



OFFICE OF
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE INTERIOR



**INSPECTOR GENERAL'S STATEMENT
SUMMARIZING THE MAJOR MANAGEMENT
AND PERFORMANCE CHALLENGES FACING
THE U.S. DEPARTMENT OF THE INTERIOR**

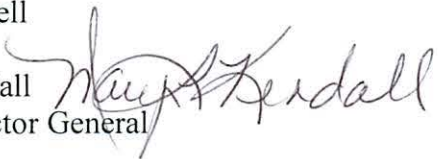


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Memorandum

To: Secretary Jewell

From: Mary L. Kendall 
Deputy Inspector General

Subject: Inspector General's Statement Summarizing the Major Management and Performance Challenges Facing the U.S. Department of the Interior
Report No. 2016-ER-049

In accordance with the Reports Consolidation Act of 2000, the Office of Inspector General (OIG) is submitting what it determined to be the most significant management and performance challenges facing the U.S. Department of the Interior (DOI), for inclusion in DOI's "Agency Financial Report" for fiscal year 2016.

We met with DOI officials, including Deputy Secretary Connor and Chief of Staff Beaudreau, to gain their perspective and together agreed on the challenge areas. These areas are important to DOI's mission, involve large expenditures, require continuous management improvements, or involve significant fiduciary relationships.

If you have any questions, please do not hesitate to call me at 202-208-5745.

cc: Tommy Beaudreau, Chief of Staff, U.S. Department of the Interior
Michael Connor, Deputy Secretary, U.S. Department of the Interior
Douglas Glenn, Director, Office of Financial Management
Teresa Hunter, Deputy Director, Office of Financial Management

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Introduction and Approach

In accordance with the Reports Consolidation Act of 2000, the Office of Inspector General (OIG) is reporting what it has determined to be the most significant management and performance challenges facing the U.S. Department of the Interior (DOI). These are the challenges OIG sees as potential barriers to departmental efforts to promote economy, efficiency, and effectiveness in its bureaus' management and operations. By statute this list is required to be included in DOI's "Agency Financial Report."

The identified challenge areas reflect continuing vulnerabilities and emerging issues faced by DOI. Each area is connected to DOI's mission, includes large expenditures, requires continuous management improvements, and involves significant fiduciary relationships.

OIG identified the top management and performance challenges as—

- energy management;
- climate effects;
- information technology (IT);
- water programs;
- responsibility to American Indians and Insular Areas;
- acquisition and financial assistance;
- public safety and disaster response; and
- operational efficiencies.

In the years immediately after Hurricane Sandy we set disaster response as its own challenge area to allow for depth of analysis, but as those projects wind down we have decided to fold disaster response into the public safety challenge area in this year's report.

These eight challenges are not presented in order of priority. Each is critical to the management or performance of DOI operations.

This report is based on specific OIG and U.S. Government Accountability Office (GAO) reviews and other reports, as well as our general knowledge of DOI's programs and operations. Our analysis generally considers the accomplishments that DOI reported as of September 30, 2016.

We introduce each challenge area with background and discussion of the themes that have emerged from our work in that area over the past several years. We then provide a forward-thinking, Department-focused context for critical topics identified within each challenge area. Some topics are so broad that discussion of them spills across multiple challenge areas. This intermingling is sometimes

unavoidable when one challenge exacerbates or modifies another and should serve as a reminder of the complex nature of DOI's mission.

Our approach this year sought enterprise-level guidance from the Deputy Secretary, Assistant Secretaries, and Bureau Directors in an effort to gain top-down perspective on the challenge areas. We received varying degrees of input from the Bureau of Land Management (BLM), Bureau of Ocean Energy Management (BOEM), Bureau of Reclamation (USBR), Bureau of Safety and Environmental Enforcement (BSEE), U.S. Fish and Wildlife Service (FWS), and U.S. Geological Survey (USGS). We received no response from the Bureau of Indian Affairs (BIA)/Bureau of Indian Education (BIE), National Park Service (NPS), Office of Surface Mining Reclamation and Enforcement (OSMRE), Office of the Secretary, Office of Policy, Management and Budget, Office of Insular Affairs, Office of the Solicitor, Office of the Chief Information Officer, Office of the Special Trustee for American Indians, and the Office of Subsistence Management. We also provided a draft copy of our views to Department officials and considered all comments received when finalizing this report.

We reviewed GAO's list of Federal programs and operations at high risk for waste, fraud, abuse, and mismanagement or in need of broad-based transformation (updated every 2 years; see <http://www.gao.gov/highrisk/overview>). GAO's High-Risk List for 2015 identifies issues in three of our challenge areas—energy management, climate effects, and information technology—as well as in strategic human capital management, which we describe as having impacts across multiple challenge areas. GAO's findings inform and guide actions to resolve management and operational challenges.

Energy Management

The development of domestic energy resources and oil, gas, and coal forms the cornerstone of our Nation's energy base and powers America's future. DOI plays a critical role in this process, having jurisdiction over 1.7 billion acres of the Outer Continental Shelf (OCS) and 500 million acres of the Nation's landmass, as well as 700 million acres of subsurface minerals. DOI manages resources that supply 30 percent of the Nation's domestically produced energy. DOI's programs advance responsible stewardship of resources and help make energy independence possible. DOI's strategic plan for fiscal years (FYs) 2014 – 2018 provides the framework for these efforts and emphasizes safe and responsible energy development.

DOI manages energy activities both onshore and offshore, promotes clean energy development, and collects and disburses royalties and revenues related to energy production (oil, gas, coal, minerals, geothermal, and renewables such as wind, wave, and solar) on Federal and tribal lands and from the OCS. In FY 2015, DOI disbursed \$9.87 billion in revenues, a decrease from the \$13.4 billion it disbursed in FY 2014. The decline in disbursements was primarily attributed to substantially lower oil and gas prices during the year.

OIG findings have highlighted the same or similar issues for multiple years. Specifically, we have found problems with the collection, verification, and distribution of revenues; inadequate oversight and management of oil and gas production; and barriers to renewable energy development. These significant issues could not only jeopardize public safety and environmental integrity but also increase the financial burden on the American public.

Oil and Gas Revenues and Oversight

Problems continue to plague DOI's ability to effectively manage its oil and gas resources. GAO has observed that DOI does not have reasonable assurance that it is collecting its share of royalties for oil and natural gas extracted from leased Federal lands and waters.¹ In addition, current oil, gas, and coal valuation regulations, originally put in place in the late 1980s, have not kept pace with changes that have occurred in the domestic energy markets since that time.

Compounding the situation, the Energy Policy Act of 2005 (Pub. L. No. 109-58) mandated royalty relief for some offshore leases over a 5-year period. Because DOI has not always conducted adequate production inspections, it is uncertain whether onshore oil and natural gas operators accurately reported oil and natural

¹ Specifically, Report No. GAO 12-423 (August 29, 2012); Report No. GAO 14-50 (December 17, 2013); Report No. GAO 14-205 (February 19, 2014); and Report No. GAO-15-39 (May 6, 2015).

gas production from Federal leases and in turn remitted the appropriate royalties.² Consequently, GAO listed management of Federal oil and gas resources in its High-Risk List for 2015 and highlighted royalty determination and collection as an ongoing concern.

In June 2016, DOI updated regulations designed to improve valuation and revenue collection for the production of mineral resources on public lands and waters. The updates are meant to provide greater clarity on determining market value for royalty purposes and ensure that every dollar due is collected by the Office of Natural Resources Revenue (ONRR). Slated to become effective on January 1, 2017, the final Consolidated Federal Oil and Gas and Federal and Indian Coal Valuation Reform Rule is a key step in improving transparency and accountability in the Federal coal program.

Management of Onshore Operations

During FY 2015, BLM held 23 oil and gas lease sales, offering 4 million acres for lease by industry. These 23 lease sales generated \$143 million in fees. While energy production on BLM-managed lands plays a critical role in meeting our national energy needs, BLM has struggled with updating its regulations for onshore oil and gas measurement. GAO has expressed concerns about the adequacy of BLM's existing rules and regulations governing the verification of oil and gas produced from Federal and Indian leases—specifically, whether BLM's rules have kept pace with changes in technology. Since royalties are determined based on measurements of production, accurate measurements are critical.

In FY 2015, BLM issued proposed regulations to update requirements for onshore oil and gas measurement (the “onshore orders”). These rules were completed and signed in FY 2016 to provide updated measurement instructions and conform to modern industry standards and practices. The new rules also include mechanisms allowing the Bureau to review and approve the use of new technologies as they are developed and demonstrated to be sufficiently reliable. BLM anticipates that the rules will be published in the Federal Register for comment in early FY 2017.

In addition to updating the onshore orders, BLM actions to improve its oil and gas program have also included a rule to limit venting and flaring of natural gas, and a rule to allow for online lease sales. BLM anticipates that these new regulations will improve the effectiveness and efficiency of its oversight and management responsibilities. The subsequent challenge for BLM, however, will be developing and implementing measures to test the effectiveness of the new rules.

Finally, we have noted in previous years a need for increased effectiveness and efficiency in BLM's processing of Federal permits to drill. Extended review times

² GAO Key Issues, “Oil and Natural Gas,” retrieved from: http://www.gao.gov/key_issues/oil_and_natural_gas/issue_summary.

create uncertainties for both industry and DOI. These delays could result in lost royalties to the Federal Government and American Indian mineral owners; if not corrected, delays will likely cause some wells not to be drilled, resulting in additional losses in production and revenues. To address inefficiencies in the permit process, BLM has deployed a new Application for Permit to Drill (APD) module in its updated Automated Fluids Minerals Support System (AFMSS II). This module allows for electronic filing of notices of staking and applications for permit to drill, which should reduce permit processing and review times, increase transparency, and facilitate resources sharing across BLM offices. BLM has indicated that additional AFMSS II modules to support inspection and enforcement activities are in development and additional funds have been requested in the FY 2017 budget to support AFMSS II expansion.

Management of Offshore Operations

Offshore oil and gas production continues to pose substantial risks to the environment and human safety. In 2012, GAO completed a study on the reorganization of the Minerals Management Service into BOEM and BSEE and recommended that DOI increase its capacity for categorizing offshore oil and gas activities according to risk, to improve oversight of these activities. Adopting risk-based capacity enables DOI to develop criteria to prospectively evaluate drilling operations according to risk.³ Although it took DOI several years to take action, in July 2016 GAO indicated that DOI is taking steps to address its concerns about risk assessment. These include publishing a regulation for systematic collection and maintenance of reliable risk data in offshore operations. Successful implementation of risk-based assessments will require sustained coordination among senior management. BOEM and BSEE will need to commit resources, track progress, and provide correction when and where feasible.

The Outer Continental Shelf Lands Act, or OCSLA (43 U.S.C. §§ 1331 et seq.), requires the Secretary of the Interior, through BOEM, to prepare and maintain a schedule of proposed oil and gas lease sales in Federal waters every 5 years (called the “Five Year Program”). Every oil and gas lease sale by BOEM must be included in the Five Year Program. The proposed Five Year Program for 2017 – 2022 schedules 13 potential lease sales—10 in the Gulf of Mexico, and one lease sale each in the Chukchi Sea, Beaufort Sea, and Cook Inlet Program Areas offshore Alaska. Oversight will continue to be a challenge as DOI implements its new Five Year Program. DOI will need to seek a wide array of input, including information on the economic, social, and environmental values of all OCS resources, as well as the potential environmental and human impacts of oil and gas exploration.

In July 2016, DOI announced final regulations regarding exploratory drilling activities on the Arctic Outer Continental Shelf (OCS), intended to ensure safe and responsible exploration of Arctic OCS oil and gas resources and protect the

³ GAO memo to Secretary Jewell on status of open DOI recommendations, July 8, 2016.

marine, coastal, and human environments and Alaska Natives' cultural traditions. More stringent than rules governing other OCS locations, the rule imposes new requirements, including the development of comprehensive plans that take into account the unique Arctic conditions. It also requires that operators demonstrate their preparedness to respond to any number of issues that may arise on the Arctic OCS. The rule only applies to Arctic OCS exploratory drilling activities that use mobile offshore drilling units (MODUs); exploratory drilling operations that use non-MODU technology continue to be subject to the existing OCS oil and gas regulatory regime.

Industry groups have challenged the basis for the final rule, arguing that some of the new requirements may not improve safety and may inhibit innovation and technological advancements. Others have suggested that the rule does not accurately reflect current industry capabilities and includes unnecessary requirements. On the other hand, some environmental groups have alleged that the final rule does not go far enough, suggesting that DOI released only minimal regulations that need strengthening.

