



August 2020

NATURAL GAS EXPORTS

Updated Guidance and Regulations Could Improve Facility Permitting Processes

Accessible Version

NATURAL GAS EXPORTS

Updated Guidance and Regulations Could Improve Facility Permitting Processes

Why GAO Did This Study

As U.S. natural gas production has increased, exports of natural gas have increased as well, and in 2017, the nation became a net exporter of natural gas. In 2019, about 39 percent of natural gas exports were transported by ship as LNG, and exports of LNG are expected to grow. FERC, MARAD, and the Coast Guard issue permits required for companies to construct or operate an LNG export facility. The Coast Guard, along with PHMSA, also has issued regulations on safety and technology requirements for these facilities. These regulations incorporate technical standards that are developed and updated by standards-developing organizations.

GAO was asked to review how federal agencies manage the permitting processes. This report examines, among other things, the extent to which (1) federal agencies collaborate in the permitting processes for LNG export facilities and (2) regulations for such facilities incorporate current technical standards. GAO analyzed agency documents and interviewed agency officials, LNG export company representatives, and other stakeholders.

What GAO Recommends

GAO is making nine recommendations, including that FERC establish a process to regularly review and update its agreements with other agencies for the onshore facility permitting process and that FERC, PHMSA, and the Coast Guard establish processes to conduct standards-specific reviews of regulations every 3 to 5 years. The agencies agreed with GAO's recommendations and identified actions to address them.

View [GAO-20-619](#). For more information, contact Frank Rusco at (202) 512-3841 or ruscof@gao.gov.

What GAO Found

Federal agencies have incorporated most but not all key collaboration practices in the permitting processes for export facilities for liquefied natural gas (LNG). GAO has identified seven key practices that can help sustain collaboration among federal agencies, including reviewing and updating written guidance and agreements. The Maritime Administration (MARAD) and the U.S. Coast Guard (Coast Guard), which jointly lead the permitting process for LNG export facilities in federal waters, have incorporated all seven key practices. The Federal Energy Regulatory Commission (FERC), which leads the permitting process for LNG export facilities located on land or in state waters (facilities in both places are referred to as onshore facilities), has incorporated six of the key practices. However, FERC does not regularly review and update its interagency agreements, which outline agencies' roles and responsibilities in the onshore permitting process, because it does not have a process to do so. Establishing a process to regularly review and update FERC's agreements with other agencies would help FERC ensure that, in the near term, other agencies clearly understand and consistently implement the permitting process and, for the longer term, the agreements address policy changes that may affect the process.

FERC's, the Pipeline and Hazardous Materials Safety Administration's (PHMSA), and the Coast Guard's regulations for permitting LNG export facilities do not incorporate all current technical standards. For example, FERC's regulations cite an outdated 1984 earthquake standard, PHMSA's regulations cite outdated fire safety standards from 2001, and the Coast Guard's regulations cite an outdated 1994 standard for fire extinguishers. Guidance from the Office of Management and Budget states that agencies should conduct a standards-specific review of regulations that cite technical standards every 3 to 5 years and update the regulations with updated standards, if necessary. However, FERC, PHMSA, and the Coast Guard have not recently conducted such a review and FERC and PHMSA do not have processes in place to regularly do so. The Coast Guard has a process for conducting such reviews but it does not specify how frequently the reviews should occur. Without processes to conduct a standards-specific review of regulations every 3 to 5 years, the agencies cannot be assured that the regulations remain effective at ensuring safety.

Onshore Export Facilities for Liquefied Natural Gas (LNG)



Sources: Copyright © Cheniere Energy, Inc. All rights reserved. (left); GAO (right). | GAO-20-619

Contents

GAO Highlights	2
Why GAO Did This Study	2
What GAO Recommends	2
What GAO Found	2
Letter	1
Background	7
FERC Has Incorporated Most, but Not All, Key Collaboration Practices in the Permitting Process for Onshore Facilities, and MARAD and the Coast Guard Have Incorporated All Practices in the Process for Deepwater Facilities	20
CEQ Has Issued Guidance for Implementing the One Federal Decision Policy, but Agencies Noted Challenges Following the Guidance in the Onshore Permitting Process	26
Agencies Have Not Updated Their Regulations for Permitting LNG Export Facilities to Incorporate All Current Technical Standards	29
FERC, PHMSA, and MARAD Have Generally Addressed Key Principles for Workforce Planning, but the Coast Guard Has Not Addressed Most of These Principles	34
Conclusions	37
Recommendations	38
Agency Comments and Our Evaluation	39
Appendix I: Objectives, Scope, and Methods	41
Appendix II: Technical Standards Incorporated in Federal Regulations for Liquefied Natural Gas Facilities	48
Appendix III: Comments from the Federal Energy Regulatory Commission	51
Text of Appendix III: Comments from the Federal Energy Regulatory Commission	52
Appendix IV: Comments from the U.S. Department of Transportation	54
Text of Appendix IV: Comments from the U.S. Department of Transportation	57
Appendix V: Comments from the U.S. Department of Homeland Security	59
Text of Appendix V: Comments from the U.S. Department of Homeland Security	62

Appendix VI: GAO Contact and Staff Acknowledgments	65
GAO Contact	65
Staff Acknowledgments	65

Tables

Data table for Figure 2: Locations of Operational and Approved U.S. Liquefied Natural Gas (LNG) Export Facilities as of May 1, 2020	20
Table 1: Federal Energy Regulatory Commission’s (FERC) Incorporation of Key Collaboration Practices in the Permitting Process for Onshore Export Facilities for Liquefied Natural Gas (LNG)	22
Table 2: Maritime Administration’s (MARAD) and U.S. Coast Guard’s (Coast Guard) Incorporation of Key Collaboration Practices in the Permitting Process for Deepwater Export Facilities for Liquefied Natural Gas (LNG)	25
Table 3: Number of Technical Standards Incorporated in Regulations for Permitting Liquefied Natural Gas Export Facilities and Number of Outdated Standards, as of March 202030	
Table 4: Agencies’ Actions to Incorporate Key Principles for Workforce Planning in Workforce Plans Related to Permitting Liquefied Natural Gas Export Facilities	35
Table 5: Comparison of the Dates of Technical Standards Incorporated by Reference in Regulations for Liquefied Natural Gas (LNG) Facilities with the Standards’ Most Recent Versions, for the Federal Energy Regulatory Commission (FERC), the Pipeline and Hazardous Materials Safety Administration (PHMSA), and the U.S. Coast Guard	48

Figures

Figure 1: Comparison of Onshore and Deepwater Liquefied Natural Gas (LNG) Export Facilities	8
Figure 2: Locations of Operational and Approved U.S. Liquefied Natural Gas (LNG) Export Facilities as of May 1, 2020	19

Abbreviations

CEQ	Council on Environmental Quality
Corps	U.S. Army Corps of Engineers
EA	environmental assessment

EIS	environmental impact statement
FERC	Federal Energy Regulatory Commission
LNG	liquefied natural gas
MARAD	Maritime Administration
MOU	memorandum of understanding
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NTTAA	National Technology Transfer and Advancement Act
OMB	Office of Management and Budget
PHMSA	Pipeline and Hazardous Materials Safety Administration
SDO	standards-developing organization
Steering Council	Federal Permitting Improvement Steering Council
U.S. Coast Guard	Coast Guard

This is a work of the U.S. government and is not subject to copyright protection in the United States. The published product may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.



