



Pennsylvania
Economic & Revenue Update

House Appropriations Committee
February 11, 2019

Senate Appropriations Committee
February 19, 2019



INDEPENDENT FISCAL OFFICE

February 8, 2019

Dear Chairmen and Members of the House and Senate Appropriations Committees:

Thank you for the opportunity to submit materials in advance of the budget hearing for the Independent Fiscal Office (IFO). The *2019-2020 Governor's Executive Budget* proposes an appropriation of \$2.293 million for the office, the same amount appropriated for the current year.

In addition to questions about the IFO's budget, past hearings have included discussions regarding Pennsylvania's economic outlook, labor market, revenue collections, demographics, long-term fiscal outlook and energy industry trends. This submission includes data, tables and graphs that have been requested in prior budget hearings. We trust they will be helpful as you consider the fiscal year 2019-20 budget proposal.

For the upcoming year, new statutory duties related to performance-based budgeting (PBB) and tax credit reviews will engage much of the office's resources. A schedule for PBB plans and tax credit reviews, developed jointly with the Office of the Budget, can be found at the end of this submission. In January 2019, the IFO transmitted five PBB plans and three tax credit reviews to the PBB Board. For the next round, the IFO is scheduled to transmit six PBB plans and four tax credit reviews. The IFO is consulting with Board members regarding the time frame for transmittal of those plans and reviews.

The IFO also prepares monthly reports on the state economy and revenue collections, periodic revenue estimates, coordinates analyses and issues actuarial notes for legislation proposing changes to public employee pension or retirement plans and special reports and research briefs on various budget and economic topics. This submission lists reports published by the IFO during the past year, and all reports are available on the office website (www.ifo.state.pa.us).

Sincerely,

MATTHEW J. KNITTEL
Director, Independent Fiscal Office

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Independent Fiscal Office Overview

Background

The office was created by Act 120 of 2010 and enters its eighth year of operation. The office currently employs 11 staff: 3 managers, 1 office manager and 7 analysts. The FY 2019-20 Executive Budget proposes an appropriation of \$2.293 million for the office. That amount includes \$200,000 for work related to contracted actuarial analysis, and those funds are dedicated to that purpose. A statement that details the actual and projected utilization of appropriated funds is included with this submission.

Mission Statement

The Independent Fiscal Office (IFO) provides revenue projections for use in the state budget process along with impartial and timely analysis of fiscal, economic and budgetary issues to assist Commonwealth residents and the General Assembly in their evaluation of policy decisions. In that capacity, the IFO does not support or oppose any policy it analyzes, and will disclose the methodologies, data sources and assumptions used in published reports and estimates.

Role in the Budget Process

The statute that created the IFO outlines several points at which the office is required to provide budget-related information to policymakers. They are as follows:

- | | |
|--------------------|---|
| November 15 | Prepare an assessment of the state's fiscal condition for the current fiscal year and subsequent five fiscal years by taking account of the state economy, demographics, revenues and expenditures. |
| January 31 | Convene a revenue conference with the chairs of the Appropriations Committees, the Secretary of the Budget and the Secretary of Revenue to discuss economic trends and revenue performance. |
| May 20 | Provide an initial revenue estimate for the upcoming fiscal year. ¹ |
| June 20 | Provide a final revenue estimate for the upcoming fiscal year. ² |

Other Responsibilities

Office resources are also used for the following purposes: (1) coordinate and facilitate actuarial analysis of proposed changes to the pension systems, (2) provide a cost analysis of approved collective bargaining agreements, (3) provide an economic analysis of any revenue proposals included in the Executive Budget, (4) publish performance-based budgeting reports for executive agencies, (5) publish tax credit review reports and (6) at the request of members of the General Assembly, provide economic, revenue or fiscal analysis to the extent that staff resources are available for that purpose.

¹ Act 42 of 2018 changed the due date from May 1 to May 20.

² Act 42 of 2018 changed the due date from June 15 to June 20.

IFO Reports and Analyses

Published Reports and Analyses *(since January 1, 2018)*

- **Revenue Estimates**
 - Mid-Year Update FY 2017-18 (January 2018)
 - Analysis of Revenue Proposals in the 2018-19 Executive Budget (April 2018)
 - Initial Revenue Estimate FY 2018-19 (May 2018)
 - Official Revenue Estimate FY 2018-19 (June 2018)
 - Revenue Estimate Performance (July 2018)
 - Monthly and Quarterly Revenue Estimates (July 2018)
 - Five Year Economic and Budget Outlook (November 2018)
 - Mid-Year Update FY 2018-19 (January 2019)
 - Monthly Trends Report
- **Performance-Based Budgeting (PBB)**
 - PBB Plan: Department of Criminal Justice (January 2019)
 - PBB Plan: Department of General Services (January 2019)
 - PBB Plan: Department of Banking and Securities (January 2019)
 - PBB Plan: Pennsylvania Commission on Crime and Delinquency (January 2019)
 - PBB Plan: Juvenile Court Judges' Commission (January 2019)
- **Tax Credit Reviews**
 - Neighborhood Assistance Program Tax Credit (April 2018)
 - Film Production Tax Credit Review (January 2019)
 - Historic Preservation Tax Credit Review (January 2019)
 - New Jobs Tax Credit Review (January 2019)
- **Wage Contracts**
 - ALES Wage Contract Analysis (February 2018)
 - UGSOA Wage Contract Analysis (March 2018)
- **Natural Gas**
 - Impact Fee Update (January 2018, June 2018, January 2019)
 - Natural Gas Production Report (March 2018, May 2018, August 2018, December 2018)
 - Pennsylvania Natural Gas Royalties (March 2018)
- **Special Reports**
 - Increased Spending Allowed Under House Bill 110 (January 2018)
 - State and Local Taxes: A Comparison Across States (February 2018, December 2018)
 - Special Funds Receipts and Disbursements (February 2018)
 - Owner Occupied Housing Units by Age of Householder (March 2018)
 - Federal Tax Code Conformity Analysis (April 2018)
 - Corporate Net Income Tax Rate Reduction (April 2018)
 - Tax Cut and Jobs Act Update (August 2018)
 - IFO News Stand (select months)
- **Property Tax**
 - School District Property Tax Forecast (January 2018)
 - Fiscal Impact of School Property Tax Rebates (March 2018)
 - Property Tax Update (August 2018)

All reports are available on the IFO at www.ifo.state.pa.us.

Summary of IFO Expenditures

	Actual 2017-18	Estimate 2018-19	Proposed 2019-20
<u>Personnel</u>			
Salaries	\$878,300	\$959,000	\$1,065,000
Benefits	335,000	393,000	519,000
Retirement	233,500	274,000	297,000
Employer Taxes	<u>79,000</u>	<u>87,400</u>	<u>94,000</u>
Subtotal	1,525,800	1,713,400	1,975,000
<u>Operating</u>			
Office Operations and Supplies	\$25,500	\$25,500	\$27,000
Computers, Networks and Software	14,000	16,000	19,000
Data Acquisition and Analysis	28,500	29,000	30,000
Publications and Research Materials	30,000	35,000	39,000
Parking	26,000	27,000	29,500
Other	<u>10,200</u>	<u>25,000</u>	<u>25,000</u>
Subtotal	134,200	157,500	169,500
Contracted Actuarial Analysis	<u>18,000</u>	<u>50,000</u>	<u>200,000</u>
Total Expenditures	\$1,678,000	\$1,920,900	\$2,344,500
Appropriated / Proposed	2,226,000	2,293,000	2,293,000
Available	548,000	372,100	-51,500

