Oil & Natural Gas Production Tax

Revenue Description

The oil and natural gas production tax is imposed on the production of oil and natural gas in the state. Gross taxable value of oil and natural gas production is based on the type of well and type of production. A portion of the revenue from the tax may be returned to Indian tribes per agreements between DOR and the tribes.

Statutory Reference

Tax Rate – 15-36-304, MCA; Privilege & license tax – 82-11-131, MCA; Administrative Rules 36.72.1242
Tax Distribution – 15-36-331(4), MCA; 15-36-332(2&3), MCA
Date Due – within 60 days after the end of the calendar quarter (15-36-311(1), MCA)

Applicable Tax Rates

The oil and natural gas production tax has numerous tax rates depending on several factors. The following table shows tax rate percentages for each type of pre- and post-1999 oil, excluding the Privilege & License (P & L) tax and the local impact tax. The P & L and local impact taxes account for less than 0.3% and are shown on the distribution diagram.

Oil Tax Rates	
Working Interest	
Primary recovery production	
First 12 months of qualifying production	0.5%
After 12 months for pre-1999 wells	12.5%
After 12 months for post-1999 wells	9.0%
Stripper oil production (>3 and < 15 barrels/day if oil<$30)	
1 through 10 barrels a day production	5.5%
>10 through 14 barrels a day production	9.0%
Stripper oil production (>3 and < 15 barrels/day if oil>=$30)	Primary Recovery Rates
Stripper wells (3 barrels or less/day)	
Stripper well exemption production (if oil <$38)	0.5%
Stripper well bonus production (if oil >=$38)	6.0%
Horizontally completed well production	
First 18 months of qualifying production	0.5%
After 18 months for pre-1999 wells	12.5%
After 18 months for post-1999 wells	9.0%
Incremental production (if oil <$30/barrel)	
New or expanded secondary recovery production	8.5%
New or expanded tertiary production	5.8%
Incremental production (if oil >=$30/barrel)	
Pre-1999 wells	12.5%
Post-1999 wells	9.0%
Horizontally recompleted well	
First 18 months	5.5%
After 18 months for pre-1999 wells	12.5%
After 18 months for post-1999 wells	9.0%
Nonworking Interest	14.8%
Board of Oil & Gas	0.3%

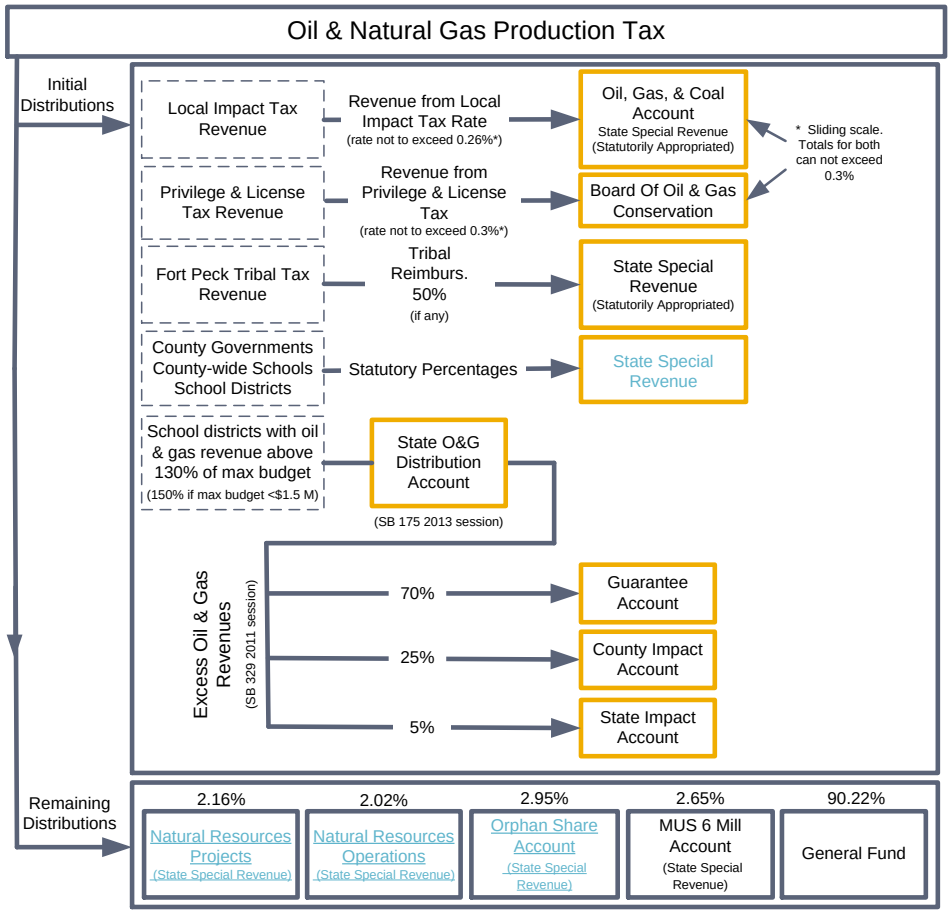
Natural Gas Tax Rates	
Working Interest	
Qualified production	
First 12 months	0.5%
After 12 months for pre-1999 wells	14.8%
After 12 months for post-1999 wells	9.0%
Stripper natural gas pre-1999 wells	11.0%
Horizontally completed well production	
First 18 months of qualifying production	0.5%
After 18 months	9.0%
Nonworking Interest	14.8%
Board of Oil & Gas	0.3%

