

# U.S. Department of the Interior **Economic Contributions Report** Fiscal Year 2019





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# Definitions and Concepts

**GDP:** Gross domestic product measures the value of all final goods and services produced within an economy during a specified period.

**Input-Output Modeling:** Represents the interactions among the many sectors of the National economy, or of regional economies such as individual States.

**Value Added:** Measures the contribution of DOI's activities to the Gross Domestic Product (GDP) of a regional or the National economy. Value added is the difference between DOI's estimated total output (sales or receipts and other operating income) and the cost of any intermediate inputs (consumption of goods and services purchased from other industries or imported).

**Economic Output:** The total estimated value of production of goods and services supported by DOI's activities. Output is the sum of all intermediate sales (business to business) and final demand (sales to consumers, and exports)

**Employment:** The total number of jobs supported by DOI-managed activities.

**Activities:** As used to estimate economic contributions, "activities" means the full range of actions associated with facilitating the use of lands and waters managed by Interior. This includes actions undertaken by the Federal government as well as subsequent actions undertaken by private sector individuals and businesses.

**Inflation-Adjusted Prices:** The "nominal" or "current-dollar" price of a good reflects the cost of a good at the time it is produced. The "real" price is adjusted for inflation, to allow comparing valuations for goods produced at different dates.

**CPI-U:** The Consumer Price Index (CPI) is a measure of the average change in prices over time in a fixed market basket of goods and services. The CPI-U is the Bureau of Labor Statistics CPI for All Urban Consumers.

**Insular Areas:** Insular areas refers to the U.S territories of American Samoa, Guam, the U.S. Virgin Islands and the Commonwealth of the Northern Mariana Islands, as well as the sovereign nations of the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau. The Department of the Interior carries out the administrative responsibilities of the Secretary of the Interior in coordinating federal policy for the territories of American Samoa, Guam, the U.S. Virgin Islands and the Commonwealth of the Northern Mariana Islands. The Department of the Interior is also responsible for administering and overseeing U.S. federal assistance to the freely associated states of the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau under the Compacts of Free Association, as well as providing technical and financial assistance to all the Insular Areas. Contributions from recreation, grants and payments, and payroll to insular areas are excluded from National contributions in this report. However, because of DOI's role with respect to the Insular areas, the report provides separate estimated contributions for those areas in Table 4.

# Introduction

The U.S. Department of the Interior (the Department, DOI, or Interior) plays an integral role in conserving America's natural resources and heritage, honoring our cultures and Tribal communities, and supplying the energy to power the Nation. Interior's people, programs, and responsibilities affect Americans across all of the 50 States and Territories. The Department is the steward of 20 percent of the Nation's lands, managing national parks, national wildlife refuges, and other public lands, and assisting States, Tribes, and others in the management of natural and cultural resources.

The Department's economic contributions arise as the Department carries out its unique mission, managing Federal lands and waters, and making investments that conserve and restore natural landscapes and the cultural heritage of the Nation. Departmental management of these resources also facilitates private sector activities that result in economic contributions. For example, Interior grants access to public lands and offshore areas for conventional and renewable energy development. DOI lands and waters produced nearly one-fifth of the Nation's energy in FY 2019. These leasing activities allow the private sector to invest, creating economic output and employment. Similarly, the recreation opportunities on DOI lands and waters promote visitor spending, which contributes to local and regional economies. Water supplied by Interior's facilities for irrigation and municipal and industrial purposes supports private sector agricultural and urban activities. While challenging to evaluate in economic terms, the cutting-edge research in geology, hydrology, and biology undertaken by DOI informs resource management and private sector decision making.

In FY 2019, production and activities on DOI lands contributed approximately \$198 billion to the Nation's GDP and supported about \$336 billion in economic output and an estimated 1.9 million jobs.<sup>1</sup> This report includes key tables and summary information on the economic contributions associated with Interior's activities. A more detailed set of information, including State-level results, interactive visualization tools, and supplementary materials can be found at: <https://doi.sciencebase.gov/doidv>.



Bison and Brown-Headed Cowbirds, Grand Teton National Park, NPS

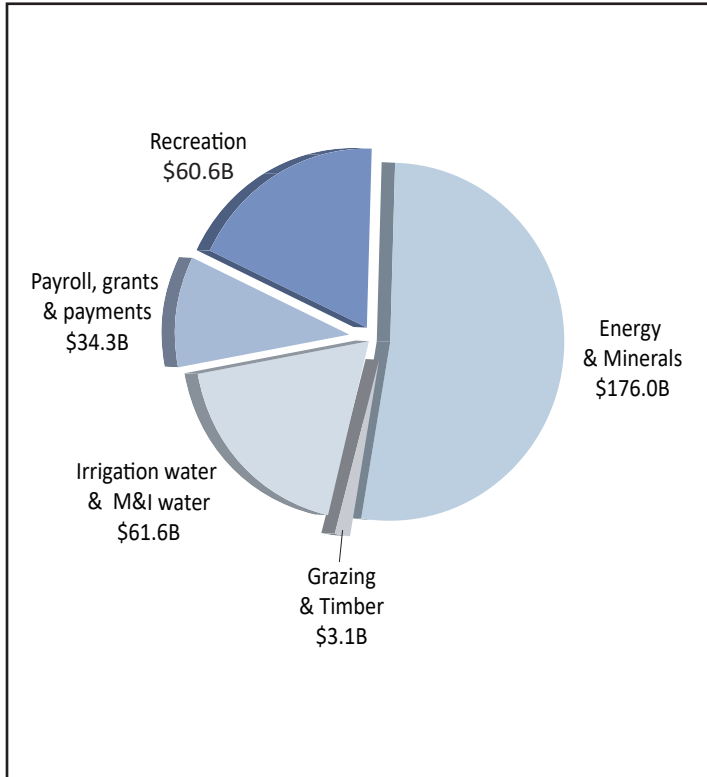
<sup>1</sup> The FY 2019 DOI contribution to the Nation's GDP was about 8% larger than the estimated FY 2018 contribution. This report represents the eleventh in a series of annual economic reports; these reports are produced by DOI to provide information to the public. National estimates represent contributions to the domestic economy; contributions from activities in the insular areas are displayed separately in Table 4.



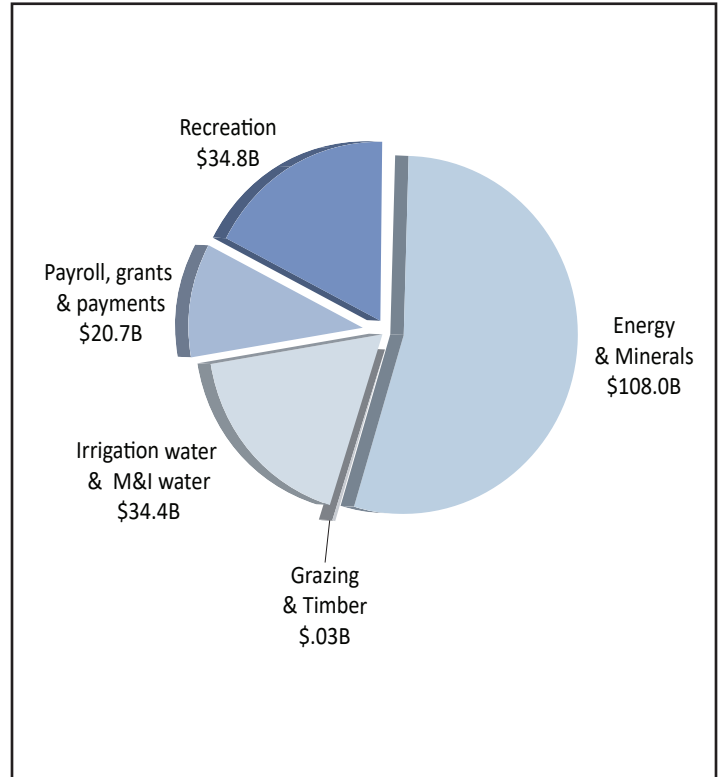
Old Faithful geyser, Yellowstone National Park, NPS

The figures below show the contributions from the various activities discussed in this report. More data, graphs, and interactive visualizations can be found at the report's accompanying data visualization site (<https://doi.sciencebase.gov/doidv>).

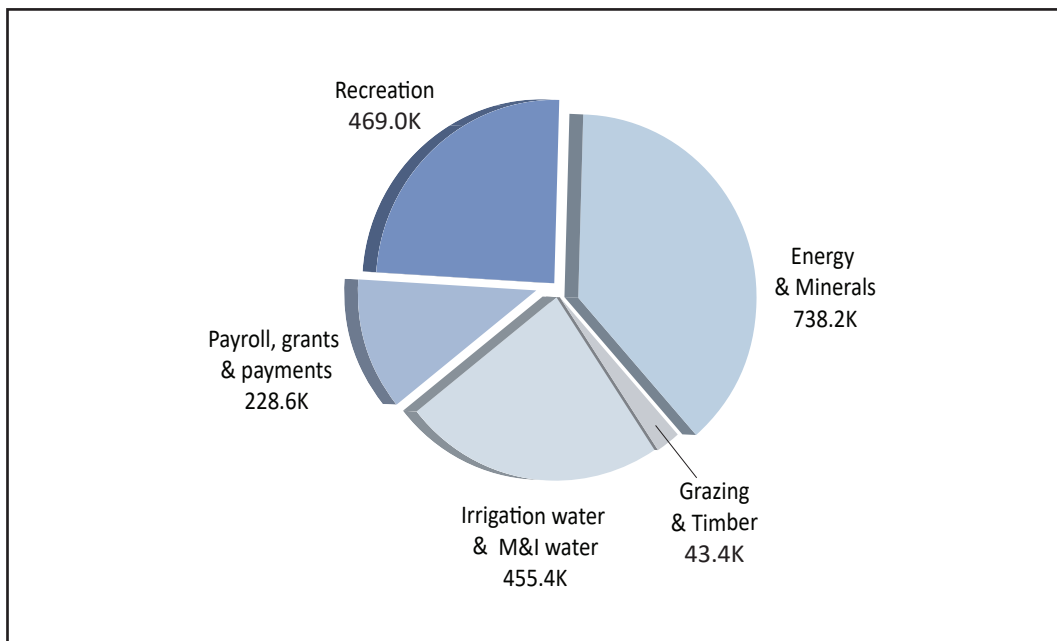
**Total output**



**Total contribution to GDP**



**Total employment**



# Outputs Produced, Economic Values and Economic Contributions

Summary information related to economic contributions, value added, employment, and other economic values associated with Interior's diverse activities is presented below, followed by tables that provide additional detail.<sup>2</sup>