General Fund Financial Statement Comparison

	Executive Budget		IFO		\$ Diff	
	18-19	19-20	18-19	19-20	18-19	19-20
Beginning Balance	-\$33	\$3	-\$33	\$0	\$0	\$3
General Fund Revenues	34,400	35,296	34,272	35,272	128	24
Less: Refunds	<u>-1,341</u>	<u>-1,343</u>	<u>-1,392</u>	<u>-1,451</u>	<u>51</u>	<u>108</u>
Net Revenues	33,059	33,953	32,880	33,821	178	132
Plus: Lapses	<u>200</u>	<u>200</u>	<u>200</u>	<u>125</u>	<u>0</u>	<u>75</u>
Available Revenue	33,226	34,156	33,047	33,946	178	210
General Fund Expenditures	32,724	34,146	32,724	35,616	0	-1,470
Plus: Supplementals	495	0	495	0	0	0
Plus: Lack of JUA Transfer	<u>0</u>	<u>0</u>	<u>200</u>	<u>0</u>	<u>-200</u>	<u>0</u>
Total Spending	33,219	34,146	33,419	35,616	-200	-1,470
Prelim Ending Balance	7	10	-371	-1,670	378	1,680

Notes: Millions of dollars. IFO estimate uses GF revenues from IFO mid-year update (January 2019), refunds and expenditures from the IFO Economic and Budget Outlook (November 2018) updated for subsequent ESNs issued, lapses and supplementals from the Executive Budget (FY 18-19 only). Executive Budget assumes JUA transfer is received in FY 18-19.

Reconciling FY 2019-20 Ending Balance: Executive Budget vs IFO

Ending Balance	2019-20
Executive Budget (EB)	\$10
Independent Fiscal Office (IFO)	<u>-1,670</u>
Difference	1,680
Due to Available Revenues	
Gross revenues, refunds and lapses	210
Higher EB revenues from minimum wage	<u>-120</u>
Sub-Total	90
Due to Funding Shifts	
Additional Lottery support for MA	92
Funding shift for DEP-DCNR-DCED programs	59
GF transfers for debt service and other costs	<u>187</u>
Sub-Total	338
Due to Changes in Policy	
Reduce PlanCon payment from GF (new debt)	214
Eliminate reimbursement to WC Security Fund	165
New fee for PSP	104
Minimum wage impacts on DHS program costs	37
Net impact of other new initiatives	<u>-269</u>
Sub-Total	251
Due to Administrative and One-Time Measures	
Various program funding reductions/eliminations	147
Reduced debt service (no issuance FY 18-19)	68
DHS use of prior year and one-time funds	201
DHS pharmacy rebates	58
DHS one-time administrative changes (timing)	285
DHS - new assessment revenues	170
All other	<u>72</u>
Sub-Total	1,001
Note: Millions of dollars.	

Economic Trends

	US - Growth Rate or Change					PA - Growth Rate or Change				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Output and Income										
Real GDP	2.9%	1.6%	2.2%	2.9%	2.5%	2.0%	1.2%	2.2%	2.2%	2.0%
Wages and Salaries	5.1%	2.9%	4.6%	4.4%	4.2%	3.9%	1.5%	4.0%	4.1%	4.0%
Personal Income	4.9%	2.6%	4.4%	4.4%	4.4%	4.0%	2.3%	3.9%	3.8%	4.1%
Corp Domestic Profits	-3.5%	-1.1%	2.3%	9.3%	6.6%	-	-	-	-	-
Labor Market										
Net Jobs Growth	2.1%	1.8%	1.6%	1.6%	1.4%	0.8%	0.9%	1.1%	1.2%	1.0%
UE Rate (level)	5.3%	4.9%	4.4%	3.9%	3.6%	5.3%	5.4%	4.9%	4.4%	3.8%
Average Wage	3.0%	1.1%	3.0%	2.7%	2.8%	3.0%	0.7%	2.9%	2.9%	3.0%
Financial Metrics										
S&P 500 Index (avg level)	5.8%	2.0%	16.6%	12.2%	-1.0%	-	-	-	-	-
S&P 500 Index (Dec level)	-0.7%	8.4%	19.8%	-0.4%	2.2%	-	-	-	-	-
10-Year Note (level)	2.14	1.84	2.33	2.91	3.02	-	-	-	-	-
Per Capita Consumer Debt	0.8%	2.3%	3.8%	4.0%	-	1.5%	3.0%	1.5%	1.8%	-
Mortgage Debt	-0.7%	0.7%	3.5%	3.7%	-	0.1%	2.0%	0.0%	0.6%	-
Student Loan	2.7%	7.0%	4.5%	5.9%	-	4.1%	5.8%	3.9%	7.2%	-
Auto Loan	9.7%	6.9%	4.8%	4.0%	-	7.6%	5.4%	3.1%	1.5%	-
<p>Note: U.S. data for 2019 are forecasts from IHS Markit. PA data for 2019 are forecasts by IFO. S&P 500 Index (avg level) uses average level for year, except 2019 which uses value as of February 7. S&P 500 Index (Dec level) uses average level for December.</p> <p>Source: U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, IHS Markit, Federal Housing Finance Agency.</p>										

PA Employment Gains and Losses by Sector

Sector	Number Employees (000s)			Change (000s)	
	2008	2013	2018	2008-13	2013-18
Mining	22.2	36.0	28.9	13.8	-7.1
Construction	254.2	223.8	254.8	-30.4	31.0
Manufacturing	643.8	564.6	565.9	-79.2	1.3
Wholesalers	238.5	222.0	219.3	-16.5	-2.7
Retailers	644.0	630.5	616.4	-13.5	-14.1
Transportation-Storage					
Warehousing	58.7	62.3	88.9	3.6	26.6
Couriers-Messengers	26.1	23.5	32.6	-2.6	9.1
All Other	155.6	161.1	172.9	5.5	11.8
Information	105.9	87.8	80.8	-18.1	-7.0
Finance-Real Estate	329.8	313.2	325.2	-16.6	12.0
Professional-Business Services					
Computer Design	52.0	62.0	72.4	10.0	10.4
Administrative	262.7	274.0	305.9	11.3	31.9
Employment Services	92.5	103.0	123.1	10.5	20.1
All Other	302.2	309.0	316.9	6.8	7.9
Education	219.6	227.2	238.4	7.6	11.2
Healthcare					
Hospitals-Physicians	458.7	472.7	494.9	14.0	22.2
Home Healthcare	33.7	43.2	66.0	9.5	22.8
Nursing Home	190.2	200.0	204.4	9.8	4.4
Substance Abuse Facilities	46.1	51.3	55.2	5.2	3.9
Social Assistance	146.4	168.3	220.2	21.9	51.9
Leisure-Hospitality					
Food and Accommodation	416.5	440.5	480.4	24.0	39.9
Gaming and Other	86.8	91.7	98.2	4.9	6.5
All Other Services	254.3	252.2	263.9	-2.1	11.7
Federal Government	104.2	96.8	97.0	-7.4	0.2
State Government	162.4	157.5	156.2	-4.9	-1.3
Local Government	493.1	466.4	449.0	-26.7	-17.4
TOTAL	5,800.2	5,740.6	6,027.8	-59.6	287.2

Note: Local Government includes local school district employees. Figures are annual averages. Data for 2018 are preliminary and will be adjusted in March 2019.

Source: U.S. Bureau of Labor Statistics, Current Employment Statistics (not seasonally adjusted).