Collection Frequency: Quarterly

Distribution

After the oil and natural gas production taxes have been collected, the revenue is distributed based on the amounts collected from the P & L and local impact taxes. The P & L tax is distributed to the Board of Oil and Gas Conservation. The amounts from the Local Impact tax are distributed to the oil and gas natural resource state special revenue account. The amounts received by the Board and the oil and gas natural resource account vary based on a sliding tax scale based on the P & L tax set by the Board. Counties producing oil and natural gas receive the next share of total revenue with each county having its own statutory distribution percentage of total revenue, including the revenue generated by the P & L and Local Impact taxes.

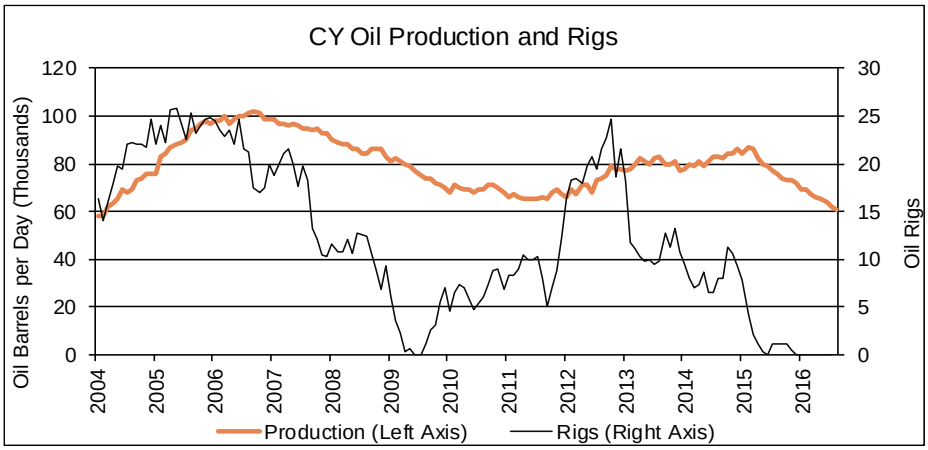
A portion of the revenue may be returned to Indian tribes per agreements between the DOR and the tribes. The remainder of the revenue is distributed to other state accounts, shown in the distribution chart below. The distributions of county shares and the amount of oil and natural gas production tax revenue deposited in the oil and gas natural resource account are statutorily appropriated and are based on the statutorily set percentages for each county.