Given that operators are scaling back on investments in Arctic OCS exploration due to lower oil prices, DOI will also need to weigh the benefits and losses associated with its increased OCS regulations in the Arctic. DOI will need to continue to commit resources, track progress, and provide corrective actions when and where necessary. Factors such as uncertainties about the Federal budget, priorities of the new administration, and the changing price of oil and gas will likely continue to affect DOI's energy management role.

Hiring and Retention

DOI continues to face challenges in hiring and retaining staff with key skills for oil and gas operations. These challenges have made it difficult to carry out Federal management and oversight activities, including collection of royalties and conducting inspections of oil and gas facilities, potentially placing human health and safety and the environment at risk. GAO's 2015 update to its High-Risk List noted human capital challenges at the bureaus responsible for oversight and management of Federal oil and gas (BLM, BOEM, and BSEE).⁴ Two primary factors contribute to these hiring and retention challenges: lower salaries and a slow hiring process compared with private industry.

To improve hiring and retention, the bureaus are taking a number of steps:

- BLM continues to refine its Operational Workforce Plans with a focus on mission-critical positions, including general biologists, environmental protection specialist, petroleum engineers (PEs), and petroleum engineering technicians (PETs). For short-term coverage, existing PEs, PETs, and environmental compliance inspectors are being cross-trained to

⁴ GAO Report No. GAO-15-290, "High-Risk Series: An Update," February 11, 2015.

conduct production inspections. OPM has approved BLM's request for special pay for critical positions in critical field locations, which (pending funding in the FY 2017 budget) is expected to help retain and recruit employees to these positions. BLM has indicated that these actions have enabled it to carry out high-priority inspections in some field offices, but many field offices continue to share staffing within their State boundaries. Although sharing of staff and cross-training provide a stopgap, failure to resolve the larger issue of staff shortfalls will impede BLM's ability to provide effective management and oversight of onshore oil and gas operations.

- BSEE has implemented a special pay rate to compete with the higher salaries offered by private industry, and continues to monitor the impact of these salary enhancements on recruitment and retention. Forty-nine percent of BSEE employees are in mission-critical occupations, including engineers, inspectors, and geoscientists. Since FY 2012, BSEE has increased its number of full-time equivalent (FTE) employees, with a goal of obtaining full staffing levels by FY 2017. In addition, BSEE is strengthening staff leadership and technical skills through its National Offshore Training Program, designed to keep staff current on new technologies and processes and promote strong leadership skills. To increase efficiency in human resources offices, BSEE has trained hiring managers, contracted for recruitment support with Monster Government Solutions, and used open position trackers for collecting data related to the overall hiring process. BSEE is revising processes and developing tools to help reduce applicant processing time and decrease long-term system operating costs.
- Steps taken by BOEM include (1) expanding the use of recruitment, retention, and relocation incentives and (2) collecting data on hiring times to analyze delays and expedite hiring. BOEM pays a special salary rate (premium) for employees who provide oversight of offshore oil and gas management, including petroleum engineers, geologists and geophysicists. In FY 2015, BOEM issued guidance to all managers and supervisors to expedite the steps they control in the hiring process. BOEM has reduced hiring time since FY 2012 and continues to work toward an 80-day hiring goal.

Although DOI and its bureaus have identified the causes of delays in the hiring process, work remains before changes can be implemented. GAO noted that DOI needs to collect and maintain complete and accurate data on hiring times—such as the time required to prepare a job description, announce the vacancy, create a list of qualified candidates, conduct interviews, and perform background and security checks—to effectively make changes to expedite the hiring process.⁵ DOI also needs to consider how it will address staffing shortfalls over time. Current efforts

⁵ GAO Report No. GAO-15-290, "High-Risk Series: An Update," February 11, 2015.

address short-term issues, but long-term needs remain essentially unaddressed. DOI must broaden its focus to improve hiring and retention of qualified employees.

Renewable Energy Development

Renewable energy resources—such as wind, solar, geothermal, and hydropower—are currently in development in the United States. Since 2009, DOI has permitted 58 utility-scale renewable energy projects on the Nation’s public lands, including 35 solar, 11 wind, and 12 geothermal projects and associated transmission infrastructure. Together, these 58 projects could generate nearly 15,500 megawatts of electricity and represent \$40 billion in potential private capital investments. In addition to the noted 58 permitted projects, DOI has also permitted 10 non-Federal hydroelectric projects through a “lease of power privilege” (permission to use a Federal facility for electric power generation). These 10 projects total 30.2 megawatts of capacity.

Although these resources are typically much cleaner to produce and to use than conventional energy resources, the potential environmental impacts must be examined, with efforts made to limit or prevent negative consequences through responsible development practices and careful oversight. BLM, BOEM, and USBR are the bureaus with primary responsibility: BLM manages 30 million acres of public lands with solar potential, and 20.6 million acres of the lands that hold the potential to generate wind power. BOEM manages 1.7 billion acres on the OCS with enormous wind-energy potential. USBR is the second largest U.S. producer of hydroelectric power, annually generating more than 41 million kilowatts of energy—enough to meet the needs of 3.5 million homes.

Although renewable energy sources provide a number of benefits, access barriers do exist. As we identified in previous management challenges reports, price competitiveness is perhaps the most significant barrier to renewable energy installations. Government can play a supportive role in renewable energy investment through a wide variety of tax incentives, including credits, grant funds, and accelerated depreciation (allowing larger deductions in the earlier years of an energy asset’s life).

Similar to oil and gas projects, renewable energy projects face a challenging series of reviews and permitting approvals governed by an array of Federal and State agencies. As a result delays can arise—as one example, the Cape Wind offshore project in Massachusetts took up the decade between 2001 and 2011. Although delays in the development of the Cape Wind offshore project were primarily due to litigation, delays can happen when a cooperating agency in the environmental review process does not seriously participate in reviewing the project proposal until late in the process after design decisions have been made. The late-reviewing agency’s concerns then become more difficult to address.

The December 2015 passage of the Fixing America's Surface Transportation (FAST) Act was designed to address this type of issue by increasing process transparency and setting deadlines for steps in infrastructure projects, including those connected with renewable or conventional energy production and water resources. These new legal requirements require the attention of the bureaus and DOI. New permitting requirements may affect the United States' ability to develop the types of energy projects needed to meet its climate goals. The FAST Act adopts many of the innovative approaches that have been employed by industry to improve the timing and quality of environmental reviews and multi-agency permitting processes. Implementation may help standardize how multiple agencies work together to complete environmental reviews and permitting processes and accomplish them in a timelier manner with better environmental results.

Our Nation's pivot toward a clean energy economy will require major new infrastructure investments. When combined with issues resulting from delays in permitting and the human capital challenges described previously, together these factors will have an adverse effect on both private industry and Government efforts. Additional infrastructure and environmental concerns may also slow the development of renewable resources. DOI is actively engaging with other Federal agencies and domestic and international parties to ensure effective coordination during the planning and permitting processes, incorporate best practices, and exchange scientific and environmental information.

Legal Challenges to Hydraulic Fracturing Regulations

Hydraulic fracturing, also known as fracking, has provided greatly increased access to shale oil and gas resources across the country and production of oil and gas from rock formations that previously could not be developed. Currently, BLM estimates that 90 percent of oil and gas wells are hydraulically fractured on Federal and tribal lands.

DOI has faced multiple hurdles in its effort to regulate fracking in recent years. DOI first proposed fracking rules in May 2012 but after receiving more than 170,000 public comments, revised rules were proposed in May 2013.

In March 2015, DOI finalized new fracking regulations to support safe and responsible hydraulic fracturing on public and American Indian lands.⁶ The new rule contained provisions similar to or based on existing State or tribal rules and industry best practices, intended to improve safety and help protect groundwater by updating requirements for well-bore integrity, wastewater disposal, and public disclosure of chemicals. Prior to the rule's scheduled effective date of June 2015,

⁶ Federal Register, Vol. 80 No. 58 (March 26, 2015): DOI BLM, "Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands; Final Rule," <http://www.gpo.gov/fdsys/pkg/FR-2015-03-26/pdf/2015-06658.pdf>.

several industry groups filed a petition for review in Wyoming's Federal district court, and shortly thereafter the States of Wyoming, Colorado, North Dakota, and Utah joined the lawsuit opposing the rule. On June 21, 2016, the U.S. District Court of Wyoming struck down the hydraulic fracturing regulations, finding that DOI (more specifically, BLM) did not have congressional authority to issue the regulations.

BLM cited its "broad authority" to regulate oil and gas operations and hydraulic fracturing under several statutes, including the Federal Land Policy and Management Act of 1976, or FLPMA (43 U.S.C. § 1701 et seq.), the Mineral Leasing Act of 1920 (30 U.S.C. § 181 et seq.), the Indian Mineral Leasing Act of 1938 (25 U.S.C. § 396a-g), and the Indian Mineral Development Act of 1982 (25 U.S.C. § 2102 et seq.). The court disagreed, finding no broad authority for BLM in the FLPMA or other cited statutes. Similarly, courts have upheld challenges to the Federal Government's authority to regulate fracking, based on an argument that these activities fall within the State's jurisdiction.

On June 24, 2016, BLM appealed the decision to the U.S. Court of Appeals for the Tenth Circuit. DOI may face similar future challenges regarding its jurisdiction to promulgate other new Federal regulations for oil and gas activities on Federal and tribal lands.

Federal Coal Program Review

Federally managed coal accounts for approximately 45 percent of the coal produced in the Nation. DOI bureaus play multiple roles in the oversight and management of coal activities; for example, BLM is responsible for coal leasing on about 570 million acres of Federal lands, as well as private lands where the Federal Government has retained the mineral rights.

Since 1979, regulations for leasing land for coal extraction have had only minor adjustments. In January 2016, Secretarial Order No. 3338 directed BLM to prepare a discretionary programmatic environmental impact statement (PEIS) that analyzes potential leasing and management reforms to the current Federal coal program (excluding coal on tribal lands and OSMRE and ONRR activities). The PEIS is designed to help DOI undertake a comprehensive review of the program and consider whether and how to improve and modernize it. DOI will release an interim report on the PEIS by the end of 2016, but the full review is expected to take approximately 3 years.

In 2016 DOI also launched a series of reforms to improve transparency and administration of the Federal coal program, including establishing a publicly available database to account for the carbon emitted from fossil fuels developed on public lands, requiring BLM offices to publicly post information about pending requests to lease coal or reduce royalties, and facilitating the capture of waste mine methane.

Together, these actions build on existing efforts to modernize the Federal coal program. The PEIS will examine environmental impact, but DOI will also need to consider stakeholder concerns that American taxpayers are not receiving a fair return on public coal resources and that the Federal coal program conflicts with the Administration's climate policy and our national climate goals. Concerns have also been raised about the Federal coal program's effects on current and future coal markets. DOI must remain attentive and make every effort within its means to ensure that environmental concerns are adequately addressed, appropriately monitored, and remedied when violations are identified.

Environmental and Safety Concerns Associated With Offshore Oil

An FY 2015 OIG evaluation identified an issue specific to BSEE, but that affects DOI as a whole, particularly with respect to safety and environmental concerns. While reviewing BSEE's Incident Investigation Program, OIG learned that BSEE was realigning the organization and developing new policies related to its new National Program Manager initiative. We suspended the evaluation to allow BSEE's management more time to finish its realignment; however, we issued a report with findings and recommendations developed during the survey phase of our evaluation.⁷ Specifically, we determined that four recommendations made in our December 2010 report "A New Horizon: Looking to the Future of the Bureau of Ocean Energy Management, Regulation and Enforcement"⁸ and considered implemented and closed were in fact not implemented. These recommendations focused on improvements to BSEE's accident investigation program, including ensuring that the program was appropriately staffed and monitored. In addition, contradictions between BSEE's policies and Secretarial Order No. 3304 (issued June 29, 2010), which established BSEE's Investigations and Review Unit, caused the unit to be left out of regional incident investigations. OIG recommended that BSEE reopen and implement the four recommendations made in the "New Horizon" report. In addition, OIG recommended that BSEE review all of the report's 64 recommendations, reopen and implement any recommendations as necessary, revise or rescind contradictory policy, and implement the requirements set forth in Secretarial Order No. 3304.