State Metric Comparison

	Annual Growth Rates or Levels							
	MD	NJ	NY	OH	PA	VA	WV	U.S.
Per Capita								
Real GDP (2017)	\$60,255	\$61,484	\$72,193	\$50,642	\$54,790	\$54,761	\$38,835	\$55,515
Personal Income (2017)	\$61,123	\$65,387	\$65,392	\$46,710	\$53,363	\$55,137	\$38,454	\$51,731
Average Wage (2017)	\$63,492	\$64,269	\$70,685	\$50,864	\$54,610	\$60,755	\$41,419	\$57,616
State-Local Taxes (2016)	\$6,266	\$6,987	\$9,129	\$4,710	\$5,208	\$4,767	\$4,175	\$5,060
Economic Growth								
Real GDP (2017)	2.2%	1.6%	1.9%	1.6%	2.2%	1.8%	2.2%	2.2%
Personal Income (2017)	4.1%	4.6%	6.0%	3.8%	3.9%	4.0%	3.4%	4.4%
Net Jobs Growth (2018)	0.8%	1.5%	1.1%	1.5%	1.3%	1.4%	0.9%	1.6%
Demographics								
Population Growth (2018)	0.3%	0.2%	-0.2%	0.2%	0.1%	0.6%	-0.6%	0.6%
Share Under Age 18 (2017)	22.3%	22.0%	20.9%	22.3%	20.8%	22.1%	20.4%	22.6%
Share Age 65+ (2017)	14.9%	15.8%	15.9%	16.7%	17.8%	15.0%	19.4%	15.6%
<p>Note: Net Jobs Growth excludes self-employed individuals and military. State-Local Tax uses taxes for FY 2015-16 (local) and FY 2016-17 (state). Computation disregards any taxes exported.</p> <p>Source: U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics and U.S. Census Bureau.</p>								

Pennsylvania Demographic Snapshot

Age Cohort	Number of Residents (000s)			Gain or Loss (000s)		Avg. Annual Growth	
	2010	2017	2025	2010-17	2017-25	2010-17	2017-25
0-4	729	709	707	-20	-2	-0.4%	-0.0%
5-9	752	729	700	-23	-29	-0.4	-0.5
10-14	790	755	718	-34	-37	-0.6	-0.6
15-19	901	816	767	-85	-49	-1.4	-0.8
20-24	876	832	777	-45	-55	-0.7	-0.8
25-29	785	871	822	86	-50	1.5	-0.7
30-34	734	817	866	83	48	1.6	0.7
35-39	758	770	874	12	104	0.2	1.6
40-44	849	716	802	-134	87	-2.4	1.4
45-49	952	819	731	-133	-87	-2.1	-1.4
50-54	985	880	737	-104	-143	-1.6	-2.2
55-59	885	938	800	53	-138	0.8	-2.0
60-64	752	874	856	122	-18	2.2	-0.3
65-69	555	727	842	172	115	3.9	1.8
70-74	428	552	714	124	162	3.7	3.3
75-79	361	386	551	25	165	1.0	4.6
80-84	311	279	343	-32	64	-1.5	2.6
85+	<u>308</u>	<u>335</u>	<u>349</u>	<u>27</u>	<u>14</u>	<u>1.2</u>	<u>0.5</u>
Total	12,711	12,806	12,957	94	151	0.1	0.1
Age Cohort Summary							
0-19	3,172	3,009	2,892	-163	-117	-0.8%	-0.5%
20-64	7,576	7,517	7,265	-59	-251	-0.1	-0.4
65-79	1,343	1,665	2,107	322	442	3.1	3.0
80+	<u>620</u>	<u>615</u>	<u>693</u>	<u>-5</u>	<u>78</u>	<u>-0.1</u>	<u>1.5</u>
Total	12,711	12,806	12,957	94	151	0.1	0.1

Note: Thousands of residents. Detail may not sum to total due to rounding.

Source: The 2010 and 2017 data are from the U.S. Census Bureau 2017 Population Projections. The 2025 data are projections by the IFO using data from the U.S. Census Bureau and PA Department of Health.

Pennsylvania Demographic Trends

Age Group	Category	Number of Residents (000s)				Total Change (000s)		
		2010	2014	2018	2022	10-14	14-18	18-22
0 to 19	school	3,172	3,061	2,988	2,923	-112	-73	-65
20 to 64	working	7,576	7,594	7,500	7,381	18	-95	-118
65 to 74	seniors	983	1,153	1,313	1,479	170	160	165
75 to 84	retirees	672	651	689	783	-21	38	94
85 or older	elderly	<u>308</u>	<u>332</u>	<u>337</u>	<u>341</u>	<u>23</u>	<u>5</u>	<u>4</u>
Total Residents		12,711	12,790	12,827	12,908	79	37	81

Components of Change	Number of Residents (000s)			Total Change (000s)	
	10-14	14-18	18-22	14-18	18-22
Number of Births	565	561	566	-5	5
Number of Deaths	-509	-535	-549	-26	-14
Net Domestic Migration	-88	-133	-80	-45	53
Net International Migration	94	144	145	50	1
Unallocated Amounts	<u>17</u>	<u>0</u>	<u>0</u>	<u>-17</u>	<u>0</u>
Total Change	79	37	81	-42	44

Source: U.S. Census Bureau. Projections for 2018-22 from the IFO.

State Domestic Migration Comparison

Top Outflow	Net Domestic Migrants (000s)			2016-18 Average	Share of Residents
	2016	2017	2018		
1 New York	-193.2	-188.6	-180.3	-187.4	-1.0%
2 California	-122.6	-137.6	-156.1	-138.8	-0.4
3 Illinois	-113.1	-114.7	-114.2	-114.0	-0.9
4 New Jersey	-67.6	-57.0	-50.6	-58.4	-0.7
5 Louisiana	-13.1	-27.5	-27.9	-22.8	-0.5
6 Massachusetts	-30.2	-24.8	-25.8	-26.9	-0.4
7 Maryland	-29.7	-24.0	-24.5	-26.1	-0.4
8 Connecticut	-29.2	-23.7	-21.5	-24.8	-0.7
9 Pennsylvania	-50.4	-27.4	-20.5	-32.8	-0.3
10 Michigan	-27.1	-13.0	-16.8	-18.9	-0.2
Top Inflow	Net Domestic Migrants (000s)			2016-18 Average	Share of Residents
	2016	2017	2018		
41 Tennessee	31.9	41.9	40.0	37.9	0.6%
42 Georgia	38.0	40.4	41.9	40.1	0.4
43 Colorado	49.1	37.6	43.3	43.4	0.8
44 Washington	66.8	64.7	46.5	59.3	0.8
45 Nevada	35.0	37.8	47.6	40.1	1.3
46 South Carolina	50.2	49.6	50.8	50.2	1.0
47 North Carolina	70.8	64.8	67.0	67.5	0.7
48 Texas	123.0	82.8	82.6	96.1	0.3
49 Arizona	61.9	62.9	83.2	69.4	1.0
50 Florida	216.2	163.6	132.6	170.8	0.8

Note: Rank is based on 2018 data. Share of residents is the net outflow or inflow relative to average resident population from 2016 to 2018.

Source: U.S. Census Bureau.

2018-19 Revenue Update

	YTD Actual Thru Jan		Rest of Year			Full Year Growth Rate	
	Amount	Growth	IFO	Budget	\$ Diff	IFO	Budget
General Fund	\$18,155	4.5%	\$16,117	\$16,245	-\$128	-0.9%	-0.5%
Corporate Net Income	1,651	24.7	1,629	1,692	-63	13.9	16.1
Sales - Non-Motor	5,758	8.1	3,804	3,882	-79	6.4	7.3
Sales - Motor	871	9.0	625	590	35	7.4	4.9
PIT - Withholding	6,058	3.6	4,366	4,326	40	3.9	3.5
PIT - Other	1,310	-10.1	1,972	2,161	-189	-2.4	3.2
Cigarette	661	-6.1	477	458	19	-5.0	-6.6
Inheritance	598	7.1	448	462	-14	2.6	4.0
Gaming Expansion	148	62.6	52	n.a.	n.a.	n.a.	n.a.
All Other	1,100	-12.8	2,744	2,673*	123	-28.9	-31.1

Note: Millions of dollars. IFO estimate relative to January 2019 mid-year update.
 *All Other includes Gaming Expansion.