August 6, 2020

The Honorable Roger F. Wicker
Chairman
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable Deb Fischer
Chairman
Subcommittee on Transportation and Safety
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable John Thune
United States Senate

The Honorable James M. Inhofe
United States Senate

Natural gas production in the United States began increasing in 2006, and in 2012, the United States became the largest natural gas producer in the world, overtaking Russia. As U.S. production and global demand increased, the United States began exporting natural gas, and in 2017, the United States became a net exporter of natural gas for the first time. According to projections published by the U.S. Energy Information Administration, total natural gas production in the United States will likely continue to increase until 2030, primarily to support growing U.S. exports of natural gas to global markets.¹

Most natural gas exported from the United States in 2019—about 61 percent—was transported via pipeline to Mexico and Canada; the rest—about 39 percent—was transported by ship after first being transformed

¹U.S. Energy Information Administration, *Annual Energy Outlook 2020: with projections to 2050*, Washington, D.C.: January 29, 2020. The *Annual Energy Outlook 2020* represents the U.S. Energy Information Administration's assessment of how U.S. and world energy markets will operate through 2050 based on scenarios that vary assumptions about future prices and supply for oil and gas. In the report, the Energy Information Administration projected U.S. natural gas production to increase under most economic scenarios. After the release of this report, demand for oil and natural gas fell due to events related to the global coronavirus pandemic and it is too early to determine what, if any long-term effect this has on domestic production and exports.

into liquefied natural gas (LNG).² Natural gas is liquefied by a cooling process called liquefaction, which condenses the gas, enabling greater volumes to be carried in smaller containers.

The gas is liquefied at LNG export facilities that can be located on land or in state waters (facilities in both places are referred to as onshore facilities), or beyond state waters in federal waters (facilities here are referred to as deepwater facilities). Once liquefied, the LNG is transferred to special ocean-going ships called LNG carriers that are equipped with super-cooled tanks. Upon reaching their destination, LNG carriers unload their cargo at dedicated marine terminals that convert the LNG back into a gaseous state for distribution to the destination markets.

Processes for liquefying and transporting natural gas pose safety and environmental risks. Natural gas is combustible, so an uncontrolled release of LNG poses a hazard of fire or, in confined spaces, explosion. Additionally, if LNG spills near an ignition source, evaporating gas will burn above the LNG pool, resulting in a “pool fire.” A pool fire is intense, burning far more hotly and rapidly than oil or gasoline fires, and it cannot be extinguished—all the LNG must be burned before the fire goes out. Because an LNG pool fire is so hot, its thermal radiation may injure people and damage property a considerable distance from the fire itself. If LNG spills but does not immediately ignite, the evaporating natural gas will form a vapor cloud that may drift some distance from the spill site. If the cloud subsequently encounters an ignition source, portions of the cloud could ignite.

To construct and operate an LNG facility, applicants are required to obtain a permit from the federal government and must also meet federal regulations that set minimum safety and technical standards.³ The Federal Energy Regulatory Commission (FERC) is responsible for

²Less than one percent of natural gas exports were as LNG by truck and less than one percent were as compressed natural gas.

³Exporting natural gas requires federal approval under Section 3 of the Natural Gas Act (15 U.S.C. § 717b). Under the act, as amended (Pub. L. No. 75-688, (1938) §3, 52 Stat. 822, codified as amended at 15 U.S.C. § 717b) the Department of Energy is responsible for reviewing LNG export applications and, for countries that do not have a free trade agreement with the United States, determining whether approval of such applications is consistent with the public interest. In 1992, Congress amended the Natural Gas Act to require the Department of Energy to treat applications to export LNG to free trade agreement countries as consistent with the public interest.

permitting onshore facilities.⁴ FERC's permitting process requires applicants to demonstrate, among other things, how their facility design would comply with regulations set by the Pipeline and Hazardous Materials Administration (PHMSA) within the Department of Transportation. PHMSA has issued regulations under pipeline safety laws that set minimum technical standards for onshore LNG export facilities.⁵ To ensure facilities are designed and constructed to meet these regulations and technical standards, FERC and PHMSA have technical staff with specific training who review permit applications. FERC coordinates with PHMSA and with several other federal agencies, referred to as cooperating agencies, to conduct environmental reviews and ensure that the facilities meet the statutory requirements of those agencies.⁶ Additionally, the Council on Environmental Quality (CEQ), an agency in the Executive Office of the President,⁷ since 2017 has been responsible for providing direction to federal agencies on their roles and responsibilities in the environmental review process for major infrastructure projects, including onshore LNG export facilities. In particular, CEQ—along with the Office of Management and Budget and in consultation with the Federal Permitting Improvement Steering Council—is responsible for providing direction to agencies in implementing a policy

⁴In 1984, the Department of Energy delegated to FERC the authority under Section 3 of the Natural Gas Act to approve or deny applications for the siting, construction, expansion, or operation of an LNG terminal. Department of Energy Delegation Order No. 0204-112, 49 Fed. Reg. 6684, 6690 (Feb. 22, 1984). FERC also authorizes the construction and operation of associated pipelines under section 7 of the Natural Gas Act.

⁵49 U.S.C. §§ 60101–141.

⁶Cooperating agencies have jurisdiction by law or special expertise with respect to resources potentially affected by the proposed facility. According to FERC officials, a state or local agency or American Indian tribe may also become a cooperating agency under certain conditions. This report focuses on the role of federal agencies in permitting LNG facilities.

