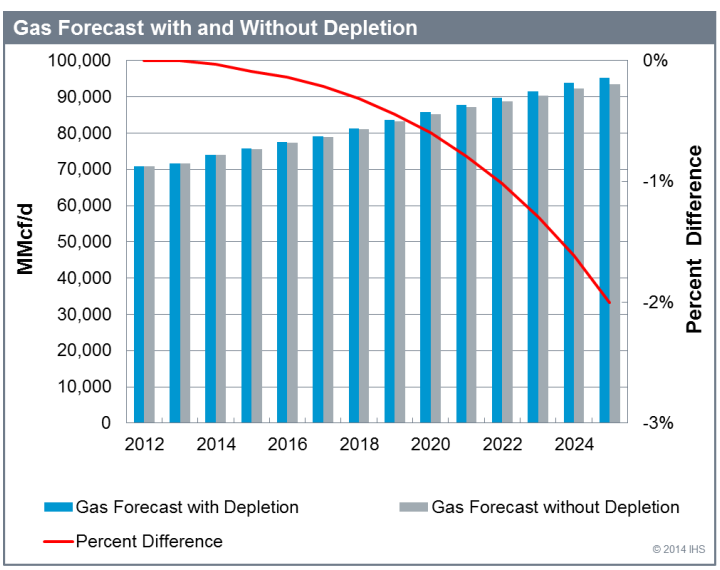


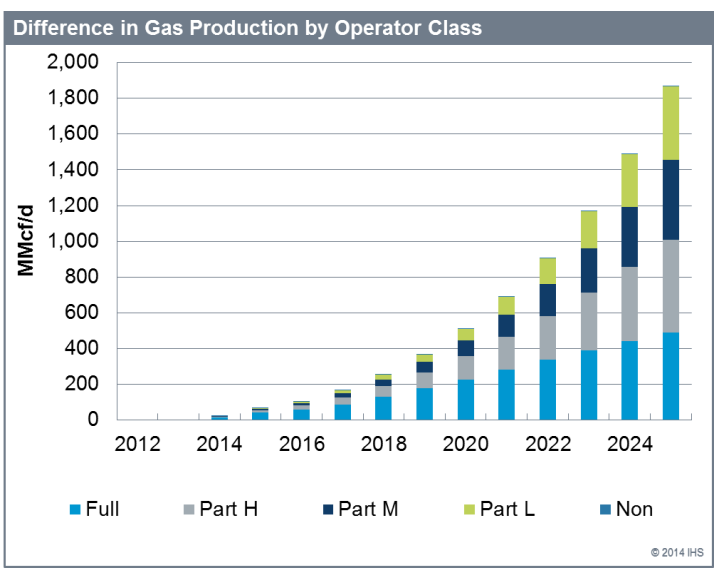


Gas production

We also expect increases in gas production over the forecast period which will also come largely from shale gas plays, such as the Marcellus and Utica plays. The non-depletion forecast also shows this increase, albeit at a slightly slower rate. The gap between the two cases will not be as wide as it is for oil; however, there will be approximately 1.82 bcf per day less gas production for the non-depletion case which represents a 2% decrease.

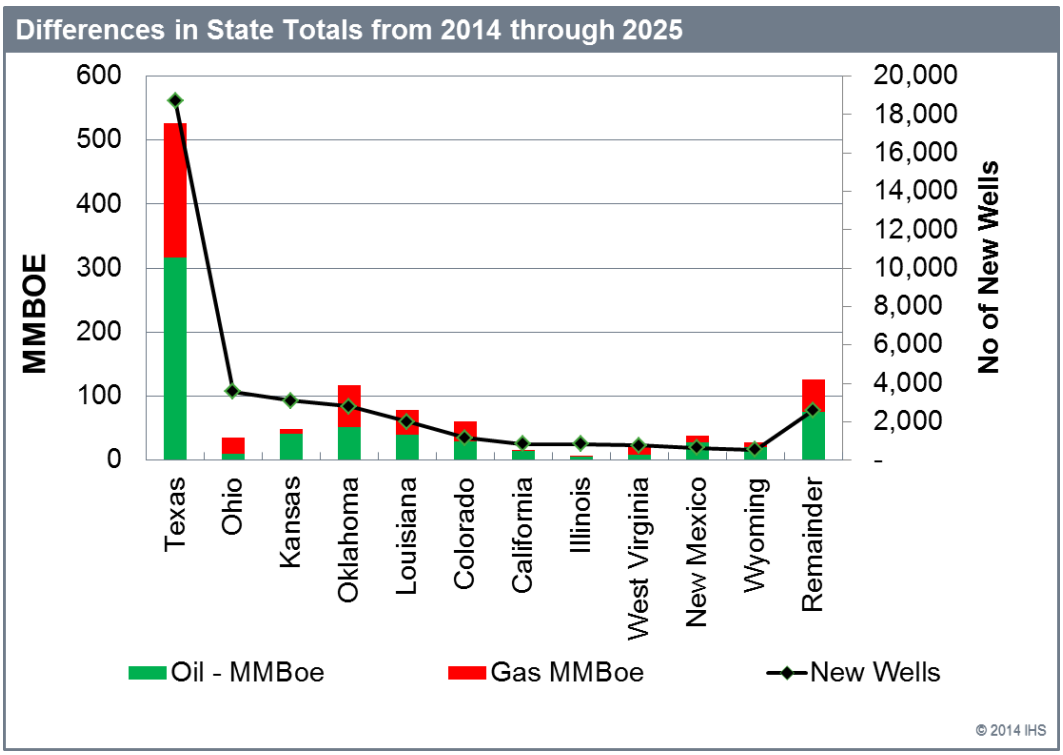
As we have seen with oil, the reductions in production affect each operator group fairly equally and continue to suggest that all gas producers that can claim some depletion have a stake in continuing to be able to claim the depletion allowance.





Analysis of state totals

Comparing the two forecasts reveals that over the course of the forecast period, more than 37,000 wells will not be drilled and 644 million barrels of oil and 2.8 tcf of gas will not be produced if the depletion allowance is eliminated. Differences in state totals over the forecast period are reflected in Figure 10. The state of Texas will absorb over half the drilling losses and about 45% of the production losses.



Total losses reflected in in the chart also indicate that states that will lose include mature oil producing states such as Texas, Kansas, Louisiana, California and Illinois. Notably absent from the chart are states like North Dakota, which contains the tight oil Bakken play, and Pennsylvania, where the large producing Marcellus Shale is located. This suggests that reductions are most likely to affect very mature conventional oil and gas areas as opposed to large unconventional plays.

The economic impact of eliminating the percentage depletion allowance

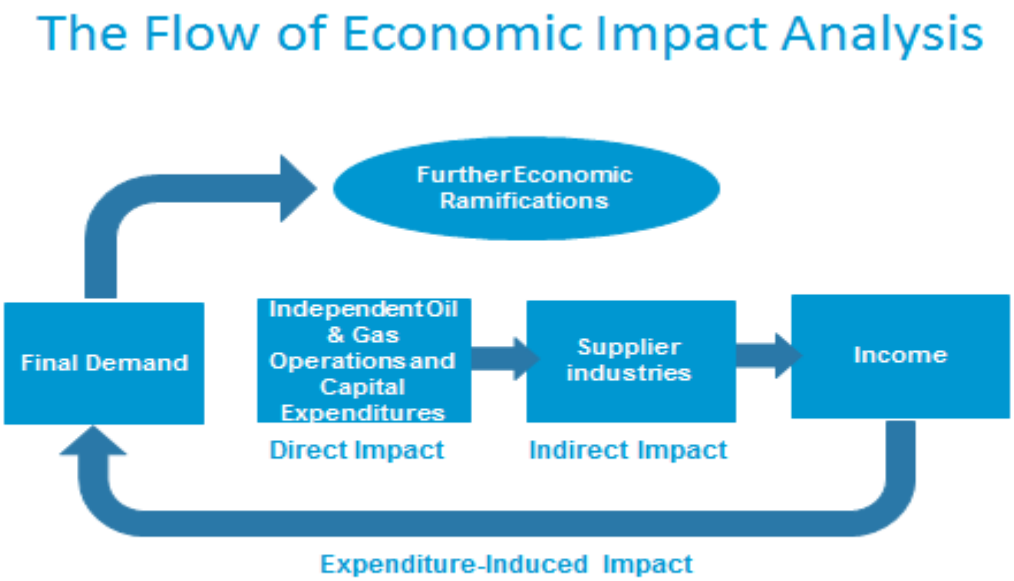
Tax policy changes that alter the economic incentives for producing goods and services in one industry can have far reaching effects in an interdependent economy. Eliminating the percentage depletion allowance changes the economic profitability of production and investment for independent oil and gas producers. The energy forecasts under the two scenarios demonstrated how this changes the economic activity overall within each state and thus for the US as a whole.

IHS approach and methodology

In order to assess the total economic impact of the elimination of the percentage depletion allowance, IHS Economics used the production, price and capital expenditure forecasts detailed in the previous section from IHS Energy. The forecasts for the two scenarios, with and without the percentage depletion allowance, were used as inputs to the State Level IMPLAN model (this Input-Output type model, detailed in the Appendix, is the primary analytical tool for this multi-state, multi-sector study).[5]

The model estimates three main impacts that show how the change in the tax policy ripples through the economy and has far reaching effects.

- **Direct Impact**: Impact on the core producing industries (in this gas the oil and natural gas industries as well as the main industries involved in drilling new wells).
- **Indirect Impact**: Impact on all supplier industries that support the oil and gas sector
- **Induced Impact:** Expenditure induced impact from changes in household income due to employment changes in the sectors.



The direct impacts are used as inputs to estimate the indirect and induced effects. The direct impacts are those changes in activity due to the change in tax policy (holding everything else constant). Thus the inputs used are the changes in production and the changes in capital expenditures between the current policy (with percentage depletion) and the proposed policy (without percentage depletion) estimated by IHS Energy.

Changes in production

IHS Economics computed the difference in the two production scenarios generated by IHS Energy for each state. IHS Energy also provided their pricing forecasts to calculate the monetary value of oil and gas production volumes. The differences in the value of production served as direct inputs to the model in the oil and gas extraction industry.

[5] The models IHS used for this study were based on IMPLAN, an industry-standard system for assessing economic impacts, which IHS enhanced with data from its US Regional Economics Service. The IMPLAN system is built using Input-Output techniques that link inter-industry and consumer transactions in a social accounting matrix for the region being assessed. This structure provides a foundation upon which models can be built that link sales in one industry sector with resultant sales in supplying sectors.

Changes in capital expenditures

IHS Economics also used the differences in capital expenditures for new wells under the two scenarios from IHS Energy. This data was also broken down by state. While the value of oil and gas production is attributed only to producing states, the allocation of capital expenditures among the 48 producing and non-producing states is more involved. Capital expenditures act as direct impacts at both the state and industry levels. The complexity lies in the fact that a portion of that spending may be allocated to states that do not have oil and gas production. This spending will trigger indirect and induced impacts in these states as they provide goods and services to support the formation of new wells in producing states. To ensure that these effects are included in the economic analysis, IHS Economics used industry input, IHS's in-house expertise and proprietary databases, and extensive additional research to arrive at the best possible methodology for allocating capital expenditures among different states.

The research, expertise, and input from industry sources were then integrated with an interstate trade-flow database to determine the sources of various products and services by state. This fine-tuned methodology ensures that inputs that are not locally produced – or do not have a competitive advantage locally – are sourced from other states creating economic "leakage" from one state to another. In the broader context, economic "leakage" is explained as inter-regional activity in which the production requirements of a commodity (or a service) use inputs produced in other states thus causing the economic impact to "leak" to other states and introducing a regional ripple effect.

This data was then incorporated into a model framework set up as a system of linked state economies. As a result, the sourcing of inputs for the development of new wells will impact other states, not just those where the new wells are being developed. For example, the development of new wells in Arkansas relies on bank, insurance and securities services in New York and professional services primarily located in Texas. Capturing these connections highlights the indirect economic contribution. The leakages also impact US GDP and employment multipliers, making them more accurate for non-producing states. IHS's trade-flow database was one of many sources used to determine the origin and destination of the various materials and equipment on a state level basis. This process was undertaken for all the products in the producing states.

Using this model, IHS Economics mapped the initial capital expenditures into their breakdown for the industry categories specified by the IMPLAN model. These are: Drilling Direct Capital Investment, Completion Frac Direct Capital Investment, Supporting Facilities Direct Capital Investment, and Gathering System Direct Capital Investment. Then the breakdowns for drilling, completion, facilities, gathering, processing, and pipeline construction were mapped to many other industry categories in the model and then allocated to the states where the goods and services would be produced.

The following two tables present the distribution of capital spending to the different sectors and states that were used as inputs to the model. Much of the reduction in capital expenditure will be in Texas, followed by Louisiana and Oklahoma.