2019-20 Revenue Projections

	IFO		Budget		\$ Diff
	Amount	Growth	Amount	Growth	
General Fund	\$35,272	2.9%	\$35,373	2.8%	-\$102
Corporate Net Income	3,378	3.0	3,434	2.7	-56
Sales - Non-Motor	9,934	3.9	10,004	3.8	-69
Sales - Motor	1,533	2.4	1,500	2.6	33
PIT - Withholding	10,846	4.0	10,784	3.9	62
PIT - Other	3,500	6.6	3,670	5.7	-170
Cigarette	1,094	-3.8	1,065	-4.8	30
Inheritance	1,066	1.9	1,106	4.3	-40
Gaming Expansion	56	-71.9	n.a.	n.a.	
All Other	3,864	0.5	3,812*	-2.8	108

Note: Millions of dollars. IFO estimate relative to January 2019 mid-year update. Executive Budget estimate excludes revenue proposals.
*All Other includes Gaming Expansion.

State Comparison: State-Local Tax Burdens

Corporate Income			Personal Income			Sales and Use		
	Rank	Percent		Rank	Percent		Rank	Percent
DE	1	3.44%	NY	1	4.87%	OH	11	3.32%
NY	3	0.91	MD	3	4.21	NY	20	2.77
PA	10	0.44	VA	11	3.00	WV	32	2.28
NJ	12	0.43	WV	14	2.74	PA	39	1.97
MD	22	0.33	DE	15	2.73	NJ	40	1.96
VA	37	0.20	PA	17	2.66	MD	42	1.54
WV	39	0.18	OH	18	2.65	VA	44	1.38
OH	45	0.11	NJ	22	2.56	DE	48	0.13
USw		0.37	USw		2.44	USw		2.61
USuw		0.38	USuw		2.18	USuw		2.50
Property			Game-Liquor-Tobacco			Total Taxes		
	Rank	Percent		Rank	Percent		Rank	Percent
NJ	3	5.16%	WV	1	1.19%	NY	1	15.53%
NY	6	4.78	DE	4	0.83	WV	8	11.57
VA	21	2.99	PA	6	0.72	NJ	9	11.39
PA	24	2.94	MD	11	0.56	MD	11	11.11
OH	25	2.88	OH	12	0.55	OH	16	10.75
MD	29	2.76	NY	22	0.43	DE	19	10.68
WV	35	2.53	NJ	27	0.39	PA	24	10.37
DE	48	1.81	VA	39	0.28	VA	36	9.22
USw		3.20	USw		0.38	USw		10.44
USuw		3.10	USuw		0.44	USuw		10.23

Note: Percent is the ratio of the state-local tax revenue to modified state personal income. USw is weighted average. USuw is unweighted average (each state has same weight). Total Taxes excludes any severance tax or impact fee.

Source: State and Local Taxes: A Comparison Across States, IFO (December 2018).

Natural Gas Production and Spot Prices

	2012	2013	2014	2015	2016	2017	2018	2019	2020
PA Production (bcf) ¹	2,045	3,102	4,069	4,596	5,096	5,364	6,000	6,480	6,998
Growth Rate	92.0%	51.7%	31.2%	13.0%	10.9%	5.3%	11.9%	8.0%	8.0%
PA Consumption (bcf) ¹	918	959	1,040	1,038	1,072	1,025	1,213	1,262	1,312
Share Exported	55%	69%	74%	77%	79%	81%	80%	81%	81%
Horizontal Wells Drilled	1,312	1,187	1,350	783	503	811	779	n.a.	n.a.
Impact Fee Revenues ²	\$202.5	\$225.8	\$223.5	\$187.7	\$173.3	\$209.6	\$247.0	n.a.	n.a.
Computed ETR	5.1%	2.7%	2.3%	6.3%	4.5%	2.8%	2.2%	n.a.	n.a.
Commonwealth Leases ³									
Royalties	\$76.1	\$121.8	\$131.3	\$66.6	\$71.2	\$67.3	\$64.3	\$84.7	\$85.9
Operator Price	\$2.83	\$3.57	\$3.53	\$1.61	\$1.55	\$2.40	\$2.54	n.a.	n.a.
Spot Prices ⁴									
Henry Hub	\$2.75	\$3.73	\$4.37	\$2.62	\$2.52	\$2.99	\$3.17	\$2.89	\$2.66
Dominion South Hub	2.77	3.51	3.25	1.46	1.49	2.11	2.64	2.43	2.09
Leidy Hub	2.83	3.06	2.60	1.20	1.45	2.06	2.52	2.40	1.95

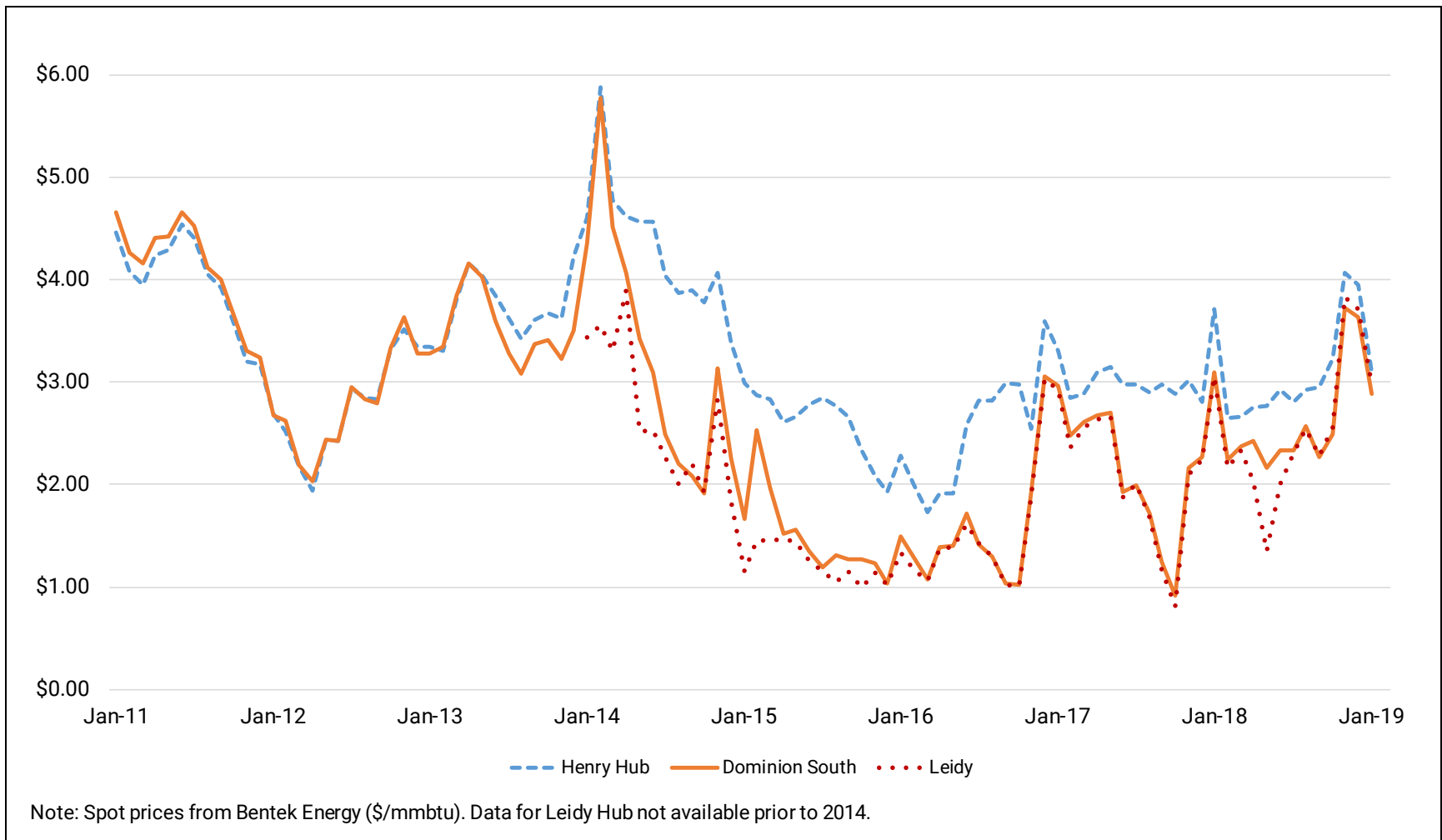
¹Production Data from PA DEP through November 2018. December 2018 and future years estimated by IFO. Production data represent unconventional gas only. Consumption data from U.S. Energy Information Administration and include conventional sources. Consumption total for 2018 includes actuals through November, with December estimated. Consumption forecast by IFO assumes 4% increase per annum.