⁷The National Environmental Policy Act (NEPA) established CEQ in 1970 within the Executive Office of the President. CEQ oversees federal implementation of NEPA and develops and recommends national policies to the President that promote the improvement of environmental quality and meet the nation's goals. In addition, CEQ is assigned various duties and responsibilities under other statutes, executive orders, and presidential memorandums, including with regard to federal ocean policy, federal sustainability, and timely environmental review and permitting processes for infrastructure development, and other matters.

known as the One Federal Decision policy.⁸ This policy was established by executive order to, among other goals, make timely decisions with the goal of completing all federal environmental reviews and authorization decisions for major infrastructure projects within 2 years.⁹

The Maritime Administration (MARAD), in the Department of Transportation, and the U.S. Coast Guard (Coast Guard), in the Department of Homeland Security, together are responsible for permitting deepwater facilities. MARAD issues the permits for deepwater facilities, pursuant to the Deepwater Port Act.¹⁰ The Coast Guard sets minimum safety standards for those facilities and serves as the lead agency for environmental reviews, in coordination with MARAD and several cooperating agencies. Like FERC and PHMSA, the Coast Guard and MARAD have specially trained staff that review permit applications to ensure compliance with regulations and technical standards.

As of May 1, 2020, there were six operating LNG export facilities in the United States, all of which are onshore facilities. An additional 14 projects are planned to construct new export facilities, one of which will be a deepwater facility.

You requested that we review how agencies manage their permitting processes, including how agencies ensure regulations are current and what agencies are doing to ensure their workforces have the needed expertise to review permit applications. This report examines the extent to which:

1. federal agencies collaborate in the permitting processes for LNG export facilities,

⁸Title 41 of the 2015 Fixing America's Surface Transportation Act (known as FAST-41) established the Federal Permitting Improvement Steering Council (Steering Council), which is tasked with, among other things, facilitating the coordination of environmental review and authorization decisions for certain projects. We recently reported on the Steering Council's process for developing best practices for environmental reviews and authorization—see GAO, *Infrastructure Projects: Actions Needed to Fully Develop Performance Schedules for Environmental Reviews*, [GAO-20-19](#) (Washington, D.C.: Oct. 29, 2019).

⁹Exec. Order No. 13807, 82 Fed. Reg. 40463-69 (Aug. 24, 2017).

¹⁰Pub. L. No. 93-627 (1975), as amended (33 U.S.C. §§ 1501, et. seq.).

2. CEQ has provided guidance on implementing the One Federal Decision policy in the permitting process for onshore LNG export facilities,
3. regulations for permitting LNG export facilities incorporate current technical standards, and
4. federal agencies have addressed key principles for workforce planning in their workforce plans related to permitting LNG export facilities.

To address all four objectives, we reviewed documents and interviewed agency officials from FERC, PHMSA, MARAD, the Coast Guard, CEQ, and cooperating agencies. To examine the extent to which federal agencies collaborate in the permitting processes for LNG export facilities, we compared federal agencies' actions and processes to coordinate the permitting processes with key collaboration practices identified by our prior work.¹¹ To determine the extent to which CEQ has provided guidance on implementing the One Federal Decision policy in the onshore permitting process for LNG export facilities, we reviewed documents related to CEQ's implementation of the policy and documents related to how agencies are implementing One Federal Decision. We also interviewed CEQ staff and officials at FERC and cooperating agencies.

To evaluate whether regulations for LNG export facilities incorporate current technical standards, we reviewed agencies' regulations that incorporate technical standards and compared these regulations to the most current standards and relevant laws and guidance. We also examined relevant federal laws, regulations, and agency guidance related to technical standards for LNG export facilities and compared agencies' actions to the Office of Management and Budget's (OMB) directions and guidance to federal agencies on incorporating technical standards,¹² and recommendations from the Administrative Conference of the United

¹¹GAO, *Managing for Results: Key Considerations for Implementing Interagency Collaborative Mechanisms*, [GAO-12-1022](#) (Washington, D.C.: Sept. 27, 2012).

¹²Office of Management and Budget, *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, *OMB Circular A-119* (Washington, D.C.: Jan. 27, 2016). For the purposes of this report, we use the term "technical standard" to refer to standards incorporated by reference.

States.¹³ We evaluated whether technical standards incorporated into regulations were outdated by comparing each incorporated standard to the latest version of the standard and by asking agency officials whether standards are outdated. To understand the effect of outdated technical standards that are incorporated in regulations on the permitting of LNG export facilities, we interviewed representatives of nine companies that submitted LNG export permit applications that were approved or denied from April 1, 2012, through August 31, 2019.¹⁴

To determine the extent to which federal agencies have addressed key principles for workforce planning related to permitting LNG export facilities, we compared agencies' workforce plans and implementation actions with key principles for effective strategic workforce planning.¹⁵ See appendix I for more details on our scope and methodology.

We conducted this performance audit from February 2019 to July 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

¹³Administrative Conference of the United States, *Administrative Conference Recommendation 2011-5: Incorporation by Reference* (Washington, D.C.: Dec. 8, 2011). The Administrative Conference of the United States is an independent federal agency charged with convening expert representatives from the public and private sectors to recommend improvements to administrative processes and procedures.

¹⁴A total of 12 companies were responsible for the 15 LNG export facility permit applications approved or denied by federal agencies as of August 31, 2019, the time when we made our selection of companies to interview (of the 15 facility applications, 14 were approved and one was denied). We interviewed representatives from nine of the 12 companies. The remaining three companies were not available for interviews during the time of our review. From September 1, 2019, through May 31, 2020, FERC approved an additional six applications for LNG export facilities. We did not interview companies involved in those applications.

¹⁵GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, [GAO-04-39](#) (Washington, D.C.: Dec. 11, 2003).

