Executive Summary

The U.S. Department of the Interior (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 our future. Interior's people, programs, and responsibilities impact Americans across all 50 States. The Department is the steward of 20 percent of the Nation's lands, managing national parks, national wildlife refuges, and public lands and assisting States, Tribes, and others in the management of natural and cultural resources. Interior grants access to public lands and offshore areas for renewable and conventional energy development—covering roughly a quarter of the Nation's domestic supplies of oil and natural gas—while ensuring safety, environmental protection and revenue collection for the American public. Interior oversees the protection and restoration of surface mined lands and is the largest supplier and manager of water in the 17 Western States, assisting others with water conservation and extending water supplies and providing hydropower resources to power much of the 17 Western States. The Department serves as Trustee to American Indians and Alaska Natives, fulfilling essential trust responsibilities to tribal communities. Interior's Office of Insular Affairs (OIA) carries out the department's responsibilities for U.S.-affiliated Insular Areas, which include the territories of Guam, American Samoa, the U.S. Virgin Islands, the Commonwealth of the Northern Mariana Islands, and three sovereign freely associated states (FAS, which includes the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau). The Department supports cutting edge research in geology, hydrology, and biology, informing resource management and community protection decisions at Interior and across the world.

Data Visualization

This year's report is paired with a web-based interactive data visualization tool that lets the user customize the contribution analysis by bureau, activity or state. You can view that site at my.usgs.gov/doidv/. NPS has a similar data visualization tool that displays results from the Visitor Spending Effects report by-year. This interactive tool is available at go.nps.gov/vse.

This report represents the seventh in a series of annual economic reports initiated with a preliminary report released by Interior in December 2009.[1]

Although estimates of value added and economic contributions provide important information on the effect of expenditures on outputs from Interior lands in local economies, there are additional economic values—that are not captured in market values—associated with DOI resources which, if measured, would give a more complete accounting of the effects of Interior's activities. For example, the complete accounting of impacts would include the value individuals place on recreation above and beyond their expenditures; contributions to U.S. energy security; preservation of natural habitats and endangered

[1] More detailed treatments of some of the topics addressed in this report are available in the FY 2012 Economic Report: www.doi.gov/sites/doi.gov/files/uploads/FY2012%20DOI%20Econ%20Report%20%28Final%29%202013-09-25.pdf.

species; and opportunities associated with water use. A better understanding of how the services and functions of natural systems and processes help support the welfare and security of our citizens and communities will allow the Department to better execute the important and diverse work of its many missions and goals. Nearly every bureau and office has begun to consider how using an ecosystem services framework could enhance their ability to analyze, display, and communicate trade-offs. While there are established methods for estimating the value of environmental benefits, their estimation is outside the scope of this report.

In FY 2015 production and activities on DOI lands were associated with about $170 billion in value added, about $300 billion in economic output, and supported an estimated 1.8 million jobs. The value of all commodities and other inputs to production associated with Interior's activities decreased over the past year by about 15 percent in nominal terms, from $159 billion in FY 2014 to $135 billion in FY 2015. Much of this change reflects the fall in oil prices from a 2014 average near $100 per barrel, to below $50 per barrel in 2015. Information related to economic contributions, value added, employment, and other economic values associated with Interior's diverse activities is summarized below:

- **Recreation**: In FY 2015, Interior's lands hosted an estimated 443 million visits. The net economic value of a visit to Interior lands varies depending on the activity. For FY 2015, visitation to Interior sites provided an estimated $26 billion in value added, $45 billion in economic output, and supported about 396,000 jobs.
- **Renewable Energy**: In FY 2015, Interior lands and facilities produced 36.1 million MWh of hydropower. Interior lands host renewable power projects for solar (9,761 MW), wind (5,608 MW), and geothermal energy (2,157 MW).[2] In FY 2015, through the BLM and BIA renewable energy programs, Interior approved the installation of 492 MW in new solar power projects on public lands.[3] Renewable energy activities contributed an estimated $3 billion in output and supported 15,000 jobs. In aggregate, generating electricity with renewable energy reduces the amount of electricity supplied by fossil fuel plants, along with the associated emissions, and reduces our Nation's dependence on foreign oil. Market values of power typically do not reflect the adverse environmental and health costs to society associated with fossil fuel pollution or the corresponding benefits to society from substituting cleaner sources of energy.
- **Conservation**: The value added, economic contributions, and employment supported by DOI's conservation-related activities are difficult to measure separately because conservation is often a component of recreation, ecosystem restoration, water management, and even some mineral development activities. Many benefits of nature conservation accruing to households, communities, and economies are not defined with a set of consistent metrics nor are they bought and sold in markets. This creates challenges in the valuation of these goods and services.
- **Restoration:** Every Interior bureau engages in some form of restoration from physical structures to habitat and cultural resources. The Office of Surface Mining Reclamation and Enforcement's (OSMRE) Environmental Restoration program activities improve natural resources and reduce the risk to public health, safety, and general welfare by correcting problems from coal mining on Abandoned Mine Lands (AML). In FY 2015, OSMRE reclaimed or mitigated the equivalent of 12,339 acres of land on 566 projects. Similarly, the Bureau of Land Management's (BLM) AML Program enhances public safety and improves water quality by reducing or eliminating the

[2] Installed capacities as of December 2015.
[3] There were no new approvals for geothermal or wind projects in FY 2015.