²Impact fee revenues as reported by the PUC (millions). Revenues shown according to drilling year, not the year revenues were received. Revenues for 2018 estimated by IFO. ETR is effective tax rate.

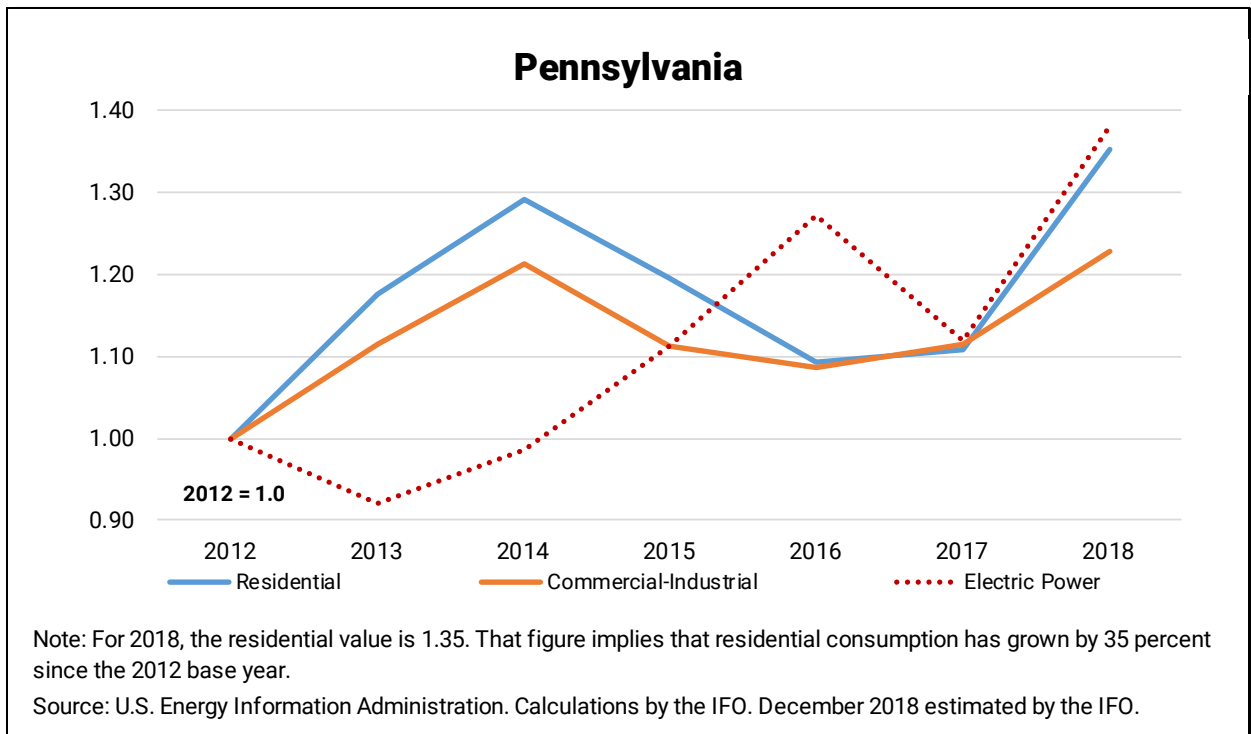
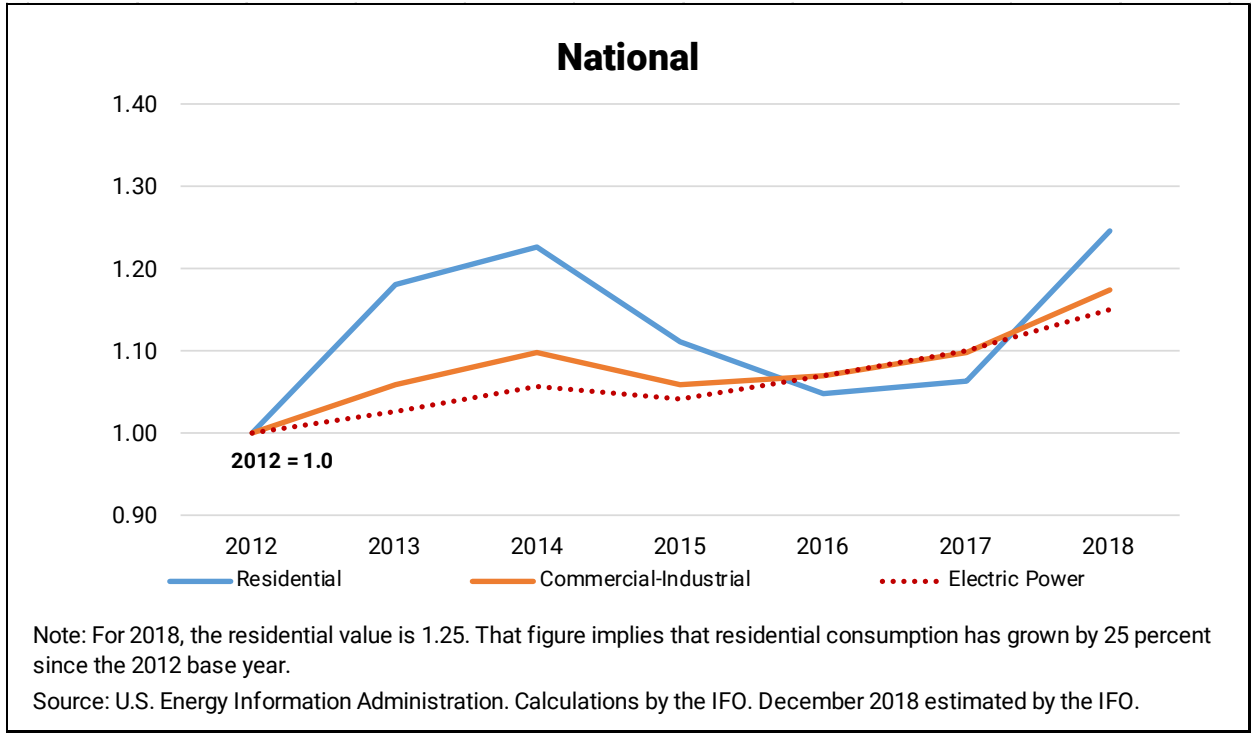
³Royalties from the leasing of Commonwealth lands (millions) shown according to month gas was produced, not month payments were received. Final three months of 2018 estimated by IFO. Operator prices provided by DCNR (\$/mmbtu).

⁴Spot prices are from Bentek Energy.