OIG also issued a management advisory in October 2015 recommending that BSEE develop an action plan for the implementation of its National Program Manager initiative. BSEE had been discussing the new initiative for more than a year, but had not provided us with timelines associated with milestones for implementation. We asked BSEE to provide quarterly progress reports regarding its organizational realignment and development of the Incident Investigation Program. To date, BSEE has provided three quarterly updates that show little

⁷ DOI OIG Report No. CR-EV-BSEE-0014-2014, "The Bureau of Safety and Environmental Enforcement, Incident Investigation Program," August 2015.

⁸ DOI OIG Report No. CR-EV-MMS-0015-2010 "A New Horizon: Looking to the Future of the Bureau of Ocean Energy Management, Regulation and Enforcement" December 2010.

progress; however, at the most recent quarterly reporting meeting in August 2016, BSEE reported 32 project work plans identified for immediate attention.

Given the safety and environmental risks associated with offshore oil activities, DOI needs to focus more attention on these issues within BSEE. Not doing so will make it much more difficult to prepare for and prevent incidents like the *Deepwater Horizon* explosion and oil spill.

Climate Effects

The lands and resources managed by DOI face increasingly complex and widespread challenges associated with climate effects. Climate trends are continuing to break records—with the first 6 months of 2016 setting the record of hottest half-year since the 19th century, 2016 is on track to be the hottest year on record.⁹ GAO has included the significant financial risk to the Federal Government posed by climate effects on its High-Risk List since 2013.¹⁰ The U.S. Global Change Research Program found that changes in Earth’s climate—including higher temperatures, rising sea levels, changing precipitation, and more intense and frequent severe weather events such as wildfires and drought—are expected to grow over time.¹¹ The Intergovernmental Panel on Climate Change reports that climate effects will likely continue and cause pervasive and irreversible damage to people, species, and ecosystems.¹²

Addressing climate effects is one of the high-priority performance goals reflected in the President’s Climate Action Plan¹³ and embedded in DOI’s strategic plan for FYs 2014 – 2018. To further its overarching response strategy (established in 2009 by Secretarial Order No. 3289), DOI issued a climate change adaptation plan in 2014 and by the end of FY 2017 plans to mainstream climate change adaptation and resilience into programs and infrastructure.

The Administration plays a critical role via funding for Federal agencies, State and local governments, and other stakeholders. We have previously noted that maintaining adequate internal controls for grants management is a challenge for climate effects programs at DOI. If not corrected, issues surrounding transparency, competition, and proper training on the financial assistance process will impair these programs. We have found similar issues across all grants management within DOI; see “Acquisition and Financial Assistance” in this management challenges report for further discussion.

Wildland Fire Costs and Strategy

Climate effects such as higher temperatures and earlier arrival of spring make for drier soils, increased likelihood of drought, and a longer wildland fire season. The 2015 wildfire season was the costliest on record, with \$417.5 million spent by

⁹ K. Deamer, “Hottest Year Ever? 2016 Burns Through Heat Records, NASA Says,” Live Science, July 20, 2016, <http://www.livescience.com/55469-2016-could-be-hottest-year-on-record.html>.

¹⁰ GAO Report No. GAO-15-290, “High-Risk Series: An Update,” February 11, 2015.

¹¹ U.S. Global Change Research Program, “Highlights of Climate Change Impacts in the United States: The Third National Climate Assessment,” October 2014, <http://nca2014.globalchange.gov/highlights>.

¹² Intergovernmental Panel on Climate Change, “Climate Change 2014 Synthesis Report,” 2015, http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf.

¹³ “The President’s Climate Action Plan,” June 2013, <https://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf>.

DOI to respond to more than 68,000 wildfires that burned a record 10 million acres across the United States. Nationwide, more than 4,600 homes and structures were destroyed, and the lives of 13 wildland firefighters were lost in the line of duty. Enacted funding for the FY 2016 wildland fire includes \$330.4 million for fire preparedness and \$317.7 million for fire suppression.

In the last 15 years, DOI has exceeded its wildland fire suppression budget six times. These budget shortfalls are covered through transferring, or “borrowing,” funds from other critical programs, including those that can help keep forests and rangelands healthy and make them less vulnerable to future wildfires. Catastrophic fires that account for 2 percent of wildland fires consume 30 percent of annual suppression dollars. The costs of wildfire preparedness and suppression in FY 2016 now account for 71 percent of the DOI wildland fire budget and reduces the amount of funds available for fuels management and restoration efforts. These activities are essential for reducing risks of catastrophic fires, increasing the resiliency of lands to recover from fire, and protecting communities and infrastructure.

Current legislative proposals seek to address this issue by classifying major fires as natural disasters (which would release Federal disaster relief funds), but to date these bills have not been passed. In September 2015, the Secretary of the Interior, the Secretary of Agriculture, and the Director of OMB issued a joint letter to multiple members of Congress requesting that Congress allow DOI to use an emergency fund for firefighting spending when 70 percent of the 10-year average of wildfire suppression costs have been spent.

The goals set forth in the National Cohesive Wildland Fire Management Strategy (published April 2014) and Secretarial Order No. 3336 (signed January 5, 2015) include resilient landscapes, fire-adapted communities, and safe and effective wildfire response. To prepare for the 2016 wildfire season, DOI applied landscape treatments to help prevent wildfires by allowing controlled prescribed fire to burn, thinning forest trees and vegetation in areas of critical habitat, and controlling invasive weeds that increase the risk of wildfire.

GAO has recommended that DOI clarify financial responsibilities for suppressing fires across multiple jurisdictions, expand efforts to collect information on firefighting aircraft in the Federal fleet, and update strategy documents to include analysis based on information such as aircraft performance and effectiveness. DOI must take action on these GAO recommendations to improve management of wildland fires.

Tribal Impact

Climate effects threaten the culture and way of life of American Indian and Alaska Native tribes, potentially affecting tribal lands, housing, and infrastructure, as well as access to traditional foods and adequate water. DOI upholds the Federal

Government's trust responsibilities to 567 American Indian and Alaska Native tribes and villages.

During the first 7 months of 2016, temperatures in Alaska broke records for warming, averaging 33.9 degrees Fahrenheit, or 8.1 degrees above the 20th century average of 25.8 degrees Fahrenheit.¹⁴ According to the Third National Climate Assessment, increasing temperatures have caused a significant reduction in sea ice, increased erosion, a rise in sea levels, and changing times for snowfall. These conditions pose dire problems for Alaska Native communities, including injury from falling through thin sea ice, unsafe hunting and fishing conditions, malnutrition from food scarcity, contamination of food and water, loss of homes and buildings, and increasing social and mental stress from loss of traditional culture. Many tribes have been forced to relocate or consider relocating from their traditional communities as a result of climate effects, forcing Native communities to adapt to unfamiliar landscapes and natural resources.

GAO reported that 31 Alaska Native villages are imminently threatened by flooding and erosion.¹⁵ For example, inhabitants of Kivalina and Shishmaref face severe coastal erosion and flooding. The costs of relocating inhabitants are estimated to range from \$95 million to \$125 million for Kivalina, and from \$100 million to \$200 million for Shishmaref. The President has proposed new funding to build resilience of Alaskan communities and natural resources against climate effects in the FY 2017 budget. Roughly \$400 million of the proposed \$2 billion for DOI's Coastal Climate Resilience Program will be allocated to fund challenges like the relocation of Alaska Native villages. This program provides high-risk coastal communities with resources to support preparation and adaptation to climate effects over a 10-year period. An additional \$5 million is proposed for BIA to support resilience planning and subsistence activities in Alaska.

Climate effects are felt not just in Alaska, but across many American Indian lands. For example, the Quinault Indian Nation, located on the Pacific coast in Washington, is developing a plan for relocation since a significant portion of its village is experiencing flooding and landslides from sea level rise and intensified storms. The Biloxi-Chitimacha-Choctaw tribe of Louisiana has lost 98 percent of its land to sea-level rise. The tribe received a \$48 million grant from the U.S. Department of Housing and Urban Development to relocate, but members fear losing their cultural identity and traditions once they leave their homes. DOI needs to develop and implement climate adaptation and resilience strategies to help preserve American Indian and Alaska Native ways of life.

¹⁴ S. Visser, "Alaska Has Record Warmth This Year," CNN, August 9, 2016, <http://www.cnn.com/2016/08/09/us/alaska-record-warmth-this-year/>.

¹⁵ GAO Report No. GAO-09-551 "Alaska Native Villages Limited Progress Has Been Made on Relocating Villages Threatened by Flooding and Erosion," June 2009.

Water Scarcity

Climate effects are altering weather and streamflow patterns that framed the development of water and power systems in Western States. As the largest wholesaler of water in the country, USBR provides water for 31 million people and 10 million acres of farmland. Changes in water supplies, water demands, and the increased duration and frequency of droughts have the potential to affect USBR's ability to fulfill its mission. For example, in May 2016 the essential Lake Mead reservoir on the drought-stricken Colorado River reached a record low and was only 37 percent full.¹⁶ At maximum capacity, the reservoir's water would measure 1,221 feet in elevation; as of September 2016, Lake Mead was at 1,075 feet. USBR projections show that water levels will be under 1,075 feet in April 2017.¹⁷ If the elevation is projected to be under 1,075 feet on January 1, USBR would declare a shortage and decrease the allocation of water to residents of Arizona by 11 percent and Nevada by 4 percent.¹⁸

According to USBR's 2016 "SECURE Water Act Report," temperatures will increase 5 to 7 degrees Fahrenheit by 2100, precipitation will decrease in the southwestern and south-central areas of the United States, and a higher incidence of toxic algal blooms (a rapid growth of algae) and pollutants may occur. These climate effects threaten the water sustainability, particularly in Western States where water supply and operations are at significant risk. Watershed integrity, human health, fish and wildlife habitat, water recreation, and ecological resources are at risk due to climate effects.

In light of these challenges, USBR is implementing its Climate Change Adaptation Strategy and communicating with its stakeholders about the significance of the risks posed by climate effects and the importance of taking proactive steps to adaptation. The strategy identifies new activities to extend climate effects adaptation efforts across USBR mission responsibilities, including immediate and longer term actions. USBR faces a shortage of technically qualified staff needed to implement this strategy. To address this capacity challenge, USBR is collaborating with USGS and other agencies to provide staff with training in climate science, assessment methods, and incorporation of assessment results into planning efforts.

Coordination and Controls at LCCs and CSCs

DOI's FY 2017 budget includes \$1 billion for research and development activities, an increase of \$84.5 million from the FY 2016 enacted level. Landscape conservation cooperatives (LCCs) and climate science centers (CSCs)

¹⁶ NASA Earth Observatory, "Visualizing the Highs and Lows of Lake Mead," May 27, 2016, <http://earthobservatory.nasa.gov/IOTD/view.php?id=88099&src=eoaiotd>.

¹⁷ USBR, "Operation Plan for Colorado River Reservoirs," September 2016, <http://www.usbr.gov/lc/region/g4000/24mo.pdf>.

¹⁸ DOI, "Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead," December 2007, <http://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf>.

are allocated \$201 million of that FY 2017 amount, a \$37 million increase from the previous year. Requested funds will support conservation initiatives on the front lines of the effort to address a changing climate and help confront the unpredictable nature of its impacts—primarily through research awards made by CSCs and LCCs, which are the cornerstone of DOI’s climate response strategy. With similar missions, CSCs and LCCs must ensure that duplication of research efforts does not occur, so that Federal funds are not wasted.

In a 2015 review of LCCs, the National Academy of Sciences found inadequate controls and project tracking at several LCCs.¹⁹ Ongoing evaluation of LCCs needs to be improved to ensure that metrics are captured to track the contributions made by all partner agencies toward common objectives. If metrics are not tracked, the effectiveness and achievements of LCCs may not be understood, leading Congress to reduce or seize funding.

USGS has expressed concern that CSCs are operating out of compliance with legislation and rules that govern contracts and grants, unlike the USGS Cooperative Research Units program on which the enterprise is modeled. The CSCs have maximized operating flexibility to the extent possible under current USGS regulations, but are not able to form long-term cooperative approaches with partners. DOI should define how the CSCs should operate within Federal law, which would help ensure that CSCs operate as originally envisioned.

Sea Level Rise, Ocean Acidification, and Coastal Community Impact

Sea levels have risen roughly twice as fast in the past 20 years as they rose in the preceding 80 years.²⁰ Cascading effects can include increased storm surge, coastal erosion, wetland and coastal plain flooding, property damage or loss, and loss of habitats for fish, birds, and other wildlife and plants. Levels of carbon dioxide, or CO₂, in the atmosphere are also rising.²¹ Ocean absorption of CO₂ emissions changes the water chemistry by increasing the amount of acid. Called ocean acidification, this process may severely disrupt oceanic food chains, degrade marine ecosystems, and decrease the viability and availability of shellfish and coral reefs. The National Academies reported that ocean acidification may be contributing to the decrease in coral growth,²² which is troubling, as coral reefs can protect low-lying areas against flooding, erosion, and other coastal hazards.