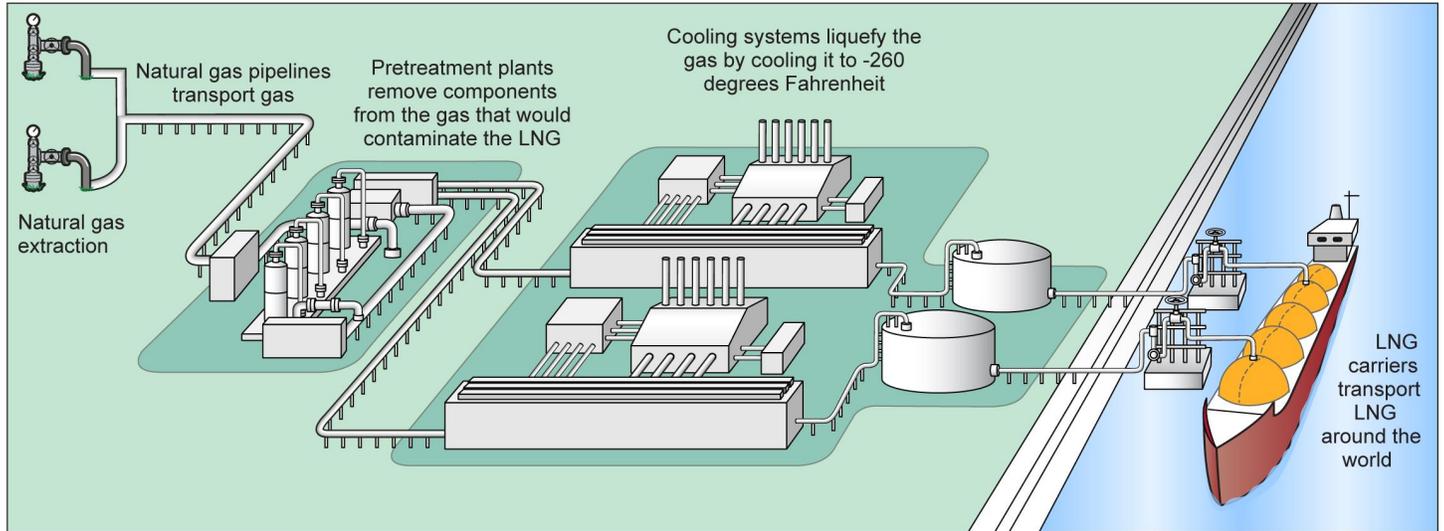
Background

Types of LNG Export Facilities

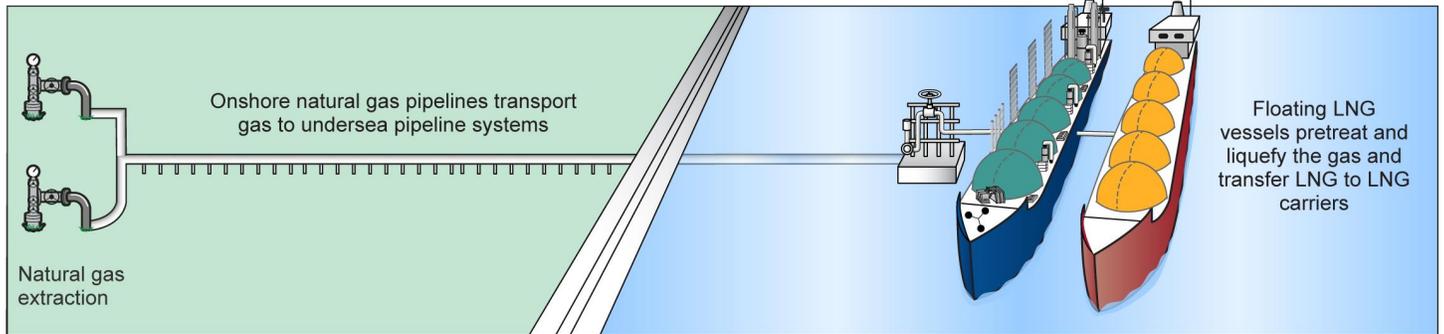
The two types of LNG export facilities are onshore and deepwater facilities, as noted earlier. Though their locations differ, onshore and deepwater LNG export facilities share some of the same main systems, including systems to pretreat, liquefy, and store LNG, and to transfer it to LNG carriers for export. For example, both types of facilities pretreat natural gas to remove components that would freeze during the liquefaction process and contaminate the LNG. After the pretreatment process, a complex set of cooling systems liquefies the gas by cooling it to minus 260 degrees Fahrenheit. The liquefied gas is then stored in large pressurized tanks until it is transferred to a LNG carrier for transport. A notable difference between onshore and deepwater facilities is that for deepwater facilities, the pretreatment and liquefaction processes take place on floating liquefaction vessels instead of on land. Figure 1 illustrates some of the common components of onshore and deepwater LNG export facilities.

Figure 1: Comparison of Onshore and Deepwater Liquefied Natural Gas (LNG) Export Facilities

Onshore LNG export facility



Deepwater LNG export facility



Source: GAO analysis of information from the Federal Energy Regulatory Commission and the Maritime Administration. | GAO-20-619

Federal Role in Permitting LNG Export Facilities

Several federal agencies are involved in the permitting processes for LNG export facilities. FERC and other agencies—including PHMSA and the Coast Guard—have roles in the permitting process for onshore facilities. CEQ, though not directly involved in permitting decisions, has provided guidance to FERC and other agencies to clarify a policy that affects the permitting process for onshore facilities. MARAD and the Coast Guard, in addition to other agencies, have roles in the permitting process for deepwater facilities. The Coast Guard is the only agency that plays a significant role in both processes.

Onshore Facilities

FERC. FERC is responsible for reviewing applications and ultimately permitting the construction and operation of onshore LNG export facilities under the Natural Gas Act.¹⁶ Applications to construct, modify, or operate an onshore facility must comply with FERC's regulations, such as by submitting detailed documentation describing technical, safety, environmental, and other elements of the proposed facility.¹⁷ FERC's review of the application includes, for example, an analysis of the liquefaction systems, fire suppression and alarm systems, instrumentation, and other components to ensure that the effects of any LNG spill stay within the facility's boundary. FERC also acts as the lead agency responsible for coordinating the environmental analysis required under the National Environmental Policy Act (NEPA) for the approval of new facilities. FERC coordinates with cooperating agencies to complete the NEPA analysis.¹⁸

Other agencies. Several cooperating agencies contribute to the permitting process for onshore facilities, but PHMSA and the Coast Guard have key roles in the process. PHMSA has regulatory authority under

¹⁶Section 3 of the Natural Gas Act authorized the Federal Power Commission to approve or deny applications for the siting, construction, expansion, or operation of an LNG terminal, authority later transferred to the Department of Energy (DOE). In 1984, DOE delegated this authority to FERC. DOE Delegation Order No. 0204-112, 49 Fed. Reg. 6684, 6690 (Feb. 22, 1984). FERC also permits the construction and operation of associated pipelines under section 7 of the Natural Gas Act

¹⁷18 C.F.R Part 153, *Applications for Authorization to Construct, Operate, or Modify Facilities Used for the Export or Import of Natural Gas*.