effects of past hardrock mining in the western U.S. The AML program utilizes a database to record and track the thousands of AML sites and features within the National System of Public Lands. The Abandoned Mine Site Cleanup Module (AMSCM) currently contains over 94,000 features, such as physical hazards and environmental impacts, associated with 50,500 AML sites. The Central Hazardous Materials Fund (CHF) is the Department's principal source of funds for the cleanup of the most highly contaminated sites located within national parks, national wildlife refuges, and on other Department-managed lands. Since the CHF was established in 1995, it has undertaken response action at more than 69 sites and completed cleanup at 20 sites, recovering a total of $95.2 million and avoiding the approximate cost of $478.3 million in work performed by responsible parties. The DOI Natural Resource Damage Assessment and Restoration (NRDAR) Program works across bureaus to ensure that responsible parties – not taxpayers – bear the cost of restoring resources injured by oil spills or hazardous substance releases around the nation. In FY 2015, the Restoration Program restored or enhanced 46,606 acres and 149 stream/shoreline miles to achieve desired habitat conditions to support trust species conservation.

- **Fossil Fuel Energy:** In FY 2015, Interior-managed lands and waters produced 782 million barrels of crude oil, 5 trillion cubic feet of natural gas, and 421 million tons of coal. Some average prices in FY 2015 included $49/bbl for oil, $3.05/mcf of natural gas, and $10.19 per ton of Powder River Basin coal. Oil and natural gas prices are down significantly from last year ($99/bbl for oil and $4.41/mcf for natural gas). Oil, gas and coal produced from Interior lands provided an estimated $94 billion in value added; an estimated economic output contribution of $166 billion; and an estimated 800,000 jobs. External costs (greenhouse gas emissions, habitat loss, impacts to water quality, etc.) are associated with the development of oil, gas, and coal produced from Interior lands, and with the production and the use of these resources. As a general matter, market prices do not reflect many of these costs. Various regulations and other requirements designed to minimize adverse environmental impacts internalize some (but not all) of these external costs.
- **Non-fuel Minerals**: In FY 2015, Interior lands produced a wide variety of minerals. For example, an estimated that 2.5 million ounces of gold were produced from BLM lands in Nevada; the average price of gold in 2015 was $1,170 per ounce. Non-fuel mineral production was associated with an estimated value added of $6.7 billion; estimated economic output of $13.3 billion; and estimated employment supported about 47,000 jobs. While minerals are generally traded in competitive markets (though some markets may be localized or thin), prices typically do not incorporate certain external costs associated with mining. Moreover, the Federal leasing system does not completely offset these costs, which are primarily associated with the environmental impacts of mining. Various regulations and other requirements designed to minimize adverse environmental impacts help to internalize some but not all of these external costs.

- **Forage and Grazing**: In FY 2015, Interior lands provided access to 10 million animal unit months (AUMs) of forage. Prices for forage vary widely, from $1.69 per AUM fee on BLM-managed lands to $20.20on State and private grazing lands[4]. This production is associated with an estimated $2.3 billion in economic output and supported about 40,000 jobs. The increase from FY 2014 ($1.4 billion in output and 17,000 jobs) is partially due to an updated methodology from BLM that better reflects employment around grazing activities[5]. Value added figures were not readily available for forage and grazing. Forage prices do not fully reflect various ecosystem service values provided by rangelands or the total cost of grazing on Federal lands.
- **Timber**: In FY 2015, about 616,000 mbf (1 mbf = 1,000 board-feet) of sawtimber was harvested on BLM and tribal lands. Approximately 56 percent of the harvest came from lands managed by the Bureau of Indian Affairs (BIA), while the remaining 44 percent came from BLM-managed lands. This timber harvest was associated with about $0.4 billion in value added, provided roughly $1 billion in economic output, and supported about 4,600 jobs. Market prices do not fully reflect changes to various ecosystem service values provided by forest lands. 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 associated with some of these products were accounted for in this report; while others could not be explicitly analyzed.
- **Water**: Interior stores and delivers water for irrigation, municipal and industrial (M&I), and other uses. The value of water varies widely according to location, type of use and climatic conditions. Interior's irrigation (Reclamation and BIA) and M&I water supply activities are associated with $27 billion in value added; about $48 billion in economic output; and supported an estimated 361,000 jobs. Interior also delivers water to support in-stream flows, wildlife refuges, and other uses that are difficult to value fully and not typically reflected in economic contribution estimates.
- **Scientific Data**: Investments in research and development promote economic growth and innovation, ensure American competitiveness in a global marketplace, and are critical to achieving Interior's mission. Investments in Interior's research and development will 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.
- **Grants/Payments**: Activities related to grant and payment programs administered by Interior provided $6.8 billion in value added; economic contributions of $9.4 billion; and supported employment of 90,000 jobs.[6] Within these totals:
    - Indian Affairs grants to support tribal governments provided value added of $0.8 billion, economic contributions of $1.2 billion, and supported about 9,000 jobs.
    - Grants and payments to Insular areas supported $0.9 billion in valued added and supported employment of about 26,000 jobs. Economic output estimates supported by these grants and payments were not readily available.

[4] BLM increased the federal grazing fee to $1.69 in 2015 and then to $2.11 in 2016, pursuant to the statutory requirements under the Public Rangelands Improvement Act of 1978. However, the 2014 price of $1.35 was used for the contribution analysis due to the timing of the grazing data. Source for private and state grazing fee, USDA (https://www.nass.usda.gov/Charts_and_Maps/Grazing_Fees/gf_am.php)

[5] A detailed explanation of BLM's methodology can be found in the Appendix.

[6] 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.

Glossary

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. 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.