¹⁹ National Academies of Sciences, Engineering, and Medicine, “A Review of the Landscape Conservation Cooperatives,” December 2015, <https://www.nap.edu/catalog/21829/a-review-of-the-landscape-conservation-cooperatives>.

²⁰ National Geographic, “Sea Level Rise: Ocean Levels Are Getting Higher—Can We Do Anything About It?” <http://ocean.nationalgeographic.com/ocean/critical-issues-sea-level-rise/>.

²¹ GAO Report No. GAO-14-736 “Ocean Acidification Federal Response Under Way, but Actions Needed to Understand and Address Potential Impacts,” September 2014.

²² National Research Council of the National Academies, “Ocean Acidification: Starting With the Science,” 2013, <http://dels.nas.edu/resources/static-assets/materials-based-on-reports/booklets/OA1.pdf>.

Both sea level rise and ocean acidification could have a negative impact on tourism and the economy in affected areas. For example, the Suquamish Tribe relies on Puget Sound ecosystems for economic, nutritional, and cultural needs; about 20 percent of the tribe's members earn income from harvesting fish and shellfish.²³ Further, according to research by scientists at NPS and Western Carolina University, national park infrastructures and historic and cultural resources totaling more than \$40 billion are at high risk of damage from sea level rise caused by climate effects.²⁴ In the high-exposure category are iconic sites such as the Statue of Liberty and the Golden Gate Bridge. Because the report only examined 40 of the 118 national parks considered vulnerable to sea level rise, the \$40 billion figure may only represent a fraction of assets that could be lost. Managing and prioritizing planning within these coastal parks to account for sea level rise poses a challenge to NPS park officials.

Sea level rise also disproportionately affects many of our Insular Areas, where populations are generally concentrated along coastlines of islands with average elevation of only 2 meters above sea level that can experience waves as high as 5 to 7 meters. The area available for human habitation, water and food sources, and ecosystems is limited and extremely vulnerable to sea-level rise. For example, unexpected high tides and 5-meter swells have wreaked havoc on the Marshall Islands in 2014 to such an extent that a state of emergency was declared. In FY 2016, DOI authorized grants for Insular Areas including \$286,000 for the Commonwealth of the Northern Mariana Islands to better coordinate climate response and invasive species policies and initiatives, \$828,050 for the U.S. Virgin Islands to develop a robust, multi-sector climate adaptation strategy, and \$1 million to Insular Areas to address the impacts of climate effects and other threats to coral reefs. The FY 2017 budget proposal includes \$4 million to the Office of Insular Affairs (OIA) for community, landscape and infrastructure adaptation and resilience initiatives. With FY 2017 funding, OIA plans to provide support for the development of adaptation plans, vulnerability assessments, and resiliency strategies for the Insular Areas. To combat negative climate effects and sea level rise, OIA will endeavor to coordinate the sharing of knowledge and policies, plans, assessments, data, tools, and other essential resources.

²³ U.S. Resilience Toolkit, "Suquamish Build Resilience to Ocean Acidification Through Education," August 9, 2016, <https://toolkit.climate.gov/taking-action/suquamish-build-resilience-ocean-acidification-through-education>.

²⁴ NPS and Western Carolina University, "Adapting to Climate Change in Coastal Parks: Estimating the Exposure of Park Assets to 1 m of Sea-Level Rise," June 23, 2015.

Information Technology

Cyber threats are one of the most serious economic and national security challenges facing our Nation. Federal information security has been on GAO's High-Risk List since 1997. In 2003, GAO expanded the listing to include cyber critical infrastructure protection, and in 2015 added protection of personally identifiable information.²⁵

Threats to cyber assets include insider threats from disaffected or careless employees and business partners, escalating and emerging threats from around the globe, the ease of obtaining and using hacking tools, the steady advance in sophistication of attack technology, and the emergence of new and more destructive attacks. Ineffective protection of cyber assets can result in the loss, unauthorized disclosure, or alteration of information. This could have serious consequences—such as disruption to operations, unauthorized use of IT resources, and damage to networks and equipment—and result in substantial harm to individuals and the Federal Government. Because no single technology or tool can protect against all cyber threats, GAO recommends a multi-layered, “defense in depth” approach to information security.²⁶

DOI relies on complex information systems and electronic data to carry out its daily operations. Specifically, DOI spends about \$1 billion annually on its portfolio of IT assets, which includes 150 information systems, to support DOI programs and activities.

For decades DOI has struggled to implement an IT governance approach that effectively aligns authority and responsibility commensurate with DOI's overall mission. Ineffective IT governance poses challenges to DOI's ability to protect its computer systems and networks against cyber attacks, manage and secure both hardware and software assets, harness the benefits of Cloud computing, and implement departmentwide IT security initiatives for continuous diagnostics and mitigation.

Insider/Outsider Threats

External threats to Federal information systems are persistent and increasing, and the risk for real damage is high. Because of the large size of its networks, and because those networks contain sensitive information, DOI is a regular target of cyber attacks. In addition, DOI's substantial connectivity with outside organizations—such as other Federal agencies, private sector companies, and universities—makes protecting its network essential for preventing sophisticated attackers from using security flaws in a DOI system to gain unauthorized access

²⁵ GAO Report No. GAO-15-290, “High-Risk Series: An Update,” February 11, 2015.

²⁶ GAO Report No. GAO-15-725T, “Recent Data Breaches Illustrate Need for Strong Controls Across Federal Agencies,” June 24, 2015.

to the outside networks DOI is connected to. Over the past few years, hackers and foreign intelligence services have compromised DOI's computer networks by exploiting vulnerabilities in publicly accessible systems on multiple occasions. These security incidents resulted in the loss of sensitive data and disruption of bureau operations.

Mitigation of insider IT threats is also a challenge. Insider threats could result in private or sensitive information being exposed, compromised, or stolen, whether intentionally or unintentionally. Safeguards—such as adequate policies, procedures, and training; firewalls; antivirus/anti-malware protection; data encryption; password protection; and two-factor authentication logins—must be properly planned and implemented to help ensure against unauthorized access to or transfer of data, and modification of data or disruption of services or systems. DOI is working to address some of these issues, for example through implementation of two-factor authentication for computer access in 2015 and required PIV-login for email in 2016.

Physical structures are at risk from cyber attack as well. For example, protection of USBR's inventory of assets, which includes 471 dams and dikes, is critical because a breach could result in human casualties, property destruction, and economic loss, as well as erode public trust and confidence. DOI has asked USBR to implement a program to analyze and improve its cybersecurity of industrial control systems (ICSs), which are IT control networks and systems, often interconnected and mutually dependent, that support the operation of critical infrastructures. ICS security is integral in protecting USBR dam sites from attack.

With the ever-increasing threat of cyber attacks, protection of IT systems and the data needed to operate and maintain critical infrastructure is essential. Further, attack detection and response are just as critical as prevention controls. DOI must be positioned to intercept and deflect any unauthorized IT intrusion from inside or outside. DOI's response to any cybersecurity incident must be swift and effective, to minimize any damage that might be caused, alleviate the system weaknesses that were exploited, and restore IT services. Establishing rigorous cyber policies and controls is crucial to maintaining DOI operations. Security issues will continue to expand unless funding, strategic planning, and policy are improved.

Continuous Monitoring

The Federal Information Security Management Act, or FISMA (Pub. L. No. 107-347) requires that Federal agencies evaluate information security programs annually to determine whether they are effective and comply with standards set by the National Institute of Standards and Technology (NIST). FISMA also requires that Federal agencies develop information security protections commensurate with the risk of malicious or unintentional impairment of agency IT assets.

Recent FISMA guidance shifted the focus of agency oversight from fixed-time assessments and compliance reporting to using appropriate tools and techniques to

continuously monitor IT security controls. If designed and managed properly, a continuous monitoring program can turn security control assessment and risk determination into a more active process to provide crucial, real-time information regarding a system's security status. This continuous monitoring enables officials to make appropriate risk-based decisions and take proper risk mitigation actions in a timely manner regarding IT systems operation.

Due to recent high-profile cybersecurity breaches in both the Federal Government and the private sector, the significance of continuous monitoring is gaining greater public awareness. The objective of a continuous monitoring program is to determine whether an information system's planned, required, and deployed security controls continue to be effective over time as inevitable changes occur to the hardware, software, firmware, or operating environment. To effectively support continuous data monitoring systems, DOI will need the most advanced technology (including vulnerability scanning tools and network scanning devices) and highly qualified IT personnel. DOI will need to make an additional effort to realize a continuous monitoring program and provide security and risk assessments.

Cloud Computing

Cloud computing is the practice of using remote, Internet-based servers for data storage and processing instead of local servers. Secure Cloud services include infrastructure, storage, and web applications through public and private Clouds.

To harness the benefits of Cloud computing, OMB adopted a "Cloud First" policy in 2011 to require agencies to evaluate secure Cloud computing options before making any new IT investments. Cloud computing offers DOI the opportunity to be more efficient and agile, by making more effective use of IT investments, applying innovations developed in the private sector, and leveraging Cloud infrastructure without having to acquire hardware, which lowers both time and cost barriers to deployment.

In late 2013, DOI issued contracts potentially totaling approximately \$10 billion with 10 companies (IBM, AT&T, Verizon, Unisys, Lockheed Martin, Aquilent, Smartronix, CGI Group, Autonomic Resources, and Global Technology Resources) to acquire unlimited Cloud hosting services. In January 2016, DOI completed the migration of its financial and business management system (FBMS) to the Cloud, making it the first Federal agency to do so.

DOI's move to Cloud computing represents a paradigm shift from buying IT as a capital expenditure to buying IT as a service. DOI believes the money it will save from optimizing its IT environment, including moving to the Cloud, will outweigh the costs, and estimates saving \$100 million a year between 2016 and 2020 in IT costs.

Even though DOI is ahead of other departments in Federal use of Cloud computing, improvements to strengthen IT governance and risk management practices are needed to help ensure that all Federal and Department IT security requirements are met to mitigate the chance that a bureau's operations might be disrupted, data lost, or public funds misused. Specifically, improved coordination between DOI's chief information officer (CIO) and its bureaus could add more oversight so that unapproved and unsecured Cloud services are not implemented, and to ensure that Cloud-computing contracts incorporate best practices while meeting all Federal requirements. Further, weaknesses in DOI's risk management and an absence of controls to monitor and manage Cloud service providers and the data residing within their systems could subject DOI data stored in the public Cloud to the risk of loss or exposure to unauthorized parties.

Wi-Fi in National Parks

Some lawmakers have recently called for increased availability of wi-fi—a technology that allows computers, some mobile phones, iPads, game consoles, and other devices to communicate over a wireless signal—in national parks. Proponents argue that wi-fi would improve public safety, increase availability of interpretive services, boost tourism, and better meet the needs of the visiting public.

Increasing wi-fi access in national parks could cause significant IT and infrastructure challenges, and it could be costly. Out of the 412 designated units in the National Park System, 59 are national parks with varying degrees of wireless service. In addition to deciding how pervasive the wi-fi coverage should be and ensuring that wi-fi hotspots (physical locations that provide wireless access) have sufficient connections to the Internet, NPS would need to ensure that it has adequate IT infrastructure to secure the network. Also, new wi-fi infrastructure would need to be able to integrate with the natural environment inside the parks and withstand the elements.

Software and License Management

Each year, the Federal Government spends more than \$6 billion on software through more than 42,000 transactions, which results in a fragmented and inefficient marketplace. GAO has indicated that agencies buy and manage software licenses in a decentralized manner, struggle to create accurate inventories, often purchase unneeded capabilities, and generally do not facilitate better purchasing by sharing pricing or terms and conditions across the Government.²⁷

Regarding DOI specifically, GAO reported that DOI had not established a comprehensive policy for management of software licenses; had a decentralized management of licenses; and did not regularly track, manage, and report on the

²⁷ GAO Report No. GAO-14-413, "Federal Software Licenses: Better Management Needed to Achieve Significant Savings Government-Wide," May 22, 2014.

majority of software licenses. Poor software asset management can lead to overbuying, maintaining expensive and underutilized software assets, and even cybersecurity vulnerabilities.