¹⁸Under NEPA, an agency prepares an environmental impact statement (EIS) when it considers a proposal for a major federal action significantly affecting the quality of the human environment. An EIS is a detailed statement of the likely environmental effects of the action and a consideration of alternatives to the proposed action. Agencies may also prepare an environmental assessment (EA)—a more concise analysis—to determine whether the action is likely to significantly affect the environment. Based on the results of the EA, the agency may then move to prepare an EIS or may conclude its analysis in a Finding of No Significant Impact, if appropriate. Alternatively, if the agency determines that the activities of a proposed action fall within a category of activities that the agency has previously determined to have no significant environmental impact, individually or cumulatively—what is known as a categorical exclusion—and no extraordinary circumstances exist, then the agency generally does not need to prepare an EA or an EIS. These parameters for categorical exclusions are set to change, however, on September 14, 2020, when CEQ's revised NEPA regulations enter into effect. See CEQ, "Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act—Final Rule," 85 Fed. Reg. 43304 (published July 16, 2020).

pipeline safety laws to establish and enforce safety regulations for onshore LNG facilities.¹⁹ PHMSA's regulations prescribe safety standards for LNG facilities, generally including all components located landward of the pipelines transferring LNG from the storage tanks to a LNG carrier.²⁰ These regulations address requirements for siting, design, construction, equipment, operations, personnel qualification and training, fire protection, and security of the facilities. FERC regulations require an applicant to show that the facility design would comply with PHMSA's regulations. The Coast Guard exercises regulatory authority over LNG facilities that affect the safety and security of port areas and navigable waterways. The Coast Guard is thus responsible for matters related to navigation and safety standards for components in or adjacent to navigable waters, extending from the first valve exiting the storage tanks seaward (all components landward of this point fall under PHMSA's jurisdiction).

The Coast Guard also has authority for regulating LNG facility security, as well as siting as it affects vessel traffic in and around the facility. In keeping with this authority, the Coast Guard generally requires an applicant to submit a waterway suitability assessment—which FERC reviews as part of the application review process—as well as a facility security assessment and a facility security plan—which are submitted to the Coast Guard prior to operation and reviewed by the Coast Guard's Captain of the Port associated with the proposed facility against factors specified in Coast Guard regulations.²¹ In addition to PHMSA and the Coast Guard, cooperating agencies that typically contribute to FERC's review include the U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency.

CEQ. Though not involved directly in permitting decisions, CEQ is responsible for, among other things, overseeing federal agencies' implementation of NEPA and, in cooperating with OMB, for developing guidance to implement Section 5 of Executive Order 13807, "Establishing

¹⁹49 U.S.C. §§ 60101 et seq.

²⁰49 C.F.R. Part 193.

²¹33 C.F.R. Parts 127 and 105.

Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects,” titled One Federal Decision.²²

- **NEPA.** CEQ promulgates regulations that instruct federal agencies how to comply with the requirements of NEPA. In July 2020, CEQ published a final rule to comprehensively update its NEPA regulations for the first time in over 40 years.²³
- **One Federal Decision policy.** Section 5 of Executive Order 13807 requires federal agencies such as FERC to process environmental reviews and permitting decisions for major infrastructure projects as one federal decision, meaning that agencies with environmental review, permitting, or consultation responsibilities for such projects should generally agree to a permitting timetable, coordinate on a synchronized environmental review process, elevate issues for resolution, and sign a joint record of decision.²⁴ To implement Section 5 of the executive order, on March 20, 2018, CEQ and OMB issued joint guidance to agencies that summarized general principles and processes established by the order and that directed agencies to enter into an accompanying memorandum of understanding implementing the order. FERC and several federal agencies signed the accompanying memorandum of understanding in March and April 2018.²⁵

²²Exec. Order No. 13807, 82 Fed. Reg. 40463-69 (Aug. 24, 2017), at § 5(b). According to CEQ staff, OMB is generally responsible for tracking agency performance against goals established by the One Federal Decision policy, whereas CEQ is generally responsible for providing guidance related to the environmental review and permitting process. It is for this reason that we focused on CEQ’s role in this report.

²³CEQ, “Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act—Final Rule,” 85 Fed. Reg. 43304 (published July 16, 2020; effective Sept. 14, 2020).

²⁴Executive Order 13807 defines major infrastructure projects as those for which, among other things, the lead federal agency has determined that it will prepare an environmental impact statement (EIS).

²⁵We will hereafter use the term “the One Federal Decision policy” to refer collectively to Section 5 of Executive Order 13807, CEQ and OMB’s joint guidance, the memorandum of understanding that accompanied the joint guidance, and CEQ’s 2019 memorandum to FERC regarding joint records of decision, which is discussed later in this report.

Deepwater Facilities

MARAD. The Deepwater Port Act of 1974, as amended, prohibits the ownership, construction, or operation of a deepwater port, including deepwater LNG export facilities, on the outer continental shelf in U.S. federal waters without a license from the Secretary of Transportation.²⁶ The Secretary subsequently delegated processing of permit applications for deepwater facilities to MARAD and the Coast Guard.²⁷ In 2004 MARAD, the Coast Guard, and several cooperating agencies signed a memorandum of understanding outlining roles and responsibilities in deepwater facility permitting. According to the memorandum of understanding, MARAD is generally responsible for determining financial capability of the applicant, preparing the record of decision, and issuing or denying the permit. Any components of the facility that will be located onshore and that would fall within FERC's jurisdiction require a separate application to FERC. According to MARAD, to date no proposed deepwater facilities have met the definition of a major infrastructure project as specified by the One Federal Decision policy, and so, MARAD and the Coast Guard have not applied the policy.

Coast Guard. Like FERC's decision to permit an onshore facility, MARAD's decision to permit a deepwater facility is subject to NEPA. Under the 2004 memorandum of understanding regarding deepwater facility permitting, the Coast Guard is responsible for matters related to navigation safety, engineering and safety standards, and facility inspections, and for leading the NEPA review in coordination with cooperating agencies. Cooperating agencies that typically contribute to the Coast Guard's review include PHMSA, the Corps, the Environmental Protection Agency, and the Bureau of Ocean and Energy Management.

²⁶33. U.S.C. §§ 1501 et seq. As noted above, for the purposes of this report we refer to deepwater ports that export LNG as deepwater facilities.

²⁷The Deepwater Port Act authorizes the Secretary of Transportation to issue, amend, transfer or reinstate a license for ownership, construction or operation of a deepwater port, subject to certain statutory conditions. The Secretary of Transportation formerly delegated to the Commandant of the Coast Guard authority to process (in coordination with MARAD) applications for licenses under the act. Sections 888 and 1512 (d) of the Homeland Security Act of 2002 effectuate transfer of authority for Coast Guard authorities and functions from the Secretary of Transportation to the Secretary of Homeland Security.