Total US capital expenditure differences

(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Drilling direct capital investment	(576)	(1,444)	(2,518)	(3,661)	(4,594)	(5,655)	(6,912)	(8,108)	(9,274)	(10,463)	(11,636)
Completion frac direct capital investment	(263)	(1,028)	(1,836)	(2,773)	(3,650)	(4,555)	(5,642)	(6,709)	(7,773)	(8,883)	(9,944)
Supporting facilities direct capital investment	(813)	(342)	(595)	(866)	(1,087)	(1,340)	(1,645)	(1,925)	(2,188)	(2,444)	(2,714)
Gathering system direct capital investment	(36)	(241)	(415)	(605)	(766)	(930)	(1,121)	(1,296)	(1,463)	(1,628)	(1,785)

Source: IHS Economics

Percent of total capital expenditure decreases in each producing state

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Alabama	0.3%	0.3%	0.3%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%
Arizona	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Arkansas	0.5%	0.5%	0.4%	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%	0.5%	0.6%
California	1.4%	1.3%	1.1%	1.0%	1.1%	1.1%	1.1%	1.1%	1.2%	1.3%	1.3%
Colorado	1.4%	1.4%	1.4%	1.6%	1.9%	2.3%	2.6%	2.9%	3.2%	3.4%	3.7%
Florida	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Illinois	1.1%	1.0%	0.9%	0.8%	0.9%	0.9%	0.9%	0.9%	1.0%	1.0%	1.0%
Indiana	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Kansas	6.5%	5.9%	5.3%	5.0%	5.3%	5.5%	5.6%	5.8%	6.0%	6.2%	6.4%
Kentucky	0.4%	0.4%	0.3%	0.3%	0.4%	0.4%	0.4%	0.4%	0.4%	0.5%	0.5%
Louisiana	8.6%	7.5%	6.8%	6.3%	6.5%	6.7%	6.8%	7.0%	7.2%	7.4%	7.5%
Michigan	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%
Mississippi	0.9%	0.8%	0.8%	0.7%	0.8%	0.8%	0.9%	0.9%	1.0%	1.0%	1.1%
Montana	1.8%	1.7%	1.6%	1.6%	1.5%	1.4%	1.2%	1.1%	1.0%	0.9%	0.8%
Nebraska	0.3%	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Nevada	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New Mexico	1.6%	1.5%	1.4%	1.4%	1.5%	1.6%	1.7%	1.8%	1.9%	2.0%	2.1%
New York	0.3%	0.4%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%
North Dakota	0.7%	0.7%	0.7%	0.7%	0.8%	0.9%	1.0%	1.2%	1.3%	1.5%	1.7%
Ohio	0.0%	6.1%	13.9%	16.6%	11.6%	8.0%	7.6%	6.5%	5.5%	4.9%	4.5%
Oklahoma	8.9%	8.5%	8.0%	7.9%	8.5%	8.8%	8.6%	8.6%	8.7%	8.7%	8.7%
Oregon	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Pennsylvania	0.3%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.8%
South Dakota	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Texas	59.1%	55.2%	51.4%	50.1%	53.3%	55.4%	55.3%	55.3%	55.0%	54.3%	53.6%
Utah	0.4%	0.4%	0.4%	0.4%	0.4%	0.5%	0.5%	0.6%	0.7%	0.8%	0.9%
Virginia	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
West Virginia	3.0%	3.8%	2.7%	2.4%	2.2%	2.1%	2.0%	2.0%	2.0%	1.9%	1.9%
Wyoming	1.9%	1.7%	1.5%	1.5%	1.6%	1.7%	1.7%	1.7%	1.7%	1.7%	1.7%

Source: IHS Economics

The final set of capital expenditures, by various products and services, along with the value of production, was input into all IMPLAN state models to assess the contribution on each individual state's economy and at the National level as a whole. The model produces a number of indicators of economic activity. Four main indicators are used to assess the economic impact.

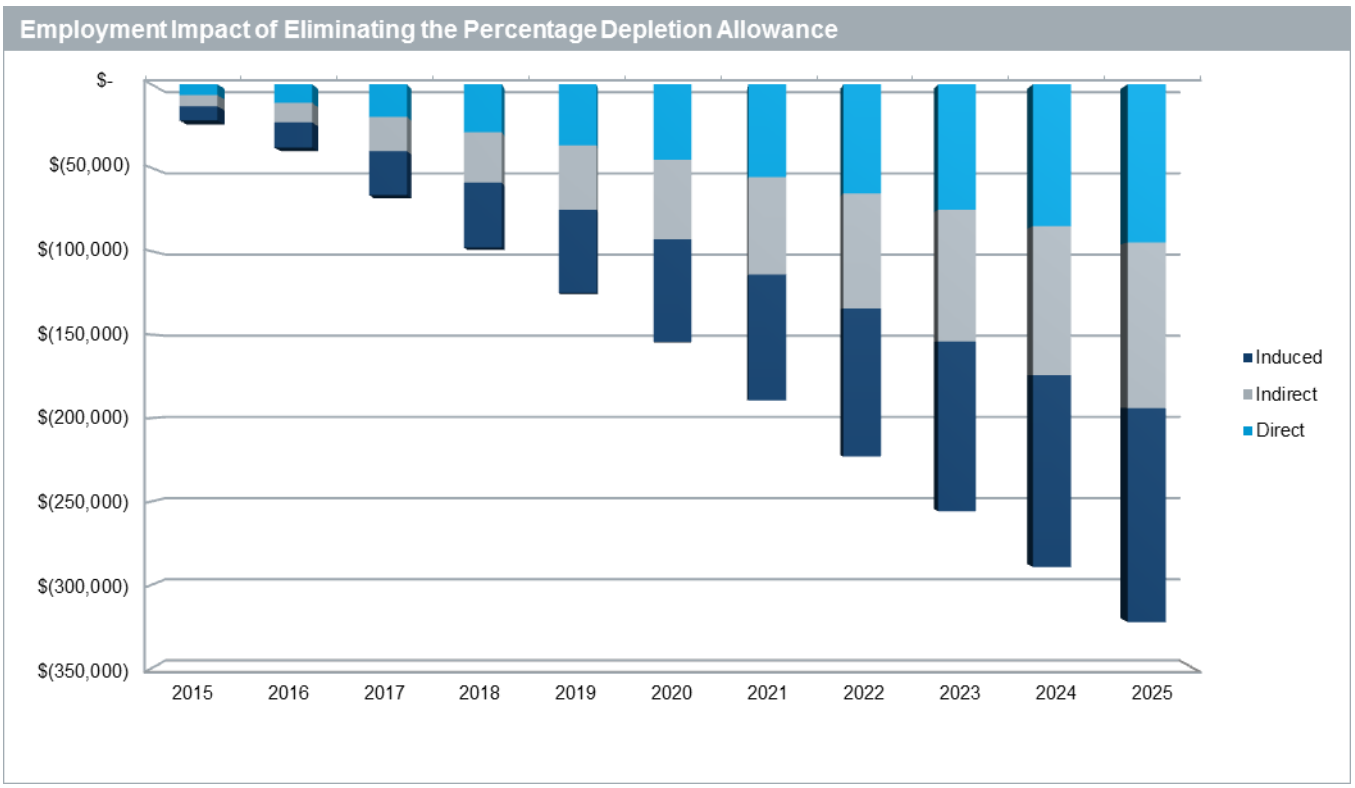
- **Employment**: In many capital and infrastructure-intensive commercial undertakings, the employment supported typically occurs in two ways. The first is during Construction, in this case new well construction. Many construction and manufacturing jobs are created and trigger growth in indirect and induced jobs; however these tend to be more temporary. Production (operating and maintaining the wells) supports long-term jobs. These are more direct core industry jobs and related supplier industries as well as those induced by the employees now with more income of the direct and indirectly supported jobs.
- **Value-added**: Value-added is the difference between the production cost of products or services and the sales price (i.e., total value-added is revenue less outside purchases of material and services). The frequently cited Gross Domestic Product (or GDP) is simply the sum of value-added across all products and services produced within an economy. For this reason Value-added or Gross Value-Added are also known as Contribution to GDP. GDP is generally considered the broadest measure of economic activity.
- **Labor income**: A subcomponent of value-added is labor income, which captures the compensation (wages and benefits) paid to workers. A common measure of the relative contribution of an industry to the overall

economy is labor income per worker. The higher the ratio, the greater is each worker's quality and contribution to growth.

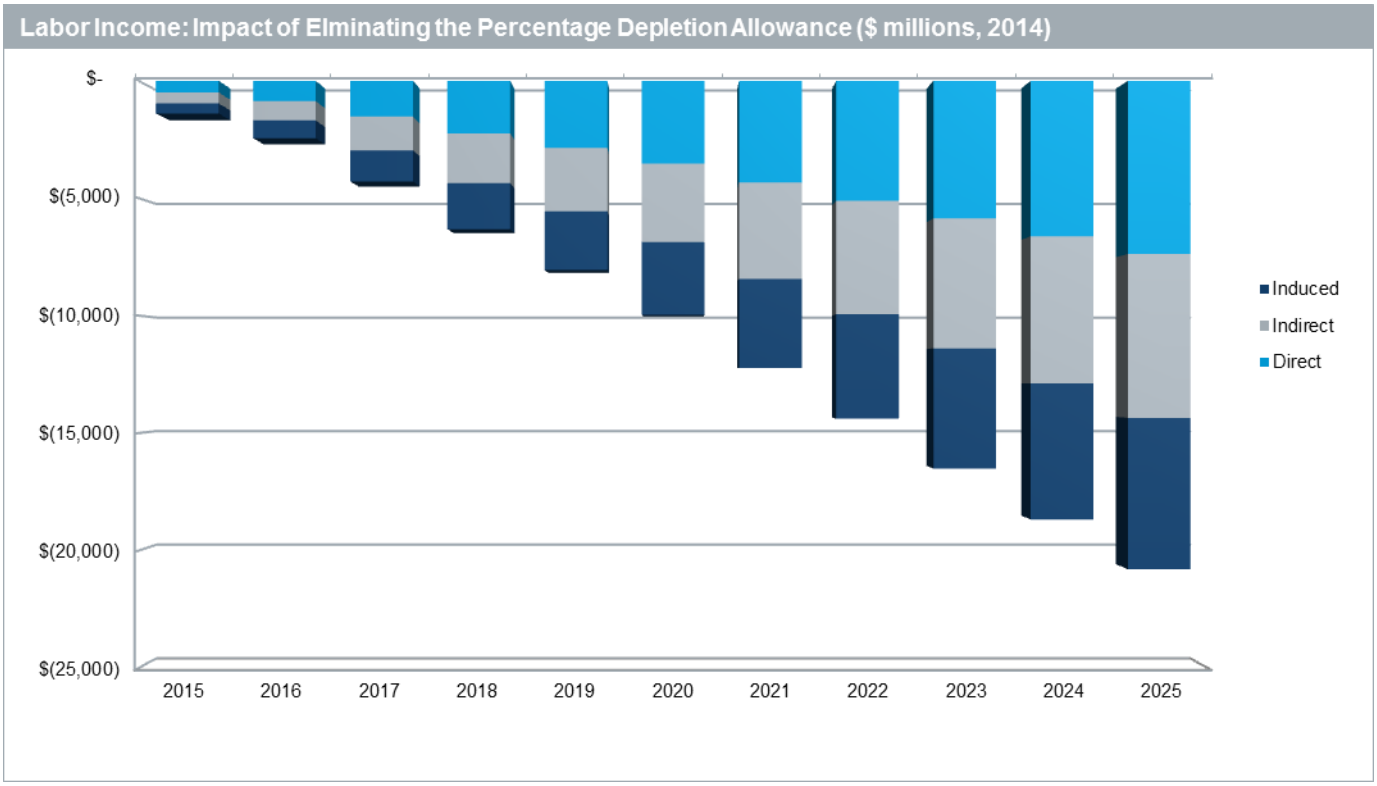
- **Government revenues**: Increased economic activity will expand government revenues by expanding taxable income and vice versa, decreased economic activity lowers taxable income and will lower government revenues (ceteris paribus).

National level impacts

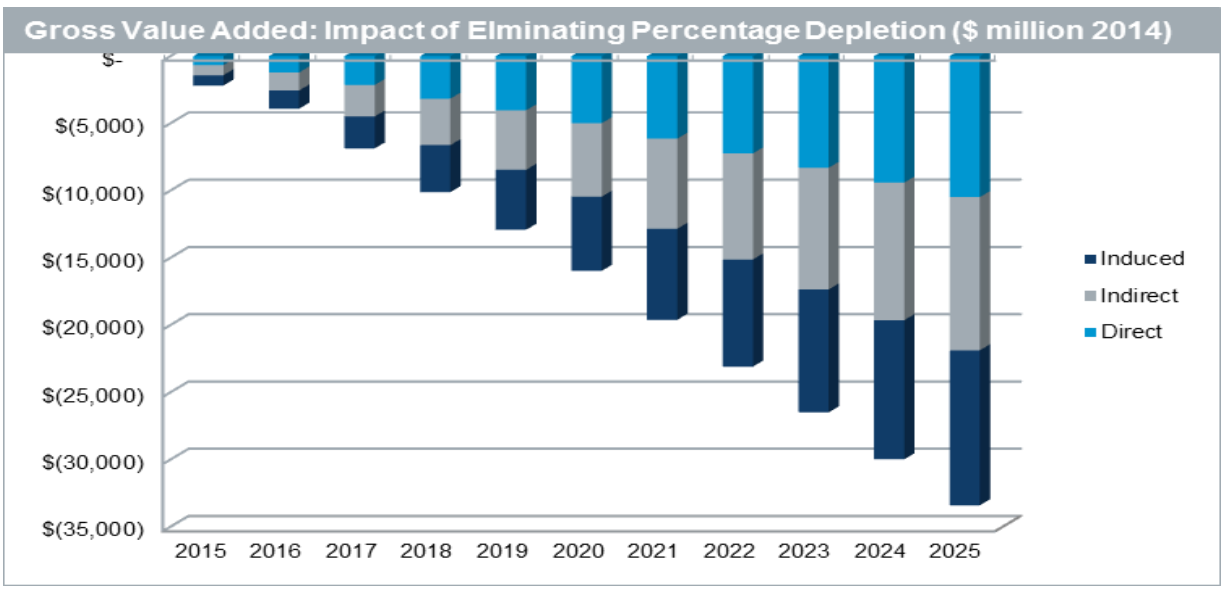
The impact of the change in tax policy that eliminates the percentage depletion allowance for oil and gas producers are costly for the US economy and the costs grow larger over time as investment in new wells that would otherwise have been drilled under the current policy are not made. This lowers the productive capacity, not only of the oil and gas industry, but the US economy as a whole. These ripple effects can be seen in the break-down of the direct, indirect, and induced effects of the tax change.
Combined, the indirect and induced impacts are larger than the direct effects on the oil and gas industries. Over the decade there are an average 178,206 jobs that would be forgone each year.



Forgone jobs are not the only impact on the labor force, as labor income also declines relative to what it otherwise would be with percentage depletion. By 2025, labor income is $20.8 billion less without the percentage depletion allowance than it would be with the allowance.