To address these and other IT challenges and enhance implementation of the Federal Information Technology Acquisition Reform Act, or FITARA (Pub. L. No. 113-291), OMB issued new policy on June 2, 2016, directing agency CIOs to appoint a software manager. Each agency's software manager will be responsible for managing all agencywide commercial software agreements and licenses, leading an agencywide effort to centralize license management, implementing strategies to reduce duplication, and ensuring the adoption of software management best practices, among other duties. OMB is also requiring agencies to compile a baseline inventory of their custom and commercial-off-the-shelf software licenses purchased, deployed, and in use. Further, beginning November 30, 2016, and each quarter thereafter, all departments and agencies are required to report to OMB all cost savings and cost avoidance attributable to improved software license management.

DOI must move quickly. Leveraging the Government's vast buying power and implementing coordinated strategies, such as increasing the number and use of Governmentwide software agreements and improving software license management practices through automated IT asset discovery tools and business intelligence software, could help reduce duplication of effort.

Staffing and Procurement Difficulties

Hiring and retaining talented IT and cybersecurity professionals is a growing challenge and likely to affect operations in the short and long terms. The demand for skilled IT professionals in the private sector is extremely high, and attracting those individuals to Government service with the current Federal pay structure can be difficult. This is especially true for the IT security sector. These factors, coupled with time-consuming hiring processes, have resulted in longer vacancies within DOI. Accurate classification of IT positions has been an issue,²⁸ and development of an automated classification tool to standardize and speed up the classification process would help with hiring IT professionals. Age disparity within the IT workforce is another factor that may impact operations, as retirements produce gaps in leadership and institutional knowledge.

FITARA was the first major overhaul of Federal IT in almost 20 years, giving department-level CIOs more authority and requiring them to modernize IT operations and services. Specifically, FITARA established Governmentwide IT

²⁸ According to GAO, the classification system cannot easily keep pace with the Government's evolving IT requirements. Agency personnel who classify occupations and develop position descriptions may not understand the technical nuances between similar occupations, and thus may classify positions inconsistently, which may result in unequal treatment of comparable employees. For more information, see GAO Report No. GAO-14-677, "OPM Needs to Improve the Design, Management, and Oversight of the Federal Classification System," July 31, 2014.

management controls, tracking and risk management for IT investments, expanded authority and accountability for agency CIOs, and more strategic IT acquisition policies. While these efforts should improve transparency and help DOI get a better grasp on how IT funds are expended, streamlining related processes and automating reporting would help reduce any additional operational burden. To further improve IT acquisitions, contracting staff with specialized understanding of IT purchasing and regulations are needed.

Demand for IT services is growing faster than funding, further complicating how DOI handles staffing and procurement challenges. To strengthen compliance with FITARA requirements, DOI's Office of the Chief Information Officer (OCIO) is implementing a series of technology innovations and efficiencies to deliver improved services across the Department at lower costs. These initiatives include reducing operating costs and energy consumption by consolidating and centralizing DOI's IT infrastructure and compliance functions. Because DOI's largely decentralized IT environment can create challenges in coordinating IT budgets and activities, the OCIO is also working to align IT capabilities with business and mission areas, to increase effectiveness, improve transparency and service delivery, and increase productivity and customer satisfaction.

In addition, data center consolidation efforts are underway, but require careful planning to ensure that operational improvements and efficiency are achieved. As a complicating factor, these consolidation efforts require initial investments but may not realize cost savings for several years. The initial push toward consolidation is resulting in mostly colocation, rather than actual consolidation, of services. Also, migrating data to a core data center can be costly, and the difficulties of coordinating between multiple bureaus at individual locations may increase physical security concerns. Capturing savings in facility costs from data center consolidation initiatives presents additional issues and challenges—for example, the difficulty of calculating accurate estimates for space and utility needs, and how to account for space once occupied by closed data centers in DOI offices. As DOI moves to Cloud-based services, the use of the Cloud could help accelerate data and service consolidation.

Water Programs

The quality and availability of water are increasing concerns across the country. Further, maintaining the Nation's water infrastructure is becoming more costly over time due to cost increases and the perpetual need for facility maintenance, rehabilitation, and replacement.

In many areas of the country, especially the arid West, lengthening droughts, limited water supplies, and rising demand for water are forcing communities, stakeholders, and governments to explore new ideas and find new solutions that will help ensure stable, secure water supplies for future generations. USBR and USGS play key roles in helping the Nation manage and sustain the current supply of fresh water in rivers, lakes, aquifers, and other sources and preserve a healthy ecosystem to ensure the future supply.

USBR operations are informed and supported by research and analysis provided by USGS. For example, the National Water Census is a USGS research program that develops new water accounting tools and assesses water availability at regional and national scales. Through the Water Census, USGS integrates diverse research on water availability and use to increase understanding of the connection between water quality and water availability.

OIG findings related to water management have centered on insufficient oversight of Government-funded projects. This can lead to misappropriation of assets, project failure, and theft. In addition, we have previously noted inaccurate accounting practices for interagency agreements and water projects, specifically in the calculation of cost allocations and overhead rates. These miscues can cause overages in costs and charges.

Infrastructure and Expanding Water Demand

USBR is the largest wholesaler of water in the country, delivering water to more than 31 million people and providing one out of five Western farmers with irrigation water for 10 million acres of farmland. USBR is also the second largest hydroelectric power producer in the West, generating more than 40 billion kilowatt hours of electricity (enough to supply over 3.5 million U.S. households) and collecting nearly \$1 billion in gross power revenues for the Federal Government. In addition, the Western United States is one of the fastest growing regions of the country. Urbanization has created demands for water, power, and recreational facilities, but also has created public health and safety issues. For example, one-time rural canals now flow through residential subdivisions, increasing the risk of damage to private property in the event of infrastructure failure or malfunction.

Protecting and extending the life of aging water infrastructure are significant challenges facing USBR and DOI, and maintenance, rehabilitation, and

replacement will become more costly over time. Due to the declining Federal budget, USBR's ability to dedicate funds to support this effort is limited. Therefore, USBR is exploring ways to help water users (both individuals and companies) improve infrastructure without interruption in water services, such as through extended repayment, title transfer of Federal facilities to non-Federal customers or water contractors to give them greater autonomy, use of excess capacity in USBR projects for the storage and conveyance of nonproject water, and private financing in partnership with public entities.

In addition, USBR is aggressively monitoring the condition of its facilities near urbanized areas and using a risk-based approach to prioritize mitigation activities. Additional authorities and other legislation may be needed to ensure the continued availability of water and power to these communities.

Extreme Drought

Every year, drought affects millions of Americans and poses a serious threat to the resilience and security of communities nationwide. Extreme, widespread drought challenges the security of the U.S. food supply and the integrity of critical infrastructure, causes extensive economic impacts, and increases energy costs. Climate effects are expected to increase the frequency, intensity, and duration of droughts in many regions, and persistent drought could force foundational changes in the way communities use and live on the land.

DOI is challenged to provide reliable water supplies for community water systems, agriculture, energy production, and manufacturing, while at the same time preserving rivers, streams, and other aquatic ecosystems for future generations. As the largest supplier and manager of water in the Western States, DOI needs to be prepared to mitigate the negative consequences associated with the expansion of water needs in that region. Meanwhile, current drought conditions have placed unprecedented pressure on DOI's ability to address the imbalance between supply and demand of water in the West. DOI has outlined the growing risk to Western water management and cites warmer temperatures, changes in precipitation and snowpack, and the timing and quality of streamflow runoff across major river basins as threats to water sustainability.

DOI combats extreme drought through several programs and initiatives. As part of the National Drought Resilience Partnership, DOI coordinates long-term drought resilience efforts and information-sharing at all levels of government to give communities the drought assistance they need. In March 2016, the National Drought Resilience Partnership published a "Long-Term Drought Resilience" action plan that outlines activities to respond to drought and build national capabilities for long-term resilience. USBR's WaterSMART (Sustain and Manage America's Resources for Tomorrow) Basin Studies Program is another program used to address drought conditions. This collaborative study program is used to evaluate the impacts of climate effects and identify potential options to resolve current and future water supply and demand imbalances. USBR's WaterSMART

Program also includes the Drought Response Program, initiated in 2015, which provides assistance to States, tribes, and local government entities for drought contingency planning that includes consideration of climate effects, and for implementation projects that build long-term resiliency to drought. In FY 2016, 23 projects from the Drought Response Program were selected alongside 53 WaterSMART Water and Energy Efficiency Grants to provide a total of \$30.5 million for efficiency improvements, drought contingency planning, and drought resiliency projects. Without effective monitoring and oversight, these grants are subject to the risk of project failure, misappropriation, and theft.

Another challenge for DOI, and an extension of human capital challenges described previously, is a shortage of technically qualified USBR staff to support implementation of climate adaptation planning efforts, including planning related to drought. USBR continues to invest in training to build staff knowledge and capabilities; but cross-training will not overcome the shortfall of qualified individuals or accomplish increasing workloads in the near term.

Rural Water Systems

Current data indicate that millions of Americans still live without safe drinking water. Many rural communities face significant challenges in financing the costs of replacing or upgrading aging and obsolete facilities and systems. Federal agencies estimate that the costs of replacing infrastructure in these communities will total more than \$140 billion in the coming decades.²⁹

Extending the lives of these structures and making efficiency improvements is a challenge. USBR is one of seven Federal agencies that provide funding or technical assistance to rural communities to develop drinking water and wastewater systems. The presence of this many Federal entities, plus State and local governments, can raise concerns about duplication of effort, inefficient processing of applications for aid, and increased fees to local communities to fund multiple environmental and engineering studies. USBR must coordinate policies and procedures and prioritize funding for projects that reduce waste and accomplish meaningful goals.

USBR's FY 2016 budget request included \$36.6 million for rural water projects, including \$18.6 million for continued construction of authorized projects. An additional \$47 million was also authorized for construction in FY 2016. Congress authorized USBR to undertake the design and construction of six projects in FY 2016 intended to deliver potable water supplies to the following water systems: Dry Prairie Rural Water System (in Montana), Eastern New Mexico Water Supply, Jicarilla Apache Rural Water System (in New Mexico), Lewis and Clark Rural Water System (spanning South Dakota, Minnesota, and Iowa), Pick

²⁹ GAO Report No. GAO-15-450T, "Rural Water Infrastructure: Federal Agencies Provide Funding But Could Increase Coordination to Help Communities," February 27, 2015.

Sloan-Missouri Basin Program (in North Dakota), and the Rocky Boy's/North Central Rural Water System (in Montana).

Some organizations have voiced concerns about the environmental costs of dams and levees, such as hampered fish migration, downstream erosion, and degraded water quality. USBR is involved in more than a dozen river restoration programs benefiting fish species that have been affected by years of drought and environmental decline. Another challenge for DOI is that improvements to our large-scale water infrastructure must be accomplished in ways that do not harm aquatic species and ecosystems and must be designed to ensure resiliency in the face of increasing climate effects and natural hazard events.

Responsibility to American Indians and Insular Areas

DOI's mission includes fulfilling trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities.

Fulfilling responsibility to American Indians is consistently a top management challenge for DOI. Through BIA and BIE, DOI provides services to 567 federally recognized tribes with a population of about 1.9 million American Indian and Alaska Natives, has trust responsibilities for 55 million surface acres and 57 million acres of subsurface mineral estates, and provides education services to about 42,000 Indian students in 183 schools and dormitories. DOI funds Indian Country programs that provide social services, law enforcement and detention services, tribal justice systems, housing assistance, repair and maintenance of roads and bridges, and economic development programs in some of the most isolated and economically depressed areas of the United States.

In the Insular Areas, DOI executes administrative responsibilities through the Office of Insular Affairs (OIA) to coordinate Federal policy for the territories of American Samoa, the Commonwealth of the Northern Mariana Islands (CNMI), Guam, and the U.S. Virgin Islands. OIA also administers and oversees Federal financial assistance to the Federated States of Micronesia, the Republic of the Marshall Islands, and the Republic of Palau, as well as provides technical and financial assistance to all of the Insular Areas.

OIG findings have highlighted the same or similar issues for multiple years. Specifically, substantial work is needed to improve the Indian education system, particularly in creating environments where children are safe and have adequate means to thrive. In addition, both American Indian and Insular Area operations have longstanding deficiencies in records management and inadequate policies and procedures, which continue to hinder their accountability when handling public funds. BIA continues to struggle to develop and retain crucial personnel, which reduces the effectiveness of key programs. Issues persist within BIA detention system as safety measures have continued to be ignored or overlooked. Overall failures in the management of various responsibilities entrusted to BIA compound these findings, making it difficult for BIA to achieve its mission goals.