Natural Gas Spot Prices



Natural Gas: U.S. and PA Consumption



2018 Impact Fee Estimate

Pennsylvania imposes an annual impact fee on unconventional (i.e., shale) natural gas wells that were drilled or operating in the previous calendar year. This research brief uses recent data published by the Department of Environmental Protection to estimate collections for calendar year (CY) 2018, which will be remitted in April 2019.¹ This brief also translates the impact fee into an annual average effective tax rate (ETR) based on recent natural gas price and production data. The ETR quantifies the implicit tax burden imposed by the impact fee in a given year.

Proceeds from the impact fee are distributed to local governments and state agencies to provide for infrastructure, emergency services, environmental initiatives and various other programs. Local governments receive funds based on the number of wells located within their boundaries or their proximity to jurisdictions where natural gas extraction took place. Historical and estimated distributions are shown in Table 1.

The annual impact fee for an unconventional natural gas well is determined according to a bracketed schedule, based on the number of years since a well became subject to the impact fee (operating year), the type of well (horizontal or vertical) and, to a limited extent, the price of natural gas.² Horizontal wells in operating years four or greater that produce less than 90 Mcf (thousand cubic feet) per day are exempt. Plugged horizontal wells are exempt after remitting the fee in the first year. Vertical wells that produce less than 90 Mcf per day are exempt from the fee in any operating year.

The estimated amount of the impact fee for CY 2018 is \$247.0 million, which represents a \$37.4 million increase from actual collections in the prior year. The primary reasons for the increase are as follows:

- New wells offset aging wells. The impact fee is highest in a well's first operating year, and declines as the well ages. Revenue from the 779 new wells spud offset reduced collections from older wells as their fees decline or they become exempt. Net impact: +\$15.1 million.
- Collections from previously disputed wells and outstanding payments. This estimate includes (1) all payments disputed in 2017 based on previously pending litigation that are assumed to be collected as a result of the recent decision by the Pennsylvania Supreme Court regarding stripper well status and (2) the collection of other outstanding payments from the previous year.³ Net impact: +\$22.3 million.

The impact fee does not directly respond to the price of natural gas or the volume of production, and it does not provide a measure of tax burden relative to sales. Therefore, this research brief computes an ETR for all wells in operation during the year. The ETR is equal to annual impact fee revenues divided by the total market value of unconventional natural gas production. The market value is equal to the product of (1) the annual average regional spot price of natural gas net of post-production costs and (2) the total production from all unconventional wells.⁴

Table 1: Impact Fee Revenues and Distributions

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Total Revenues	\$223,500	\$187,712	\$173,259	\$209,557	\$246,970
Counties, Municipalities and HARE Fund ¹	123,300	101,800	93,070	114,784	137,232
Marcellus Legacy Fund	82,200	67,867	62,046	76,523	91,488
Commonwealth Agencies	10,500	10,500	10,500	10,500	10,500
Conservation Districts/Commission	7,500	7,545	7,643	7,750	7,750

Note: Dollar amounts in thousands.

Source: Pennsylvania Public Utility Commission. Estimates for CY 2018 by the IFO.

¹Housing Affordability and Rehabilitation Enhancement Fund.

Table 2: Well Count and Estimated Collections for 2018

Operating Year	Number of Wells¹	Number of Exempt Wells²	Number of Wells Subject to Fee	Fee Amount³	Estimated Collections
1	779	-	779	\$50,700	\$39,454,740
2	810	-	810	40,500	32,772,600
3	503	5	498	30,400	15,139,200
4 +	<u>9,606</u>	<u>2,282</u>	<u>7,324</u>	20,300	<u>148,449,840</u>
Subtotal	11,698	2,287	9,411		235,816,380
Disputed/Late					<u>11,153,500</u>
Total					\$246,969,880

¹ Represents the number of wells that have been spud, including both horizontal and vertical wells.

² Includes wells exempt from the fee based on production level or plugged status.

³ Represents the fee for horizontal wells. The fee for vertical wells is 20 percent of the amount shown.

The annual ETR fluctuates based on the movement of its three components: fee revenues, production and prices.⁵ For CY 2014 through CY 2018, each component has contributed to ETR changes; however, the changes could reinforce or offset each other. Production has increased each year, which reduces the ETR, absent changes in the other components. Lower fee revenues reduce the ETR, while increases have the opposite effect. However, the price effect dominates the other two components as the biggest swings in the annual ETR are due to changes in price.

For CY 2018, the ETR estimate is 2.2 percent. (See Table 3.) The primary factor motivating the decline from CY 2017 was a 52 percent increase in market value, which was driven by growth in prices and production from CY 2017. The significant increase in market value more than offset the growth in impact fee collections, and yields a lower ETR.

Endnotes

1. Data from Pennsylvania Department of Environmental Protection's oil and gas production reports and spud well reports from 2013 to 2018 (last accessed January 17, 2019). Production data are currently available through November; December is estimated by the IFO.
2. The fee schedule is adjusted if the average price falls above or below certain thresholds. Pursuant to 58 Pa.C.S. §§ 2301 *et seq.*, the price used is the annual average of the settled prices for near-month contracts on the New York Mercantile Exchange (\$3.086 for CY 2018).
3. See Snyder Brothers, Inc. v. Pennsylvania Public Utility Commission, case number 1043 CD 2015, and Pennsylvania Independent Oil and Gas Association v. Pennsylvania Public Utility Commission, case number 5579 CD 6459.
4. The price used for this calculation is a weighted average of spot prices at the Dominion South and Leidy trading hubs for the calendar year, converted to dollars per thousand cubic feet (\$2.70 for 2018) using Pennsylvania-specific heat content, net of post-production costs (\$0.80). Prices are from BENTEK Energy. Post-production cost estimates are based on a Range Resources investor presentation from October 3, 2016, adjusted for statewide wet and dry gas production. It should be noted that many producers hedge prices for a large share of their production (e.g., futures contracts).
5. The annual ETR represents the average rate for all wells operating in a single calendar year. A lifetime ETR, which is more appropriate for interstate comparisons, represents the average tax burden of a single well across all years of its productive life.

Table 3: Impact Fee Annual Effective Tax Rates

Calendar Year	Impact Fee Revenues	Unconventional Production (MMcf)¹	Price of Gas (\$/Mcf)²	Market Value³	Annual ETR⁴
2014	\$223,500	4,070,700	\$2.38	\$9,694,700	2.3%
2015	187,712	4,596,900	0.65	3,002,300	6.3
2016	173,259	5,094,100	0.75	3,843,400	4.5
2017	209,557	5,363,800	1.40	7,505,200	2.8
2018	246,970	6,000,000	1.90	11,417,700	2.2

Note: Dollar amounts in thousands. MMcf is million cubic feet.

¹ Production data through November 2018. December 2018 is estimated by the IFO.

² Net of post-production costs, which were estimated to be \$0.80 in 2018.

³ Does not include natural gas liquids (condensate).

⁴ The 2018 ETR includes fees from the previous year. Without those fees, the ETR would be 2.1 percent.