Revenue Estimate Methodology

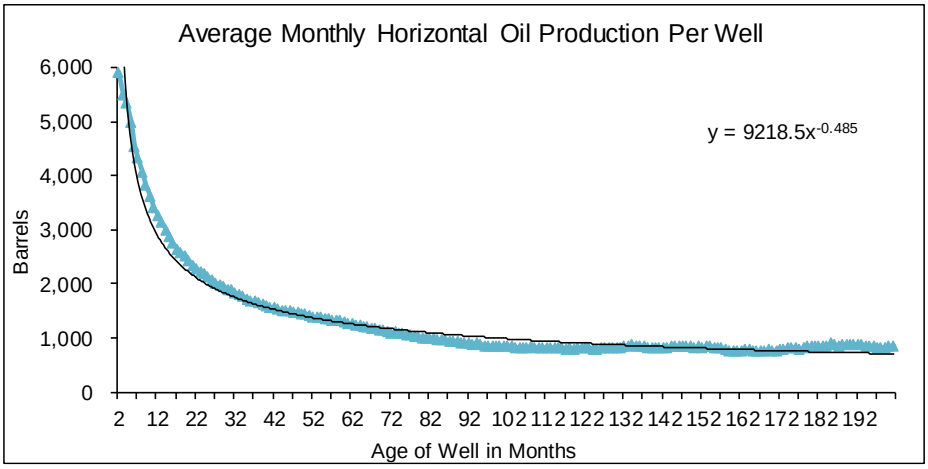
Data

Data from the Board of Oil and Gas Conservation are used extensively to isolate monthly historical production of oil and natural gas by field and by individual well. IHS provides future estimates of West Texas Intermediate oil and national well head natural gas prices. Production, price, value, and revenue collections, by oil type, are provided on a quarterly basis by DOR. Drilling rigs, shown following with production numbers from the U.S. Energy Information Administration, are also used from Baker Hughes.

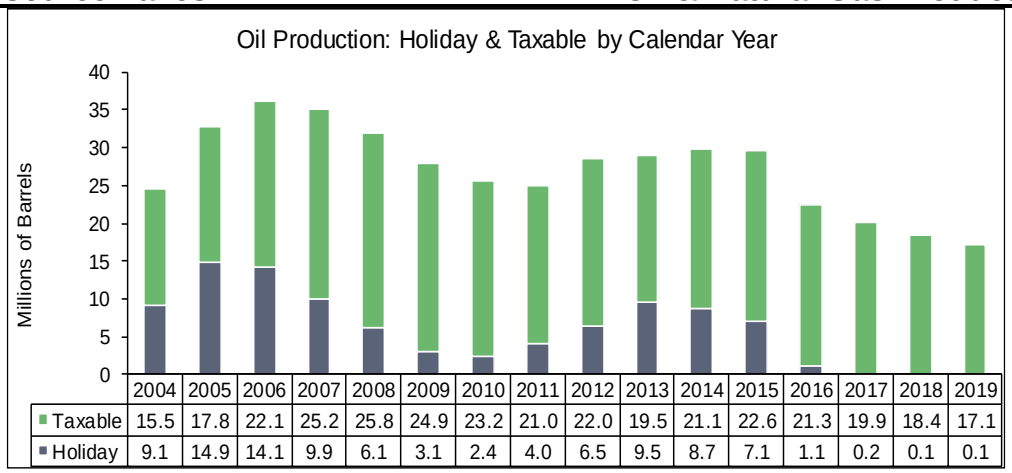


Analysis

Production is estimated independently for oil and natural gas. The estimate is developed on a quarterly basis with production from horizontal wells separate from all other production. Existing horizontal wells follow a production decline curve unique to the characteristics of those wells. Future production from completed wells can be estimated by developing a normalized production decline curve from the producing wells. In doing so, the difficulty of having different starting time for each well can be eliminated by averaging each well's production from a common time point. The result is a curve that represents the average production of horizontal wells by month of production.