- **Fossil Fuel Energy:** In FY 2019, 1,060 million barrels of crude oil, 4.8 trillion cubic feet of natural gas, and 317 million tons of coal were produced from Interior-managed lands and waters. This represents nearly a quarter of domestic oil production, approximately 12% of natural gas production, and about 43% of U.S. coal production. Average prices in FY 2019 were \$57.51/bbl for oil, \$2.92/mcf of natural gas, and \$12.27 per ton of Powder River Basin coal. Average oil prices were lower in FY 2019 than in FY 2018, and average natural gas prices were slightly lower (previously \$65.10/bbl for oil and \$2.99/mcf for natural gas, 2019-\$). Oil and gas produced from Interior lands and waters supported an estimated \$90.1 billion in value added, \$145 billion in economic output, and 630,000 jobs. Coal produced from Interior lands supported an estimated \$6.4 billion in value added, \$11.3 billion in economic output, and 35,000 jobs.
- **Renewable Energy:** In FY 2019, Interior lands and facilities produced 36.5 TWh of hydropower. Interior lands host renewable power projects for solar (3,504 MW), wind (2,593 MW), and geothermal energy (2,383 MW). Renewable energy activities supported an estimated \$7.1 billion in economic output and 27,200 jobs.<sup>3</sup>
- **Non-fuel Minerals:** In FY 2019, Interior lands produced a wide variety of minerals. For example, an estimated three million troy ounces (93,434 kg) of gold was produced from the Bureau of Land Management (BLM) lands in Nevada;<sup>4</sup> the average price of gold in 2019 was \$1,400 per troy ounce. Non-fuel mineral production supported an estimated \$7.4 billion in value added, \$12.7 billion in economic output, and about 46,000 jobs.
- **Recreation:** In FY 2019, Interior's lands hosted an estimated 501 million visits. The net economic contribution of a visit to Interior lands varies depending on the activity. For FY 2019, visitation to Interior sites supported an estimated \$34.8 billion in value added, \$60.6 billion in economic output, and about 469,000 jobs.
- **Water:** Interior stores and delivers water for irrigation, municipal and industrial (M&I) uses, and other uses. The value of water varies widely according to location, type of use, and climatic conditions. Interior's irrigation (Bureau of Reclamation (BOR) and the Bureau of Indian Affairs (BIA)) and M&I water supply activities supported an estimated \$34.4 billion in value added, \$61.6 billion in economic output, and 455,000 jobs. Interior also delivers water to support wildlife refuges and other environmental uses that are difficult to value fully and are not typically reflected in economic contribution estimates.
- **Forage and Grazing:** In FY 2019, Interior lands provided access to 10.7 million animal unit months (AUMs) of forage – 8.8 million from BLM and 1.9 million from Tribal lands. This forage access supported an estimated \$2.2 billion in economic output and about 40,000 jobs. Prices for forage vary widely, from the \$1.35 per AUM fee on BLM-managed lands to \$22.20 per AUM on State and private grazing lands.<sup>5</sup> The Federal fee is determined pursuant to the statutory requirements under the Public Rangelands Improvement Act of 1978 and not a market price. Differences between the costs of grazing private leases and the costs of grazing on public leases should also be recognized. For example, private landlords may provide additional services like fencing, water infrastructure, secure access, check-up visits, and rights to hunt, fish and harvest timber in the area.

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<sup>2</sup> Many activities on Interior lands are associated with external costs. As a general matter, market prices do not reflect many of these costs. Various

<sup>3</sup> Includes solar, geothermal, hydropower, and onshore and offshore wind.

<sup>4</sup> Data on gold production from BLM lands in Nevada is for CY 2019.

<sup>5</sup> BLM and USFS decreased the Federal grazing fee to \$1.41 in 2018 and further decreased it to \$1.35 in 2019, pursuant to the statutory requirements under the Public Rangelands Improvement Act of 1978. Source for private grazing fee (16-state average): [https://www.nass.usda.gov/Charts\\_and\\_Maps/Grazing\\_Fees/gf\\_am.php](https://www.nass.usda.gov/Charts_and_Maps/Grazing_Fees/gf_am.php)



- **Timber:** In FY 2019, about 543,400 mbf (thousand board-feet) of sawtimber was harvested on BLM and Tribal lands. Approximately 60 percent of the harvest came from lands managed by BIA, while the remaining percentage came from BLM-managed lands. This timber harvest supported about \$0.3 billion in value added, \$0.9 billion in economic output, and about 3,400 jobs. In addition to traditional sawtimber, Interior forestry lands provide various other products including biomass, fuelwood, poles, posts, and a variety of other products (e.g., seeds, Christmas trees, and mushrooms). The economic contributions supported by these products have not been explicitly analyzed.
- **Grants/Payments:** Activities related to grant and payment programs administered by Interior supported about \$15.0 billion in value added, \$24.1 billion in economic output, and about 167,800 jobs in FY 2019.<sup>6</sup> Within these totals, Indian Affairs direct payments to Tribal governments supported \$5.8 billion in value added, \$9.0 billion in economic output, and about 65,200 jobs.
- **Restoration:** Every Interior bureau engages in some form of restoration from physical structures to habitat and cultural resources. Restoration typically involves spending on construction, habitat management, etc. The employment supported by these activities can range from 12 to 30 jobs per million dollars of spending.
- **Conservation:** Conservation is a component of recreation, restoration, water management, and even some mineral development activities. The value added, economic contributions, and employment supported by DOI's conservation-related activities are above and beyond contributions associated with recreation. These are difficult to measure and are not included in this report. Many benefits of nature conservation accrue to households, communities, and economies, and are not defined with a set of consistent metrics or bought and sold in markets. This creates challenges in the valuation of these goods and services.



Jackson Lake Dam, BOR

<sup>6</sup> These represent the contributions from grants and payments to governments and other entities in US states. Grants and payments and the resulting contributions to insular areas are shown in Table 4. It is possible that grants and payments support some of the economic activity reported for other DOI activities throughout this report. We have not attempted to correct for this source of potential double-counting.

- **Scientific Information:** Interior collects a vast array of scientific information including land cover data collected by satellite, geologic data on minerals, and species counts. This information is a critical input that helps support private markets, the production processes of private entities, and many public sector decisions. Some of the benefits of this information are relatively well-quantified, but not all of Interior's major information investments are in fields with standardized methods to analyze these benefits.
  - Investments in research and development (R&D) and scientific data collection promote economic growth and innovation, ensure American competitiveness in a global marketplace, and are critical to achieving Interior's mission. Investments in Interior's R&D can improve U.S. strategic mineral supplies, understanding of ecosystem services, water use and availability, and natural hazard preparedness. Much scientific knowledge is difficult to value and monetize in markets, and hence is underprovided by the private sector. The economic values associated with the production and dissemination of scientific information are only partially incorporated in the market prices of traded goods and services.
  - The Department's scientific, technical and engineering personnel are engaged in a broad range of cooperative activities to develop and disseminate innovative technologies. Additional information on technology transfer can be found in the Department of the Interior Annual Report on Technology Transfers. The reports are available here: <https://www.doi.gov/techtransfer/annual-doi-reports-on-technology-transfer>.



USGS Hovercraft



Offshore platform, BOEM

Table 1. Interior-Managed Resources: Production Quantities and Values, FY 2012-FY 2019

Commodity <sup>a</sup>	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
<b>Recreation<sup>b</sup></b>	417	407	423	443	473	483	486	501
Visits to DOI sites (million)								
Economic value per visit (2019-\$)				\$48,916.50				
<b>Crude Oil<sup>c</sup></b>	632	672	723	796	809	871	923	1060
Production from DOI lands (millions of barrels)								
WTI - Average price per barrel (2019-\$)	\$ 106.36	\$ 104.75	\$ 107.12	\$ 60.87	\$ 43.99	\$ 51.39	\$ 65.10	\$ 57.51
<b>Natural Gas<sup>d</sup></b>	5.8	5.3	5.1	5.1	4.9	4.7	4.6	4.8
Production from DOI lands (trillions of cubic feet)								
Avg spot price per thousand cubic feet (2019-\$)	\$ 3.04	\$ 3.96	\$ 4.75	\$ 3.28	\$ 2.43	\$ 3.15	\$ 2.99	\$ 2.92
<b>Coal<sup>e</sup></b>	461	422	424	409	310	348	322	317
Production from DOI lands (millions of tons)								
Avg price per short ton subbituminous coal (2019-\$)	\$ 9.88	\$ 11.44	\$ 12.41	\$ 10.68	\$ 10.67	\$ 12.27	\$ 12.60	\$ 12.27
<b>Hardrock minerals - gold<sup>f</sup></b>	76,223	76,224	77,739	74,662	79,925	91,427	98,144	93,434
Estimated gold production from Federal lands in NV (kg)								
<b>Forage<sup>g</sup></b>	1,785	1,551	1,369	1,253	1,332	1,314	1,294	1,400
Avg gold price per ounce (CY, 2019-\$)								
BLM, AUMs permitted (millions)	9.0	8.6	8.2	8.3	8.6	8.7	8.9	8.8
Price per AUM (2019-\$)				\$1.35				
<b>Timber<sup>h</sup></b>	208,496	235,346	244,246	271,018	223,041	227,216	184,960	201,191
Commercial sawtimber harvested from BLM land (mbf)								
Harvested timber from BIA land (mbf)	333,209	336,320	261,089	344,787	445,636	384,246	388,002	342,197
Total for BLM and BIA (mbf)	541,705	571,666	505,335	615,805	668,677	611,462	572,963	543,388
<b>Electricity generation</b>								
Net generation, Twh	47.2	39.4	37.4	36.2	36.4	43.7	40.9	36.5
Hydroelectric								
Generation, Twh	-	-	-	-	-	-	-	15.9
Geothermal <sup>i</sup>								
Generation, Twh	-	-	-	-	-	-	-	3.3
Wind <sup>i</sup>								
Generation, Twh	-	-	-	-	-	-	-	5.8
Solar <sup>i</sup>								
Average electricity spot price per MWh <sup>j</sup>								
Mid-Columbia (MW) (2019-\$)	\$ 23.89	\$ 34.34	\$ 41.45	\$ 27.93	\$ 29.61	\$ 27.01	\$ 32.27	\$ 41.82
SP-15 (California) (2019-\$)	\$ 37.18	\$ 45.63	\$ 55.80	\$ 38.67	\$ 34.48	\$ 37.63	\$ 50.24	\$ 41.45
Million acre-feet <sup>k</sup>	26.7	27.3	24.4	24.9	26.2	26.1	27.3	28.0
\$ per acre-foot <sup>l</sup>								
Irrigation and M&I water (estimated deliveries)								
Ecosystem services								
Values per a-f can range from \$0 - \$4,500/a-f depending on region, end-use, and other special circumstances. The high end of the range would not typically be encountered.								
Ecosystem services are measured in many different metrics; information on annual flows of these services is not readily available. Because most ecosystem services are not bought and sold in markets, prices are not readily available.								

(Table continues)

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## Notes to Table 1

<sup>a</sup> Unit values are 2019 market values or estimated economic value, depending on the commodity. Values for prior years have been adjusted for inflation using the CPI-U. Market prices do not always fully reflect the costs and benefits associated with production from Federal lands.