Pension Systems Data

FY Ending	SERS ¹				PSERS			
	\$ State Contrib	System Return	System Return (%)	Unfunded Liability	\$ State Contrib	System Return	System Return (%)	Unfunded Liability
2005	\$148	\$3,623	14.50%	\$2,058	\$229	\$6,081	12.87%	\$10,007
2006	196	4,730	16.40	2,216	254	7,943	15.30	12,163
2007	244	5,247	17.20	914	383	12,703	22.90	9,438
2008	233	-11,061	-28.70	3,802	451	-1,783	-2.80	9,924
2009	253	3,562	9.10	5,592	361	-16,202	-26.50	15,739
2010	273	3,076	11.90	9,736	343	6,114	14.60	19,699
2011	392	480	2.70	14,663	288	9,246	20.40	26,499
2012	566	2,795	12.00	17,753	600	1,093	3.40	29,533
2013	795	3,724	13.60	17,899	856	4,126	8.00	32,599
2014	1,084	1,462	6.40	18,166	949	7,098	14.91	35,121
2015	1,360	88	0.40	19,452	1,158	1,329	3.04	37,336
2016	1,622	1,587	6.50	19,223	1,719	473	1.29	42,724
2017	1,898	4,066	15.10	19,662	2,064	4,995	10.14	44,512
2018	2,172	-1,701	-4.30	22,320	2,264	4,714	9.27	44,855
2019	2,151*	n.a.	7.25	22,720	2,488**	n.a.	7.25	44,655
2020	2,223*	n.a.	7.25	22,720	2,667**	n.a.	7.25	44,453
2021	2,264*	n.a.	7.25	18,190	2,779**	n.a.	7.25	44,586
2022	2,421*	n.a.	7.25	18,450	2,862**	n.a.	7.25	44,273

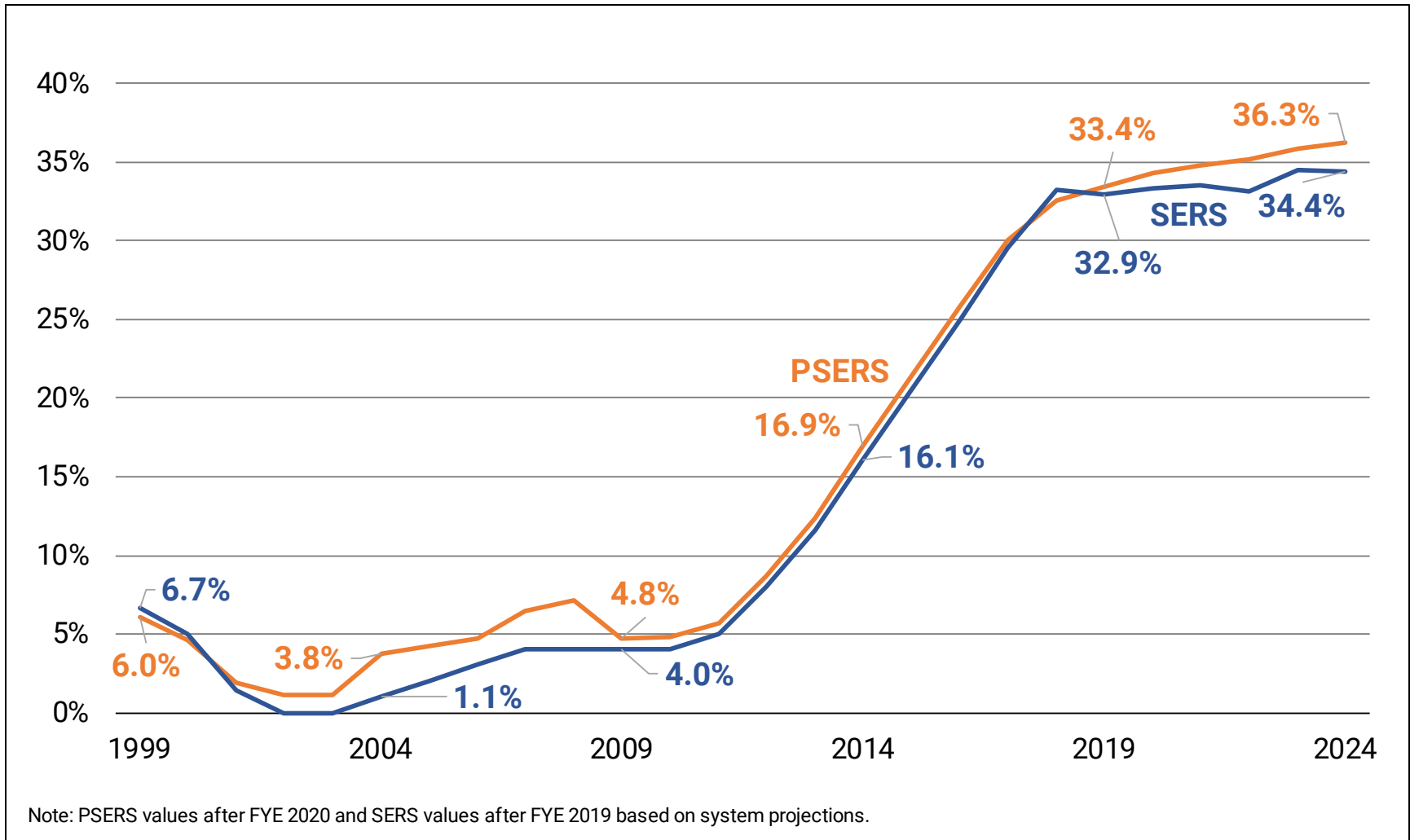
Note: Millions of dollars. Data sourced from various system releases and financial reports, unless noted otherwise.

¹SERS reported on calendar year basis unless noted otherwise. Includes all funds.

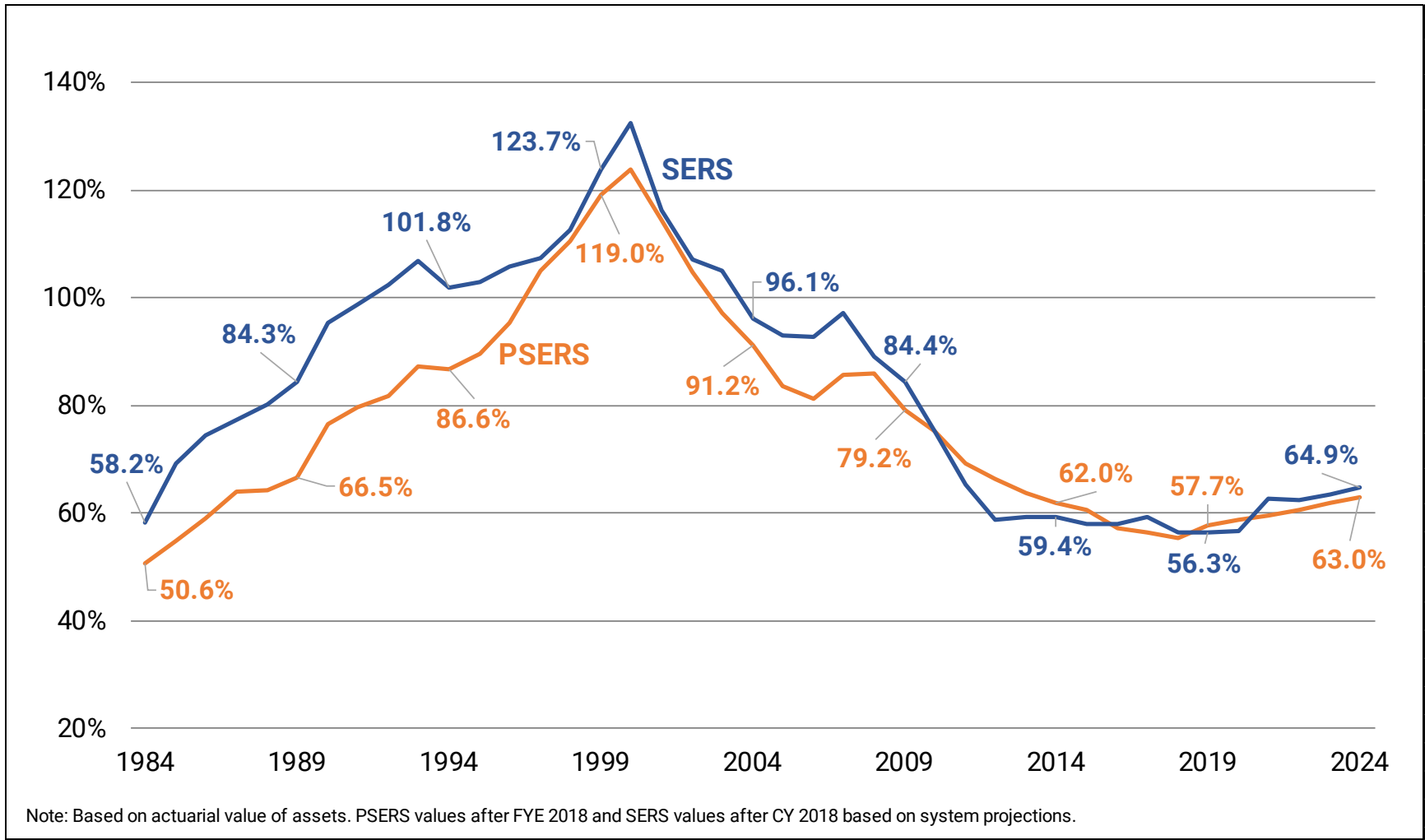
*Figures reflect projections by fiscal year (e.g., 2019 is FY 2019-20).