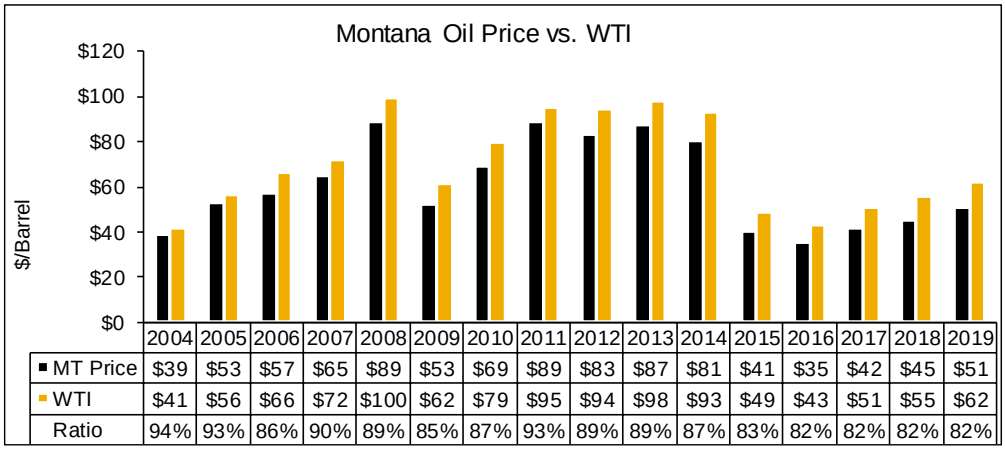
Production from future wells can be estimated by applying the production curve coefficients to an estimate of future spudded wells. Knowing monthly production from each well and the date it was placed into production is essential for estimating oil tax revenue because tax rates vary based on the length of time a well has been in production. The dynamics in the timing of when wells enter and fall out of the various tax rates and the changes in production at the various stages are complex, but need to be modeled to create more accurate estimates given future price variability.



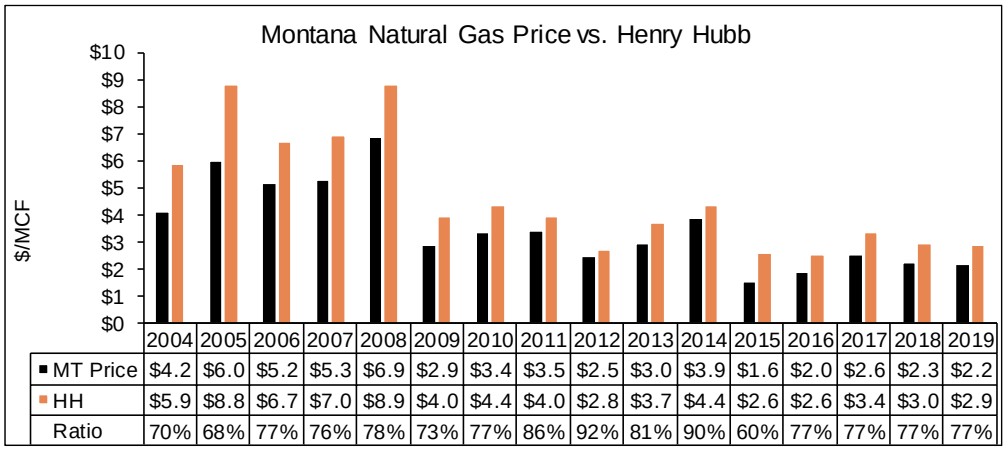
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Taxable	15.5	17.8	22.1	25.2	25.8	24.9	23.2	21.0	22.0	19.5	21.1	22.6	21.3	19.9	18.4	17.1
Holiday	9.1	14.9	14.1	9.9	6.1	3.1	2.4	4.0	6.5	9.5	8.7	7.1	1.1	0.2	0.1	0.1

Production from all other wells is also estimated on an annual basis and by the different taxation types. For each year, the estimate is produced by multiplying the previous year by the ratio of the results of a regression analysis for the current and the previous year. The results for each tax type are then summed by year.

The price for each quarter is estimated by adjusting the IHS West Texas Intermediate oil price estimate or Henry Hub natural gas price estimate by a Montana-specific ratio. The Montana price is lower than the national price primarily due to transportation costs.