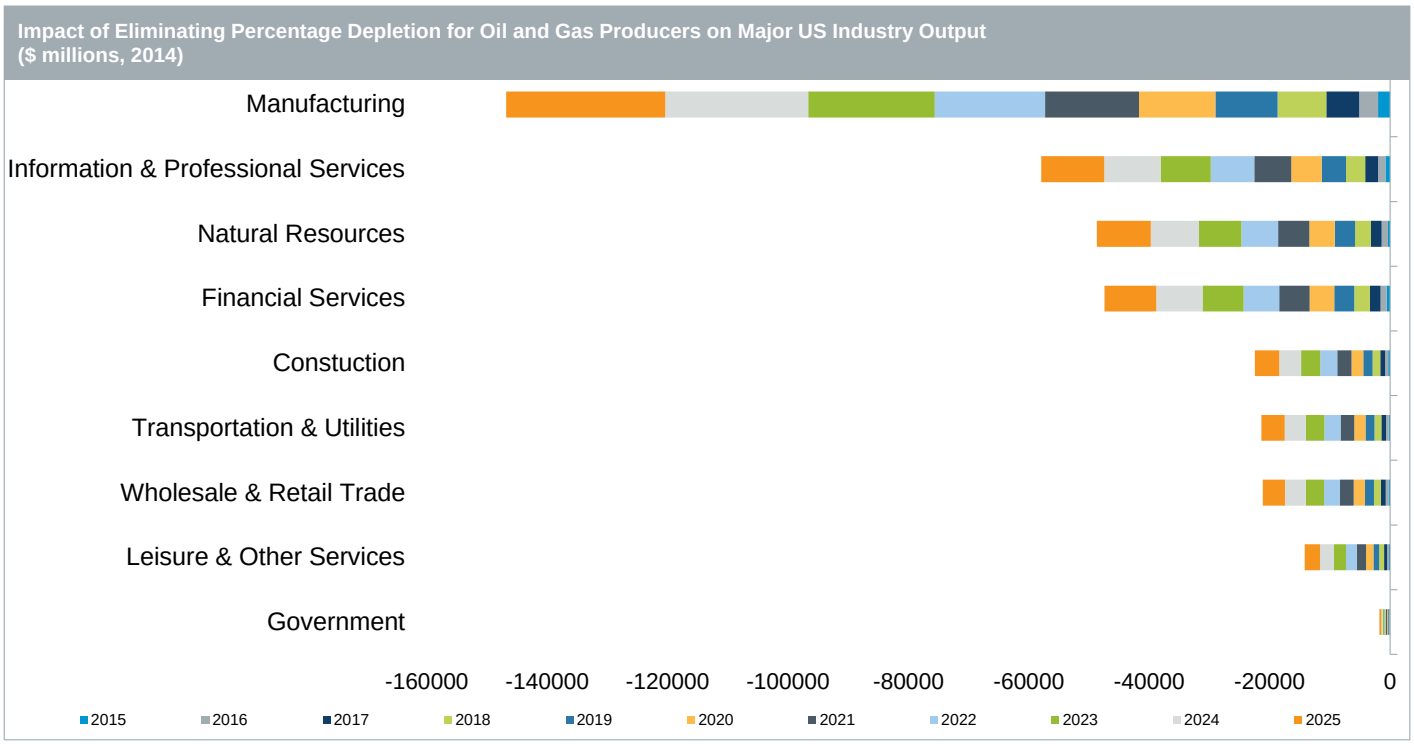
The employment impacts are symptoms of the larger problem driven by the decreased economic activity in the oil and gas industry. The changed incentives for producing and drilling new wells, ripples through the economy, lowering gross value-added (contributions to GDP) along the way. The analysis shows that these ripple effects (indirect and induced effects) are nearly twice as large as the direct production impacts. By the end of the decade the yearly accumulated losses to the economy amount to $184.5 billion.



Impact on major US sectors

The direct, indirect, and induced impacts for the US economy as a whole, are driven by decreases in economic activity in all major US sectors of the economy. The next figure shows how the forgone output in

each sector grows over the next decade. Both the Manufacturing and Information & Professional Services sectors are more severely impacted than the Natural Resource sector.



Percentage Depletion elimination: Impact on labor income (millions of Real 2014$)

	2015	2020	2025	Average
Manufacturing	384	2,608	5,442	2,740
Information & Professional Services	380	2,233	4,622	2,343
Financial Services	123	1,444	3,062	1,518
Natural Resources	121	922	1,924	967
Wholesale & Retail Trade	111	774	1,566	808
Transportation & Utilities	114	746	1,550	783
Construction	66	584	1,235	614
Leisure & Other Services	81	576	1,202	605
Government	9	66	138	69
Total	**1,389**	**9,953**	**20,742**	**10,449**

Impact on the States

While the costs to the US economy are large, they are not equally borne by all the states. The analysis shows that the 28 oil and gas producing states are the hardest hit, bearing on average 94% of the cost in terms of gross value-added; yet many other states do bear some of the cost. The table shows the 10 most impacted producing states. Texas, by far, bears the largest share of the cost.

Top 10 producing states: Impact of percentage depletion on gross value-added

(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
California	(137)	(162)	(261)	(371)	(500)	(639)	(788)	(942)	(1,100)	(1,263)	(1,431)
Colorado	(85)	(171)	(282)	(413)	(573)	(765)	(979)	(1,211)	(1,455)	(1,711)	(1,976)
Florida	(19)	(9)	(14)	(20)	(27)	(34)	(42)	(50)	(58)	(65)	(73)
Illinois	(35)	(85)	(166)	(253)	(300)	(348)	(425)	(495)	(563)	(638)	(708)
Michigan	(37)	(104)	(204)	(308)	(358)	(416)	(507)	(586)	(661)	(744)	(827)
New York	(8)	(17)	(18)	(30)	(29)	(30)	(34)	(36)	(40)	(45)	(48)
Ohio	(20)	(182)	(619)	(1,061)	(975)	(875)	(1,026)	(1,067)	(1,065)	(1,117)	(1,164)
Pennsylvania	(18)	(47)	(100)	(158)	(173)	(192)	(236)	(274)	(312)	(359)	(410)
Texas	(1,336)	(2,166)	(3,574)	(5,152)	(6,940)	(8,866)	(10,886)	(12,852)	(14,739)	(16,565)	(18,313)
Virginia	(2)	(6)	(14)	(24)	(25)	(26)	(32)	(37)	(43)	(50)	(57)
Top ten producing states total	**(1,697)**	**(2,949)**	**(5,253)**	**(7,790)**	**(9,899)**	**(12,191)**	**(14,955)**	**(17,551)**	**(20,037)**	**(22,557)**	**(25,008)**
All producing states total	**(2,092)**	**(3,673)**	**(6,428)**	**(9,466)**	**(12,120)**	**(15,010)**	**(18,434)**	**(21,723)**	**(24,941)**	**(28,230)**	**(31,450)**
US total	**(2,189)**	**(3,911)**	**(6,864)**	**(10,117)**	**(12,920)**	**(15,970)**	**(19,605)**	**(23,089)**	**(26,495)**	**(29,982)**	**(33,395)**
Producing states % of US total	-96.0%	-94.0%	-94.0%	-94.0%	-94.0%	-94.0%	-94.0%	-94.0%	-94.0%	-94.0%	-94.0%

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

While the producing states bear the brunt of the economic costs. The non-producing states are still impacted. The gross value-added in Missouri, for example, is nearly $1.5 billion lower in 2025 than they otherwise would be. This lost economic value is greater than many of the producing states and shows how small changes in incentives for individual producers in one industry can have far reaching impacts and quickly compound in a highly interdependent economy. The top 10 non-producing states together have a cumulative impact over the decade of $11 billion in forgone gross value-added.

Top 10 non-producing states: Impact of percentage depletion on gross value-added

(millions of 2014 $)

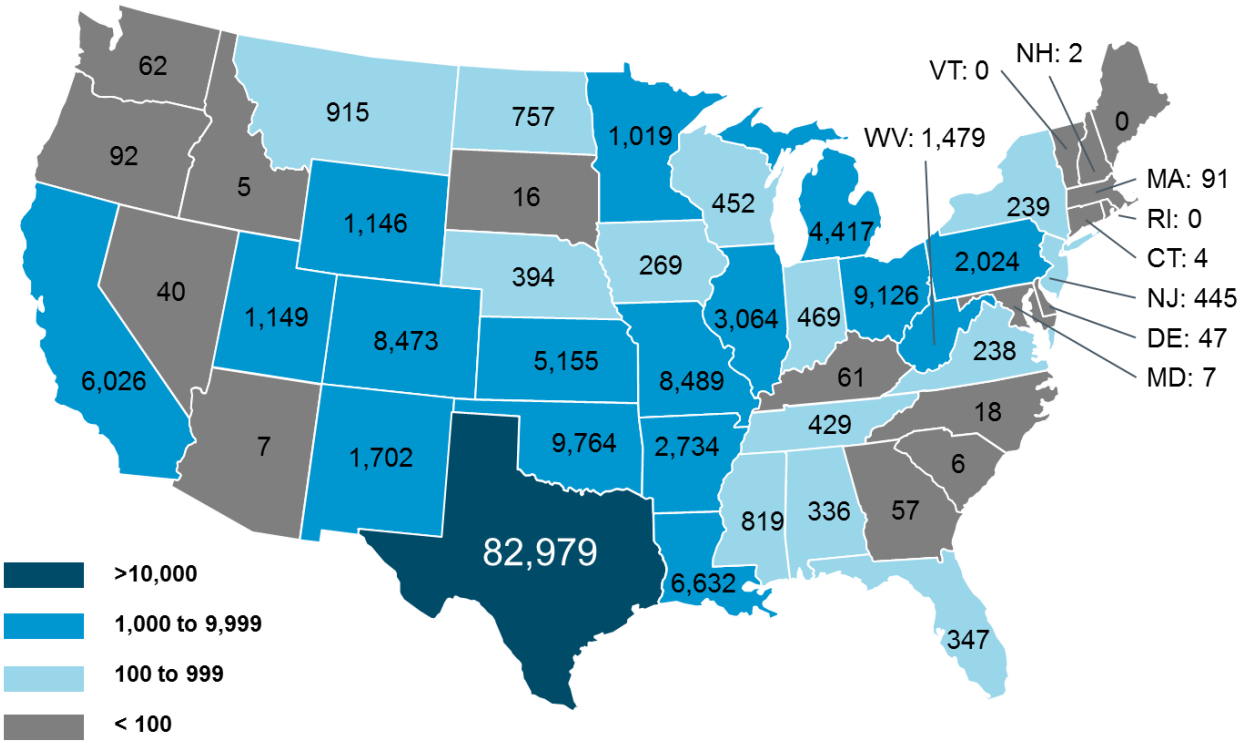
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Missouri	(75)	(178)	(287)	(404)	(543)	(696)	(853)	(1,010)	(1,164)	(1,315)	(1,461)
Minnesota	(2)	(19)	(62)	(109)	(107)	(101)	(120)	(130)	(135)	(147)	(159)
Wisconsin	(4)	(10)	(17)	(24)	(33)	(43)	(54)	(66)	(79)	(93)	(107)
New Jersey	(4)	(14)	(38)	(64)	(60)	(56)	(65)	(68)	(69)	(74)	(78)
Iowa	(3)	(5)	(8)	(13)	(16)	(19)	(24)	(28)	(33)	(39)	(44)
Oregon	(2)	(2)	(4)	(5)	(7)	(9)	(11)	(13)	(15)	(18)	(21)
Massachusetts	(2)	(3)	(8)	(14)	(13)	(11)	(13)	(14)	(14)	(15)	(15)
Tennessee	(1)	(1)	(2)	(3)	(4)	(6)	(7)	(9)	(11)	(13)	(15)
Georgia	(1)	(1)	(2)	(3)	(4)	(5)	(6)	(8)	(9)	(11)	(14)
Washington	(4)	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Total top 10 non-producing states	**(95)**	**(236)**	**(432)**	**(643)**	**(792)**	**(952)**	**(1,161)**	**(1,353)**	**(1,540)**	**(1,736)**	**(1,926)**
Total Non-Producing States	**(97)**	**(239)**	**(436)**	**(651)**	**(799)**	**(961)**	**(1,171)**	**(1,365)**	**(1,554)**	**(1,751)**	**(1,944)**

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

The forgone employment picture by state shows a similar story. Employment losses are greatest in the producing states, but as the map shows, many other states will forego some employment that would have been supported under the current policy.

EMPLOYMENT IMPACT BY STATE (AVERAGE 2015-2025)



Impact on royalty owners

Royalty owners are mainly those who have provided the land for drilling and have gotten a share of the revenue from the production of the wells in return. The federal and many state governments are royalty owners. Private royalty owners, according the National Association of Royalty Owners are "teachers, farmers, ranchers, homemakers, accountants, firemen, plumbers, retirees, dentists, small business owners, factory workers, engineers, pet groomers, widows, roofers, lawyers, policemen, florists, carpenters, bricklayers" who have often view the royalties as a part of their families' legacy. Average royalty earnings for an individual are $500 a month with many earning less than this.[6]

Private royalty owners can also claim the percentage depletion deduction. Eliminating the percentage depletion allowance affects royalty owners in two ways. First it lowers the incentive and so providing land or the investment dollars for new wells that are seen as riskier will likely be forgone. Second, as seen in the production forecasts under the two scenarios, producing wells will be lower or go offline, thus diminishing the amount of production revenue and hence lowers the royalty owners' earnings.

To assess the lost royalty earnings, the analysis used the average royalty rates per state for Federal, State and Private owners (estimated county by county).[7] These royalty rates were multiplied by the percentage of land owned by Federal, State and Private royalty owners[8] respectively times the difference in production for

[6] "Statement for the Record Of National Association of Royalty Owners (NARO)" Before the United States Senate Committee on Energy and Natural Resources, hearing on February 4, 2010 at http://www.naro-us.org/Resources/Documents/Senate%20Committee%20on%20Energy%20and%20Natural%20rescources%20testimony%202-4-2010%20Final%20version%203%20%282%29.pdf (retrieved 29 October 2014).
[7] "U.S. Lease Price Report." Lierle Public Relations, July/August 2011, Volume 30, Number 4.
[8] For Federal and State land the land shares were further broken down between oil and gas and the production differences attributable to oil and gas were multiplied by the respective land share. For Federal royalties, 12.5% and

each state, The economic impact on the owners of royalty shares in producing wells is significant. Over the decade, royalty owners are estimated to earn $34.3 million less (in total). The table below shows the breakdown between Federal, State and Private owners. By far, the largest group impacted is private royalty owners.

Royalty earnings forgone (without vs. with percentage depletion)
(2014 $)

	2015	2020	2025	2015-25
Federal	(5,125)	(66,763)	(281,812)	(1,068,195)
State	(4,464)	(53,909)	(203,817)	(814,422)
Private	(250,541)	(2,195,183)	(7,957,494)	(32,403,715)

Source: IHS Economics

The next table shows the top 15 (of the 28 producing states) states, whose royalty owners would be most severely impacted. Royalty owners in states with more private land, such as Texas, and states, such as North Dakota that would otherwise be projected to boost production over the next decade, are especially hard hit by 2025.

Top fifteen states with royalty owner earnings forgone
(private sector 2014 $)

	2015		2025
Texas	(169,739)	Texas	(4,776,591)
Oklahoma	(30,354)	Oklahoma	(743,487)
Louisiana	(11,063)	Louisiana	(720,312)
Kansas	(6,267)	Colorado	(263,524)
West Virginia	(6,222)	Kansas	(257,144)
Colorado	(5,690)	North Dakota	(194,173)
Montana	(5,166)	West Virginia	(161,746)
New Mexico	(2,311)	New Mexico	(122,143)
Mississippi	(2,145)	Mississippi	(114,226)
North Dakota	(1,832)	Pennsylvania	(94,693)
California	(1,488)	California	(89,406)
Ohio	(1,467)	Alabama	(80,245)
Illinois	(1,207)	Pennsylvania	(63,129)
Arkansas	(1,147)	Montana	(53,525)
Alabama	(889)	Arkansas	(50,861)

NOTES: Numbers may not sum due to rounding.
Source: IHS Economics

Impact on government revenues

10% rates were applied to oil and gas respectively. For state and private royalties the average rates calculated for private land owners ranged from 12.5% – 24% and were applied to both oil and gas (see Appendix A).