Incorporating Technical Standards in Regulations

Some federal agencies, such as PHMSA and the Coast Guard, incorporate technical standards into their regulations as a way to require the regulated community to, among other things, protect human health and the environment. According to OMB, a technical standard can be the definition of terms; classification of components; delineation of procedures; or specification of dimensions, materials, performance, designs, or operations, among other things.²⁸ Technical standards can be government-unique standards, which federal agencies develop for their own use. Technical standards can also be voluntary consensus standards, which are developed by membership-based standards-developing organizations (SDO) such as professional engineering societies and trade associations.²⁹

SDOs develop voluntary consensus standards through a formal process of synthesizing input from the public and from their members, who may include representatives from industry, academia, and government. Standards developed through voluntary consensus may be adopted by industry, states, or federal agencies. OMB directs agencies, except where inconsistent with law or impractical or where no such standard exists, to use voluntary consensus standards instead of creating their own unique standards.³⁰ According to OMB, using voluntary consensus standards is intended to, among other things, promote efficiency and eliminate the cost of an agency's developing its own standard. SDOs' processes for developing voluntary consensus standards, according to OMB, include

²⁸OMB, *Circular A-119: Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*. For the purposes of this report, we use the term "technical standard" to refer to standards incorporated by reference.

²⁹Federal agencies can require a regulated industry to comply with voluntary consensus standards. The word "voluntary" in the term voluntary consensus standards refers to SDO's volunteer membership and standards development process.

³⁰OMB, *Circular A-119*. According to the circular, it is intended to minimize the reliance by agencies on government-unique standards, consistent with the National Technology Transfer and Advancement Act (NTTAA) of 1995, as amended (Pub. L. 104-113). Agencies are required by Section 12 (d)(1) of the NTTAA, 15 U.S.C. § 272 note, to "use technical standards that are developed or adopted by voluntary consensus standards bodies ... as a means to carry out policy objectives or activities determined by the agencies and departments ... except where inconsistent with law or otherwise impractical."

the elements of openness, balance, due process, consensus, and an appeals process.

SDOs generally update technical standards periodically. For example, the National Fire Protection Association first set its technical standard for fire safety at LNG facilities in 1971 and has updated this standard 13 times, most recently in 2019.³¹ OMB guidance states that federal agencies should review regulations that incorporate technical standards every 3 to 5 years to determine whether the regulations need to be updated to incorporate revised standards. OMB also recognizes that agencies may have good reasons for not using the most recent version of a standard. For example, if using a revised standard significantly increases compliance costs that are not justified by the benefits of using the standard, the agency may decline to adopt it.

Processes for Permitting LNG Export Facilities

There are, as noted earlier, two separate processes for permitting LNG export facilities—one for onshore facilities and one for deepwater facilities. The processes share some similar steps, including an environmental review under NEPA. However, other steps are unique to each process.

Permitting Process for Onshore Facilities

The permitting process for onshore facilities has several key steps. For facilities that are considered major infrastructure projects, the One Federal Decision policy established a goal for FERC and other agencies to complete these steps within an agency average of 2 years.³² Key steps in the permitting process include:

³¹National Fire Protection Association, *Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)*, NFFA-59A-2019 (Quincy, Mass: 2019).

³²According to FERC officials, applications to build new LNG export facilities are considered major infrastructure projects and thus subject to the One Federal Decision policy. This policy established a goal for agencies to complete environmental reviews and authorization decisions for major infrastructure projects in an average of 2 years. According to CEQ staff, the policy's 2-year goal will be an average taken across all major infrastructure projects authorized by each agency.

1. **Pre-filing.** Under FERC regulations, applicants are required to pre-file with FERC a minimum of 6 months before formally filing.³³ According to FERC officials, the pre-filing phase is intended to allow applicants to communicate freely with FERC, cooperating agencies, and other stakeholders to identify and resolve issues before the applicant formally files an application. Once an application is filed, FERC officials indicated that FERC's regulations require all communications between the applicant, FERC officials, and the commissioners to be on the record.³⁴
2. **Letter of determination from PHMSA.** According to a 2018 memorandum of understanding with FERC, PHMSA agrees to provide FERC with a letter of determination regarding applicants' compliance with specific provisions of PHMSA's regulations prescribing LNG facility safety standards. This letter is due to FERC before completion of the NEPA review.
3. **Final NEPA document.** The preparation of the NEPA document, which is led by officials in FERC's Office of Energy Projects, involves coordination with cooperating agencies that are responsible for required permits, consultations, or other approvals within their areas of jurisdiction. The NEPA document typically includes certain conditions FERC officials recommend the commission consider as requirements that must be met before FERC will authorize construction.
4. **FERC's final order.** The issuance of this document records FERC commissioners' decision to deny or approve a permit for the proposed facility. If approved, the commission may include certain conditions the applicant must meet before FERC will authorize construction. These conditions may differ somewhat from those recommended by FERC staff in the NEPA document.
5. **Joint record of decision.** For facilities subject to the One Federal Decision policy, cooperating agencies with environmental review, authorization, or consultation responsibilities issue a joint record of

³³18 C.F.R. § 157.21, *Pre-filing procedures and review process for LNG terminal facilities and other natural gas facilities prior to filing of applications*. See also 18 C.F.R. § 153.12.

³⁴18 C.F.R. § 385.2201, *Rules governing off-the-record communications*. FERC is composed of a presidentially appointed commission with up to five commissioners, and several offices, including the Office of Energy Projects, which is responsible for conducting the environmental review of proposed infrastructure projects. For the purpose of simplicity, we will refer to actions taken by FERC officials and by the Commission as actions taken by FERC. Where the distinction between officials and members of the Commission is relevant, however, we will differentiate between the two.

decision on the proposed facility following FERC's final order. According to Section 5 of Executive Order 13807, agencies may opt out of issuing a joint record of decision: (1) if the applicant requests that agencies issue their documents separately, (2) if the NEPA obligations of a cooperating agency have already been satisfied, or (3) if the lead agency determines that a single record of decision would not best promote completion of the review process.

6. **Authorization to start construction.** After FERC approves an application but before an applicant can start construction, the applicant must develop a plan describing how it will meet any conditions and mitigation measures identified in FERC's final order. FERC oversees construction and ensures that these conditions are met.