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
MT Price	$39	$53	$57	$65	$89	$53	$69	$89	$83	$87	$81	$41	$35	$42	$45	$51
WTI	$41	$56	$66	$72	$100	$62	$79	$95	$94	$98	$93	$49	$43	$51	$55	$62
Ratio	94%	93%	86%	90%	89%	85%	87%	93%	89%	89%	87%	83%	82%	82%	82%	82%

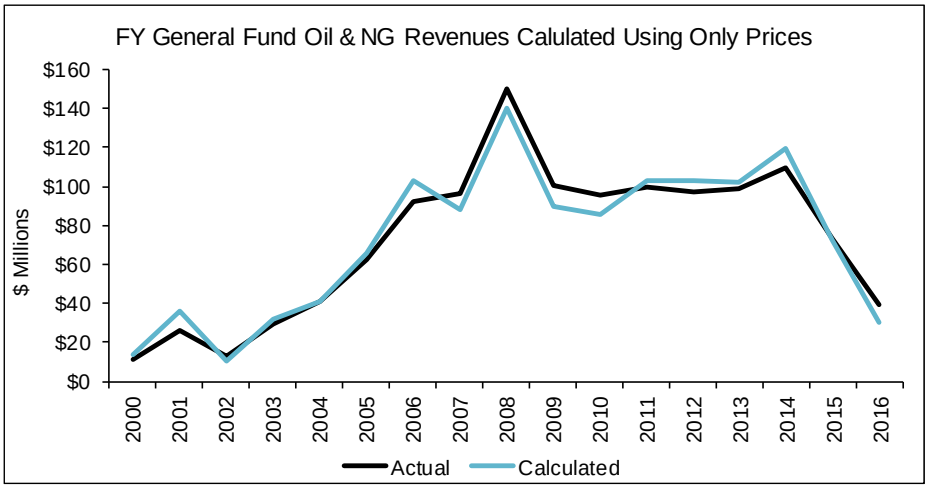


	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
MT Price	$4.2	$6.0	$5.2	$5.3	$6.9	$2.9	$3.4	$3.5	$2.5	$3.0	$3.9	$1.6	$2.0	$2.6	$2.3	$2.2
HH	$5.9	$8.8	$6.7	$7.0	$8.9	$4.0	$4.4	$4.0	$2.8	$3.7	$4.4	$2.6	$2.6	$3.4	$3.0	$2.9
Ratio	70%	68%	77%	76%	78%	73%	77%	86%	92%	81%	90%	60%	77%	77%	77%	77%

Once production and prices have been estimated, the value can be calculated by the product of the two. The quarterly value of each tax type is then multiplied by the applicable tax rate to obtain the

estimate. The sum of the revenue from all tax types for each fiscal year determines the oil and natural gas production revenue estimate.

Price—not production—is the larger driver of the overall estimate. Modeling on only WTI oil prices and HH gas prices, predicted revenues are extremely close to actuals, although this relies on already known prices. As prices are never known with such accuracy, the oil and gas model uses historical production data from each well in the state to model forecast production based on an average decline curve. The additional production modeling essentially acts as a buffer against price forecast volatility.