<sup>b</sup> Currently available datasets do not track visitors' activities. The range of economic values per visit are the low and high average values for general recreation from the USGS Benefit Transfer Toolkit, updated to 2019-\$ using the CPI-U. See <https://my.usgs.gov/benefit-transfer/>.

<sup>c</sup> Production is based on ONRR production volumes. Includes production on Tribal land. Crude oil prices are monthly West Texas Intermediate (WTI) per-barrel spot prices from EIA.gov, averaged over the fiscal year. WTI is a benchmark price used for indexing crude oil.

<sup>d</sup> Production is based on ONRR production volumes. Includes production on Tribal land. Natural gas prices are monthly Henry Hub per-mcf spot prices from EIA.gov, averaged over the fiscal year.

<sup>e</sup> Price data are from ONRR Monthly Market Analysis reports starting in 2012; prior to 2012, coal prices were from EIA.gov.

<sup>f</sup> Gold production for 2008-2011 are estimates of private sector production from the Federal estate. Production for 2012 forward represents production from Federal estate in Nevada based on data from the State of Nevada. Prices are from the most recent USGS Mineral Commodity Summaries. 1 kg is equivalent to 32.15 troy ounces.

<sup>g</sup> The fee is the 2018 Federal grazing fee. This value is adjusted for three factors based on costs in the Western States of (1) the rental charge for pasturing cattle on private rangelands, (2) the sales price of beef cattle, and (3) the cost of livestock production. Congress also established that the annual fee adjustment could not exceed 25% of the previous year's fee. Differences between the costs of grazing private leases and the costs of grazing public leases should also be recognized. For example, private landlords may provide additional services like fencing, water infrastructure, secure access, check-up visits, and rights to hunt, fish and harvest timber in the area. For FY 2019, BIA permitted an estimated 1.9 million AUMs.

<sup>h</sup> Source: BLM Data. Data include sawtimber harvested for commercial use. Additional sawtimber is harvested from BLM managed lands under the Stewardship Program and Special Forest Products Program. These volumes represent a relatively small proportion of the volume and are not shown in this table. Other wood-based timber products not included in these volumes include biomass, posts, poles, fuelwood, and "other."

<sup>i</sup> Source: BLM data. Generation information prior to FY 2019 is not available for these resources.

<sup>j</sup> Prices are wholesale on-peak electricity prices for the indicated regions from EIA.gov, averaged over the fiscal year. Wholesale electricity prices for the Northwest and California regions are the most appropriate price series when considering the role of DOI lands in electricity generation due to the geographic location of electricity generation facilities on DOI lands and the fact that this electricity is sold on the wholesale power market.

<sup>k</sup> Some Reclamation-supplied water (not reported) provides benefits for other uses, such as supporting instream flows or National Wildlife Refuges.

<sup>l</sup> Values depend on the region, end-use, and other circumstances; the high end of the range would be relatively rare. "The Importance of Water to the U.S. Economy. Highlights Document." EPA, Office of Water, December 2012.

**Table 2. Estimated FY 2019 Economic Contributions Resulting from Interior’s Activities**

Category	Direct Economic Contribution <i>(billions, 2019-\$)</i>	Total Economic Contributions <sup>1</sup> <i>(billions, 2019-\$)</i>	Value Added <i>(billions, 2019-\$)</i>	Total Domestic Jobs Supported <i>(thousands of jobs)</i>
DOI payroll (about 61,600 FTEs in FY 2019)	6.84	10.23	5.76	60.8
Grants & payments to non-Federal entities	6.33	15.10	9.19	102.5
Support for Tribal governments <sup>2</sup>	3.79	8.98	5.78	65.2
<b><i>Public Resources as Inputs to Production</i></b>				
Recreation and tourism	29.53	60.59	34.77	469.0
<b>Energy</b>				
Oil and gas	73.74	144.88	90.13	629.8
Coal	5.29	11.32	6.41	35.3
Hydropower	1.14	2.73	1.52	10.3
Wind energy	0.82	1.58	0.89	7.6
Geothermal energy	1.19	2.05	1.25	6.9
Solar energy	0.41	0.78	0.40	2.5
Locatable minerals and hardrock leasables <sup>3</sup>	4.14	9.12	5.29	33.2
Salable and other leasable minerals	1.50	3.13	1.87	11.0
Non-fuel minerals (BIA)	0.20	0.41	0.24	1,714
<b><i>Other production</i></b>				
Irrigation water	19.06	49.91	27.93	400.9
M&I water	4.55	11.68	6.48	54.5
Grazing	0.93	2.21	n/a	40.1
Timber	0.40	0.94	0.31	3.4
<b>Total</b>	<b>159.85</b>	<b>335.63</b>	<b>198.25</b>	<b>1,934.7</b>

<sup>1</sup> Total economic contributions equals the sum of direct, indirect, and induced contributions. The direct contribution effect is the known or predicted change in the local economy that is to be studied. The indirect contribution effect is the business-to-business transactions required to satisfy the direct effect. Finally, the induced contribution is derived from local spending on goods and services by people working to satisfy the direct and indirect effects. For payroll contributions, the total effect includes only the induced effects from household spending of salaries by Interior employees. The direct effect is equal to Interior's wage bill. In an economic contribution analysis of salaries, the direct effect would not be part of the total, and this entry would be 0. This does not imply that the induced effects are zero.

<sup>2</sup> Includes mineral revenue payments to American Indian Tribes.

<sup>3</sup> Contribution estimates are based on private sector production from Federal lands in Nevada (for locatable minerals), northwest Colorado (for locatable limestone and gypsum), and Eastern States (for leasable hardrock minerals primarily in Missouri) only. In addition to Nevada and northwest Colorado, locatable mineral production from Federal lands exists in many Western States. With the exception of Nevada and northwest Colorado, information on production by ownership (private, State, or Federal) was not available.

Note: Totals may not add due to rounding. The value added and economic contribution estimates do not capture output or employment effects beyond payroll spending and natural resource production. Bureaus are engaged in various other activities funded by appropriations, e.g., construction, road building, education, etc.

**Table 3. Summary of FY 2019 Economic Contributions by Bureau**

<b>Production Inputs (DOI Activity)</b>				
<b>Bureau</b>	<b>Direct Economic Contribution</b> <i>(billions, 2019-\$)</i>	<b>Total Economic Contribution</b> <i>(billions, 2019-\$)</i>	<b>Total Value Added</b> <i>(billions, 2019-\$)</i>	<b>Total Domestic Jobs Supported</b> <i>(thousands of jobs)</i>
<b>National Park Service</b>				
Recreation and tourism	20.85	41.48	24.19	338.6
<b>Fish and Wildlife Service</b>				
Recreation and tourism	2.67	6.16	3.41	41.3
<b>Bureau of Indian Affairs<sup>1</sup></b>				
Oil and gas	5.85	10.89	6.85	41.2
Coal	0.75	1.60	0.90	5.0
Irrigation water	1.07	2.86	1.57	28.3
Grazing	0.03	0.07	n/a	0.9
Timber	0.05	0.13	0.03	0.5
Non-fuel minerals	0.20	0.41	0.24	1.7
Hydropower	0.01	0.06	0.03	0.4
Wind energy	0.001	0.002	0.002	0.022
Solar energy	0.02	0.04	0.04	0.4
<b>BIA Subtotal</b>	<b>7.98</b>	<b>16.08</b>	<b>9.66</b>	<b>78.3</b>
<b>Bureau of Land Management</b>				
Oil and gas	38.75	75.85	51.50	318.0
Coal	4.54	9.72	5.51	30.3
Geothermal energy	1.19	2.05	1.25	6.9
Locatable minerals and hardrock leasable minerals	4.14	9.12	5.29	33.2
Salable and other leasable minerals	1.50	3.13	1.87	11.0
Grazing	0.90	2.14	n/a	39.2
Timber	0.35	0.81	0.27	2.9
Recreation and tourism	3.75	7.72	4.29	54.1
Wind energy	0.10	0.14	0.05	0.3
Solar energy	0.40	0.73	0.36	2.2
<b>BLM Subtotal</b>	<b>55.61</b>	<b>111.40</b>	<b>70.41</b>	<b>497.9</b>
<b>Bureau of Reclamation</b>				
Hydropower	1.13	2.67	1.49	9.9
Irrigation water	17.99	47.05	26.36	372.6
M&I water	4.55	11.68	6.48	54.5
Recreation and tourism	2.26	5.22	2.89	35.0
<b>BOR Subtotal</b>	<b>25.93</b>	<b>66.63</b>	<b>37.22</b>	<b>472.0</b>

(Table continues)

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Bureau	Direct Economic Contribution (billions, 2019-\$)	Total Economic Contribution (billions, 2019-\$)	Total Value Added (billions, 2019-\$)	Total Domestic Jobs Supported (thousands of jobs)
<b>Bureau of Ocean Energy Management/Bureau of Safety and Environmental Enforcement</b>				
Oil and gas	29.14	58.14	31.78	270.6
Wind energy	0.72	1.43	0.84	7.3
<i>BOEM Subtotal</i>	<i>29.86</i>	<i>59.57</i>	<i>32.62</i>	<i>277.9</i>
<b>Subtotal: All bureau production contributions</b>	<b>142.89</b>	<b>301.32</b>	<b>177.52</b>	<b>1,706.1</b>
<b>DOI Budgetary Items</b>				
	Amount (billions, 2019-\$)	Total Economic Contribution (billions, 2019-\$)	Total Value Added (billions, 2019-\$)	Total Domestic Jobs Supported (thousands of jobs)
<b>DOI payroll (61,600 FTEs in FY 2019)</b>				
National Park Service	1.79	2.67	1.51	15.9
Fish and Wildlife Service	0.95	1.42	0.80	8.4
Bureau of Land Management	1.03	1.54	0.87	9.2
Bureau of Reclamation	0.66	0.98	0.55	5.8
Bureau of Safety and Environmental Enforcement	0.11	0.17	0.09	1.0
Bureau of Ocean Energy Management	0.08	0.13	0.07	0.8
Bureau of Indian Affairs	0.65	0.98	0.55	5.8
US Geological Survey	0.90	1.34	0.76	8.0
Office of Surface Mining Reclamation and Enforcement	0.05	0.08	0.04	0.5
Office of Insular Affairs	0.003	0.005	0.003	0.028
Other Interior Offices	0.61	0.92	0.52	5.5
<i>Subtotal: DOI Payroll</i>	<i>6.84</i>	<i>10.23</i>	<i>5.76</i>	<i>60.8</i>
<b>Grants, payments, and Tribal support</b>				
Grants and payments to non-Federal entities	6.33	15.10	9.19	102.5
Support for Tribal governments <sup>2</sup>	3.79	8.98	5.78	65.2
<i>Subtotal: Grants, payments and tribal support</i>	<i>10.12</i>	<i>24.09</i>	<i>14.96</i>	<i>167.8</i>
<b>Total (DOI Production and Budget)</b>	<b>159.85</b>	<b>335.63</b>	<b>198.25</b>	<b>1,934.7</b>

<sup>1</sup> Source: BIA and ONRR data. Due to data limitations, values may not match those reported by ONRR.