Eliminating the percentage depletion allowance causes the average effective tax rate to be higher. For this reason it is scored as a revenue provision. The Joint Committee on Taxation (JCT) is required to produce a score for all revenue and spending provisions.[9] The scores are typically static in that they do not take into account any changes in economic activity due to the tax or spending policy.[10] The previous section showed that Federal revenue from oil and gas royalties earned on Federal land will be impacted. In fact, the Federal government will lose over $1 million dollars in royalty revenue in the next decade if the percentage depletion allowance is eliminated.

In addition, the results here show that the economic cost to the federal government in terms of lower taxable income is even greater. The negative changes in economic activity overwhelm the revenue gains of the higher effective tax rates by 2020. Overall federal revenue is lower than it otherwise would be with the percentage depletion allowance. On net, eliminating the percentage depletion allowance costs the federal government close to $2.5 billion over the next decade (not including the lost royalty revenue).

Federal tax implications of eliminating the percentage depletion allowance for oil and natural gas

(millions of $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
JCT Estimate of Federal Revenue Gains (due to increased tax)*	1,025	1,606	1,616	1,650	1,714	1,775	1,820	1,852	1,877	1,900	16,835
IHS Estimate of Federal Revenue Losses (due to decreased production)**	(251)	(451)	(807)	(1,212)	(1,578)	(1,989)	(2,490)	(2,991)	(3,500)	(4,039)	(19,309)
Net Federal Revenue gain(loss)	774	1,155	809	438	136	(214)	(670)	(1,139)	(1,623)	(2,139)	(2,474)

* "Estimated Budget Effects Of The Revenue Provisions Contained In The President's Fiscal Year 2015 Budget Proposal" Submitted (4/15/2014) at https://www.jct.gov/publications.html?func=startdown&id=4585

** IHS estimates were inflated to constant dollars to match JCT's constant dollar estimates.

Source: IHS Economics

Although the percentage depletion allowance is a federal tax policy, the economic impacts affect state and local tax revenues as well. States also own land and therefore earn royalties on the production on their land. Many state and local governments also depend on economic activity to generate income and sales tax revenue. The results show that the diminished economic activity from the direct effects on the oil and natural gas producers ripple through to their suppliers and then through to all the goods and services industries where owners and employees make purchases. This amounts to lost revenue for state and local governments. Cumulative losses over the decade for state and local government amount to $13.4 billion. Texas, Oklahoma, and Colorado take the top three spots in terms of state revenue forgone.

Impact on government revenues from eliminating the percentage depletion allowance for oil and natural gas

(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Federal Tax	(246)	(433)	(760)	(1,120)	(1,429)	(1,766)	(2,168)	(2,553)	(2,929)	(3,313)	(3,690)
State and Local Tax	(155)	(283)	(497)	(732)	(935)	(1,156)	(1,419)	(1,671)	(1,918)	(2,171)	(2,418)

Source: IHS Economics

Conclusion

The analysis of the economic impact of eliminating the percentage depletion allowance imposes a large cost on the US economy that should be weighed against revenue increases due to a higher effective tax rate. Because the elimination of the percentage depletion allowance raises the effective tax rate on the owners and operators of oil and gas producing wells, the ability of independent oil and gas producers to operate and maintain their wells profitably and to take on the risk of investing in new wells is diminished. Thus some wells are capped while other wells never get drilled. Over time this reduces the productive capacity in the oil and gas industry, which this analysis shows has far reaching impacts for all sectors of the US economy.

[9] The JCT scored the President's budget to 2024.

[10] In more recent years the JCT has made some standard assumptions to account for changes in economic activity in a limited way.

The economic costs are borne by all major industries, and ripple through to many non oil and gas producing states as well as the producing states. This impacts revenue to the federal government and rather than raising revenue for the federal government, the analysis shows the costs will outweigh the benefits as early as 2020. Overall, the policy change will reduce tax revenue to the Federal Government by $2.5 billion over the next decade and it will reduce federal royalty revenue by $1.1 million over the decade.

Appendix A: Energy context assumptions

Integrated oil companies with no depletion allowance and large independent operators with minimal depletion allowance

Operator with No Depletion Allowance
BP
ExxonMobil
Chevron
ConocoPhillips
Shell
BHP Billiton
Marathon
Hess
Oxy

Operators with Partial Depletion Allowance	% Depletion
Chesapeake	.0105%
Anadarko	.0161%
Devon	.0205%
EOG	.0208%
Southwestern	.0303%
EnCana	.038%
Apache	.0444%
Pioneer	.0456%
Denbury	.0575%
WPX Energy	.0605%
Cabot	.0611%
QEP Energy	.0642%

While the larger independents receive a benefit from the depletion allowance, it is minimal.

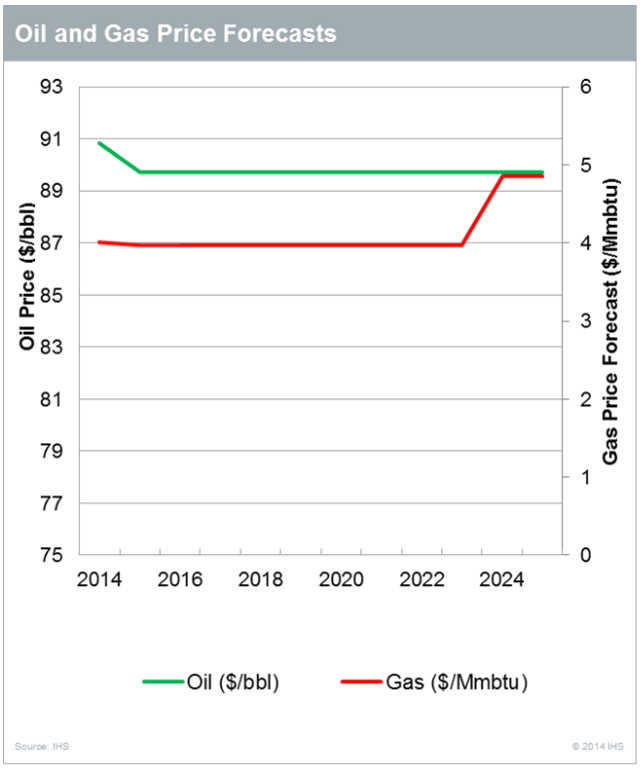
State level severance and royalty rates used in cash flow analysis

State	Oil Severance	Gas Severance	Royalty
ALABAMA	2%	2%	12%
ARIZONA	3%	3%	17%
ARKANSAS	5%	5%	20%
CALIFORNIA	$0.141/bbl	$0.106/Mcf	17%
COLORADO	4%	5%	17%
FLORIDA	8%	$0.345/Mcf	0%
ILLINOIS	3%		12%
INDIANA	$0.24/bbl		13%
KANSAS	5%	5%	12%
KENTUCKY	5%	5%	15%
LOUISIANA	13%	$.024/Mcf	24%
MICHIGAN	7%	$0.05/Mcf	12%
MISSISSIPPI	6%	4%	18%
MONTANA	7%	9%	17%
NEBRASKA	3%	$0.03/Mcf	13%
NEVADA	$0.05/bbl	$0.01/Mcf	13%

State	Oil Severance	Gas Severance	Royalty
NEW MEXICO	4%	8%	12%
NEW YORK	0%		13%
NORTH DAKOTA	7%	$0.114/Mcf	18%
OHIO	$0.10/bbl	2%	12%
OKLAHOMA	7%	7%	19%
OREGON	6%	6%	18%
PENNSYLVANIA	0%	0%	18%
SOUTH DAKOTA	5%	5%	13%
TEXAS	5%	8%	23%
UTAH	4%	5%	15%
VIRGINIA	2%		0%
WEST VIRGINIA	5%	5%+$0.047/Mcf	18%
WYOMING	6%	6%	13%

* A 1.5% ad valorem tax and state corporate income taxes were also applied.

Commodity price forecasts and differentials used to generate production revenue



State	Oil Price Differential	Gas Price Differential
Arkansas	-$2.50	-$0.50
California	$4.00	-$0.05
Colorado	-$3.50	$-0.40
New Mexico-Permian	-$7.80	-$0.12
North Dakota	-$-4.70	$0.50
Ohio	-$3.00	-$0.30
Texas-Gulf Coast	-$1.00	-$0.40
Wyoming	-$4.00	-$0.30

*Forecast does not include inflation of costs or prices

Appendix B: Detailed economic impact assessment results

Economic impact of eliminating the percentage depletion allowance for oil and gas - US

(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-25
Employment (number of workers)												
Direct	(6,485)	(11,142)	(19,543)	(28,763)	(36,658)	(45,308)	(55,614)	(65,483)	(75,129)	(84,995)	(94,675)	(523,795)
Indirect	(6,675)	(11,681)	(20,488)	(30,179)	(38,516)	(47,587)	(58,390)	(68,729)	(78,826)	(89,149)	(99,257)	(549,477)
Induced	(8,564)	(15,056)	(26,412)	(38,904)	(49,643)	(61,351)	(75,299)	(88,656)	(101,709)	(115,062)	(128,142)	(708,796)
Total	**(21,723)**	**(37,879)**	**(66,442)**	**(97,846)**	**(124,817)**	**(154,245)**	**(189,303)**	**(222,868)**	**(255,664)**	**(289,206)**	**(322,075)**	**(1,782,069)**
Labor income												
Direct	(493)	(866)	(1,519)	(2,236)	(2,853)	(3,526)	(4,329)	(5,098)	(5,850)	(6,619)	(7,373)	(40,761)
Indirect	(466)	(820)	(1,439)	(2,120)	(2,706)	(3,344)	(4,103)	(4,830)	(5,540)	(6,266)	(6,977)	(38,611)
Induced	(431)	(757)	(1,328)	(1,956)	(2,496)	(3,084)	(3,785)	(4,457)	(5,113)	(5,784)	(6,442)	(35,632)
Total	**(1,390)**	**(2,443)**	**(4,285)**	**(6,312)**	**(8,055)**	**(9,954)**	**(12,217)**	**(14,385)**	**(16,503)**	**(18,669)**	**(20,792)**	**(115,004)**
Gross value-added												
Direct	(663)	(1,220)	(2,143)	(3,161)	(4,041)	(4,998)	(6,139)	(7,234)	(8,307)	(9,407)	(10,482)	(57,794)
Indirect	(756)	(1,338)	(2,347)	(3,459)	(4,417)	(5,458)	(6,698)	(7,886)	(9,046)	(10,233)	(11,394)	(63,034)
Induced	(770)	(1,353)	(2,374)	(3,497)	(4,462)	(5,514)	(6,768)	(7,969)	(9,142)	(10,342)	(11,518)	(63,708)
Total	**(2,189)**	**(3,911)**	**(6,864)**	**(10,117)**	**(12,920)**	**(15,970)**	**(19,605)**	**(23,089)**	**(26,495)**	**(29,982)**	**(33,395)**	**(184,536)**
Output												
Direct	(1,681)	(3,021)	(5,302)	(7,816)	(9,984)	(12,341)	(15,149)	(17,841)	(20,472)	(23,166)	(25,803)	(142,577)
Indirect	(1,584)	(2,778)	(4,872)	(7,177)	(9,160)	(11,317)	(13,886)	(16,344)	(18,746)	(21,200)	(23,604)	(130,666)
Induced	(1,316)	(2,313)	(4,058)	(5,978)	(7,628)	(9,427)	(11,570)	(13,622)	(15,628)	(17,680)	(19,690)	(108,910)
Total	**(4,580)**	**(8,112)**	**(14,232)**	**(20,971)**	**(26,772)**	**(33,085)**	**(40,605)**	**(47,808)**	**(54,846)**	**(62,047)**	**(69,096)**	**(382,154)**

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

State level employment impact of eliminating the percentage depletion allowance for oil and gas

