

## Executive Summary

The U.S. Department of the Interior plays an integral role in protecting 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 a quarter of the Nation's 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 also 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 Nation. The Department serves as Trustee to American Indians, Alaska Natives, and Native Hawaiians fulfilling essential trust responsibilities to tribal communities. The Department supports cutting edge research in geology, hydrology, and biology, informing resource management and community protection decisions at Interior and across the world.

This report represents the fourth in a series of annual economic reports initiated with a preliminary report released by Interior in December 2009. The report for FY 2012 includes chapters on recreation, conservation, energy, non-fuels minerals, and tribal economies as well as key outputs and trends associated with each output. The report also provides information on economic contributions and value added, employment supported, and economic values associated with some of the outputs produced on Interior land. Of the standard measures available, *value added* most accurately captures the dollar-value of Interior's resource-management activities.

A primary focus of the Department's activities is conservation. The Department of the Interior supports conservation efforts through public land and water resources administered by the Fish and Wildlife Service (FWS), the National Park Service (NPS), the Bureau of Land Management (BLM), and the Bureau of Reclamation (Reclamation). These areas provide opportunities for recreation visitors and support conservation of natural resources and wildlife habitat. The benefits provided by conservation are often measured in terms of the values they have to humans. Although these benefits are often difficult to quantify, techniques exist to estimate their value in monetary terms. Conservation lands managed and acquired by DOI serve many important biological and ecological functions such as the production of plant and animal species, provision of clean water, carbon storage, and scenic amenities. Many studies have estimated values for ecosystem services at specific locations.

Conservation investments can also contribute to local economies by providing employment opportunities and additional economic output. These metrics can be very important to communities, particularly in a difficult economic climate. The natural amenities supplied by conservation lands and open space also provide benefits to nearby landowners and residents. Previous studies have shown that natural amenities can lead to increased migration to surrounding localities. Natural areas have also been shown to increase the property values of surrounding home owners. For example, a recent study

showed a significant impact on the value of homes located near National Wildlife Refuges in certain areas of the country.

The FY 2012 value added and economic contribution associated with production and activities on DOI lands are estimated to be \$211 billion and \$371 billion, respectively. These outputs are estimated to have supported 2.3 million jobs in FY 2012. Information related to economic contributions, value added, employment, and other economic values associated with Interior's diverse activities is summarized below:

- **Recreation:** In FY 2012, Interior's lands hosted an estimated 417 million visits. The net economic value of a visit to Interior lands varies depending on the activity. For FY 2012, value added provided by visitors to Interior sites was estimated to be \$24.7 billion, economic output was estimated to be \$45 billion and about 372,000 jobs were supported.

#### Conservation Economics

Conservation investments provide value to society in terms of species and habitat protection, maintenance of working landscapes, the provision of ecosystem services, and human use benefits. Benefits obtained from conservation include stocks of natural capital (materials that exist at one point in time) and flows (services that are provided from the natural capital stock over time). Stocks of natural capital include resources such as minerals that can be depleted permanently and trees that are replenished slowly over time. Natural capital also produces a flow of benefits over time including water, air and climate regulation; nutrient cycling; cultural uses; and recreation opportunities. The human use of natural capital can affect stocks and flows of benefits provided over time.

- **Renewable Energy:** In FY 2012, Interior lands produced 47.5 TWh of hydropower. Also, in FY 2012, Interior approved the installation of 315 MW of wind capacity and 489 MW of solar power projects on public lands. Renewable energy activities were estimated to contribute \$4.4 billion in output and support about 18,000 jobs. In aggregate, generating electricity by renewable energy reduces the amount of electricity supplied by fossil fuel plants, along with the associated emissions. Market values of power typically do not reflect these effects.
- **Conservation:** The value added, economic contributions, and employment supported by DOI's conservation related activities are difficult to isolate because conservation could be a component of recreation, ecosystem restoration, water management, and even some mineral development activities. Many of the benefits of nature 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 ecological and human use resources. For example, BLM's Abandoned Mine Lands Program has compiled a database of nearly 40,000 sites to be restored, and the Office of Surface Mining Reclamation and Enforcement (OSM) has a target of 14,000 acres to be reclaimed from the effects of coal mining. The DOI Restoration Program works across bureaus to ensure that responsible parties – not taxpayers – bear the cost of restoring injured resources following a release of oil or other hazardous substances at hundreds of sites around the Nation, where nearly 100,000 acres and over 400 miles of stream and shoreline were restored in 2012. Restoration projects have significant economic impacts, which vary in scope depending on the extent and nature of the activities undertaken.
- **Fossil Fuel Energy:** In FY 2012, Interior-managed lands and waters produced 626 million barrels of crude oil, 5 tcf of natural gas, and 460 million tons of coal. Some average prices in FY 2012 included \$94/bbl for oil, \$2.66/mcf of natural gas, and \$10 per ton of Powder River Basin coal. Oil, gas and coal produced from Interior lands were estimated to provide value added of \$131.1 billion; estimated economic output contribution of \$230 billion; and an estimated 1.2 million jobs. External costs are associated with the development of oil, gas, and coal produced from Interior lands, and with the production and the use of these resources. Market prices do not fully reflect these costs. Various regulations and other requirements designed to minimize adverse environmental impacts internalize some of these external costs.
- **Non-fuel (hardrock) minerals:** In FY 2012, Interior lands produced a wide variety of minerals. For example, it is estimated that over 3 million ounces of gold were produced from Federal lands; the average price of gold in 2012 was \$1,700 per ounce. Non-fuel mineral production was associated with an estimated value added of \$13 billion; estimated output of \$21 billion; and estimated employment supported about 111,000 jobs. While minerals are generally traded in competitive markets (though some markets may be localized or thin), prices may not incorporate the external costs associated with mining. Nor does the Federal leasing system 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 internalize some of these external costs.
- **Forage and Grazing:** In FY 2012, Interior lands produced nearly 9 million animal unit months (AUMs) of forage. Prices for forage range widely, from \$1.35 to \$17 per AUM. This production is associated with \$1.5 billion in output and supported about 19,000 jobs. Forage prices do not fully reflect changes to various ecosystem service values provided by rangelands.
- **Timber:** In FY 2012, about 541,000 mbf of timber was harvested on BLM and tribal lands. This timber harvest was associated with about \$554 million in value added, provided \$1.4 billion in output, and supported about 7,100 jobs. Market prices do not fully reflect changes to various ecosystem service values provided by forest lands.
- **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 and M&I water activities are associated with \$27 billion in value added; \$47.4 billion in output; and supported an estimated 339,000 jobs. Interior also delivers water to support in-stream flows, wildlife refuges, and other uses that are difficult to fully value.
- **Scientific Data:** Scientific information is not typically valued in markets, and hence is underprovided by the private sector. Beyond helping Interior bureaus achieve their missions, scientific information (such as that produced by USGS) is an input to production processes and decisions that help promote economic growth and innovation and ensure American competitiveness in a global market.

- **Grants/Payments:** Grant and payment programs administered by Interior provided \$7.95 billion in value added; economic contributions of \$11 billion; and supported employment of 89,000. 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 employment of about 11,000.
  - Grants and payments to the Insular Affairs provided value added of \$1.2 billion and supported employment of about 35,000.

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 placed on DOI resources that are not captured in economic markets that would give a more complete picture of the impact of Interior's productive activities. For example, the full impacts would include the value individuals place on recreation above and beyond their expenditures, energy security, adverse changes associated with exploration, development, and production of minerals, and opportunities associated with water use. There are methods to value environmental goods and services, their estimation can be difficult and the estimation of these values for all of DOI's activities is outside the scope of this report.