<sup>2</sup> Includes mineral revenue payments to American Indian Tribes.



## Contributions to Insular Areas

The contributions from these grants and payments, payroll, and recreation are not included in the US National totals because the insular areas are not part of the US GDP.<sup>7</sup> These activities contribute to the economies of the area they occur in but are summarized in total in Table 4.

The Office of Insular Affairs administers grant and payment programs to the insular areas, including compact payments. To a lesser extent, other DOI bureaus also administer grant programs in the insular areas. In addition, insular affairs and other DOI bureaus have employees stationed in the insular areas and NPS manages recreation sites in American Samoa, Guam, Puerto Rico, and the US Virgin Islands. The economic contributions associated with the payroll for these employees are in addition to the DOI payroll totals identified in Table 3.

**Table 4. Estimated Contributions to Insular Areas (FY 2019, \$ millions)**

	Amount <i>(millions, 2019-\$)</i>	Total Economic Contribution <i>(millions, 2019-\$)</i>	Total Value Added <i>(millions, 2019-\$)</i>	Total Jobs Supported
<b>Office of Insular Affairs</b>				
Grants and payments to non-Federal entities	327.6	426.9	381.7	12,687
Fiscal payments (tax revenues from US Treasury to insular areas)	330.5	332.2	332.2	8,978
DOI Payroll	0.9	1.4	1.0	38
<i>OIA Subtotal</i>	<i>659.0</i>	<i>760.5</i>	<i>714.9</i>	<i>21,703</i>
<b>Other DOI Bureaus</b>				
Grants and payments to non-Federal entities	55.9	72.8	66.0	2,100
DOI Payroll	24.5	0.1	0.1	83
Recreation	128.8	167.6	108.6	1,447
<b>Total contribution to insular areas</b>	<b>868.3</b>	<b>1000.9</b>	<b>889.7</b>	<b>25,334</b>

<sup>7</sup> GDP is equivalent to total final demand in the U.S. domestic economy. BEA defines the U.S. economy to cover the 50 states, the District of Columbia, and US military installations, embassies, and consulates abroad. The definition does not include U.S. territories, Puerto Rico, and the Northern Mariana Islands, which are classified as part of the "rest-of-the-world." This geographic treatment aligns GDP with other U.S. statistics, such as population and employment. In addition, data for the commonwealths and territories are generally not included in the Census Bureau surveys that serve as the primary source data for the GDP estimates. Therefore, none of the insular areas are included in the U.S. contributions identified in the DOI Economic Report. See Bureau of Economic Analysis "Concepts and Methods of the U.S. National Income and Product Accounts (Chapters 1–13)," November 2019.

**Table 5. Estimated Value Added Supported by Activities on Interior Lands or Financial Assistance, by Sector and State<sup>1</sup> (FY 2019, \$ billions)**

State	Recreation <sup>2,3</sup>	Energy & Minerals <sup>2,5</sup>	Grazing & Timber <sup>4</sup>	Major Grants & Payments <sup>6</sup>	DOI Payroll <sup>7</sup>	All Sectors <sup>8</sup>
Alabama	0.06	0.72	0.00	0.07	0.01	0.86
Alaska	1.55	0.72	0.00	0.32	0.11	2.69
Arizona	1.77	0.17	0.00	0.69	0.21	2.85
Arkansas	0.14	0.18	0.00	0.02	0.01	0.35
California	3.76	3.64	0.00	0.65	0.38	8.43
Colorado	1.19	5.48	0.01	0.28	0.42	7.38
Connecticut	0.00	0.19	0.00	0.02	0.00	0.21
Delaware	0.00	0.03	0.00	0.01	0.00	0.04
District of Columbia	0.58	0.31	0.00	0.01	0.07	0.97
Florida	0.87	1.13	0.00	0.10	0.07	2.18
Georgia	0.39	0.36	0.00	0.05	0.05	0.85
Hawaii	0.56	0.09	0.00	0.02	0.03	0.70
Idaho	0.27	0.04	0.01	0.12	0.09	0.54
Illinois	0.04	0.50	0.00	0.06	0.01	0.61
Indiana	0.08	0.37	0.00	0.03	0.01	0.49
Iowa	0.04	0.10	0.00	0.02	0.00	0.17
Kansas	0.04	0.26	0.00	0.03	0.01	0.34
Kentucky	0.09	0.18	0.00	0.06	0.01	0.33
Louisiana	0.08	4.84	0.00	0.14	0.06	5.12
Maine	0.35	0.03	0.00	0.05	0.01	0.44
Maryland	0.21	0.58	0.00	0.02	0.03	0.85
Massachusetts	0.85	0.38	0.00	0.04	0.06	1.33
Michigan	0.22	0.29	0.00	0.11	0.02	0.65
Minnesota	0.10	0.14	0.00	0.16	0.04	0.45
Mississippi	0.14	0.56	0.00	0.11	0.01	0.82
Missouri	0.24	0.20	0.00	0.04	0.03	0.51
Montana	0.78	0.57	0.02	0.30	0.08	1.75
Nebraska	0.04	0.07	0.00	0.04	0.02	0.17
Nevada	0.83	3.98	0.00	0.11	0.09	5.01
New Hampshire	0.01	0.04	0.00	0.01	0.00	0.06
New Jersey	0.16	0.26	0.00	0.03	0.02	0.46
New Mexico	0.28	16.43	0.00	1.32	0.14	18.18
New York	0.73	0.55	0.00	0.08	0.05	1.40
North Carolina	1.25	0.39	0.00	0.08	0.03	1.75

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State	Recreation <sup>2,3</sup>	Energy & Minerals <sup>2,5</sup>	Grazing & Timber <sup>4</sup>	Major Grants & Payments <sup>6</sup>	DOI Payroll <sup>7</sup>	All Sectors <sup>8</sup>
North Dakota	0.06	6.19	0.00	0.26	0.03	6.54
Ohio	0.06	0.68	0.00	0.05	0.02	0.81
Oklahoma	0.10	1.87	0.00	0.23	0.04	2.24
Oregon	1.04	0.08	0.23	0.17	0.13	1.64
Pennsylvania	0.42	0.82	0.00	0.13	0.05	1.43
Rhode Island	0.02	0.05	0.00	0.02	0.00	0.09
South Carolina	0.10	0.16	0.00	0.02	0.01	0.30
South Dakota	0.22	0.03	0.00	0.27	0.05	0.56
Tennessee	0.62	0.20	0.00	0.04	0.03	0.90
Texas	0.34	13.10	0.00	0.27	0.07	13.78
Utah	1.51	2.08	0.00	0.21	0.10	3.89
Vermont	0.00	0.02	0.00	0.01	0.00	0.03
Virginia	1.03	0.58	0.00	0.06	0.21	1.89
Washington	0.61	0.22	0.02	0.42	0.12	1.38
West Virginia	0.05	0.13	0.00	0.06	0.02	0.26
Wisconsin	0.07	0.14	0.00	0.13	0.03	0.38
Wyoming	0.82	11.84	0.00	0.71	0.05	13.42

<sup>1</sup> Data is not available to show economic contributions associated with hydropower, irrigation and M&I water by state.

<sup>2</sup> Contributions from activities on BIA land are not included due to lack of state-specific information.

<sup>3</sup> Recreation contributions are based on visitor spending at units managed by BLM, BOR, FWS and NPS.

<sup>4</sup> Timber contributions are based on private sector harvests on BLM and tribal lands. BIA timber contributions are estimated using methods based on BLM's FY 2019 contributions for each state. Grazing value added is not available.

<sup>5</sup> Energy & Minerals contributions are based on private sector activities related to onshore and offshore oil and gas, coal, non-metallic minerals, and geothermal, wind, and solar electricity generation.

<sup>6</sup> Grants and Payments include PILT, mineral revenue payments, refuge revenue sharing, and all FY 2019 grants and cooperative agreement obligations from the DOI Financial and Business Management System (FBMS). Mineral revenue payments to American Indian Tribes are included in Support for Tribal Governments in Tables 2 and 3; data on these payments at a State- or Tribal-level is not available.

<sup>7</sup> DOI payroll contributions are the economic contribution of DOI employees spending their pay.

<sup>8</sup> These totals represent contributions supported by energy, minerals, grazing, timber, salaries and grants and payments in each of the 50 States and the District of Columbia. The economic contributions reported in Table 4 were estimated using a national-level model that includes interstate "leakages" not captured in state-level models. Therefore, a sum of state totals would not equal the national total.

**Table 6. Estimated Total Output Supported by Activities on Interior Lands or Financial Assistance, by Sector and State<sup>1</sup> (FY 2019, \$ billions)**

State	Recreation <sup>2,3</sup>	Energy & Minerals <sup>2,5</sup>	Grazing & Timber <sup>4</sup>	Major Grants & Payments <sup>6</sup>	DOI Payroll <sup>7</sup>	All Sectors <sup>8</sup>
Alabama	0.12	1.51	0.00	0.12	0.01	1.76
Alaska	2.60	0.96	0.00	0.47	0.18	4.21
Arizona	2.97	0.31	0.10	1.01	0.37	4.76
Arkansas	0.26	0.39	0.00	0.04	0.02	0.71
California	6.07	6.02	0.08	0.99	0.62	13.78
Colorado	2.00	8.00	0.13	0.42	0.73	11.27
Connecticut	0.00	0.32	0.00	0.03	0.00	0.36
Delaware	0.01	0.06	0.00	0.01	0.00	0.07
District of Columbia	0.83	0.56	0.00	0.01	0.10	1.51
Florida	1.48	2.16	0.00	0.17	0.13	3.94
Georgia	0.66	0.67	0.00	0.09	0.09	1.51
Hawaii	0.87	0.17	0.00	0.03	0.05	1.12
Idaho	0.49	0.07	0.45	0.19	0.17	1.38
Illinois	0.07	0.93	0.00	0.10	0.02	1.13
Indiana	0.14	0.82	0.00	0.05	0.02	1.03
Iowa	0.06	0.19	0.00	0.04	0.01	0.30
Kansas	0.07	0.50	0.00	0.05	0.03	0.65
Kentucky	0.15	0.36	0.00	0.09	0.02	0.62
Louisiana	0.14	9.57	0.00	0.21	0.10	10.02
Maine	0.59	0.05	0.00	0.09	0.02	0.75
Maryland	0.33	1.00	0.00	0.04	0.05	1.43
Massachusetts	1.32	0.65	0.00	0.07	0.09	2.13
Michigan	0.38	0.55	0.00	0.17	0.04	1.14
Minnesota	0.18	0.24	0.00	0.25	0.07	0.75
Mississippi	0.26	1.25	0.00	0.15	0.03	1.69
Missouri	0.43	0.38	0.00	0.07	0.06	0.93
Montana	1.46	1.01	0.35	0.51	0.15	3.47
Nebraska	0.07	0.12	0.00	0.08	0.03	0.30
Nevada	1.32	6.40	0.24	0.17	0.16	8.29
New Hampshire	0.01	0.08	0.00	0.02	0.01	0.11
New Jersey	0.26	0.44	0.00	0.04	0.03	0.77
New Mexico	0.52	20.73	0.33	1.83	0.25	23.67
New York	1.09	0.94	0.00	0.12	0.07	2.22
North Carolina	2.19	0.73	0.00	0.13	0.05	3.10