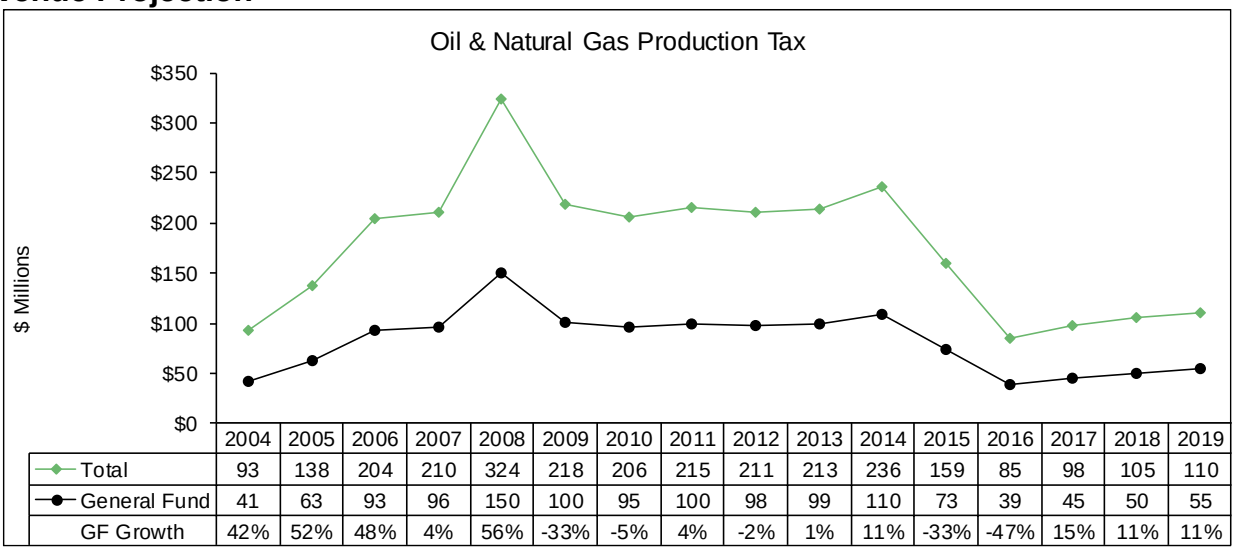


Revenue Estimate Assumptions

FY	Total Tax $ Millions	GF Tax $ Millions	CY WTI Price $/Barrel	CY Montana Price $/Barrel	CY WTI / MT Oil Price Ratio	CY Total Production Million Barrels	CY Holiday Production Million Barrels
A 2004	$92.676	$41.324	$41.42	$38.99	0.94	24.631	9.135
A 2005	137.754	62.626	56.46	52.76	0.93	32.679	14.925
A 2006	203.631	92.563	66.10	57.14	0.86	36.196	14.132
A 2007	209.946	96.335	72.29	64.75	0.90	35.112	9.891
A 2008	324.311	149.994	99.56	88.84	0.89	31.890	6.127
A 2009	218.425	100.491	61.69	52.62	0.85	27.967	3.070
A 2010	206.286	95.491	79.44	69.05	0.87	25.631	2.442
A 2011	215.130	99.764	95.08	88.76	0.93	25.019	3.985
A 2012	210.644	97.560	94.20	83.45	0.89	28.469	6.454
A 2013	213.229	98.683	97.94	87.22	0.89	29.061	9.536
A 2014	236.497	109.606	93.26	80.67	0.87	29.775	8.725
A 2015	159.107	73.184	48.69	40.60	0.83	29.653	7.074
A 2016	84.972	39.083	43.15	35.38	0.82	22.459	1.117
F 2017	98.295	44.821	50.83	41.68	0.82	20.087	0.152
F 2018	104.925	49.533	55.46	45.48	0.82	18.514	0.142
F 2019	110.469	54.875	62.19	51.00	0.82	17.190	0.132

CY	Henry Hub Price $/MCF	Montana NG Price $/MCF	HH/MT NG Price Ratio	Total Production Million MCFs	Holiday Production Million MCFs	RTIC Adjustment $ Millions
A 2004	$5.90	$4.15	0.70	99.344	26.113	
A 2005	8.81	6.00	0.68	110.440	27.090	
A 2006	6.74	5.21	0.77	113.555	25.831	
A 2007	6.98	5.30	0.76	118.636	26.500	
A 2008	8.85	6.90	0.78	116.157	19.045	
A 2009	3.95	2.90	0.73	101.611	10.155	
A 2010	4.39	3.37	0.77	94.334	7.364	
A 2011	4.00	3.46	0.86	76.784	4.997	
A 2012	2.75	2.52	0.92	62.449	3.298	
A 2013	3.73	3.01	0.81	63.354	5.415	
A 2014	4.37	3.93	0.90	67.268	4.938	
A 2015	2.61	1.58	0.60	82.833	4.384	
F 2016	2.55	1.95	0.77	51.435	0.904	
F 2017	3.39	2.59	0.77	45.953	0.952	($1.188)
F 2018	2.95	2.26	0.77	40.076	1.144	1.873
F 2019	2.93	2.24	0.77	34.994	1.097	7.042

Revenue Projection



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	93	138	204	210	324	218	206	215	211	213	236	159	85	98	105	110
General Fund	41	63	93	96	150	100	95	100	98	99	110	73	39	45	50	55
GF Growth	42%	52%	48%	4%	56%	-33%	-5%	4%	-2%	1%	11%	-33%	-47%	15%	11%	11%