According to FERC officials, to date no LNG export facility application has gone through all of the processes established by the One Federal Decision policy, such as the signing of a joint record of decision. FERC and cooperating agencies have incorporated some of these processes into currently ongoing permit reviews. For example, the Jordan Cove LNG permit review began before the One Federal Decision policy was implemented, but following FERC's order approving Jordan Cove cooperating agencies began the process of preparing a joint record of decision. The Department of the Interior is the agency leading development of the joint document. Jordan Cove is the first LNG export facility for which agencies are preparing a joint record of decision. As of May 1, 2020, the joint document had not been issued.

Permitting Process for Deepwater Facilities

The permitting process for deepwater facilities has several key steps that must be taken within a specified number of days. Specifically, the Deepwater Port Act of 1974, as amended, establishes a time frame of 330 days to comply with the requirements of NEPA and complete the permitting process. The timeline starts from the date MARAD publicly announces receipt of a complete application to the date MARAD issues its record of decision approving or denying the application.³⁵ Key steps in the permitting process include:

³⁵According to CEQ staff, the applicability of the One Federal Decision policy to deepwater facilities remains an open question; however, these staff said they consider the Deepwater Port Act's 330-day time frame to meet the spirit of the One Federal Decision policy's government-wide goal of completing the permitting process within an average of 2 years.

1. **Evaluation of the application's completeness.** Under the Deepwater Port Act, before initiating the 330-day application review process, MARAD and the Coast Guard have a 21-day window in which to determine whether an application appears to be complete, or if not, to notify the applicant of deficiencies. Under the 2004 memorandum of understanding regarding deepwater facility permitting, cooperating agencies agree to review newly submitted applications, and provide the MARAD and the Coast Guard with recommendations as to the need for any additional information to assist in their completeness determination.
2. **Final NEPA document.** MARAD and the Coast Guard must complete the NEPA review and prepare the NEPA document within time frames established in the Deepwater Port Act. The preparation of the NEPA document involves coordination with cooperating agencies that are responsible for required permits, consultations, or other approvals within their areas of jurisdiction.
3. **MARAD's record of decision.** Once the application has made it through all necessary federal, state, and NEPA review processes, the MARAD Administrator evaluates the proposed facility against nine criteria established in the Deepwater Port Act before issuing a record of decision to approve or deny the application. MARAD's approval of the application may be contingent on certain conditions being met, such as receiving an order from FERC approving the onshore components of the proposed facility.
4. **Issuance of an operating license.** After MARAD approves an application but before issuing a license to operate the facility, the applicant must demonstrate how it will meet conditions identified in MARAD's record of decision related to financial responsibility and liability insurance, among other things. Once MARAD has verified the applicant's compliance with these conditions, it will issue a license to operate the facility.

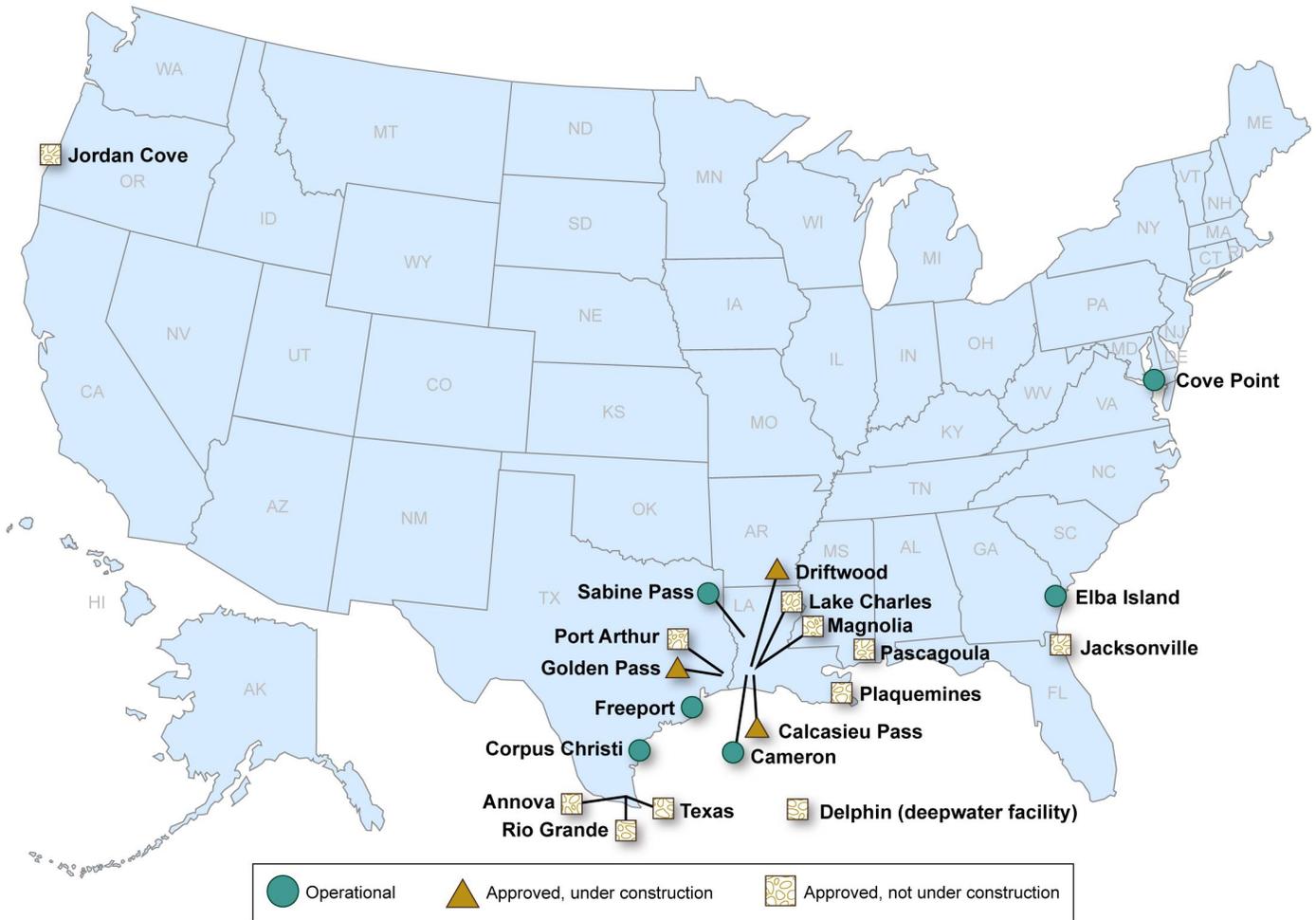
Operational and Approved LNG Export Facilities

In April 2012, FERC issued its first order approving an onshore LNG export facility. As of May 1, 2020, FERC had approved 19 applications for onshore facilities—some of these applications were to construct new facilities, others were to convert existing import facilities for export. Of these 19 onshore facilities, six were operational, three were under construction, and 10 had been approved but had not yet begun

construction.³⁶ In March 2017, MARAD approved the first U.S. deepwater LNG export facility, which had not yet begun construction as of the date of this report. Figure 2 shows the locations of all 20 operational and approved LNG export facilities in the United States as of May 1, 2020.