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State	Recreation <sup>2,3</sup>	Energy & Minerals <sup>2,5</sup>	Grazing & Timber <sup>4</sup>	Major Grants & Payments <sup>6</sup>	DOI Payroll <sup>7</sup>	All Sectors <sup>8</sup>
North Dakota	0.11	7.74	0.00	0.38	0.05	8.29
Ohio	0.11	1.33	0.00	0.09	0.03	1.56
Oklahoma	0.18	3.17	0.00	0.36	0.07	3.78
Oregon	1.74	0.14	0.85	0.25	0.22	3.20
Pennsylvania	0.72	1.53	0.00	0.21	0.09	2.56
Rhode Island	0.03	0.09	0.00	0.03	0.00	0.15
South Carolina	0.18	0.33	0.00	0.04	0.02	0.57
South Dakota	0.39	0.06	0.02	0.38	0.09	0.94
Tennessee	1.04	0.41	0.00	0.08	0.05	1.57
Texas	0.58	22.30	0.00	0.43	0.12	23.43
Utah	2.72	3.25	0.17	0.32	0.17	6.63
Vermont	0.01	0.03	0.00	0.02	0.01	0.06
Virginia	1.75	1.04	0.00	0.09	0.35	3.24
Washington	0.96	0.39	0.08	0.61	0.20	2.23
West Virginia	0.09	0.26	0.00	0.10	0.04	0.48
Wisconsin	0.13	0.25	0.02	0.21	0.06	0.66
Wyoming	1.45	16.49	0.26	0.97	0.09	19.26

<sup>1</sup> Data is not available to show economic contributions associated with hydropower, irrigation and M&I water by state.

<sup>2</sup> Contributions from activities on BIA land are not included due to lack of state-specific information.

<sup>3</sup> Recreation contributions are based on visitor spending at units managed by BLM, BOR, FWS and NPS.

<sup>4</sup> Timber contributions are based on private sector harvests on BLM and tribal lands. BIA timber contributions are estimated using methods based on BLM's FY 2019 per-ccf contributions for each state. BIA grazing contributions are not available due to lack of state-specific data.

<sup>5</sup> Energy & Minerals contributions are based on private sector activities related to onshore and offshore oil and gas, coal, non-metallic minerals, and geothermal, wind, and solar electricity generation.

<sup>6</sup> Grants and Payments include PILT, mineral revenue payments, refuge revenue sharing, and all FY 2019 grants and cooperative agreement obligations from the DOI Financial and Business Management System (FBMS). Mineral revenue payments to American Indian Tribes are included in Support for Tribal Governments in Tables 2 and 3; data on these payments at a State- or Tribal-level is not available.

<sup>7</sup> DOI payroll contributions are the economic contribution of DOI employees spending their pay.

<sup>8</sup> These totals represent contributions supported by energy, minerals, grazing, timber, salaries and grants and payments in each of the 50 States and the District of Columbia. The economic contributions reported in Table 5 were estimated using a national-level model that includes interstate "leakages" not captured in state-level models. Therefore, a sum of state totals would not equal the national total.

**Table 7. Estimated Total Jobs Supported by Activities on Interior Lands or Financial Assistance, by Sector and State<sup>1</sup> (FY 2019, jobs)**

State	Recreation <sup>2,3</sup>	Energy & Minerals <sup>2,5</sup>	Grazing & Timber <sup>4</sup>	Major Grants & Payments <sup>6</sup>	DOI Payroll <sup>7</sup>	All Sectors <sup>8</sup>
Alabama	1,317	8,535	0	1,049	84	10,985
Alaska	22,603	2,785	16	3,735	1,175	30,314
Arizona	27,816	1,468	2,760	9,411	2,492	43,947
Arkansas	3,022	1,442	0	356	152	4,972
California	48,658	23,694	806	6,794	3,606	83,558
Colorado	17,408	34,775	1,537	3,502	4,791	62,012
Connecticut	34	1,243	0	225	30	1,533
Delaware	47	273	0	85	17	422
District of Columbia	6,712	1,838	0	83	615	9,249
Florida	13,924	10,010	0	1,454	893	26,281
Georgia	6,937	3,046	0	671	634	11,288
Hawaii	6,752	758	0	254	288	8,052
Idaho	5,284	376	6,080	1,892	1,322	14,953
Illinois	529	3,801	0	686	152	5,168
Indiana	1,617	2,558	0	356	135	4,667
Iowa	703	732	0	343	64	1,842
Kansas	600	2,633	0	420	181	3,834
Kentucky	1,622	1,532	0	843	152	4,149
Louisiana	1,242	45,671	0	1,934	763	49,609
Maine	5,989	258	6	849	150	7,252
Maryland	3,118	3,907	0	286	353	7,663
Massachusetts	11,295	2,368	0	499	565	14,727
Michigan	3,718	2,188	0	1,385	295	7,587
Minnesota	1,602	1,081	9	2,016	498	5,205
Mississippi	3,272	12,430	4	1,791	197	17,694
Missouri	4,764	1,740	0	571	409	7,484
Montana	14,957	4,382	3,453	4,700	1,191	28,683
Nebraska	738	574	2	663	222	2,199
Nevada	11,508	22,453	2,984	1,481	1,081	39,508
New Hampshire	89	270	0	128	56	543
New Jersey	2,454	1,998	0	308	167	4,927
New Mexico	5,370	61,884	9,090	18,406	1,929	96,678
New York	9,275	4,185	0	790	435	14,685
North Carolina	22,840	3,391	0	1,114	331	27,675
North Dakota	1,088	21,738	18	3,433	373	26,650

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State	Recreation <sup>2,3</sup>	Energy & Minerals <sup>2,5</sup>	Grazing & Timber <sup>4</sup>	Major Grants & Payments <sup>6</sup>	DOI Payroll <sup>7</sup>	All Sectors <sup>8</sup>
Ohio	1,144	5,298	0	673	198	7,313
Oklahoma	1,504	15,583	1	3,307	514	20,908
Oregon	16,621	661	6,996	2,123	1,586	27,986
Pennsylvania	7,643	6,804	0	1,635	627	16,709
Rhode Island	319	442	0	194	22	977
South Carolina	1,896	1,381	0	341	125	3,743
South Dakota	4,215	347	178	4,158	667	9,566
Tennessee	10,094	1,631	0	606	327	12,657
Texas	5,280	101,868	0	3,243	779	111,170
Utah	26,675	14,137	4,444	2,909	1,208	49,373
Vermont	60	146	0	188	48	442
Virginia	18,056	4,841	0	759	2,396	26,053
Washington	7,906	1,789	548	4,687	1,174	16,104
West Virginia	1,106	1,296	0	947	295	3,644
Wisconsin	1,386	1,041	57	1,757	409	4,651
Wyoming	15,218	55,559	3,598	9,250	661	84,286

<sup>1</sup> Data is not available to show economic contributions associated with hydropower, irrigation and M&I water by state.

<sup>2</sup> Contributions from activities on BIA land are not included due to lack of state-specific information.

<sup>3</sup> Recreation contributions are based on visitor spending at units managed by BLM, BOR, FWS and NPS.

<sup>4</sup> Timber contributions are based on private sector harvests on BLM and tribal lands. BIA timber contributions are estimated using methods based on BLM's FY 2019 per-ccf contributions for each state. BIA grazing contributions are not available due to lack of state-specific data.

<sup>5</sup> Energy & Minerals contributions are based on private sector activities related to onshore and offshore oil and gas, coal, non-metallic minerals, and geothermal, wind, and solar electricity generation.

<sup>6</sup> Grants and Payments include PILT, mineral revenue payments, refuge revenue sharing, and all FY 2019 grants and cooperative agreement obligations from the DOI Financial and Business Management System (FBMS). Mineral revenue payments to American Indian Tribes are included in Support for Tribal Governments in Tables 2 and 3; data on these payments at a State- or Tribal-level is not available.

<sup>7</sup> DOI payroll contributions are the economic contribution of DOI employees spending their pay.

<sup>8</sup> These totals represent contributions supported by energy, minerals, grazing, timber, salaries and grants and payments in each of the 50 States and the District of Columbia. The economic contributions reported in Table 6 were estimated using a national-level model that includes interstate "leakages" not captured in state-level models. Therefore, a sum of state totals would not equal the national total.

## Supplementary Information

This is the eleventh Economic Contribution report produced by DOI. While all of the reports relied on the best available data and sound methods, there are changes across years as improved data, methods, and models are identified or become available. In most cases, DOI's economic contribution actually is the result of private sector activity that is made possible by the laws passed by Congress and subsequent administrative policy decisions with respect to the resources on the lands and water that Interior manages. When making comparisons of DOI's economic contribution estimates across years, it is important to identify all of the factors that might contribute to estimates changing from one year to the next. These factors can include:

- Changes in land use. These might be due to changes in resource demand or management decisions, or reflect a natural progression in a project's life cycle, such as a shift from construction to operational status.
- Changes in the data describing a resource's annual economic output. These might be due to actual changes in the quantity or price of a good produced, or changes in data sources, collection and assumptions.
- Changes in the economic models that describe the underlying structure of local economies. For most sectors, these models are developed independent of this report. In some cases, new models that better describe individual sectors have replaced models used in prior reports. In other cases, the assumptions and data within the models have changed significantly from year to year.



Grand Canyon National Park, NPS



# IMPLAN

This analysis primarily employs the widely used IMPLAN, an input-output software and data system, for estimating the economic *contribution* of Interior activities in terms of output (sales), value added, and employment (jobs). In particular, this analysis uses 2017 IMPLAN State and National-level data. The underlying data drawn upon by the IMPLAN software is collected by IMPLAN from multiple Federal and State sources including the Bureau of Economic Analysis (BEA), Bureau of Labor Statistics (BLS), and the U.S. Census Bureau. Additional information about the IMPLAN modeling software can be found at: <http://www.implan.com>.