**IFO 2018 Five Year Economic and Budget Outlook.

Employer Contribution Rates for PSERS and SERS



Funded Ratios for PSERS and SERS



Minimum Wage Rates by State

	2019 Rank	2019	2020	2021
Washington D.C.	1	\$13.25	\$14.00	\$15.00
California ¹	2	12.00	13.00	14.00
Massachusetts	2	12.00	12.75	13.50
Washington ¹	2	12.00	13.50	13.84
Colorado	5	11.10	12.00	12.30
New York ¹	5	11.10	11.80	12.50
Arizona ¹	7	11.00	12.00	12.30
Maine ¹	7	11.00	12.00	12.30
Vermont	9	10.77	10.98	11.26
Oregon ¹	10	10.75	11.25	12.00
Rhode Island	11	10.50	10.50	10.50
Connecticut	12	10.10	10.10	10.10
Hawaii	12	10.10	10.10	10.10
Maryland ¹	12	10.10	10.10	10.10
Alaska	15	9.89	10.08	10.34
Minnesota ¹	16	9.86	10.05	10.31
Arkansas	17	9.25	10.00	11.00
Michigan	17	9.25	9.65	9.87
South Dakota	19	9.10	9.28	9.51
Nebraska	20	9.00	9.00	9.00
New Jersey ²	21	8.85	11.00	12.00
Delaware	22	8.75	9.25	9.25
West Virginia	22	8.75	8.75	8.75
Missouri ¹	24	8.60	9.45	10.30
Ohio	25	8.55	8.72	8.94
Montana	26	8.50	8.67	8.89
Florida	27	8.46	8.63	8.84
Illinois ¹	28	8.25	8.25	8.25
Nevada	28	8.25	8.41	8.63
New Mexico ¹	30	7.50	7.50	7.50
Pennsylvania	31	7.25	7.25	7.25
Other	31	7.25	7.25	7.25

¹Has one or more local areas in the state with a different minimum wage than the state minimum wage.

²New Jersey minimum wage reflects changes from newly enacted law.

Note: All inflation adjustments in this table use IHS Markit's U.S. CPI-U year-over-year growth rate to estimate inflation adjustments for future years.

Source: Economic Policy Institute.

Corporate Net Income Tax by State

State ¹	Income Tax Rate	Method	NOL Deduction Cap
Alabama	6.50%	Separate	None
Alaska	0.00 - 9.40%	Combined	None
Arizona	4.90%	Combined	None
Arkansas	1.00 - 6.50%	Separate	None
California	8.84%	Combined	None
Colorado	4.63%	Combined	None
Connecticut	8.25%	Combined	50% of taxable income on CFs
Delaware	8.70%	Separate	\$30,000 on CBs
Florida	5.50%	Separate	None
Georgia	5.50%	Separate	None
Hawaii	4.40 - 6.40%	Combined	\$100,000 on CBs
Idaho	6.925%	Combined	None
Illinois	9.50%	Combined	None
Indiana	5.75%	Multiple	None
Iowa	6.00 - 12.00%	Separate	None
Kansas	4.00 - 7.00%	Combined	None
Kentucky	5.00%	Combined	None
Louisiana	4.00 - 8.00%	Separate	72% of taxable income on CFs
Maine	3.50 - 8.93%	Combined	None
Maryland	8.25%	Separate	None
Massachusetts	8.00%	Combined	None
Michigan	6.00%	Combined	None
Minnesota	9.80%	Combined	None
Mississippi	0.00 - 5.00%	Multiple	None
Missouri	4.00%	Separate	None
Montana	6.75%	Combined	None
Nebraska	5.58 - 7.81%	Combined	None
New Hampshire	7.70%	Combined	\$10M on CFs
New Jersey	9.00%	Combined	None
New Mexico	4.80 - 5.90%	Separate	None
New York	6.50%	Combined	None
North Carolina	3.00%	Multiple	None
North Dakota	1.41 - 4.31%	Combined	None
Oklahoma	6.00%	Multiple	None
Oregon	6.60 - 7.60%	Combined	None
Pennsylvania	9.99%	Separate	40% of taxable income on CFs
Rhode Island	7.00%	Combined	None
South Carolina	5.00%	Multiple	None
Tennessee	6.50%	Multiple	None
Utah	4.95%	Combined	\$1M on CBs
Vermont	6.00 - 8.50%	Combined	None
Virginia	6.00%	Multiple	None
West Virginia	6.50%	Combined	\$300,000 on CBs

¹ Nevada, Ohio, South Dakota, Texas, Washington and Wyoming do not levy a corporate net income tax.
Source: Tax Foundation, "State Corporate Income Tax Rates and Brackets for 2018" (February 2018). National Conference of State Legislatures, "2018 State Tax Actions" (December 2018).

Performance-Based Budgeting (PBB) and Tax Credit Schedule

Performance-Based Budgets						
Year						
1	Corrections	Board of Probation and Parole	PA Commission on Crime & Delinquency	Juvenile Court Judges' Commission	Banking and Securities	General Services
2	Economic & Community Development	Human Services – Part 1	Health	Environmental Protection	PA Emergency Management Agency	State
3	PennDOT	Human Services – Part 2	State Police	Military & Veterans Affairs	State Civil Service Commission	
4	Education	Human Services – Part 3	Aging	PA Historical & Museum Commission	Agriculture	Labor and Industry
5	Drug and Alcohol Programs	Insurance	Revenue	Executive Offices	Environmental Hearing Board	Conservation and Natural Resources
Tax Credits						
Year						
1	Film Production	New Jobs	Historic Preservation Incentive			
2	Research and Development	Keystone Innovation Zones	Mobile Telecom and Broadband	Organ and Bone Marrow		
3	Neighborhood Assistance	Resource Enhancement and Protections (REAP)	Entertainment & Economic Enhancement	Video Game Production	Keystone Special Development Zones	
4	Educational Tax Credits	Coal Refuse and Reclamation	Mixed Use	Community-Based Services		
5	Resource Manufacturing	Brewers'	Computer Data Center	Manufacturing and Investment	Waterfront Development	Rural Jobs and Investment

Performance-Based Budgeting (PBB) Timeline in First Year

January 2018	PBB review schedule established by Budget Office and IFO
March to July	Conduct general research Design data template Contact other states (New Mexico, Washington, Minnesota) Provide update to PBB Board staff
Mid August	Hold first meeting with each agency Transmit data template
September to November	Conduct multiple follow-up meetings Meet with legislative staff Agencies submit templates Research benchmarks with other states Provide update to PBB Board
December	Agencies submit final templates Begin report drafts
January 2019	Provide drafts to agencies Incorporate agency edits Submit reports to Board on January 14

PBB Plan Goals for Next Round

Build on PBB foundation established in first year.

Increase emphasis on outcome-based measures for each activity.

Develop benchmark comparisons with other states.