(number of workers)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-25
Alabama	(36)	(67)	(112)	(158)	(216)	(282)	(360)	(449)	(552)	(667)	(793)	(3,691)
Arizona	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(10)	(12)	(14)	(16)	(81)
Arkansas	(249)	(627)	(1,018)	(1,459)	(1,973)	(2,530)	(3,136)	(3,770)	(4,428)	(5,106)	(5,772)	(30,070)
California	(1,204)	(1,416)	(2,273)	(3,222)	(4,354)	(5,579)	(6,883)	(8,231)	(9,613)	(11,028)	(12,490)	(66,291)
Colorado	(849)	(1,642)	(2,709)	(3,974)	(5,524)	(7,385)	(9,469)	(11,734)	(14,118)	(16,609)	(19,195)	(93,208)
Connecticut	(3)	(4)	(2)	(3)	(3)	(3)	(3)	(3)	(5)	(6)	(6)	(41)
Delaware	(7)	(13)	(30)	(48)	(47)	(47)	(55)	(60)	(64)	(70)	(77)	(517)
Florida	(178)	(81)	(130)	(183)	(246)	(316)	(391)	(466)	(538)	(608)	(679)	(3,817)
Georgia	(9)	(11)	(19)	(27)	(36)	(48)	(61)	(77)	(94)	(114)	(136)	(631)
Idaho	(1)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(7)	(8)	(9)	(55)
Illinois	(314)	(717)	(1,386)	(2,104)	(2,501)	(2,916)	(3,564)	(4,157)	(4,736)	(5,360)	(5,952)	(33,708)
Indiana	(95)	(124)	(257)	(392)	(418)	(450)	(541)	(613)	(679)	(757)	(835)	(5,162)
Iowa	(33)	(57)	(106)	(159)	(200)	(244)	(305)	(366)	(429)	(498)	(566)	(2,963)
Kansas	(725)	(1,209)	(1,908)	(2,647)	(3,548)	(4,576)	(5,731)	(7,005)	(8,373)	(9,793)	(11,191)	(56,708)
Kentucky	(43)	(97)	(170)	(260)	(314)	(383)	(482)	(583)	(686)	(798)	(908)	(4,724)
Louisiana	(1,054)	(1,633)	(2,601)	(3,564)	(4,746)	(6,053)	(7,504)	(9,039)	(10,642)	(12,263)	(13,851)	(72,949)
Maine	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(2)
Maryland	(1)	(2)	(2)	(3)	(4)	(5)	(6)	(8)	(11)	(14)	(17)	(72)
Massachusetts	(12)	(26)	(67)	(116)	(104)	(94)	(110)	(113)	(114)	(121)	(127)	(1,005)
Michigan	(385)	(1,068)	(2,081)	(3,146)	(3,656)	(4,246)	(5,175)	(5,990)	(6,763)	(7,610)	(8,468)	(48,589)
Minnesota	(21)	(193)	(639)	(1,117)	(1,098)	(1,036)	(1,238)	(1,332)	(1,388)	(1,512)	(1,632)	(11,206)
Mississippi	(87)	(170)	(276)	(393)	(536)	(707)	(905)	(1,125)	(1,362)	(1,605)	(1,842)	(9,008)
Missouri	(869)	(2,083)	(3,360)	(4,746)	(6,356)	(8,144)	(9,978)	(11,805)	(13,604)	(15,366)	(17,070)	(93,381)
Montana	(170)	(333)	(543)	(767)	(961)	(1,097)	(1,164)	(1,201)	(1,237)	(1,277)	(1,319)	(10,070)
Nebraska	(58)	(84)	(137)	(194)	(264)	(345)	(438)	(539)	(648)	(759)	(869)	(4,337)
Nevada	(24)	(10)	(16)	(22)	(29)	(37)	(45)	(53)	(60)	(68)	(76)	(440)
New Hampshire	(1)	(0)	(0)	(1)	(1)	(1)	(2)	(3)	(4)	(5)	(6)	(23)
New Jersey	(31)	(120)	(320)	(534)	(501)	(462)	(538)	(564)	(574)	(609)	(642)	(4,895)
New Mexico	(164)	(337)	(556)	(792)	(1,097)	(1,454)	(1,866)	(2,328)	(2,828)	(3,369)	(3,935)	(18,727)
New York	(62)	(134)	(142)	(239)	(228)	(234)	(265)	(279)	(313)	(351)	(380)	(2,628)
North Carolina	(2)	(3)	(5)	(7)	(10)	(13)	(18)	(23)	(30)	(38)	(46)	(194)
North Dakota	(47)	(98)	(172)	(265)	(391)	(552)	(754)	(1,004)	(1,306)	(1,663)	(2,078)	(8,329)
Ohio	(209)	(1,985)	(6,807)	(11,662)	(10,717)	(9,601)	(11,258)	(11,682)	(11,629)	(12,172)	(12,661)	(100,382)
Oklahoma	(1,175)	(2,240)	(3,674)	(5,353)	(7,307)	(9,379)	(11,433)	(13,507)	(15,632)	(17,813)	(19,895)	(107,408)
Oregon	(16)	(21)	(34)	(50)	(66)	(84)	(103)	(124)	(147)	(172)	(199)	(1,017)
Pennsylvania	(181)	(459)	(975)	(1,539)	(1,689)	(1,875)	(2,304)	(2,674)	(3,048)	(3,510)	(4,004)	(22,259)
South Carolina	(3)	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(10)	(11)	(13)	(68)
South Dakota	(5)	(4)	(7)	(8)	(11)	(14)	(17)	(21)	(26)	(30)	(36)	(178)
Tennessee	(10)	(13)	(21)	(29)	(40)	(52)	(66)	(82)	(100)	(119)	(139)	(672)
Texas	(12,644)	(19,573)	(32,048)	(46,054)	(62,323)	(79,896)	(98,092)	(115,807)	(132,748)	(149,015)	(164,572)	(912,772)
Utah	(280)	(195)	(322)	(471)	(658)	(887)	(1,165)	(1,496)	(1,891)	(2,360)	(2,920)	(12,644)
Virginia	(14)	(50)	(113)	(186)	(199)	(214)	(265)	(310)	(358)	(423)	(491)	(2,622)
Washington	(37)	(19)	(30)	(42)	(53)	(63)	(72)	(80)	(88)	(96)	(104)	(683)
Washington DC	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
West Virginia	(220)	(595)	(792)	(1,060)	(1,238)	(1,441)	(1,680)	(1,924)	(2,172)	(2,440)	(2,705)	(16,266)
Wisconsin	(35)	(96)	(156)	(225)	(311)	(403)	(505)	(618)	(742)	(876)	(1,010)	(4,977)
Wyoming	(160)	(263)	(420)	(615)	(830)	(1,075)	(1,334)	(1,597)	(1,855)	(2,104)	(2,348)	(12,602)
Total US	**(21,723)**	**(37,879)**	**(66,442)**	**(97,846)**	**(124,817)**	**(154,245)**	**(189,303)**	**(222,868)**	**(255,664)**	**(289,206)**	**(322,075)**	**(1,782,069)**

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

State level labor income impact of eliminating the percentage depletion allowance for oil and gas

(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-25
Alabama	(2)	(4)	(6)	(9)	(12)	(15)	(19)	(24)	(30)	(36)	(43)	(200)
Arizona	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(5)
Arkansas	(13)	(34)	(55)	(79)	(107)	(137)	(170)	(204)	(240)	(276)	(313)	(1,628)
California	(92)	(107)	(172)	(244)	(329)	(422)	(520)	(622)	(726)	(833)	(943)	(5,009)
Colorado	(57)	(112)	(185)	(271)	(376)	(503)	(645)	(798)	(960)	(1,130)	(1,305)	(6,342)
Connecticut	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(3)
Delaware	(0)	(1)	(2)	(3)	(3)	(3)	(4)	(4)	(4)	(5)	(5)	(34)
Florida	(12)	(5)	(8)	(12)	(16)	(20)	(25)	(30)	(35)	(39)	(44)	(245)
Georgia	(1)	(1)	(1)	(2)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(39)
Idaho	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(3)
Illinois	(22)	(52)	(101)	(153)	(182)	(212)	(259)	(301)	(343)	(388)	(431)	(2,444)
Indiana	(6)	(7)	(15)	(23)	(25)	(26)	(32)	(36)	(40)	(44)	(49)	(303)
Iowa	(2)	(3)	(6)	(8)	(11)	(13)	(16)	(20)	(23)	(27)	(30)	(158)
Kansas	(40)	(68)	(108)	(150)	(200)	(257)	(322)	(393)	(470)	(549)	(628)	(3,183)
Kentucky	(2)	(5)	(9)	(13)	(16)	(19)	(24)	(30)	(35)	(41)	(46)	(240)
Louisiana	(61)	(98)	(157)	(215)	(285)	(362)	(449)	(540)	(636)	(733)	(828)	(4,363)
Maine	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Maryland	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(5)
Massachusetts	(1)	(2)	(6)	(10)	(9)	(8)	(9)	(9)	(9)	(10)	(11)	(83)
Michigan	(25)	(69)	(135)	(203)	(237)	(276)	(336)	(389)	(439)	(494)	(550)	(3,153)
Minnesota	(1)	(13)	(42)	(74)	(73)	(69)	(83)	(89)	(93)	(101)	(109)	(748)
Mississippi	(4)	(8)	(14)	(20)	(27)	(35)	(45)	(56)	(67)	(79)	(91)	(446)
Missouri	(50)	(120)	(192)	(271)	(364)	(468)	(574)	(679)	(783)	(885)	(983)	(5,370)
Montana	(8)	(17)	(28)	(40)	(49)	(56)	(60)	(61)	(63)	(65)	(67)	(515)
Nebraska	(3)	(5)	(8)	(11)	(15)	(19)	(24)	(30)	(36)	(42)	(48)	(242)
Nevada	(2)	(1)	(1)	(1)	(2)	(2)	(3)	(3)	(4)	(4)	(5)	(28)
New Hampshire	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
New Jersey	(3)	(10)	(26)	(43)	(40)	(37)	(44)	(46)	(47)	(50)	(52)	(397)
New Mexico	(9)	(19)	(32)	(45)	(62)	(82)	(105)	(131)	(158)	(188)	(220)	(1,050)
New York	(5)	(11)	(12)	(20)	(19)	(19)	(22)	(23)	(26)	(29)	(32)	(219)
North Carolina	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(2)	(2)	(3)	(11)
North Dakota	(3)	(6)	(11)	(18)	(26)	(36)	(49)	(66)	(85)	(109)	(136)	(545)
Ohio	(13)	(118)	(401)	(686)	(631)	(566)	(664)	(690)	(689)	(723)	(753)	(5,934)
Oklahoma	(66)	(129)	(214)	(312)	(424)	(543)	(662)	(782)	(904)	(1,031)	(1,152)	(6,220)
Oregon	(1)	(1)	(2)	(3)	(4)	(6)	(7)	(8)	(10)	(12)	(14)	(69)
Pennsylvania	(12)	(31)	(66)	(104)	(114)	(126)	(155)	(180)	(205)	(236)	(269)	(1,498)
South Carolina	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(4)
South Dakota	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(9)
Tennessee	(1)	(1)	(1)	(2)	(3)	(3)	(4)	(5)	(6)	(8)	(9)	(43)
Texas	(831)	(1,314)	(2,163)	(3,114)	(4,198)	(5,368)	(6,589)	(7,776)	(8,912)	(10,008)	(11,057)	(61,332)
Utah	(16)	(11)	(18)	(26)	(37)	(49)	(65)	(83)	(105)	(131)	(162)	(704)
Virginia	(1)	(3)	(8)	(13)	(14)	(14)	(18)	(21)	(24)	(28)	(33)	(176)
Washington	(3)	(1)	(2)	(3)	(4)	(4)	(5)	(5)	(6)	(7)	(7)	(47)
Washington DC	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
West Virginia	(12)	(33)	(45)	(61)	(70)	(81)	(94)	(108)	(121)	(136)	(151)	(912)
Wisconsin	(2)	(6)	(9)	(13)	(19)	(24)	(30)	(37)	(45)	(53)	(61)	(299)
Wyoming	(9)	(15)	(25)	(37)	(49)	(63)	(79)	(94)	(109)	(124)	(138)	(741)
Total US	**(1,390)**	**(2,443)**	**(4,285)**	**(6,312)**	**(8,055)**	**(9,954)**	**(12,217)**	**(14,385)**	**(16,503)**	**(18,669)**	**(20,792)**	**(115,004)**

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

State level output impact of eliminating the percentage depletion allowance for oil and gas

(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-25
Alabama	(7)	(13)	(21)	(30)	(40)	(52)	(67)	(83)	(102)	(123)	(146)	(684)
Arizona	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(2)	(3)	(3)	(4)	(19)
Arkansas	(56)	(138)	(226)	(324)	(433)	(553)	(685)	(821)	(962)	(1,107)	(1,250)	(6,556)
California	(293)	(360)	(580)	(824)	(1,113)	(1,424)	(1,756)	(2,098)	(2,448)	(2,807)	(3,177)	(16,881)
Colorado	(164)	(327)	(540)	(791)	(1,099)	(1,467)	(1,878)	(2,326)	(2,798)	(3,292)	(3,805)	(18,487)
Connecticut	(1)	(1)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(10)
Delaware	(2)	(3)	(7)	(11)	(11)	(11)	(13)	(14)	(15)	(17)	(19)	(123)
Florida	(37)	(17)	(28)	(39)	(53)	(68)	(84)	(100)	(115)	(130)	(145)	(815)
Georgia	(2)	(2)	(4)	(6)	(8)	(10)	(13)	(16)	(20)	(24)	(28)	(131)
Idaho	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)	(12)
Illinois	(68)	(164)	(326)	(500)	(585)	(673)	(821)	(952)	(1,080)	(1,220)	(1,352)	(7,741)
Indiana	(21)	(28)	(59)	(90)	(96)	(103)	(124)	(141)	(156)	(174)	(192)	(1,185)
Iowa	(6)	(10)	(20)	(30)	(37)	(45)	(56)	(67)	(78)	(91)	(103)	(541)
Kansas	(122)	(209)	(331)	(461)	(619)	(798)	(999)	(1,221)	(1,460)	(1,708)	(1,952)	(9,882)
Kentucky	(8)	(18)	(32)	(49)	(59)	(71)	(89)	(107)	(126)	(146)	(166)	(870)
Louisiana	(200)	(321)	(514)	(708)	(940)	(1,197)	(1,483)	(1,784)	(2,098)	(2,416)	(2,728)	(14,388)
Maine	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Maryland	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(2)	(2)	(3)	(3)	(15)
Massachusetts	(3)	(6)	(15)	(27)	(24)	(22)	(25)	(26)	(26)	(28)	(29)	(231)
Michigan	(72)	(203)	(398)	(604)	(700)	(809)	(986)	(1,140)	(1,286)	(1,446)	(1,608)	(9,254)
Minnesota	(4)	(35)	(115)	(200)	(197)	(187)	(224)	(242)	(253)	(277)	(300)	(2,035)
Mississippi	(14)	(28)	(46)	(65)	(89)	(116)	(149)	(185)	(224)	(264)	(303)	(1,484)
Missouri	(147)	(352)	(568)	(801)	(1,074)	(1,376)	(1,686)	(1,995)	(2,299)	(2,597)	(2,885)	(15,781)
Montana	(24)	(50)	(82)	(117)	(146)	(166)	(176)	(182)	(187)	(194)	(200)	(1,526)
Nebraska	(11)	(16)	(26)	(37)	(51)	(66)	(84)	(103)	(124)	(145)	(166)	(829)
Nevada	(5)	(2)	(3)	(5)	(6)	(8)	(10)	(11)	(13)	(14)	(16)	(94)
New Hampshire	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(4)
New Jersey	(7)	(29)	(77)	(128)	(121)	(112)	(130)	(137)	(140)	(149)	(157)	(1,185)
New Mexico	(30)	(68)	(113)	(162)	(224)	(295)	(376)	(466)	(562)	(666)	(774)	(3,735)
New York	(14)	(30)	(33)	(55)	(53)	(54)	(62)	(65)	(73)	(82)	(89)	(609)
North Carolina	(0)	(1)	(1)	(2)	(2)	(3)	(4)	(5)	(7)	(9)	(11)	(45)
North Dakota	(8)	(17)	(30)	(47)	(69)	(97)	(133)	(177)	(230)	(293)	(366)	(1,465)
Ohio	(53)	(404)	(1,325)	(2,256)	(2,097)	(1,909)	(2,243)	(2,347)	(2,361)	(2,487)	(2,603)	(20,085)
Oklahoma	(228)	(457)	(753)	(1,099)	(1,496)	(1,917)	(2,343)	(2,772)	(3,211)	(3,662)	(4,092)	(22,029)
Oregon	(4)	(6)	(10)	(14)	(18)	(24)	(29)	(35)	(42)	(49)	(56)	(286)
Pennsylvania	(47)	(128)	(274)	(432)	(470)	(516)	(628)	(721)	(810)	(920)	(1,034)	(5,980)
South Carolina	(1)	(0)	(1)	(1)	(1)	(1)	(2)	(2)	(3)	(3)	(3)	(18)
South Dakota	(1)	(1)	(1)	(2)	(2)	(3)	(3)	(4)	(5)	(6)	(7)	(33)
Tennessee	(3)	(3)	(5)	(8)	(10)	(14)	(17)	(21)	(26)	(31)	(36)	(173)
Texas	(2,779)	(4,435)	(7,307)	(10,526)	(14,182)	(18,123)	(22,250)	(26,270)	(30,129)	(33,863)	(37,440)	(207,305)
Utah	(59)	(40)	(67)	(98)	(136)	(182)	(238)	(304)	(381)	(472)	(580)	(2,557)
Virginia	(3)	(14)	(32)	(53)	(55)	(57)	(70)	(81)	(91)	(106)	(121)	(683)
Washington	(8)	(4)	(7)	(10)	(13)	(15)	(17)	(19)	(21)	(23)	(26)	(165)
Washington DC	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
West Virginia	(34)	(102)	(146)	(202)	(230)	(261)	(305)	(347)	(389)	(435)	(481)	(2,933)
Wisconsin	(7)	(19)	(30)	(43)	(60)	(78)	(97)	(119)	(143)	(169)	(195)	(960)
Wyoming	(27)	(47)	(77)	(113)	(152)	(197)	(245)	(295)	(344)	(392)	(441)	(2,329)
Total US	**(4,580)**	**(8,112)**	**(14,232)**	**(20,971)**	**(26,772)**	**(33,085)**	**(40,605)**	**(47,808)**	**(54,846)**	**(62,047)**	**(69,096)**	**(382,154)**