Management of Contracts and Grants

DOI awarded more than \$2.1 billion in contracts, grants, and other financial assistance to Indian Country and more than \$300 million to Insular Areas during FY 2016. Historically, single audits and OIG audits have identified severe deficiencies and material weaknesses in the capacity of tribes and Insular Areas to effectively manage taxpayer funds. DOI-funded programs and operations in Indian Country and Insular Areas are susceptible to fraud, waste,

mismanagement, and abuse, due in part to the absence of spending oversight and insufficient procurement resources.

Tribes receive funding from a number of Government agencies, such as BIA, USBR, the U.S. Department of Transportation, and the U.S. Department of Education. BIA regional and agency staff are responsible for oversight of these funds. Examples of inadequate oversight by BIA staff of tribal use of Government funds include inaccurate documentation filed by tribes to certify how they are spending funds and BIA's failure to review single audits submitted by tribes. BIA and BIE are also challenged by a limited number of warranted contracting officers and contracting officer's representatives, who are responsible for monitoring and overseeing contracts.

In the Insular Areas, transparent procurement continues to be a challenge. For example, Guam's procurement activities are backlogged and requisition processing times delayed due to staffing shortages and training gaps.

Each Insular Area government has an Office of the Public Auditor (OPA) or equivalent entity that helps ensure the integrity of government operations and spending. OPAs face challenges in competing for and retaining qualified audit and investigative staff, largely due to insufficient budgets and limited labor pools. Through a Capacity Building Program, OIG offers technical training to the public auditors in Insular Area governments, designed to strengthen accountability and help ensure good governance.

Land Buy-Back Program

Across Indian Country, more than 245,000 owners of 3 million fractionated interests, spanning about 150 Indian reservations, are eligible to participate in the Land Buy-Back Program. The program was created to implement the land consolidation component of the *Cobell v. Salazar* settlement, which provided \$1.9 billion to consolidate fractionated land interests across Indian Country within a 10-year period, which ends in November 2022.

Land fractionation is a serious problem throughout Indian Country. As lands are passed down through generations, they gain more owners. Many tracts now have hundreds and in some cases thousands of individual owners. It can be challenging to obtain the required approvals for leases or other uses of such lands. As a result, many highly fractionated tracts are unoccupied and unavailable for any beneficial purpose, which hinders tribal communities' process of self-determination and impedes DOI in fulfilling its trust responsibilities to American Indians.

To date, the Land Buy-Back Program has paid more than \$740 million to individual landowners and restored the equivalent of nearly 1.5 million acres of land to tribal governments. DOI has entered into agreements with 31 tribal nations to cooperatively implement the Land Buy-Back Program. DOI has identified 42 locations where land consolidation activities such as planning, outreach,

mapping, mineral evaluations, appraisals, or acquisitions are expected to take place through the middle of 2017. These communities represent 83 percent of all outstanding fractional interests across Indian Country.

As stated in last year's management challenges report, DOI faces several challenges in its effort to consolidate all land fractionation interests across Indian Country. Among these challenges are a dependence on coordination with other programs and agencies, and the sensitivity surrounding acquisition of Indian lands by the Federal Government. The breadth and scale of the task, limited funding, and the bounded lifespan established for the program are further major challenges to DOI's Land Buy-Back Program.

Indian Country Schools

In a May 2015 statement before the U.S. Senate Committee on Indian Affairs, BIE leadership acknowledged that their Bureau faces unique and urgent challenges in providing a high-quality education to Indian students attending BIE schools. They attributed these challenges to—

- difficulty in attracting effective teachers to BIE schools;
- difficulty in adopting research-based reforms at BIE schools;
- no access to certain programs that are designed, through funding opportunities, to build State educational agency (SEA) and local educational agency (LEA) capacity³⁰
- ongoing organizational and budgetary restructuring efforts; and
- inconsistent BIE leadership (the Bureau has had 33 directors since 1979).

A high-quality education is also hampered by crumbling school infrastructure and limited broadband Internet access. All of these challenges contribute to low graduation rates for Native students. Nationally, the American Indian/Alaskan Native high school graduation rate is 69 percent, below the national average of 81 percent.

Moreover, DOI is failing to collect comprehensive and accurate information on school safety and health conditions at all BIE schools, and failing to provide schools with support in addressing deficiencies identified in annual safety reports.³¹ Conducting thorough annual inspections at all BIE schools is essential for protecting the safety and health of students.

In last year's management challenges report, we highlighted BIE's planned restructuring, as recommended in the 2014 "Blueprint for Reform," which recommended a shift in BIE's role from direct provider of education into a

³⁰ SEAs and LEAs not only provide guidance on compliance with State and Federal education laws, but also provide direction, technical assistance, and resources that schools can leverage to help increase student achievement.

³¹ GAO Report No. GAO-16-313, "Key Actions Needed to Ensure Safety and Health at Indian Schools Facilities," March 2016.

capacity-builder and service-provider to tribes that run their own schools. Greater tribal control of schools promotes self-governance and self-determination, giving tribes more power to engage children, infuse schools with tribal cultural values and native languages, and improve educational outcomes. BIE's goal is commendable, but the transition may require more technical and financial assistance for tribes than BIE can provide. Moreover, in order to make this transition successful and to ensure that funds are spent effectively, tribes need to have the capacity to run their own schools.

To address some of these complex challenges, DOI's FY 2016 budget included \$45 million for school construction projects and funding for a public-private partnership to provide more than 1,000 American Indian students nationwide with improved access to digital technology in their classrooms and dorms. In addition, the FY 2017 budget request proposes \$1 billion to support a comprehensive redesign and reform of BIE, including \$138 million to improve facility conditions and \$25 million to extend broadband Internet and computer access at BIE-funded schools and dormitories.

To effectively use its Federal funding in addressing these challenges, BIE needs to improve its oversight of school expenditures. In a 2014 report, GAO stated that BIE continues to be challenged with the development of process documents that detail how BIE oversees expenditures for major programs.³² BIE also needs to develop procedures that detail the requirements for consistent documentation of monitoring activities and remediation actions to resolve financial weaknesses identified at schools.

Energy Development and Management on Tribal Lands

Indian Country energy resources are underdeveloped relative to surrounding non-Indian resources, but have significant potential. BIA has primary authority for managing Indian energy development and generally holds final decision-making authority for leases and other permits required for development. Indian-owned oil and gas resources are one of the largest revenue generators in Indian Country, with royalty income of \$826 million in 2015.

In 2015, GAO identified BIA "management shortcomings" as a major hindrance to energy development in Indian Country.³³ Management shortcomings, coupled with a complex regulatory framework, limited capital and infrastructure, and varied tribal capacity to address issues, can lead to lost revenue for American Indians. GAO recommended that DOI take steps to address data limitations, track its review process, and provide clarifying guidance, among other actions to

³² GAO Report No. GAO-15-121, "Indian Affairs: Bureau of Indian Education Needs to Improve Oversight of School Spending," November 2014.

³³ GAO Report No. GAO-15-502, "Indian Energy Development: Poor Management by BIA Has Hindered Energy Development on Indian Lands," June 2015.

improve energy development and management on tribal lands. In 2016, GAO pointed out that BIA is also faced with an extensive backlog, in part due to inadequate staffing and a complicated review and approval process for Indian oil and gas revenue-sharing agreements, known as communitization agreements.³⁴ In July and August 2015, DOI issued guidance intended to streamline the review process and reduce the approval times administered by BLM and BIA. GAO expressed concern that the guidance did not provide sufficient approval timeframes, systematic methods to track the Federal review process on these agreements, or a robust plan to evaluate the effects of such guidance on timely review.

Among the tools available for promoting energy and resource development in Indian Country are tribal energy resource agreements (TERAs), which aim to promote tribal oversight and management of energy and mineral resource development on tribal lands and to further the goal of self-determination. Federal policy allows for interested tribes to pursue TERAs, which would enable tribes to develop energy-related business agreements, award leases, and grant rights-of-way for energy facilities without having to obtain further approval from the Secretary of the Interior. Although TERAs create an avenue for tribal-directed energy and resource development, according to GAO testimony before the U.S. Senate Committee on Indian Affairs in 2015 and an OIG report issued a year later, no tribe has entered into a TERA. This is due in part to the complexity of TERA regulations; thus TERA has not proved a viable option for tribes.

BIA is attempting to improve energy management shortcomings, as recommended by GAO, by developing processes to track review and response times for energy-related documents and collect relevant data. BIA has set a goal to implement a tracking and monitoring mechanism for oil and gas leases by the end of FY 2017. Ensuring efficiency, effectiveness, and transparency in the handling of energy-related documents should improve BIA's ability to appropriately develop Indian energy resources.

Recent legal action surrounding the Dakota Access Pipeline further highlights the complex nature of natural resource development on tribal lands. The Dakota Access Pipeline is a proposed project to transport crude oil from production areas in North Dakota to refineries in Illinois. The Standing Rock Sioux Tribe in North Dakota has argued that the pipeline could endanger both its water supplies and sacred sites and has filed a legal challenge to the project. The outcome of this dispute could affect how DOI handles future energy and resource planning and transactions.

In FY 2016, DOI received initial funding to establish an Indian Energy Service Center, to expedite the leasing, permitting, and reporting for conventional and renewable energy. By instituting streamlined processes, standardized procedures,

³⁴ GAO Report No. GAO-16-553, "Interior Could Do More to Improve Its Process for Approving Revenue-Sharing Agreements," June 2016.

and best practices for all types of energy transactions, the center intends to remediate backlogs and provide expedient energy-related services and support to tribes nationwide. The creation of this center can also improve cross-bureau communication among the BIA regional offices, the BLM field and State offices, and the Office of the Special Trustee for American Indians' fiduciary trust officers and regional trust administrators. Once this center is operational, DOI will need to conduct regularly scheduled assessments to ensure it is efficiently and effectively mitigating the issues it was designed to address.

Energy Development and Management in Insular Areas

Without indigenous fossil fuels, Insular Areas face great challenges in achieving reliable, affordable, and secure energy. This can have a severe economic effect on the island communities, which depend almost entirely on imported petroleum products for energy. Because DOI is responsible for administering technical and financial assistance provided by the U.S. Government to assist with the development of energy resources, it is critical that DOI work to establish efficient processes and oversight to ensure fiscal responsibility.

OIA has partnered with the U.S. Department of Energy, specifically the Office of Energy Efficiency and Renewable Energy and the National Renewable Energy Lab (NREL), to support energy transformation, planning, and capacity building for the Insular Areas. Moreover, the NREL provides technical assistance to help islands reduce their dependence on fossil fuels and increase their energy security by implementing energy efficiency measures and leveraging indigenous renewable resources. For example, with NREL assistance, the U.S. Virgin Islands has evaluated its clean energy opportunities, undertaken major energy efficiency upgrades, and made a \$65 million investment in solar power, which OIA should monitor to ensure progress. OIA will continue its efforts and partnerships to help the Insular Areas develop technologies for renewable energy resources.

Acquisition and Financial Assistance

OIG has consistently identified acquisition management as an area in need of improvement. It's also an area of significant spending: DOI awarded approximately \$10.1 billion in new grants and contracts in FY 2016.

Preventing or remediating problems in acquisition and financial assistance processes is always critical, especially in times of fiscal constraint. As in previous years, we found problems with DOI's presolicitation planning and competition as well as post-award performance monitoring. Similar to staffing challenges noted for other technical specialties, bureaus do not have an adequate number of trained staff to effectively award and manage contracts, grants, and cooperative agreements. Without enough qualified contracting personnel, bureaus run the risk of inconsistently applying regulations and providing poor oversight of awards.

Historically, single audits and OIG audits of tribal nations have identified numerous and significant problems, including improper payments to related parties, general financial mismanagement issues resulting in significant deficiencies, inadequate segregation of duties resulting in stolen funds, unallowable commingling of Federal funds with tribal funds, and flawed reporting systems. Some tribes need assistance with referring instances of suspected or identified fraud to our investigative unit. This would help prevent these types of issues from recurring.

Uniform Guidance

OMB guidance issued in 2013, "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards," will continue to significantly affect day-to-day management and administration of Federal financial assistance awards. Often referred to as the "Super-Circular," it requires agencies to integrate risk management and internal control functions, and also establishes a mandatory assessment process to review internal controls over operations.

Together, this relatively new guidance and the need for qualified grant specialists means that DOI will likely continue to face challenges with the monitoring of Federal financial assistance awards.