## General

- The benefits of nature provided by Interior-managed lands are typically provided free of charge, and people who benefit from these services may not be directly involved in determining the supply of services. Numerous empirical studies have assessed the value of outdoor recreation, and numerous applications of economic analysis are being used to assess the value of various environmental amenities, such as access to open space, access to water resources, and air quality. In general, the analytic approaches used in these studies are either a revealed- or stated-preference approach (or a combination of both).
- Economic welfare costs also are not fully measured by changes in GDP. GDP fails to capture nonmarket values, such as environmental improvement or environmental damages. These can be important components of total economic welfare. GDP also can sometimes be misleading: for example, cleanup costs from an oil spill would increase GDP, however, this provides little information about the total economic costs incurred by individuals and society overall from that oil spill.
- Economic *contributions* do not account for any activity that might occur even without the event or policy. Economic *impacts* are more narrowly defined as changes in economic activity that would not be seen without the event or policy. Economic *benefits* typically refer to net economic values, which include both market and nonmarket values.
- For additional information on economic contribution and economic impact analysis, see: Watson, P., J. Wilson, D. Thilmany, and S. Winter. 2007. Determining Economic Contributions and Impacts: What is the difference and why do we care? *The Journal of Regional Analysis and Policy*, 37(2): 140-146.
- In many cases, direct output is similar in magnitude to total expenditures, or the value of production. Differences can be attributed to how expenditures (or value of production) are dealt with in IMPLAN, to account for considerations like intra-industry sales by oil and gas companies, local vs non-local visitor spending, and retail margins.
- The components of value added consist of compensation of employees, taxes on production and imports less subsidies, and gross operating surplus. GDP measures the value of the goods and services produced by the U.S. economy in a given time period. The output approach to economic contributions totals up the sale prices at every step of the production chain, in effect double-counting the contributions of intermediate goods. The value added approach focuses on the change in sale price at each step, avoiding this double-counting. The measure of output does not account for external costs and benefits not reflected in market prices. The implication of not

including these costs is that statistics on gross sales or output may over- or understate the actual contribution a given activity or sector makes to the economy. Value added is a more appropriate concept when considering Interior's contributions to the Nation's GDP, though GDP does not fully capture changes in economic welfare. Where possible, this report addresses the economic value of Interior's resources and programs, but the focus of the report remains the economic impacts or contributions of the Department of the Interior.

- While IMPLAN's calculation of value added (contributions to GDP) is based on BEA data, certain components of BEA data, such as industry-level data, are lagged in their publication. For example, for IMPLAN's 2017 data model, only 2016 GDP by Industry data was available from BEA. To estimate the contribution to GDP for each sector for 2017, IMPLAN used sector-specific employment and employee compensation growth rates calculated from BLS data to project the 2016 BEA data forward to 2017. For that reason, it is not appropriate to compare estimates of value added in this report to BEA's published estimates of value added for a particular industry.
- One of the important limitations of this report is that contribution analysis is a static approach and does not incorporate potential price changes over time, or other shifts in labor or capital resources as a result of changes in the scale or scope of economic activities. A different type of modeling approach (computable general equilibrium models) would be necessary to incorporate price changes and other economy-wide resource shifts. More detailed treatments of some of the topics addressed in this report are available in the FY 2012 Economic Report: <https://www.doi.gov/sites/doi.gov/files/uploads/FY2012%20DOI%20Econ%20Report%20%28Final%29%202013-09-25.pdf>



Offshore platforms, BOEM

## OSMRE

- The majority of the Office of Surface Mining Reclamation and Enforcement's activities related to reclamation of abandoned mine are accomplished by funding under the Abandoned Mine Lands (AML) program. Pursuant to the Consolidated Appropriations Act, 2019 (Public Law 116-6), OSMRE has made funding available for projects in the Abandoned Mine Land Reclamation Economic Development Pilot Program (AML Pilot) for fiscal year 2019. The impact of both of these sources of these funds are captured in the entry for Grants and Programs reported earlier in the report.
- OSMRE also provides matching grants to States for regulatory programs for active coal mining. Grants are provided to 24 States which have approved regulatory programs for the implementation of Title V of the Surface Mining Control and Reclamation Act. Some components of a State regulatory program include permitting, inspection of coal mine sites, enforcement of mining laws and regulations, and bond release after mining and reclamation is completed.

## Indian Affairs

- Sales volumes and values for BIA's oil, gas, coal and non-fuel mineral activities are based on data from ONRR, BIA, and the Division of Energy and Mineral Development (DEMD) within the Office of Indian Energy and Economic Development. Non-fuel minerals include: sand and gravel, copper, helium, gold, gilsonite, and crushed stone.
- Economic contributions associated with Tribal renewable energy projects were derived by DEMD using the Jobs and Development Economic Impact (JEDI) models produced by the National Renewable Energy Laboratory (NREL) as well as project-specific information.
- Prior to FY 2017, drilling costs for oil, gas, and dry wells were calculated for each State where Indian wells were completed in a given fiscal year and were included in the estimation of BIA's economic contributions associated with oil and gas production. Beginning in FY 2017, these costs are included in BLM's economic contributions associated with oil and gas production. The rationale for this is that BLM is responsible for approving APDs on tribal land; BLM has been including this information in their economic contribution analysis.
- Economic contributions associated with contractual support provided to Tribal governments were evaluated by applying State and local government multipliers. The Department of the Interior's Bureau of Indian Affairs (BIA) manages 17 irrigation projects on Indian reservations in the Western United States. The overall approach for estimating economic contributions and employment estimates is similar to that used for Reclamation's irrigation activities. Data was provided by BIA. For additional details how the methods used see Reclamation's report "Estimated Economic Impact of Crops Produced on Bureau of Indian Affairs Irrigation Projects" (August 2016).
- The economic contributions associated with BIA timber are estimated with an approach similar to that used by BLM. An updated methodology was implemented for the FY 2017 estimates to better account for the value associated with timber processing.



BIE classroom, BIA

## BLM

- The BLM estimates the contributions from oil and gas activities by adding the contribution associated with production (based on the value of the gross output from extraction) to the contribution associated with developing wells (based on the costs of drilling and completing a well). In both cases, inter-industry sales are removed to derive a final demand figure. An IMPLAN multiplier is then applied to final demand to derive the contribution estimates. The rationale for including well development costs is that well development is not accounted for in the IMPLAN production function for oil and gas extraction. Note that BLM's results are developed independently of the Bureau of Ocean Energy Management (BOEM) figures for offshore production, and use a different approach. This complicates a direct comparison between the onshore and offshore analyses. The BLM considers onshore direct output to include 1) oil and gas well development costs, with costs taken from 2016 Energy Information Administration report on

"Trends in U.S. Oil and Natural Gas Upstream Costs" and the 2012 Independent Petroleum Producers Association report "Oil & Gas Producing Industry in Your State" for Alaska; and 2) oil and gas sales, based on sales volume and sales value for the fiscal year with preliminary sales year data provided by the ONRR.

- The BLM also uses IMPLAN to estimate the economic contributions associated with salable minerals and other non-oil and gas leasable minerals. The method parallels that of oil and gas production described above. Production and unit prices for leasable minerals for the fiscal year are based on preliminary sales year data provided by ONRR. Salable minerals production data for the fiscal year are from BLM's Public Land Statistics Report; commodity price data are from USGS's annual Mineral Commodity Summaries (MCS).



Alaska Fire Service, BLM



Oil pumpjacks, BLM

- The economic contributions of hardrock mining on the Federal estate were estimated for Nevada, northwest Colorado (limestone and gypsum only), Eastern States (leasable hardrock minerals), and the Nation using a similar approach as previous years. The national analysis only includes hardrock mineral production from the three sub-regions identified above. In addition to Nevada and northwest Colorado, locatable mineral production from Federal lands exists in many western States including Alaska. The primary limitation in generating useable estimates of hardrock mineral production is identifying the portion coming from Federal lands. With the exception of Nevada, information on production by ownership is not readily available. BLM’s Colorado field staff provided data on locatable mineral operations in northwest Colorado. Notably, the production estimates from Nevada and Missouri account for the vast majority of hardrock production value from Federal lands.<sup>1</sup> USGS’s annual Mineral Commodity Summaries (MCS) provide the commodity prices used in this analysis.
- For livestock grazing, the BLM developed State-specific economic contribution estimates per thousand Animal Unit Months (AUMs) – commonly termed *response coefficients*. An example of a response coefficient is “1,000 AUMs for grazing beef cattle support approximately X direct jobs in State X.” These response coefficients were revised in fiscal year 2019 using data primarily from the 2017 Census of Agriculture in combination with IMPLAN (2017 data). The results in the previous DOI Economic Reports used response coefficients derived using data primarily from the 2012 Census of Agriculture in combination with IMPLAN (2012 data). Due to the revisions of the response coefficients, contribution estimates associated with livestock grazing since fiscal year 2015 are not comparable to prior years. The 2012 Census of Agriculture provides information on a specific subset of livestock that best reflects the animals that actually graze on BLM-managed lands – specifically, employment, income, sales, and expense data from operations classified by the North American Industry Classification System (NAICS) as beef cattle ranching and farming (112111) and sheep and goat farming (1124). In addition, the 2017

<sup>1</sup> Production in Missouri is from USFS land; the BLM manages the subsurface mineral estate of all Federal land, including USFS land.

Census of Agriculture contains information related to self-employment as well as individuals who are unpaid or family laborers. In some areas unpaid or family labor represent a significant component of the labor used to run ranches and farms. The analysis assumes that the grazing operations included in the Census of Agriculture are representative of those operations using public forage from lands managed by the BLM. It is possible that ranchers utilizing public lands have different spending or employment patterns than grazing operations as a whole, but using the Census of Agriculture provides a standard dataset for comparison across States. In addition, because the Census of Agriculture is only available

every five years it is assumed that the response coefficients will remain constant from year-to-year. The economic contribution estimates associated with livestock grazing on BLM-managed lands were derived by multiplying response coefficients by the AUMs authorized on bills (associated with leases or permits to graze livestock on BLM managed lands) that were due during a given fee year. Economic contribution estimates in this report are based on the most current data on livestock grazing use on BLM-managed lands - fee year 2018 (3/1/2018 through 2/28/2019).



McInnis Canyons National Conservation Area, BLM

- Timber economic contributions are based on timber production associated with sales of timber, sales of Special Forest Products, and stewardship timber sales. Contracts for timber are typically sold at auction, and the BLM receives the agreed payments when the timber is actually cut and sold. Special Forest Products include fuelwood, posts, poles, etc. While the sales are negotiated, the BLM has a standard that sale prices should be at least 10 percent of the estimated market value. Stewardship Program timber sales are associated with BLM bartering goods (timber products) for services (land treatments) done by outside contractors. The product value is used to offset the total cost of service work in the contract.
- The BLM's forestry and woodlands management program also manages public access to a variety of other forestry products including personal use fuelwood (fuelwood gathered by individuals for personal use rather than by companies for commercial resale) and non-wood Special Forest Products (such as Christmas trees, native seeds, mushrooms, and

floral/greenery). Non-wood Special Forest Products from BLM-managed lands generated nearly \$300,000 in sales in FY 2019. Personal use fuelwood and non-wood SFPs are not included in our timber contribution estimates.