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

State level gross value-added of eliminating the percentage depletion allowance for oil and gas

(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-25
Alabama	(3)	(6)	(10)	(14)	(18)	(24)	(31)	(38)	(47)	(56)	(67)	(313)
Arizona	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(9)
Arkansas	(21)	(53)	(86)	(124)	(166)	(212)	(262)	(315)	(370)	(426)	(482)	(2,517)
California	(137)	(162)	(261)	(371)	(500)	(639)	(788)	(942)	(1,100)	(1,263)	(1,431)	(7,593)
Colorado	(85)	(171)	(282)	(413)	(573)	(765)	(979)	(1,211)	(1,455)	(1,711)	(1,976)	(9,620)
Connecticut	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(5)
Delaware	(1)	(1)	(3)	(5)	(5)	(5)	(6)	(6)	(7)	(7)	(8)	(53)
Florida	(19)	(9)	(14)	(20)	(27)	(34)	(42)	(50)	(58)	(65)	(73)	(412)
Georgia	(1)	(1)	(2)	(3)	(4)	(5)	(6)	(8)	(9)	(11)	(14)	(63)
Idaho	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(5)
Illinois	(35)	(85)	(166)	(253)	(300)	(348)	(425)	(495)	(563)	(638)	(708)	(4,015)
Indiana	(9)	(12)	(26)	(39)	(42)	(45)	(54)	(61)	(67)	(75)	(82)	(511)
Iowa	(3)	(4)	(8)	(12)	(16)	(19)	(24)	(28)	(33)	(39)	(44)	(230)
Kansas	(59)	(102)	(162)	(226)	(302)	(388)	(486)	(594)	(710)	(831)	(951)	(4,812)
Kentucky	(3)	(8)	(14)	(21)	(26)	(31)	(39)	(48)	(56)	(66)	(75)	(388)
Louisiana	(96)	(156)	(251)	(345)	(457)	(580)	(719)	(866)	(1,020)	(1,177)	(1,331)	(6,998)
Maine	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Maryland	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(2)	(7)
Massachusetts	(2)	(3)	(8)	(14)	(13)	(11)	(13)	(14)	(14)	(15)	(15)	(122)
Michigan	(37)	(104)	(204)	(308)	(358)	(416)	(507)	(586)	(661)	(744)	(827)	(4,754)
Minnesota	(2)	(19)	(62)	(109)	(107)	(101)	(120)	(130)	(135)	(147)	(159)	(1,091)
Mississippi	(7)	(14)	(22)	(32)	(43)	(56)	(72)	(90)	(109)	(128)	(147)	(719)
Missouri	(74)	(178)	(287)	(404)	(543)	(696)	(853)	(1,010)	(1,164)	(1,315)	(1,461)	(7,986)
Montana	(12)	(26)	(43)	(60)	(75)	(85)	(91)	(93)	(96)	(99)	(103)	(784)
Nebraska	(5)	(7)	(11)	(16)	(22)	(29)	(36)	(45)	(54)	(63)	(72)	(361)
Nevada	(2)	(1)	(2)	(2)	(3)	(4)	(5)	(5)	(6)	(7)	(8)	(45)
New Hampshire	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(2)
New Jersey	(4)	(14)	(38)	(64)	(60)	(55)	(65)	(68)	(69)	(74)	(78)	(589)
New Mexico	(15)	(33)	(55)	(80)	(109)	(142)	(181)	(224)	(269)	(318)	(368)	(1,792)
New York	(8)	(17)	(18)	(30)	(29)	(30)	(34)	(36)	(40)	(45)	(48)	(334)
North Carolina	(0)	(0)	(0)	(1)	(1)	(1)	(2)	(2)	(3)	(4)	(5)	(20)
North Dakota	(4)	(9)	(16)	(26)	(37)	(53)	(72)	(96)	(125)	(159)	(199)	(795)
Ohio	(20)	(182)	(619)	(1,061)	(975)	(875)	(1,026)	(1,067)	(1,065)	(1,117)	(1,164)	(9,170)
Oklahoma	(102)	(204)	(337)	(493)	(670)	(857)	(1,045)	(1,235)	(1,429)	(1,630)	(1,821)	(9,821)
Oregon	(2)	(2)	(4)	(5)	(7)	(9)	(11)	(13)	(15)	(18)	(21)	(106)
Pennsylvania	(18)	(47)	(100)	(158)	(173)	(192)	(236)	(274)	(312)	(359)	(410)	(2,280)
South Carolina	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(9)
South Dakota	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)	(3)	(14)
Tennessee	(1)	(1)	(2)	(3)	(4)	(6)	(7)	(9)	(11)	(13)	(15)	(74)
Texas	(1,336)	(2,166)	(3,574)	(5,152)	(6,940)	(8,866)	(10,886)	(12,852)	(14,739)	(16,565)	(18,313)	(101,391)
Utah	(27)	(20)	(33)	(49)	(68)	(91)	(118)	(151)	(189)	(235)	(289)	(1,270)
Virginia	(2)	(6)	(14)	(24)	(25)	(26)	(32)	(37)	(43)	(50)	(57)	(316)
Washington	(4)	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(76)
Washington DC	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
West Virginia	(17)	(49)	(68)	(93)	(107)	(122)	(143)	(163)	(183)	(206)	(228)	(1,379)
Wisconsin	(4)	(10)	(17)	(24)	(33)	(43)	(54)	(66)	(79)	(93)	(107)	(529)
Wyoming	(13)	(24)	(38)	(57)	(76)	(98)	(122)	(146)	(170)	(194)	(217)	(1,156)
Total US	**(2,189)**	**(3,911)**	**(6,864)**	**(10,117)**	**(12,920)**	**(15,970)**	**(19,605)**	**(23,089)**	**(26,495)**	**(29,982)**	**(33,395)**	**(184,536)**

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

State level gross value-added breakdown of impacts - 2025
(millions of 2014 $)

	Direct	Indirect	Induced	Total
Alabama	(24)	(22)	(21)	(67)
Arizona	(1)	(1)	(1)	(2)
Arkansas	(146)	(189)	(147)	(482)
California	(275)	(631)	(525)	(1,431)
Colorado	(632)	(617)	(727)	(1,976)
Connecticut	(0)	(0)	(0)	(1)
Delaware	(3)	(2)	(3)	(8)
Florida	(17)	(29)	(27)	(73)
Georgia	(4)	(4)	(5)	(14)
Idaho	(0)	(0)	(0)	(1)
Illinois	(219)	(235)	(254)	(708)
Indiana	(29)	(27)	(26)	(82)
Iowa	(15)	(13)	(16)	(44)
Kansas	(360)	(279)	(311)	(951)
Kentucky	(27)	(23)	(25)	(75)
Louisiana	(478)	(420)	(433)	(1,331)
Maine	(0)	(0)	(0)	(0)
Maryland	(1)	(1)	(1)	(2)
Massachusetts	(4)	(6)	(5)	(15)
Michigan	(300)	(214)	(313)	(827)
Minnesota	(47)	(42)	(69)	(159)
Mississippi	(64)	(39)	(44)	(147)
Missouri	(539)	(399)	(523)	(1,461)
Montana	(42)	(26)	(35)	(103)
Nebraska	(24)	(25)	(24)	(72)
Nevada	(3)	(3)	(2)	(8)
New Hampshire	(0)	(0)	(0)	(1)
New Jersey	(22)	(29)	(27)	(78)
New Mexico	(128)	(138)	(102)	(368)
New York	(14)	(17)	(17)	(48)
North Carolina	(1)	(2)	(2)	(5)
North Dakota	(93)	(46)	(60)	(199)
Ohio	(338)	(414)	(413)	(1,164)
Oklahoma	(640)	(616)	(565)	(1,821)
Oregon	(4)	(10)	(7)	(21)
Pennsylvania	(92)	(175)	(143)	(410)
South Carolina	(1)	(0)	(0)	(2)
South Dakota	(1)	(1)	(1)	(3)
Tennessee	(4)	(6)	(5)	(15)
Texas	(5,536)	(6,407)	(6,371)	(18,313)
Utah	(77)	(118)	(93)	(289)
Virginia	(16)	(24)	(18)	(57)
Washington	(3)	(5)	(4)	(12)
Washington DC	(0)	(0)	(0)	(0)
West Virginia	(104)	(57)	(67)	(228)
Wisconsin	(48)	(24)	(36)	(107)
Wyoming	(105)	(58)	(53)	(217)
Total US	**(10,482)**	**(11,394)**	**(11,518)**	**(33,395)**

NOTES: Numbers may not sum due to rounding.
Source: IHS Economics

Employment impact of eliminating the percentage depletion allowance for oil and gas by industry - US

(number of workers)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-25
Natural Resources												
Direct	(1,175)	(3,582)	(6,318)	(9,368)	(12,052)	(14,947)	(18,402)	(21,749)	(25,055)	(28,475)	(31,790)	(172,912)
Indirect	(164)	(359)	(633)	(937)	(1,204)	(1,492)	(1,836)	(2,168)	(2,494)	(2,831)	(3,158)	(17,276)
Induced	(203)	(357)	(625)	(921)	(1,176)	(1,453)	(1,783)	(2,100)	(2,409)	(2,725)	(3,035)	(16,786)
Total	**(1,541)**	**(4,298)**	**(7,576)**	**(11,226)**	**(14,432)**	**(17,892)**	**(22,021)**	**(26,017)**	**(29,958)**	**(34,030)**	**(37,983)**	**(206,974)**
Transportation & Utilities												
Direct	(126)	(494)	(881)	(1,331)	(1,752)	(2,187)	(2,709)	(3,221)	(3,731)	(4,264)	(4,774)	(25,470)
Indirect	(488)	(906)	(1,590)	(2,345)	(2,997)	(3,705)	(4,548)	(5,356)	(6,147)	(6,956)	(7,748)	(42,786)
Induced	(304)	(535)	(939)	(1,383)	(1,764)	(2,181)	(2,676)	(3,151)	(3,615)	(4,090)	(4,555)	(25,193)
Total	**(919)**	**(1,935)**	**(3,410)**	**(5,059)**	**(6,514)**	**(8,072)**	**(9,933)**	**(11,728)**	**(13,494)**	**(15,311)**	**(17,076)**	**(93,450)**
Construction												
Direct	(1,581)	(2,502)	(4,374)	(6,395)	(8,080)	(9,967)	(12,213)	(14,352)	(16,434)	(18,555)	(20,652)	(115,105)
Indirect	(186)	(368)	(647)	(959)	(1,232)	(1,526)	(1,877)	(2,216)	(2,549)	(2,892)	(3,226)	(17,679)
Induced	(78)	(137)	(241)	(355)	(453)	(559)	(687)	(808)	(927)	(1,049)	(1,168)	(6,462)
Total	**(1,845)**	**(3,008)**	**(5,262)**	**(7,709)**	**(9,764)**	**(12,053)**	**(14,777)**	**(17,376)**	**(19,910)**	**(22,496)**	**(25,046)**	**(139,246)**
Manufacturing												
Direct	(3,135)	(4,056)	(7,084)	(10,380)	(13,158)	(16,216)	(19,855)	(23,306)	(26,647)	(30,032)	(33,380)	(187,248)
Indirect	(1,305)	(2,130)	(3,731)	(5,492)	(7,004)	(8,645)	(10,599)	(12,463)	(14,278)	(16,129)	(17,943)	(99,719)
Induced	(389)	(684)	(1,200)	(1,767)	(2,255)	(2,787)	(3,420)	(4,027)	(4,620)	(5,227)	(5,821)	(32,197)
Total	**(4,828)**	**(6,869)**	**(12,015)**	**(17,640)**	**(22,417)**	**(27,648)**	**(33,874)**	**(39,796)**	**(45,545)**	**(51,388)**	**(57,144)**	**(319,164)**
Wholesale & Retail Trade												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(553)	(924)	(1,619)	(2,382)	(3,036)	(3,748)	(4,596)	(5,405)	(6,194)	(6,999)	(7,789)	(43,244)
Induced	(1,596)	(2,806)	(4,922)	(7,250)	(9,251)	(11,432)	(14,031)	(16,520)	(18,953)	(21,441)	(23,878)	(132,080)
Total	**(2,149)**	**(3,729)**	**(6,540)**	**(9,631)**	**(12,286)**	**(15,180)**	**(18,627)**	**(21,925)**	**(25,147)**	**(28,441)**	**(31,667)**	**(175,324)**
Information & Professional Services												
Direct	(401)	(339)	(589)	(858)	(1,076)	(1,325)	(1,623)	(1,902)	(2,170)	(2,439)	(2,710)	(15,431)
Indirect	(2,499)	(4,295)	(7,534)	(11,097)	(14,159)	(17,496)	(21,471)	(25,276)	(28,991)	(32,790)	(36,512)	(202,121)
Induced	(2,957)	(5,199)	(9,120)	(13,434)	(17,142)	(21,184)	(26,001)	(30,613)	(35,120)	(39,731)	(44,247)	(244,747)
Total	**(5,857)**	**(9,833)**	**(17,243)**	**(25,388)**	**(32,377)**	**(40,006)**	**(49,094)**	**(57,790)**	**(66,281)**	**(74,959)**	**(83,469)**	**(462,298)**
Financial Services												
Direct	(68)	(170)	(296)	(431)	(541)	(665)	(813)	(954)	(1,091)	(1,231)	(1,369)	(7,629)
Indirect	(807)	(1,542)	(2,704)	(3,979)	(5,073)	(6,267)	(7,689)	(9,051)	(10,382)	(11,744)	(13,077)	(72,316)
Induced	(1,025)	(1,802)	(3,162)	(4,657)	(5,943)	(7,345)	(9,015)	(10,614)	(12,176)	(13,775)	(15,341)	(84,855)
Total	**(1,900)**	**(3,514)**	**(6,162)**	**(9,068)**	**(11,557)**	**(14,278)**	**(17,517)**	**(20,618)**	**(23,649)**	**(26,750)**	**(29,787)**	**(164,799)**
Leisure & Other Services												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(630)	(1,078)	(1,889)	(2,781)	(3,545)	(4,379)	(5,371)	(6,320)	(7,246)	(8,192)	(9,119)	(50,551)
Induced	(1,937)	(3,405)	(5,973)	(8,798)	(11,227)	(13,874)	(17,028)	(20,049)	(23,001)	(26,021)	(28,979)	(160,291)
Total	**(2,567)**	**(4,482)**	**(7,862)**	**(11,579)**	**(14,772)**	**(18,253)**	**(22,400)**	**(26,369)**	**(30,247)**	**(34,213)**	**(38,098)**	**(210,842)**
Government												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(42)	(80)	(140)	(207)	(265)	(328)	(402)	(474)	(544)	(616)	(686)	(3,785)
Induced	(75)	(131)	(230)	(339)	(433)	(535)	(657)	(774)	(888)	(1,004)	(1,118)	(6,185)
Total	**(117)**	**(211)**	**(371)**	**(547)**	**(698)**	**(863)**	**(1,059)**	**(1,248)**	**(1,432)**	**(1,620)**	**(1,804)**	**(9,970)**