Public Law 93-638 Contracts

DOI awarded about \$1 billion in new contracts and grants to Indian Country recipients during FY 2016. Our prior audit work has consistently identified high-risk issues with awards made under Public Law 93-638—tribal self-governance contracts—regarding contract oversight, pre-award processes, and post-award monitoring. These tribal awards from BIA and other bureaus are a major part of

DOI's funding obligations, with these "638 contracts" accounting for approximately 17 percent of the FY 2016 assistance award obligation.

There are major differences between 638 contracts and traditional Federal acquisition contracts. For example, Public Law 93-638 allows Indian tribes to contract with the bureaus on a noncompetitive basis. Also, 638 contracts are generally not subject to Federal contracting and cooperative agreement laws and regulations, except to the extent that such laws and regulations expressly apply to Indian tribes. These differences, combined with the shortage of qualified contracting personnel, make 638 contracts a high risk.

A shortage of qualified personnel has a significant impact on the acquisitions process. To administer 638 contracts, staff need to have extensive training and experience, beyond the procurement training sufficient at other bureaus. Becoming awarding officials can take years to accomplish, posing a human resource challenge for BIA and other bureaus that award 638 contracts.

Public Safety and Disaster Response

At national parks and federally managed lands, ensuring the health and safety of visitors is just as critical for DOI as protecting and preserving these areas.

Millions of people visit DOI's national parks and monuments, wildlife refuges, and recreational sites each year. DOI is responsible for serving these visitors and for maintaining and protecting thousands of facilities and millions of acres of property. In some cases, lands and facilities are in isolated locations, presenting unique vulnerabilities and making it a challenge to protect public safety.

DOI also addresses disaster response in connection with public safety. Disaster response and emergency management can involve the efforts of multiple Federal agencies, multiple levels of government, and the private and nonprofit sectors. Given the breadth of its mission, DOI responds to a wide range of disaster events, including wildland fires, oil and hazardous substance spills, natural and biological hazards, critical infrastructure incidents, emergency medical incidents, and search and rescue activities, among others. In any emergency, DOI's primary concern is taking needed action on DOI lands, at DOI facilities, and in support of DOI-managed resources. DOI is also responsible for providing assistance to State and local officials with immediate emergency response and supporting interagency response plans with application of designated DOI resources.

Occasionally, OIG project work covers public safety and disaster response topics. Our Office of Investigations has noted public safety concerns on DOI-managed lands. One investigation, conducted jointly with the U.S. Environmental Protection Agency (EPA), found that proper safety procedures were not followed when three people were killed on an offshore energy platform.

Safety and Security at Parks

Safety incidents at national parks continue to appear in the news. In July 2016, NPS rangers assisted with local response to two missing people in Badlands National Park. Fatalities in the past year have included a woman who slipped off an observation point along a hiking trail at the Grand Canyon and a man at Yellowstone National Park who fell into a geyser. A former park ranger was killed by a bear just outside Glacier National Park in Montana, and a runner was attacked by a bear at Valles Caldera National Preserve in New Mexico.

In addition, more tourists are visiting national parks and federally managed lands each year, which increases DOI responsibilities. In 2014, NPS reported 292.8 million recreational visits; in 2015, that number climbed to 307.2 million. This increase in activity raises safety concerns, especially in remote regions of the parks, during inclement weather, or with regard to protecting more visitors from wild animals. Risk management and injury prevention require manpower and resources—a significant challenge due to limited funding and competing priorities

at parks. Increased tourism can also strain infrastructure, sometimes requiring additional roads and facilities, and often accelerating deterioration in the current infrastructure.

In August 2016, the Washington Monument was forced to shut down for an extended period due to issues with its elevator. This closing happened after two previous closings in the same week. After investigating, NPS decided to shut down the monument until the elevator control system could be completely overhauled. NPS will need to complete the work as promptly as possible while ensuring that visitor safety is a top priority.

Due to the wide range of activities that park visitors engage in, their diverse backgrounds and experience levels, and the inherent risks that cannot be managed or transferred away, visitor risk management in the national parks continues to be a difficult challenge. As visits increase, a corresponding growth in special park uses, concessions, and commercial uses makes risk management even more complex. NPS has a Visitor and Resource Protection Directorate to focus on operations including fire management, law enforcement, emergency services, commercial and special park uses, and fee management. Directorate employees have the challenge and responsibility to safeguard both park visitors and park resources. Increasing numbers of visitors to national parks will challenge NPS to manage risk, promote safety, and accommodate increased demands on its budget and staffing.

Safety and Security on Other Public Lands

The Western United States is the fastest growing region in the country, with residential subdivisions taking the place of farmland and uninhabited desert areas. This urbanization has not only increased demands for water and power but also created public health and safety issues.

When most USBR dams, reservoirs, canals, and other facilities in the West were built, the surrounding areas were sparsely populated. Now some of these facilities have residential neighbors who want to access USBR lands for recreation—creating safety hazards and liabilities and requiring additional Federal land management planning. With respect to the dangers of recreational activities in or near facilities not intended for such use, educating the public about the hazards associated with unauthorized use should help avoid accidental drownings and other safety incidents.

This population growth has also resulted in greater urgency for USBR facility repair and maintenance activities. Historically, canal leaks or ruptures had limited impacts on nearby crops and land. Now, canals flow through residential subdivisions where even a minor seep from a canal can threaten homes, lives, and property and requires immediate attention. The operational and financial consequences can be significant. USBR and its operating partners do not have the

financial resources to address all possible impacts on the public’s health and safety.

USBR is aggressively monitoring the condition of its facilities near urbanized areas and using a risk-based approach to prioritize mitigation activities, as well as updating its inventory of facilities in urbanized areas as population densities change. USBR is also working with the operators of facilities it does not manage to ensure that each has an emergency response plan and access to emergency funding if needed to address imminent threats to public health or safety, or property.

Offshore energy development activities also have health and safety ramifications. In November 2015, three companies and three individuals were charged with crimes related to an offshore oil production platform explosion that led to the deaths of three individuals. A joint investigation by OIG and the EPA resulted in multiple charges, including involuntary manslaughter, failing to follow safety practices under the OCSLA, and violation of the Clean Water Act.³⁵

As discussed previously under “Energy Management,” the oil and gas industry and various courts have challenged the applicability of the OCSLA in circumstances involving contractors and servicing agencies that work offshore. In part, the basis for the challenge is the wording of the regulations, which is inconsistent with the language in the law. Legal challenges can affect DOI’s ability to regulate offshore activities, which has direct impact on public safety and the surrounding environment.

Hazards Associated With Hydraulic Fracturing

In addition to challenges related to oversight and regulation of hydraulic fracturing, or fracking (discussed previously under “Energy Management”), environmental and health concerns continue to be raised about this method of oil and gas extraction. New research from Johns Hopkins University shows that asthma sufferers who live near wells that use fracking to extract natural gas are up to four times more likely to have an asthma attack than those who live farther away.³⁶

In last year’s management challenges report, we discussed an EPA draft assessment of the potential impacts on drinking water resources from fracking. This year, a 30-member science advisory panel to the EPA challenged the report, concluding that it was “comprehensive but lacking in several critical areas.” The

³⁵ DOJ Press Release, “Three Companies and Three Individuals Charged in Fatal 2012 Gulf Of Mexico Oil Drilling Platform Explosion,” November 19, 2015, <https://www.justice.gov/opa/pr/three-companies-and-three-individuals-charged-fatal-2012-gulf-mexico-oil-drilling-platform>.

³⁶ Johns Hopkins Bloomberg School of Public Health, “Study: Fracking Industry Wells Associated With Increased Risk of Asthma Attack,” July 18, 2016, <http://www.jhsph.edu/news/news-releases/2016/study-fracking-industry-wells-associated-with-increased-risk-of-asthma-attacks.html>.

advisory panel's evaluation and critique of the draft study was wide ranging, but focused closely on the EPA's assertion that fracking operations had not led to "widespread, systemic impacts on drinking water resources." The panel said that this conclusion had not been backed up quantitatively by the EPA, adding that the report "did not clearly describe the system(s) of interest (e.g., groundwater, surface water), the scale of impacts (i.e., local or regional), nor the definitions of 'systemic' and 'widespread.'"³⁷

Increased use of fracking has generated opposition as well as support. New research continues to examine the public health and safety aspects. Public interest is high, and new studies are debated even while they are in draft form. DOI must monitor the current research and weigh the economic benefits of this method of oil and gas extraction against potential environmental and health concerns.

Human and Environmental Costs of Wildland Fire

In addition to escalating costs of fire suppression activities and budget shortfalls that affect other critical programs (discussed previously under "Climate Effects"), wildland fires have led to lost lives, damaged property and infrastructure, and devastated forests and rangelands. In May 2016, Secretary Jewell announced \$10 million in funding to increase wildfire resiliency and better mitigate its impact on landscapes across the country. She also called on Congress to fix how wildland fire suppression is budgeted. President Obama's FY 2017 budget also seeks to change how the Federal Government allots funds for fire suppression costs by treating spending on firefighting like other Federal disaster response activities.

Wildland fires have burned thousands of acres this year along the West Coast and into the central United States as far as Colorado. In California, homes were evacuated and several fatalities occurred due to wildland fire. In Nevada, two BLM firefighters were killed while returning from a patrol looking for lightning-sparked wildland fires. In Colorado, two people were arrested for leaving a poorly extinguished fire at a campsite, which resulted in a wildland fire that burned more than 500 acres in Boulder County and forced residents to evacuate.

Wildland fires have also affected DOI lands. Wildland fire and smoke led to the closing of a connecting road between Yellowstone and Grand Teton Nation Parks in August 2016. The lightning-caused Berry Fire covered 6,800 acres and caused the closing of U.S. Highway 89.³⁸ The Maple Fire in Yellowstone was one of several fires in the park and covered more than 30,000 acres. Firefighters had to construct a firebreak in order to reduce the risk of the fire spreading to the nearby

³⁷ C. Mooney, S. Mufson, and B. Dennis, "EPA's Science Advisers Challenge Agency Report on the Safety of Fracking," The Washington Post, August 12, 2016, https://www.washingtonpost.com/news/energy-environment/wp/2016/08/11/epas-science-advisers-challenge-agency-report-on-the-safety-of-fracking/?utm_term=.b3f51db7cd93.

³⁸ R. Prevost, "Wildfire Forces Closure of South Entrance to Yellowstone National Park," Reuters, August 24, 2016, <http://www.reuters.com/article/us-yellowstone-wildfire-idUSKCN10Z2YR>.

town of West Yellowstone.³⁹ With fires as an ever-present threat on DOI lands, the Department must be ready to respond to preserve not only its lands but also the areas surrounding them.

As part of its efforts to fight wildland fire, DOI has contracted with a manufacturer for up to 40 drones for aerial surveillance and fire management. Using drones will allow DOI to conduct missions that were previously impossible due to limited resources and costs associated with using manned aircraft, expanding wildfire suppression capabilities and enhancing firefighter safety.⁴⁰ DOI plans to equip all firefighter teams with drones to detect, assess, and attack wildfires by 2020.⁴¹ To ensure effective implementation, DOI will need to manage the costs of unmanned aircraft equipment, training, and use. DOI must also finalize protocols for drone use and develop procedures for rapid deployment in response to emergencies across the country.

On the other hand, the increased popularity of private drone ownership for hobby use poses serious risks to fire-suppression efforts. Between 2015 and 2016, the number of drones sold in the United States increased 289 percent.⁴² In 2015, firefighters spotted more than 20 drones flying over active wildfires. In some instances, pilots of firefighting aircraft had to take evasive action to avoid colliding with a drone.⁴³ The Federal Aviation Administration has specific safety regulations for unmanned aircraft, and Federal regulations (43 CFR § 9212.1(f)) prohibit interference with firefighting efforts. DOI is working to educate the public about the dangers and penalties associated with wildland fire encroachment and is developing a smartphone app that provides real-time alerts and geofencing alarms to drone pilots if they approach wildland fire zones.

Wildland fire continues to cause damage across the country, threaten public safety, and take the lives of firefighters in the line of duty. The Secretary has called on Congress to make wildland firefighting and prevention a priority and should continue to seek additional resources to help prevent against loss of life and damage to property. DOI must remain vigilant in both preventing and fighting wildland fires to minimize their effects on human lives and safety and DOI assets.

³⁹ InciWeb Report, “Maple Fire,” Accessed August 26, 2016, <http://inciweb.nwcg.gov/incident/4944/>.

⁴⁰ DOI Press Release, “U.S. Department of the Interior Awards Contract for Small Unmanned Aircraft Systems,” August 24, 2016, <https://www.doi.gov/pressreleases/us-department-interior-awards-contract-small-unmanned-aircraft-systems>.