- Fuelwood harvest (commercial and personal use) was overestimated prior to FY 2018 due to a data conversion error. Commercial use fuelwood is included in the economic contribution estimates. The estimates in this report are based on (correct) FY 2019 harvest data. As a result, direct comparison to timber contributions reported prior to FY 2018 may not be valid. Personal use fuelwood gathered from BLM-administered lands is not included in the annual economic contribution estimates. In FY 2019 personal use fuelwood totaled 18,965 CCF (hundred cubic feet), or over 14,800 cords.<sup>2</sup> Assuming a market price of \$200 per cord (EIA, 2014)<sup>3</sup>, the market value of this fuelwood is almost \$3 million. As noted above for timber contributions, this market value is not comparable to values from previous years.



Sand Mountain Recreation Area, BLM

<sup>2</sup> Using the ratio of 1 cord per 1.28 CCF. Source: [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5108463.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5108463.pdf)

<sup>3</sup> Not converted to 2018-\$.

- Methods for estimating the contributions of wind, solar, and geothermal construction and production were updated in FY 2019 to meet best modeling practices and align with similar methods for mineral construction and production. Economic contributions from construction are estimated by applying the cost of construction to a profile of construction-related IMPLAN sectors. Cost of construction is based on approved capacity and external data on cost per MW. Construction contribution estimates are reduced to better reflect installed capacity using information from BLM field staff on the number of direct construction jobs in the fiscal year. Economic contributions from energy production are estimated

by applying the value of production to renewable energy generation sectors in IMPLAN. The amount of energy produced (in MWh) is derived from MW of capacity using Energy Information Administration capacity factors and is multiplied by prices from power purchase agreements to estimate production value.



Cedar Mesa, BLM



## Reclamation

- For FY 2019, Reclamation valued the crops grown with project water at \$18 billion, an increase of about \$1.2 billion from 2018's estimated total revenue of 16.8 billion. The increase in estimated total crop revenue can be mainly attributed to the increase in some state crop prices from 2017 to 2018, the overall increase in cropped acres, and changes in cropping patterns. The estimated \$18 billion in revenue generated \$26.4 billion in value added; about \$47 billion in economic output; and supported an estimated 373,000 jobs.
- The analysis uses GIS boundaries of Reclamation projects along with USDA's Cropland Data Layer (CDL) to value the agricultural production associated with water deliveries from Reclamation facilities. Reclamation currently has GIS data for the majority of projects with irrigation; and, will continue to develop GIS data for the projects that have not yet been included.
- Reclamation irrigation water accounted for 12 million acres of cropland in FY 2018 compared to about 12.2 million acres this year.
- Economic contributions associated with recreation rely on Reclamation visitation data collected during 2019 and applies current average trip-related expenditures per day, value added, output, and employment multipliers from FWS.
- The economic contribution of M&I water was estimated by using total 2005 M&I contract amounts in acre-feet and recent average market M&I water rates for major urban areas derived from various studies. For the Central Valley Project in California actual M&I delivery data was used.
- The value of hydroelectricity generated at Reclamation facilities was estimated using regional wholesale prices for Reclamation major hydropower production areas as follows: BPA, \$0.036/kWh; Parker Davis, \$0.013/kWh; Boulder-Hoover, \$0.019/kWh; Loveland, \$0.031/kWh; Billings, \$0.024/kWh; Sacramento, \$0.030/kWh; and Salt Lake City, \$0.029/kWh.



Arches National Park, NPS

## BOEM and BSEE

- The Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) oversee the development of energy and mineral resources in federal waters in the Gulf of Mexico, offshore Alaska, and in the Atlantic and Pacific Oceans. BOEM manages an oil and gas program, a renewable energy program, and a marine minerals program. BOEM quantitatively estimated the economic contributions of the offshore oil and gas program and the renewable energy program during FY 2019. Data limitations prevented BOEM from estimating the contributions of the marine minerals program during FY 2019.
- Table A-1 summarizes the contributions of the oil/gas and renewable energy programs during FY 2019. Combined, these programs supported approximately \$60.51 billion in output, \$33.17 billion in value added, \$19.38 billion in labor income, and 284,400 jobs. The oil and gas program contributed the most impacts during FY 2019. However, renewable energy activities, particularly wind energy development in the Atlantic Ocean, started to ramp up during FY 2019.

**Table A-1: FY 2019 BOEM/BSEE Economic Contributions**

Impact Category	Employment	Labor Income (billions, 2019-\$)	Output (billions, 2019-\$)	Value Added (billions, 2019-\$)
Oil and Gas Program	277,100	18.79	59.08	32.33
Renewable Energy Program	7,300	0.59	1.43	0.84
<b>Totals</b>	<b>284,400</b>	<b>19.38</b>	<b>60.51</b>	<b>33.17</b>

Labor income, output, and value added are presented in billions of dollars.

Employment is presented in number of jobs and is rounded to the nearest hundred jobs.

Oil and gas contributions arise from industry spending, government OCS revenues, and profits.

Renewable energy contributions arise from industry spending and government OCS revenues.

- Table A-2 presents the contributions of the offshore oil and gas program during FY 2019. In FY 2019, there was approximately \$20.68 billion in industry spending, \$5.57 billion in government Outer Continental Shelf (OCS) revenues, and \$19.31 billion in industry profits. These activities supported \$18.79 billion in domestic labor income, \$32.33 billion in value added, \$59.08 billion in output, and 277,100 jobs. Table A-2 includes the contributions of grants and payments to states through the Land and Water Conservation Fund (LWCF), the Historic Preservation Fund (HPF), the 8(g) program, and the Gulf of Mexico Energy

Security Act (GOMESA). The main text of the FY 2019 DOI Economic Report excludes the contributions of these state grants and payments because these contributions are reported in a separate section. Excluding the contributions of state grants and payments (components of government OCS revenues) results in total contributions of \$18.39 billion in labor income, \$31.78 billion in value added, \$58.14 billion in output, and 270,600 jobs supported.

**Table A-2: FY 2019 Offshore Oil and Gas Economic Contributions**

Category	Category Totals (billions, 2019-\$)	Employment	Labor Income (billions, 2019-\$)	Output (billions, 2019-\$)	Value Added (billions, 2019-\$)
Industry Spending	20.68	153,800	10.20	35.27	18.78
Government OCS Revenues	5.57	53,200	4.05	11.13	6.39
Industry Profits	19.31	70,100	4.53	12.68	7.16
<b>Totals</b>	<b>45.56</b>	<b>277,100</b>	<b>18.79</b>	<b>59.08</b>	<b>32.33</b>

Category totals, labor income, output, and value added are presented in billions of dollars.

Employment is presented in number of jobs and is rounded to the nearest hundred jobs.

Totals may not sum due to rounding.

\$17.25 billion of the \$20.68 billion in industry spending occurred within the United States.



Canyonlands National Park, NPS

- Of the contributions in Table A-2, the highest contributions occurred in Texas and the second highest contributions occurred in Louisiana. This is to be expected since most offshore oil and gas activity occurs in the Gulf of Mexico (GOM), and the infrastructure to support GOM oil and gas activities is concentrated in Texas and Louisiana. However, substantial contributions also occurred in the other GOM states (Mississippi, Alabama, and Florida), as well as in states such as California and Oklahoma. The following are the percentages of contributions that occurred in non-GOM states: employment (35%), labor income (37%), output (37%), and value added (37%). In general, industry spending contributions

were more concentrated in the GOM states, while government OCS revenue contributions and industry profit contributions were more widely distributed throughout the United States.

- OEM computed the contributions of industry spending by estimating scenario counts of certain activities, multiplying these counts by unit costs, and applying various methods to estimate the scales and locations of economic contributions. \$17.25 billion of the \$20.68 billion in industry spending was assumed to occur domestically (and thus contributed to the contribution estimates).



Offshore platforms, BOEM

- In FY 2019, federal offshore oil and gas activities yielded \$5.57 billion in direct government revenues. \$455 million was disbursed to non-federal entities through GOMESA, the 8(g) program, the LCWF, and the HPF.
- BOEM estimated industry profits by subtracting oil and gas expenses from revenues. Revenues were estimated by multiplying observed monthly oil and gas production by prices. Expenses were assumed to equal the FY 2019 values for industry spending and OCS revenues. Industry profits lead to economic contributions through domestic dividend payments, dividend tax receipts, and corporate tax receipts. However, retained earnings were assumed to not generate domestic contributions in FY 2019 to avoid double counting contributions that will occur in future years.
- Renewable energy activities, particularly Atlantic wind energy development, started to ramp up during FY 2019. Therefore, BOEM developed quantitative estimates of the contributions of these activities for FY 2019 (BOEM did not estimate the contributions of other renewable energy activities). No wind projects in federal waters were yet producing electricity in FY 2019. However, there were numerous projects in various stages of planning, permitting, and construction. These activities entailed spending on various goods and services including environmental site surveys, engineering design, and other project management functions. In addition, the federal government collected sizable amounts of government revenue from wind energy activities.
- Table A-3 presents BOEM’s contribution estimates for Atlantic wind energy activities during FY 2019, as described above. The total (direct, indirect, and induced) contributions were 7,300 jobs, \$1.433 billion in output, \$838 million in value added, and \$588 million in labor income. Industry spending and government OCS revenues contributed roughly equally to the impact estimates. The greatest contributions were in states near where wind energy development is occurring, such as Massachusetts and New York. However, there were also sizable contributions in states such as California and Texas due to the spending of government revenues.

**Table A-3: FY 2019 Atlantic Wind Energy Contributions**

<b>Impact Category</b>	<b>Employment</b>	<b>Labor Income (billions, 2019-\$)</b>	<b>Output (billions, 2019-\$)</b>	<b>Value Added (billions, 2019-\$)</b>
Industry Spending	3,500	0.294	0.614	0.368
Government OCS Revenues	3,800	0.294	0.819	0.470
<b>Totals</b>	<b>7,300</b>	<b>0.588</b>	<b>1.433</b>	<b>0.838</b>

Labor income, output, and value added are presented in billions of dollars.

BOEM estimated wind energy industry spending contributions through a project-by-project analysis of spending on planning, permitting, site surveying, and construction activities. BOEM estimated that there was approximately \$307.6 million in spending during FY 2019. BOEM estimated the geographic distributions of contributions and applied representative 2017 IMPLAN multipliers to compute total contributions.