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

Labor income impact of eliminating the percentage depletion allowance for oil and gas by industry - US

(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-25
Natural Resources												
Direct	(101)	(303)	(534)	(791)	(1,016)	(1,260)	(1,550)	(1,832)	(2,109)	(2,396)	(2,675)	(14,568)
Indirect	(12)	(27)	(48)	(71)	(92)	(113)	(139)	(165)	(189)	(215)	(240)	(1,312)
Induced	(10)	(17)	(30)	(45)	(57)	(71)	(87)	(102)	(117)	(133)	(148)	(817)
Total	**(123)**	**(348)**	**(613)**	**(907)**	**(1,165)**	**(1,444)**	**(1,777)**	**(2,098)**	**(2,416)**	**(2,744)**	**(3,062)**	**(16,697)**
Transportation & Utilities												
Direct	(9)	(35)	(62)	(94)	(124)	(155)	(192)	(228)	(264)	(302)	(338)	(1,804)
Indirect	(36)	(67)	(118)	(174)	(223)	(275)	(338)	(398)	(457)	(518)	(577)	(3,182)
Induced	(21)	(38)	(66)	(97)	(124)	(153)	(188)	(222)	(254)	(288)	(321)	(1,773)
Total	**(66)**	**(140)**	**(247)**	**(366)**	**(471)**	**(584)**	**(718)**	**(848)**	**(976)**	**(1,108)**	**(1,235)**	**(6,759)**
Construction												
Direct	(98)	(155)	(270)	(395)	(499)	(616)	(754)	(887)	(1,015)	(1,146)	(1,276)	(7,111)
Indirect	(12)	(23)	(40)	(60)	(77)	(95)	(117)	(138)	(159)	(180)	(201)	(1,102)
Induced	(5)	(9)	(15)	(22)	(28)	(35)	(43)	(50)	(58)	(66)	(73)	(404)
Total	**(114)**	**(186)**	**(326)**	**(477)**	**(604)**	**(746)**	**(914)**	**(1,075)**	**(1,232)**	**(1,392)**	**(1,550)**	**(8,617)**
Manufacturing												
Direct	(248)	(332)	(580)	(852)	(1,083)	(1,335)	(1,636)	(1,921)	(2,198)	(2,479)	(2,755)	(15,418)
Indirect	(103)	(169)	(297)	(437)	(557)	(688)	(843)	(992)	(1,136)	(1,284)	(1,428)	(7,934)
Induced	(29)	(52)	(91)	(134)	(171)	(211)	(259)	(305)	(350)	(396)	(441)	(2,437)
Total	**(381)**	**(553)**	**(968)**	**(1,422)**	**(1,811)**	**(2,234)**	**(2,738)**	**(3,217)**	**(3,684)**	**(4,158)**	**(4,624)**	**(25,789)**
Wholesale & Retail Trade												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(42)	(70)	(122)	(180)	(229)	(283)	(347)	(408)	(468)	(529)	(588)	(3,267)
Induced	(69)	(120)	(211)	(311)	(397)	(491)	(603)	(709)	(814)	(921)	(1,025)	(5,672)
Total	**(111)**	**(190)**	**(334)**	**(491)**	**(627)**	**(774)**	**(950)**	**(1,118)**	**(1,282)**	**(1,449)**	**(1,614)**	**(8,939)**
Information & Professional Services												
Direct	(31)	(26)	(46)	(67)	(84)	(103)	(127)	(148)	(169)	(190)	(212)	(1,205)
Indirect	(178)	(308)	(541)	(797)	(1,017)	(1,257)	(1,542)	(1,816)	(2,083)	(2,356)	(2,624)	(14,520)
Induced	(174)	(306)	(537)	(792)	(1,010)	(1,248)	(1,532)	(1,804)	(2,069)	(2,341)	(2,607)	(14,420)
Total	**(384)**	**(641)**	**(1,124)**	**(1,655)**	**(2,111)**	**(2,608)**	**(3,201)**	**(3,768)**	**(4,322)**	**(4,888)**	**(5,442)**	**(30,145)**
Financial Services												
Direct	(6)	(15)	(25)	(37)	(46)	(57)	(70)	(82)	(94)	(106)	(118)	(656)
Indirect	(56)	(108)	(189)	(279)	(355)	(439)	(538)	(634)	(727)	(822)	(916)	(5,063)
Induced	(59)	(105)	(183)	(270)	(345)	(426)	(523)	(616)	(706)	(799)	(890)	(4,923)
Total	**(121)**	**(227)**	**(398)**	**(586)**	**(746)**	**(922)**	**(1,131)**	**(1,332)**	**(1,527)**	**(1,727)**	**(1,924)**	**(10,642)**
Leisure & Other Services												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(24)	(41)	(72)	(106)	(135)	(167)	(205)	(241)	(276)	(313)	(348)	(1,929)
Induced	(57)	(100)	(176)	(259)	(331)	(409)	(502)	(591)	(678)	(767)	(854)	(4,725)
Total	**(81)**	**(142)**	**(248)**	**(365)**	**(466)**	**(576)**	**(707)**	**(832)**	**(955)**	**(1,080)**	**(1,202)**	**(6,654)**
Government												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(3)	(6)	(11)	(17)	(21)	(26)	(32)	(38)	(43)	(49)	(55)	(303)
Induced	(6)	(10)	(17)	(25)	(32)	(40)	(49)	(58)	(66)	(75)	(83)	(462)
Total	**(9)**	**(16)**	**(28)**	**(42)**	**(54)**	**(66)**	**(81)**	**(96)**	**(110)**	**(124)**	**(138)**	**(764)**

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

Output impact of eliminating the percentage depletion allowance for oil and gas by industry - US

(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-25
Natural Resources												
Direct	(270)	(826)	(1,458)	(2,162)	(2,783)	(3,452)	(4,251)	(5,026)	(5,792)	(6,585)	(7,354)	(39,959)
Indirect	(53)	(116)	(204)	(303)	(389)	(482)	(593)	(700)	(805)	(914)	(1,019)	(5,578)
Induced	(38)	(67)	(118)	(174)	(222)	(274)	(337)	(396)	(455)	(514)	(573)	(3,168)
Total	**(362)**	**(1,009)**	**(1,780)**	**(2,638)**	**(3,394)**	**(4,208)**	**(5,181)**	**(6,122)**	**(7,051)**	**(8,013)**	**(8,946)**	**(48,705)**
Transportation & Utilities												
Direct	(26)	(102)	(183)	(276)	(363)	(454)	(562)	(668)	(774)	(885)	(990)	(5,284)
Indirect	(117)	(224)	(394)	(582)	(745)	(921)	(1,131)	(1,333)	(1,531)	(1,733)	(1,931)	(10,642)
Induced	(66)	(116)	(203)	(300)	(382)	(472)	(580)	(683)	(783)	(886)	(987)	(5,459)
Total	**(209)**	**(443)**	**(780)**	**(1,158)**	**(1,490)**	**(1,847)**	**(2,273)**	**(2,684)**	**(3,088)**	**(3,504)**	**(3,909)**	**(21,384)**
Construction												
Direct	(258)	(409)	(714)	(1,045)	(1,320)	(1,628)	(1,995)	(2,344)	(2,684)	(3,031)	(3,373)	(18,800)
Indirect	(27)	(54)	(95)	(140)	(180)	(223)	(275)	(324)	(373)	(423)	(472)	(2,586)
Induced	(13)	(22)	(39)	(58)	(74)	(91)	(112)	(132)	(151)	(171)	(190)	(1,053)
Total	**(298)**	**(485)**	**(848)**	**(1,243)**	**(1,574)**	**(1,942)**	**(2,381)**	**(2,800)**	**(3,208)**	**(3,625)**	**(4,035)**	**(22,439)**
Manufacturing												
Direct	(1,047)	(1,567)	(2,744)	(4,037)	(5,146)	(6,350)	(7,782)	(9,146)	(10,472)	(11,822)	(13,146)	(73,260)
Indirect	(684)	(1,149)	(2,014)	(2,964)	(3,779)	(4,666)	(5,722)	(6,730)	(7,713)	(8,716)	(9,699)	(53,836)
Induced	(241)	(423)	(742)	(1,093)	(1,395)	(1,724)	(2,116)	(2,491)	(2,858)	(3,233)	(3,601)	(19,918)
Total	**(1,972)**	**(3,140)**	**(5,500)**	**(8,095)**	**(10,320)**	**(12,740)**	**(15,620)**	**(18,367)**	**(21,043)**	**(23,771)**	**(26,446)**	**(147,014)**
Wholesale & Retail Trade												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(108)	(178)	(313)	(460)	(586)	(724)	(887)	(1,043)	(1,196)	(1,351)	(1,503)	(8,349)
Induced	(157)	(275)	(483)	(711)	(907)	(1,122)	(1,376)	(1,621)	(1,859)	(2,103)	(2,342)	(12,957)
Total	**(264)**	**(454)**	**(795)**	**(1,171)**	**(1,494)**	**(1,845)**	**(2,264)**	**(2,664)**	**(3,055)**	**(3,454)**	**(3,846)**	**(21,306)**
Information & Professional Services												
Direct	(49)	(42)	(73)	(106)	(133)	(164)	(200)	(235)	(268)	(301)	(335)	(1,906)
Indirect	(348)	(599)	(1,050)	(1,547)	(1,974)	(2,439)	(2,993)	(3,524)	(4,042)	(4,571)	(5,090)	(28,176)
Induced	(337)	(592)	(1,038)	(1,529)	(1,952)	(2,412)	(2,960)	(3,485)	(3,998)	(4,523)	(5,038)	(27,864)
Total	**(734)**	**(1,232)**	**(2,161)**	**(3,182)**	**(4,058)**	**(5,015)**	**(6,154)**	**(7,244)**	**(8,308)**	**(9,396)**	**(10,462)**	**(57,947)**
Financial Services												
Direct	(30)	(75)	(131)	(190)	(239)	(294)	(359)	(421)	(482)	(544)	(605)	(3,369)
Indirect	(189)	(358)	(629)	(926)	(1,181)	(1,459)	(1,791)	(2,109)	(2,419)	(2,737)	(3,049)	(16,847)
Induced	(329)	(578)	(1,013)	(1,493)	(1,905)	(2,354)	(2,889)	(3,402)	(3,903)	(4,415)	(4,917)	(27,196)
Total	**(548)**	**(1,011)**	**(1,773)**	**(2,609)**	**(3,324)**	**(4,107)**	**(5,039)**	**(5,932)**	**(6,804)**	**(7,696)**	**(8,570)**	**(47,412)**
Leisure & Other Services												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(49)	(83)	(146)	(215)	(274)	(339)	(416)	(489)	(561)	(634)	(706)	(3,911)
Induced	(124)	(218)	(383)	(564)	(720)	(890)	(1,092)	(1,286)	(1,475)	(1,668)	(1,858)	(10,278)
Total	**(173)**	**(302)**	**(529)**	**(779)**	**(994)**	**(1,228)**	**(1,507)**	**(1,775)**	**(2,035)**	**(2,302)**	**(2,564)**	**(14,189)**
Government												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(8)	(16)	(27)	(40)	(52)	(64)	(79)	(93)	(107)	(121)	(134)	(741)
Induced	(12)	(22)	(38)	(56)	(71)	(88)	(108)	(127)	(146)	(165)	(184)	(1,017)
Total	**(20)**	**(37)**	**(65)**	**(96)**	**(123)**	**(152)**	**(187)**	**(220)**	**(253)**	**(286)**	**(318)**	**(1,758)**

NOTES: Numbers may not sum due to rounding.