⁴¹ White House Press Release, “Fact Sheet: Enabling a New Generation of Aviation Technology,” June 21, 2016, <https://www.whitehouse.gov/the-press-office/2016/06/21/fact-sheet-enabling-new-generation-aviation-technology>.

⁴² The NPD Group, “Drones: Technology’s High-Flying Category,” April 6, 2016, <https://www.npd.com/lps/pdf/drone-high-flying-technology.pdf>.

⁴³ DOI Press Release, “Federal Agencies Working Together to Combat Unauthorized Drone Use during Wildfire Operations,” June 10, 2016, <https://www.doi.gov/pressreleases/federal-agencies-working-together-combat-unauthorized-drone-use-during-wildfire>.

USGS Flood Response

In August 2016, flooding from extreme rainfall led to more than a dozen deaths and damaged tens of thousands of homes across multiple parishes in Louisiana. Although not a first-responder agency, USGS played a significant role during these floods, as it does for flooding throughout the United States. USGS data and tools are used during and immediately after floods, as well as throughout the long-term recovery.

USGS uses tools called streamgages and other measurement stations to provide flood data to the National Weather Service, the U.S. Army Corps of Engineers, and State and local first responders. “Streamgaging” is the common term for measuring how much water is flowing in a stream or river. USGS uses streamgage measurements to help analyze water conditions, assess the impacts of climate and land-use change, forecast flood behavior, and coordinate flood response. After a flood, USGS will often partner with other agencies, particularly the Federal Emergency Management Agency (FEMA), to do high-water-mark measurements in urban areas affected by flooding.⁴⁴ As the floodwaters recede, USGS crews focus on repairing damaged equipment. Since streamgages are located on rivers and creeks, they are at risk of damage or destruction from floodwaters. Because streamgages are an essential part of USGS flood response, repairing them is a high priority and a continuing challenge for USGS.

Earlier this year, USGS provided an overview to the National Security Council on the activities it undertakes during flood response and the challenges faced in funding these efforts outside of mission assignments. Costs associated with these activities have been funded through various sources, including USGS-appropriated funding and reimbursable funding from Federal, State, regional, tribal, and local partners—but in recent years expenses have exceeded these funding sources. USGS flood response expenses have totaled about \$2 million per year on average since 2011, and USGS science funds have been redirected in an ad hoc manner to help cover these costs. This makes less funding available for USGS mission areas such as natural hazards and environmental health, which support safety, preparedness, and incident response efforts. USGS is challenged to solve these budgetary shortfalls in flood response without impacting its mission responsibilities in other areas.

USGS’ role in disaster response aids many other agencies in determining where flooding will occur and to what extent. These vital data inform the response and help guide responding officials to areas most in need of help. Similar to budgeting challenges identified for wildland fires, the excessive cost to USGS for flood activities takes funds away from other mission-critical programs. Data-gathering related to floods, which has been shown to be of use during the Louisiana flooding, must be funded in order to continue this mission.

⁴⁴ USGS Press Release, “Fighting the Floods,” August 22, 2016, <https://www.usgs.gov/news/fighting-floods>.

Operational Efficiencies

In today's fiscal environment, Government leaders must function with fewer resources and find new ways to tackle complex challenges. How well they manage the operations and performance of their agencies directly affects their ability to achieve effective outcomes.

DOI faces challenges in hiring and retaining qualified staff across the board—from IT and cybersecurity professionals to specialists in science and engineering fields. Specific hiring and retention problems we have identified include not enough individuals trained in science, technology, engineering, and mathematics (STEM); the inability to compete with higher salaries in the private sector; and an aging and retiring workforce.

Operational issues also exist in the management of resources and programs. We have specifically identified issues with fee pricing and collection at recreational areas, which have negative effects on both the bureaus and the public who use the facilities.

Hiring and Retention

DOI faces departmentwide challenges in hiring and retaining staff. Hiring and retention are hindered by lower salaries and a slower hiring process compared with similar positions in private industry. DOI's mission requires employees with highly specialized skills, including engineers, biologists, geologists, hydrologists, electricians, welders, economists, project managers, and IT specialists, among others. Fewer people choosing STEM as a career field has led to a smaller pool of qualified job applicants, making it more difficult to compete for and retain top-tier staff. A shortage of talented information specialists and scientists exists across the Federal Government, not just at DOI.

GAO has identified key areas that need attention: (1) revising the General Schedule classification system to make it more modern, flexible, and simple; (2) determining Governmentwide skills gaps in mission-critical occupations and taking action to address them; (3) improving performance management; and (4) strengthening employee engagement.⁴⁵

DOI bureaus face additional challenges related to their operations or activities. For example, a 2016 report from the U.S. Equal Employment Opportunity Commission highlighting diversity problems in STEM-related fields included Native Americans among the groups that are underrepresented.⁴⁶ BIE funding

⁴⁵ GAO Report No. GAO-15-619T, "Human Capital: Update on Strategic Management Challenges for the 21st Century," May 20, 2015.

⁴⁶ U.S. Equal Employment Opportunity Commission, "Diversity in High Tech," May 2016, <https://www.eeoc.gov/eeoc/statistics/reports/hightech/>.

challenges might be a contributing factor in Native American underrepresentation in STEM fields as well as other educational outcomes: Teachers in BIE-funded schools that educate Native students often work with shoestring budgets, teach up to nine classes, and work in small communities with limited opportunities to collaborate with colleagues. One researcher has suggested that teachers in BIE schools could help Native students succeed in STEM courses by showing them how their schoolwork connects to their communities and real lives.⁴⁷

As another example, USGS points to its geographically dispersed workforce (400+ locations nationwide) as a particular obstacle to workforce diversity. USGS is taking steps to align recruitment and hiring efforts with workforce plans to bring diverse, qualified talent into the bureau, including initiatives focused specifically on women, veterans, and persons with disabilities. BOEM, BSEE, and BLM have specific problems with recruiting and retaining energy professionals. USBR struggles with a limited talent pool for the employees who design, operate, and maintain its water programs and projects in the Western United States.

DOI needs a top-notch workforce to meet its mission and programmatic goals. Ongoing and emerging gaps in critical skills will erode DOI's ability to carry out its mission. In addition, as current employees reach the end of their careers, retirements could lead to further shortages in leadership and institutional knowledge. Strategic management approaches are required to overcome staffing obstacles and prepare workforces to meet mission requirements and achieve organizational success.

Workers' Compensation Program

In 2010, President Obama established a 4-year initiative called Protecting Our Workers and Ensuring Reemployment (POWER), which set aggressive performance targets for collecting and analyzing agency performance data, including data on the causes and consequences of frequent or severe workplace injury and illness and safety and health management programs. Because the initiative ended in FY 2014, no agency performance targets were established for FY 2015, and DOI still awaits the next presidential initiative or successor to POWER. DOI continues to work to improve management of the compensation program, its data and related costs.

In addition, DOI faces challenges in processing employee claims for workers' compensation benefits (which include medical benefits, income replacement, and certain supportive services) to Federal civilian employees with work-related illnesses or injuries, or in the case of death, survivor benefits to family members. The costs of workers' compensation benefits are initially paid by the U.S.

⁴⁷ J. Zubrzycki, "For Native Youth, Putting STEM in Context," Education Week, July 29, 2016, http://blogs.edweek.org/edweek/curriculum/2016/07/indigenous_youth_and_stem.html.

Department of Labor (DOL) through the Employee Compensation Fund and reimbursed by DOI at the end of each fiscal year.

One barrier to operational efficiency is that DOI does not have access to DOL's web-based portal for electronic filing of key claim forms, called the Employees' Compensation Operations and Management Portal (ECOMP). Most bureaus and offices in DOI use a separate system (called Safety Management Information System, or SMIS) that is not compatible with ECOMP. The effect is slower processing of employee claims and more time and resources to manage the process.

Although DOI has improved its occupational safety and health and workers' compensation programs over the years, deficiencies continue to be identified in these programs. Data integrity in SMIS remains a problem, and SMIS does not capture information that could help specify and prioritize program improvement efforts. For example, there are no system controls that require employees to fill out the claim form in its entirety, so critical sections like injury type can be left blank; this also leads to persistent data integrity problems caused by instances of cases being input into the system years after the injury date. For example, in a 2016 inspection, OIG found that 355 claims were created more than a year after the injury date. Further, most bureaus have not adopted a longstanding policy DOI intended to encourage accountability on health and safety issues and reduce costs.⁴⁸ Likewise, the Designated Agency Safety and Health Official (DASHO) Council, charged with driving safety policy and priorities throughout DOI, is not fulfilling its intended purpose; key safety reports are not timely; the DASHO Council does not have sufficient authority and visibility; and no safety program exists to cover Office of the Secretary employees.

Recreation Fees

The Federal Lands Recreation Enhancement Act (FLREA), which authorizes agencies including NPS, FWS, BLM, and USBR to collect recreation fees from visitors to national parks and other Federal sites, is scheduled to expire on September 30, 2018, unless reauthorized by Congress. Should the FLREA expire, NPS in particular stands to lose a significant source of funding that supplements an already strained budget, which will affect the visitor experience, availability of amenities and services, and conservation and preservation efforts.

The FLREA requires agencies to report to Congress every third year on their fee programs. According to DOI's 2015 FLREA report, total recreation revenues collected for FY 2014 were \$278 million, of which NPS collected \$185.3 million. (In comparison, NPS' FY 2014 proposed operating budget was nearly \$2.3 billion.)

⁴⁸ In May 1992, the Secretary of the Interior directed bureaus to manage workers' compensation costs by identifying them at the organizational level where the injury occurred. DOI issued this policy to increase field managers' awareness of the cost of accidents, as well as their responsibility for maintaining a viable safety program. OIG found that most bureaus have never complied with this policy.

More than 300 million people from around the world visited national parks in 2015, which was approximately 14 million more than in 2014; attendance in 2016 is projected to be even higher. Recreation fees are a critical component of DOI's budget and have direct impact on DOI's ability to ensure the best possible experience for visitors to public lands.

BOEM Cost Recovery Fees

BOEM manages the exploration and development of offshore energy resources, including oil and gas lease sales. BOEM recovers costs for application processing, leasing and adjudication, exploration plans, resource evaluation permits, and appeals, among other program aspects. These recovered costs are one type of offsetting collection, so called because they reduce (or "offset") the Bureau's congressional funding. The FY 2016 budget request included total appropriations of \$170.9 million for BOEM, of which \$96.6 million would be derived from offsetting collections, for a net appropriation of \$74.2 million. The \$96.6 million in offsetting collections consisted of \$3.7 million in cost recovery fees.

A particular challenge is that cost recovery fees are set for specific services, but do not always reflect current, actual costs. Thus, cost recovery fees need to be assessed periodically to ensure they reflect actual costs. This is a significant task to undertake. In FY 2016, BOEM initiated a comprehensive review to systematically update its cost recovery fees, as required by the Independent Offices Appropriations Act of 1952 (as amended) and OMB Circular A-25. BOEM is also updating its risk management practices, adding criteria and financial assurance requirements for offshore oil and gas lessees. Current requirements are approximately 22 years old and do not reflect the scale, complexity, and costs of today's offshore operations.

BOEM issued a contract to analyze and update each of its cost recovery fees, and also to examine its internal control functions. The updates to cost recovery fees will account for inflation and compensate BOEM for additional reviews related to risk management for industry activities on the OCS. BOEM is also updating its financial assurance protocols and standards, which are necessary to ensure that the Federal Government is protected from financial loss when lessees fail to meet their financial and operational obligations. For example, in FY 2016, BOEM issued a notice to lessees and operators⁴⁹ to clarify and modernize its approach to determining their financial strength and reliability, including requiring additional security in the form of supplemental bonds for plugging, abandoning, and decommissioning OCS wells, platforms, and other facilities.

⁴⁹ BOEM NTL No. 2016-N01, "Notice to Lessees and Operators of Federal Oil and Gas, and Sulfur Leases, and Holders of Pipeline Right-of-Way and Right-of-Use and Easement Grants in the Outer Continental Shelf, Requiring Additional Security" effective September 12, 2016, <http://www.boem.gov/BOEM-NTL-2016-N01/>.

Conclusion

The challenges described in this report encompass both the vulnerabilities that OIG has identified in the past and the emerging issues that DOI will face in the coming years. We remain committed to focusing audit and investigative resources on the issues related to these challenges to ensure greater accountability, promote efficiency and economy in operations, and provide effective oversight of the activities that embody DOI's mission.

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