## Scientific Information

- Additional information on technology transfer can be found in the Department of the Interior Annual Report on Technology Transfer reports. The reports are available here: <https://www.doi.gov/techtransfer/annual-doi-reports-on-technology-transfer>.
- The term “Cooperative Research and Development Agreement” (CRADA) encompasses any formal written agreement authorized and executed under the Federal Technology Transfer Act of 1986 (FTTA) between one or more Federal laboratories and one or more non-federal parties under which the Government, through its laboratories, provides personnel, services, facilities, equipment, intellectual property, or other resources, but with no funds provided by the Federal laboratories to the non-federal parties. The non-federal parties provide funds, personnel, services, facilities, equipment, intellectual property, or other resources toward the conduct of specified research or development efforts that are consistent with the mission of the bureau or office. Any property and equipment provided under technology transfer mechanisms is provided in accordance with established property management policies and procedures. Types of CRADAs used by the Department include:
  - Facility Use/Service Agreement (FUSA). The FUSA is a short-term agreement that allows collaborators to use, with or without reimbursement, specialized facilities, equipment, and/or capabilities that are not readily available from the private sector.
  - Material Transfer Agreement (MTA). The MTA is an agreement under which a quantity of a unique, specialized, or experimental material (natural or synthetic) may be transferred between the Federal laboratory and another party for commercial evaluation, testing, or other uses with or without reimbursement, pursuant to 15 U.S.C. § 3710a(b)(3)(A) and other applicable authorities.
  - Technical Assistance Agreement (TAA). The TAA is a short-term agreement that allows a Federal laboratory and its researchers to provide technical, research, or other non-monetary resources to a non-federal party, with or without reimbursement, pursuant to 15 U.S.C. § 3710a(b)(3)(A). Typically, the development of intellectual property is not anticipated. The collaboration must have a mission value to the Federal laboratory. A TAA can also be collaboration by both parties providing technical or scientific expertise to accomplish a mutual objective.
- An invention disclosure represents the first official recording of the invention and, if done properly, can establish an irrefutable date and scope of the invention. Often the disclosure document has been used to defeat challenges to dates of invention, inventorship, invention scope, and prior art. Conversely, improperly written invention disclosures many times have resulted in disastrous losses of patent rights.



USGS streamgage. Midland, Michigan

# Grants and Payments

- DOI grants and payments to states data were updated in 2019 to use DOI Financial and Business Management System (FBMS) payment and grant obligation data. These data improve upon prior years for which payment and grant data were based on agency data calls which missed many payments and grants and represented appropriated funds rather than actual expenditures. In addition to grants and payments recorded in FBMS, payments data include PILT payments, Refuge Revenue Sharing payments, and Mineral Revenue Payments.
- The increase in FY 2019 in output, employment, and value added for payments to states is driven by the inclusion of a larger set of grants and payments (i.e., payments and grants that were not represented in prior year analyses). The ratio of total output to total jobs for 2019 is relatively unchanged compared to 2018 (\$150,937 in 2018; compared to \$143,227 in 2019).
- Economic contributions of grants and payments are modeled by allocating grant payments to appropriate IMPLAN sectors based on best available information about the sectors likely affected by each grant program.
- National-level economic contribution estimates use national-level multipliers for the appropriate sectors and state level estimates use state-level multipliers for the appropriate sectors for each grant category.
- It is possible that grants and payments support some of the economic activity reported for other sectors throughout this report. We have not attempted to correct for this source of potential double-counting.
- Energy and mineral leasing revenues (bonuses, rents, and royalties) disbursed to the U.S. Treasury help fund various government functions and programs through the General Fund of the U.S. Treasury. These revenues are not included in the grants and payments amounts or estimated contributions.
- Federal law requires that all monies derived from mineral leasing and production activities on Federal and American Indian lands be collected, properly accounted for, and distributed. For Federal onshore lands, the revenues are generally shared between the States in which the Federal lands are located and the Federal government. In most cases, States receive about 50 percent of the revenues associated with mineral production on Federal public lands



Desert View Watchtower, Grand Canyon National Park, NPS

within their borders.<sup>3</sup> In the case of American Indian lands, all monies collected from mineral production are returned to the Indian Tribes or individual Indian mineral lease owners. Mineral revenue payments to American Indian Tribes are included in Support for Tribal Governments in this report; estimated contributions from these payments are estimated using National-level multipliers. State- or Tribal-level data is not available for these payments.

- Revenues associated with Federal offshore lands are distributed to the U.S. Treasury, states, counties/parishes, and the Land and Water Conservation Fund in accordance with the provisions of the Gulf of Mexico Energy Security Act (GOMESA) and Section 8(g) of the Outer Continental Shelf Lands Act. Most oil and gas leases issued after 2006 are subject to GOMESA; these leases entail sharing 37.5 percent of certain revenues with Gulf of Mexico states and counties/parishes, and 12.5 percent of certain revenues with the Land and Water Conservation Fund. Federal oil and gas leases within three nautical miles of state waters are 8(g) leases and entail sharing 27 percent of revenues with adjacent Gulf of Mexico states.
- Land Acquisition: Output and employment contribution estimates for land acquisition are derived using State and national-level multipliers. It is assumed that 90 percent of funds go to landowners and 10 percent go to transaction costs. Much of the money landowners receive is likely to go into savings, be used to pay off loans, or be subject to tax. It is therefore assumed that landowners will spend only about 40 percent of funds they receive. Funds that go to landowners are modeled as a household income change for households with annual incomes greater than \$200,000. The remaining 10 percent of funds are assumed to go to service providers associated with real estate transaction costs or monitoring and administration of easements. Specific services associated with land acquisition could include land appraisal, title examination and legal services, environmental site assessments, and ecological

inventory and management planning. The IMPLAN real estate sector (sector 440 in the 536-sector scheme) is used to model the services associated with land acquisition. Temporal issues complicate the analysis, as there may be a delay between the date of the purchase, the date the landowner receives the funds, and the dates the landowner spends the funds. Contributions are typically reported for one year, and only a small portion of the funds received by landowners are likely to be spent in that same year; monitoring expenditures will also often be incurred in perpetuity whereas transaction costs are all up-front. As a simplifying assumption, all landowner expenditures and service fees are assumed to occur in the same year that the transaction takes place.

## Contributions to Insular Areas

- DOI grants and payments to insular areas data were updated in 2019 to use DOI Financial and Business Management System (FBMS) payment and grant obligation data. In previous years, the data used for the Insular Affairs contributions was budget data published in a report provided to Insular Affairs by RTI. In previous years, these grants and payments were included in total grants and payments and in total US National contributions (Tables 2 and 3). The contributions from grants and payments to insular areas are now presented separately from US National contributions in Table 4.
- Prior to FY 2019, grants and payments to insular areas included contributions associated with tax revenues that are collected by Treasury and then transferred to the Territories via DOI's budget. These revenues do not originate with DOI's management activities or decisions but are included in the contributions estimates in Table 4.

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<sup>3</sup> Alaska is an exception, receiving 50 percent of revenues for production from the National Petroleum Reserve A (NPR-A), and 90 percent elsewhere.



- Prior to FY 2019, payroll contributions from DOI employees stationed in insular areas were included with total payroll and in the total US National contributions (Tables 2 and 3). The contributions from payroll associated with employees located in insular areas are now presented separately from US National contributions in Table 4.
- Prior to FY 2019, recreation contributions from NPS-managed sites in American Samoa, Guam, Puerto Rico, and the US Virgin Islands were included with total recreation in the total US National contributions (Tables 2 and 3). The contributions from recreation associated with sites in the insular areas are now presented separated from US National contributions in Table 4.
- Starting in 2017, payroll data were corrected to include total payroll costs: wage and salary data, benefits, and employer paid taxes (e.g., health insurance, retirement contributions, payroll taxes). Analyses prior to 2017 only included wage and salary data and therefore understated payroll contributions by approximately 34%.
- For the national-level payroll contributions, a national multiplier was used to estimate the induced employment contributions of Interior payroll, equaling 8.9 jobs per \$1 million in employee compensation.
- For State-level payroll contributions, State-level multipliers were used. Since State multipliers do not capture leakages outside of each State, the sum of State salary contributions are less than the national-level payroll employment contributions.

## Payroll Contributions

- For this report, the contributions supported by Interior's payroll only include the induced effects generated through Interior employees spending their salaries. As an analysis of contributions external to the employer (DOI), this report does not include direct jobs (equal to Interior's labor force), income (equal to Interior's wage bill), or direct output related to payroll. For FY 2019, payroll data were obtained from Department of the Interior Human Resources data systems. The payroll data include year-to-date salary and benefits data based on the duty-station of all Interior employees through the final pay period in 2019 (pay period 26). Interior salaries by State are based on duty station. The total salary paid and number of employees for each Bureau does not necessarily reflect FTE data typically reported in budget documents.
- DOI payroll contributions are estimated using the IMPLAN Labor Income Change activity. Leakages from this IMPLAN activity include payroll taxes, social insurance taxes, savings, and salaries earned by employees who commute from outside of the local area (and thus primarily spend their salaries outside of the local area). Contributions are based on household spending patterns for a distribution of household income levels.

## Recreation Contributions

- National level estimates for NPS do not include units in the insular areas. For that reason, the National level estimates for NPS in this report will differ from the National level estimates provided in the NPS Visitor Spending Effects Report (<https://www.nps.gov/subjects/socialscience/vse.htm>). Estimates for NPS-managed recreation sites in the insular areas are presented in Table 4. See the section “Contributions to Insular Areas” for more information.
- FWS estimates do not include visitation to Refuges outside of the continental United States, Hawaii, and Alaska.
- Visitation and expenditure data sources included the following: NPS data is from *2019 National Park Visitor Spending Effects, Economic Contributions to Local Communities, States, and the Nation*, (Cullinane Thomas and Koontz 2019). BLM visitation data is from the Recreation Management Information System (RMIS), and spending profiles visitor characteristics and are from the U.S. Forest Service National Visitor Use Monitoring (NVUM) Round 4 survey. USFWS visitation data was obtained from the Refuge Annual Performance Plan (RAPP) database, and spending profiles were calculated based on data from the 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (<https://wsfrprograms.fws.gov/subpages/nationalsurvey/reports2011.html>). Bureau of Reclamation visitation data are from the Recreation Use Data Report (RUDR), and PPA calculated spending profiles using the 2011 National Survey of Fishing, Hunting, and Wildlife- Associated Recreation. Recreation contributions for all bureaus are calculated using FY 2017 IMPLAN data (released in 2018).
- NPS visitation data are for CY 2019. Visitation data for FWS, BLM, and Reclamation are for FY 2019.
- Most BOR project recreation sites are managed by Reclamation partners, including both Federal and non-Federal entities.



Hoover Dam, BOR

# Contributors

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<p><b>Office of the Secretary</b></p> <p>Shawn Buckner Melissa Braybrooks Christian Crowley Fabiano Franco Ann Miller Patrick Lee Benjamin Simon Kristin Skrabis</p>	<p><b>Bureau of Ocean Energy Management</b></p> <p>Sarah Peters Coffman Mark Jensen</p>	<p><b>US Geological Survey</b></p> <p>Catherine Cullinane Thomas Matt Flyr</p>
<p><b>Fish and Wildlife Service</b></p> <p>Jim Caudill</p>	<p><b>Bureau of Indian Affairs</b></p> <p>Martin Abeyta Jack Stevens Stephen Manydeeds</p>	<p><b>Bureau of Reclamation</b></p> <p>Fernando Castro-Alvarez</p>
<p><b>National Park Service</b></p> <p>Lynne Koontz</p>	<p><b>Bureau of Land Management</b></p> <p>Rebecca Moore</p>	<p><b>Office of Surface Mining Reclamation and Enforcement</b></p> <p>Mark Gehlhar</p>





**U.S. Department of the Interior**  
**Office of Policy Analysis**  
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Washington, DC 20240  
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