Source: IHS Economics

Gross value-added of eliminating the percentage depletion allowance for oil and gas by industry - US
(millions of 2014 $)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2015-25
Natural Resources												
Direct	(133)	(409)	(722)	(1,072)	(1,381)	(1,714)	(2,111)	(2,497)	(2,879)	(3,275)	(3,658)	(19,851)
Indirect	(30)	(65)	(115)	(171)	(219)	(272)	(334)	(395)	(454)	(515)	(575)	(3,147)
Induced	(18)	(31)	(55)	(80)	(103)	(127)	(156)	(183)	(210)	(238)	(265)	(1,464)
Total	**(181)**	**(506)**	**(892)**	**(1,323)**	**(1,703)**	**(2,113)**	**(2,601)**	**(3,075)**	**(3,543)**	**(4,028)**	**(4,498)**	**(24,462)**
Transportation & Utilities												
Direct	(16)	(62)	(111)	(167)	(220)	(275)	(340)	(405)	(469)	(536)	(600)	(3,200)
Indirect	(65)	(125)	(219)	(324)	(415)	(513)	(630)	(742)	(853)	(966)	(1,076)	(5,926)
Induced	(39)	(68)	(119)	(175)	(223)	(276)	(339)	(399)	(458)	(518)	(576)	(3,189)
Total	**(119)**	**(255)**	**(449)**	**(666)**	**(858)**	**(1,064)**	**(1,309)**	**(1,546)**	**(1,779)**	**(2,019)**	**(2,252)**	**(12,315)**
Construction												
Direct	(106)	(167)	(292)	(427)	(540)	(666)	(816)	(959)	(1,098)	(1,240)	(1,380)	(7,691)
Indirect	(13)	(25)	(44)	(65)	(84)	(103)	(127)	(150)	(173)	(196)	(219)	(1,198)
Induced	(6)	(11)	(20)	(29)	(37)	(46)	(57)	(67)	(77)	(87)	(97)	(534)
Total	**(125)**	**(203)**	**(356)**	**(522)**	**(661)**	**(816)**	**(1,000)**	**(1,176)**	**(1,347)**	**(1,522)**	**(1,695)**	**(9,423)**
Manufacturing												
Direct	(355)	(497)	(871)	(1,281)	(1,631)	(2,013)	(2,467)	(2,899)	(3,319)	(3,746)	(4,166)	(23,247)
Indirect	(181)	(305)	(535)	(788)	(1,006)	(1,242)	(1,523)	(1,792)	(2,053)	(2,321)	(2,582)	(14,329)
Induced	(63)	(111)	(195)	(287)	(366)	(452)	(555)	(653)	(749)	(848)	(944)	(5,223)
Total	**(599)**	**(914)**	**(1,601)**	**(2,356)**	**(3,003)**	**(3,707)**	**(4,545)**	**(5,344)**	**(6,122)**	**(6,915)**	**(7,693)**	**(42,798)**
Wholesale & Retail Trade												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(73)	(120)	(210)	(310)	(395)	(487)	(597)	(702)	(805)	(909)	(1,012)	(5,619)
Induced	(112)	(197)	(346)	(510)	(650)	(804)	(986)	(1,161)	(1,332)	(1,507)	(1,679)	(9,285)
Total	**(185)**	**(317)**	**(556)**	**(819)**	**(1,045)**	**(1,291)**	**(1,584)**	**(1,864)**	**(2,137)**	**(2,416)**	**(2,690)**	**(14,904)**
Information & Professional Services												
Direct	(32)	(27)	(47)	(68)	(85)	(105)	(129)	(151)	(172)	(194)	(215)	(1,225)
Indirect	(237)	(408)	(716)	(1,055)	(1,347)	(1,664)	(2,042)	(2,404)	(2,757)	(3,118)	(3,472)	(19,220)
Induced	(222)	(391)	(686)	(1,010)	(1,289)	(1,593)	(1,956)	(2,303)	(2,642)	(2,988)	(3,328)	(18,409)
Total	**(492)**	**(826)**	**(1,449)**	**(2,134)**	**(2,721)**	**(3,362)**	**(4,126)**	**(4,857)**	**(5,571)**	**(6,300)**	**(7,015)**	**(38,854)**
Financial Services												
Direct	(23)	(57)	(100)	(146)	(183)	(225)	(275)	(323)	(369)	(416)	(463)	(2,581)
Indirect	(122)	(229)	(401)	(591)	(754)	(931)	(1,143)	(1,346)	(1,544)	(1,747)	(1,946)	(10,753)
Induced	(229)	(402)	(705)	(1,038)	(1,325)	(1,637)	(2,010)	(2,366)	(2,714)	(3,071)	(3,420)	(18,917)
Total	**(374)**	**(688)**	**(1,206)**	**(1,775)**	**(2,261)**	**(2,794)**	**(3,428)**	**(4,034)**	**(4,628)**	**(5,234)**	**(5,829)**	**(32,250)**
Leisure & Other Services												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(31)	(53)	(92)	(136)	(173)	(214)	(263)	(309)	(354)	(400)	(446)	(2,471)
Induced	(76)	(133)	(233)	(343)	(438)	(542)	(665)	(783)	(898)	(1,016)	(1,131)	(6,257)
Total	**(106)**	**(186)**	**(326)**	**(479)**	**(611)**	**(756)**	**(927)**	**(1,091)**	**(1,252)**	**(1,416)**	**(1,577)**	**(8,727)**
Government												
Direct	-	-	-	-	-	-	-	-	-	-	-	-
Indirect	(4)	(8)	(14)	(20)	(26)	(32)	(39)	(46)	(53)	(60)	(67)	(371)
Induced	(5)	(9)	(16)	(24)	(30)	(37)	(46)	(54)	(62)	(70)	(78)	(431)
Total	**(9)**	**(17)**	**(30)**	**(44)**	**(56)**	**(69)**	**(85)**	**(100)**	**(115)**	**(130)**	**(145)**	**(802)**

NOTES: Numbers may not sum due to rounding.
Source: IHS Economics

Appendix C: IMPLAN Model

To assess the direct, indirect, and induced economic impacts of the investment in transportation infrastructure, IHS used a customized version of the IMPLAN modeling environment. The base IMPLAN model closely follows the accounting conventions used in the US Bureau of Economic Analysis study, *Input-Output Study of the US Economy*, and is flexible enough to evaluate changes via the value of output or employment from the source industry. IHS customized the environment by updating worker productivity rates based on its proprietary Business Market Insights database, which IHS economists believe produces more conservative estimates of employment impacts.

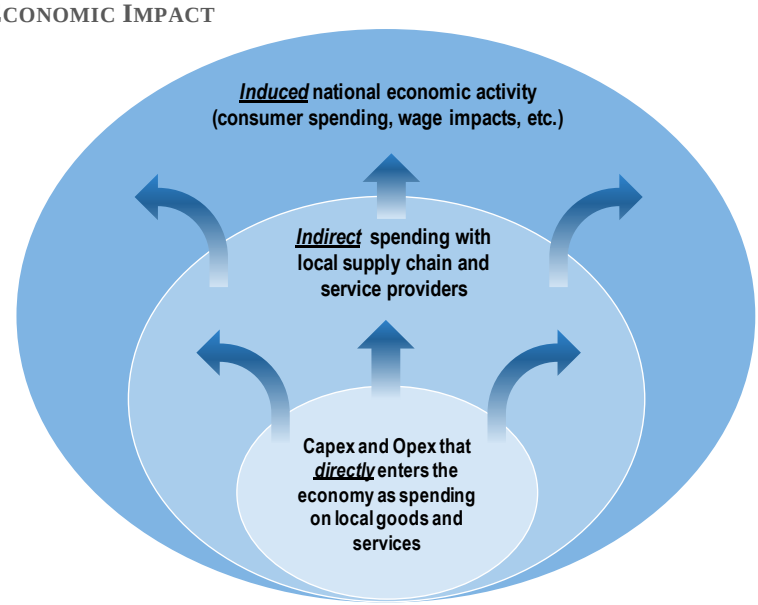
Input-Output modeling frameworks

IMPLAN, short for "Impact Analysis for Planning," is a widely used, commercially available model for conducting input-output analysis. Based on a social account matrix framework, IMPLAN provides a balanced set of 440-industry sector matrices that map the buy-sell dyads of inter-industry transactions and consumer-to-industry transactions. When additional transactions occur, IMPLAN rebalances the matrices, therein estimating how transactional activity ripples through the economy. The additional activity, in turn, drives changes in employment, wages, GDP contribution and government revenues.

The economic ripples fall into three main categories, as defined below:

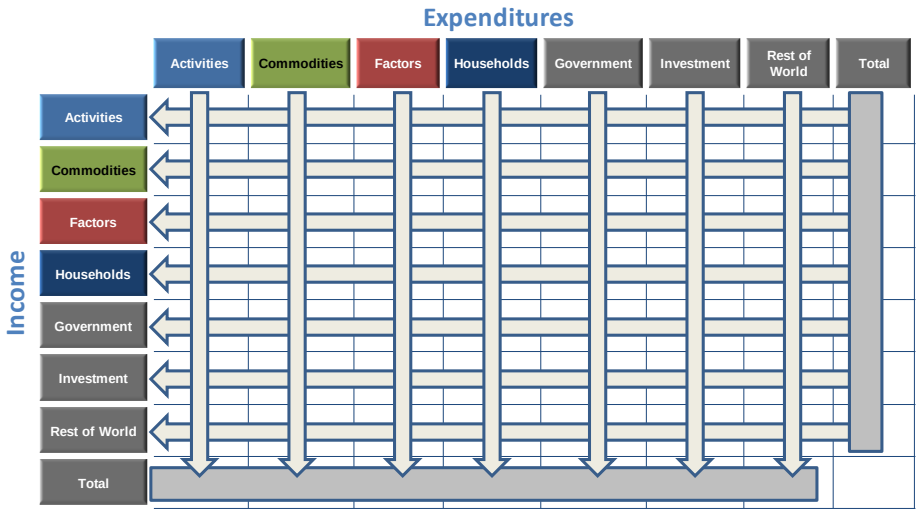
- **Direct Effects:** are the direct responses of an economy to changes in the final demand of a given industry or set of industries. In the model developed for this project, direct effects capture the impacts of direct employment and production associated with transportation infrastructure spending.
- **Indirect Effects** (also known as **Supplier Effects**): refer to the "ripple responses" of an economy to subsequent final demand shifts within industries that serve the direct industries. In essence, the indirect effects capture the response of extended supply chains.
- **Induced Effects** (also known as **Income Effects**): refer to the response of an economy to changes in household spending attributable to income generated by the direct and indirect effects. Employees within the direct and indirect industries also act as consumers in the general US economy. Induced effects capture the impacts of this consumer activity

THREE LEVELS OF ECONOMIC IMPACT



The figure below shows the structure and fiscal flows of a typical Social Account Matrix (SAM), which presents the transactions that occur within an economy as a matrix. The columns of a SAM represent expenditures (or spending), while the rows represent income. The key components (or accounts) appear in both the Columns and the Rows of the SAM, representing the dual role each account plays in the economy. As such, a SAM not only captures the transactional activity within an economy, but all of the linkages between industrial sectors, households and institutions as well.

Social Accounting Matrix Captures Expenditure-to-Income Flows



A Social Accounting Matrix (SAM) provides a complete, consistent and balanced representation of all activity within an economy. An ***Expenditure*** (or spending) within an economy flows down a column and then leftward along the corresponding ***Income*** row. For example, consider Consumer Spending. Expenditures flow down the "Household" column and then left across the appropriate "Commodity" row.

The following graphic populates the SAM framework with the classes of transactions that link expenditures (columns) to income (rows). A SAM is similar to double entry bookkeeping where each entry is a transaction that has both a price and a quantity dimension, and that identifies both its source and destination. Therefore, the total expenditures by each account must be exactly equal to the total receipts for the account, i.e. the respective row and column totals must equate. This means, for example, that total domestic demand (the commodity row) equals total domestic supply (the commodities column). It is this characteristic that makes a SAM a tool that can be used for modeling purposes.

Social Accounting Matrix Structure Transaction Classes

Income \ Expenditures	Activities	Commodities	Factors	Households	Gov't	Investment	Rest of World	Total
Activities		Domestic Supply						Activity Income
Commodities	Intermediate Demand			Consumption (C)	Gov't Spending (G)	Investment (I)	Exports (E)	Total Demand
Factors	Value-Added (GDP)							Total Factor Income
Households			Factor Payments to Households		Social Transfers		Foreign Remittances	Total Household Income
Government		Sales Tax and Import tariffs		Direct Taxes			Foreign Grants and Loans	Government Income
Investment				Private Savings	Fiscal Surplus		Current Account Balance	Total Savings
Rest of World		Imports (M)						Foreign Exchange Outflow
Total	Gross Output	Total Supply	Total Factor Spending	Total Household Spending	Gov't Expenditure	Total Investment Spending	Foreign Exchange Inflow	

Economic impact analyses focus on inter-industry interactions (Activity-Commodity-Factors) and consumer transactions (Activity-Commodity-Factors-Households). The inter-industry interactions, which encompass direct and indirect effects, are highlighted in the purple region of the following figure. Similarly, the consumer transactions are enclosed by the red box. Ultimately, these two regions of the SAM are transformed into the core of an economic impact model such as IMPLAN.

Portions of a SAM Needed for the Economic Impact Assessment

Income \ Expenditures	Activities	Commodities	Factors	Households	Gov't	Investment	Rest of World	Total
Activities		Domestic Supply						Activity Income
Commodities	Intermediate Demand			Consumption (C)	Gov't Spending (G)	Investment (I)	Exports (E)	Total Demand
Factors	Value-Added (GDP)							Total Factor Income
Households			Factor Payments to Households		Social Transfers		Foreign Remittances	Total Household Income
Government		Sales Tax and Import tariffs		Direct Taxes			Foreign Grants and Loans	Government Income
Investment				Private Savings	Fiscal Surplus		Current Account Balance	Total Savings
Rest of World		Imports (M)						Foreign Exchange Outflow
Total	Gross Output	Total Supply	Total Factor Spending	Total Household Spending	Gov't Expenditure	Total Investment Spending	Foreign Exchange Inflow	

IMPLAN multipliers

The notion of a multiplier rests upon the difference between the initial effect of a change in final demand and the total effects of that change. Total effects can be calculated either as direct and indirect effects or as direct, indirect, and induced effects. Direct effects are production changes associated with the immediate effects or final-demand changes. Indirect effects are production changes in backward-linked industries caused by the changing input needs of directly affected industries (for example, additional purchases to produce additional output). Induced effects are the changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects.

Type I multipliers

A Type I multiplier is the direct effect produced by a change in final demand plus the indirect effect, divided by the direct effect. Increased demands are assumed to lead to increased employment and population, with the average income level remaining constant. The Leontief inverse (Type I multipliers matrix) is derived by inverting the direct coefficients matrix. The result is a matrix of total requirement coefficients, the amount each industry must produce for the purchasing industry to deliver one dollar's worth of output to final demand.

Type SAM multipliers

Type SAM multipliers incorporate "induced" effects resulting from household expenditures from new labor income. The linear relationship between labor income and household expenditure can be customized in the IMPLAN software. The default relationship is Personal Consumption Expenditure (PCE) and total household expenditure. Each dollar of workplace-based income is spent based on the SAM relationship generated by IMPLAN.