³⁶As of May 1, 2020, FERC had also approved seven applications to modify or expand existing onshore LNG export facilities.

Figure 2: Locations of Operational and Approved U.S. Liquefied Natural Gas (LNG) Export Facilities as of May 1, 2020



Facility name	Facility location	Status	Facility name	Facility location	Status
Annona	Brownsville, Texas	Approved, not under construction	Jacksonville	Jacksonville, Florida	Approved, not under construction
Calcasieu Pass	Cameron Parish, Louisiana	Approved, under construction	Jordan Cove	Coos Bay, Oregon	Approved, not under construction
Cameron	Hackberry, Louisiana	Operational	Lake Charles	Lake Charles, Louisiana	Approved, not under construction
Corpus Christi	Corpus Christi, Texas	Operational	Magnolia	Lake Charles, Louisiana	Approved, not under construction
Cove Point	Cove Point, Maryland	Operational	Pascagoula	Pascagoula, Mississippi	Approved, not under construction
Delfin	Federal waters, Gulf of Mexico	Approved, not under construction	Plaquemines	Plaquemines Parish, Louisiana	Approved, not under construction
Driftwood	Calcasieu Parish, Louisiana	Approved, under construction	Port Arthur	Port Arthur, Texas	Approved, not under construction
Elba Island	Elba Island, Georgia	Operational	Rio Grande	Brownsville, Texas	Approved, not under construction
Freeport	Freeport, Texas	Operational	Sabine Pass	Sabine, Louisiana	Operational
Golden Pass	Sabine Pass, Texas	Approved, under construction	Texas	Brownsville, Texas	Approved, not under construction

Sources: GAO analysis of information from the Federal Energy Regulatory Commission and the Maritime Administration; Map Resources (map). | GAO-20-619

Data table for Figure 2: Locations of Operational and Approved U.S. Liquefied Natural Gas (LNG) Export Facilities as of May 1, 2020

Facility Name	Facility location	Status
Annova	Brownsville, Texas	Approved, not under construction
Calcasieu Pass	Cameron Parish, Louisiana	Approved, under construction
Cameron	Hackberry, Louisiana	Operational
Corpus Christi	Corpus Christi, Texas	Operational
Cove Point	Cove Point, Maryland	Operational
Delfin	Federal waters, Gulf of Mexico	Approved, not under construction
Driftwood	Calcasieu Parish, Louisiana	Approved, under construction
Elba Island	Elba Island, Georgia	Operational
Freeport	Freeport, Texas	Operational
Golden Pass	Sabine Pass, Texas	Approved, under construction
Jacksonville	Jacksonville, Florida	Approved, not under construction
Jordan Cove	Coos Bay, Oregon	Approved, not under construction
Lake Charles	Lake Charles, Louisiana	Approved, not under construction
Magnolia	Lake Charles, Louisiana	Approved, not under construction
Pascagoula	Pascagoula, Mississippi	Approved, not under construction
Plaquemines	Plaquemines Parish, Louisiana	Approved, not under construction
Port Arthur	Port Arthur, Texas	Approved, not under construction
Rio Grande	Brownsville, Texas	Approved, not under construction
Sabine Pass	Sabine, Louisiana	Operational
Texas	Brownsville, Texas	Approved, not under construction

Note: LNG export facilities can be located on land or in state waters (facilities in both places are referred to as onshore facilities), or beyond state waters in federal waters (facilities here are referred to as deepwater facilities). The only deepwater facility approved as of May 2020 is the Delfin facility, located in the Gulf of Mexico. Prior to 2012, the only LNG export facility in the United States was in Kenai, Alaska. The facility was operational until 2015 when, according to Department of Energy data, the facility completed its last LNG shipment. We excluded this facility from this figure because it was permitted by the Federal Power Commission in 1967, and thus fell outside the scope of our review. This figure does not depict modifications or expansions of existing facilities.

FERC Has Incorporated Most, but Not All, Key Collaboration Practices in the Permitting Process for Onshore Facilities, and MARAD and the Coast Guard Have Incorporated All

Practices in the Process for Deepwater Facilities

FERC has incorporated most, but not all, key collaboration practices in the permitting process for onshore LNG export facilities, while MARAD and the Coast Guard have incorporated all practices in the permitting process for deepwater facilities. We have previously identified seven key practices that can help enhance and sustain collaboration among federal agencies involved in collaborative efforts such as the permitting processes for LNG export facilities.³⁷ The key practices we have identified are:

1. defining outcomes and monitoring accountability,
2. bridging organizational cultures,
3. identifying and sustaining leadership,
4. clarifying roles and responsibilities,
5. reviewing and updating written guidance and agreements,
6. including relevant participants, and
7. identifying and leveraging resources.

In the permitting process for onshore facilities, FERC has incorporated most key collaboration practices, with one notable exception: FERC does not regularly review and update its written guidance and agreements. In contrast, MARAD and the Coast Guard have incorporated all key practices for effective collaboration in the permitting process for deepwater facilities.

FERC Has Incorporated Most Key Collaboration Practices in the Permitting Process for Onshore Facilities but Does Not Regularly Review and Update Guidance and Agreements

FERC has incorporated six of seven key collaboration practices in the permitting process for onshore LNG facilities, as seen in table 1. For example, FERC has taken actions to bridge organizational cultures by signing interagency agreements with cooperating agencies such as

³⁷[GAO-12-1022](#).

PHMSA, the Corps, and the Department of Defense to clarify different statutory obligations for environmental review during FERC’s review process. FERC has also taken actions to identify and sustain leadership, such as by issuing regulations that implement its authority to permit onshore facilities under Section 3 of the Natural Gas Act and describing how some cooperating agencies’ requirements fit into FERC’s permitting process. FERC has also taken some actions to ensure its written guidance and agreements are up to date. For example, in 2017 FERC updated its guidance to applicants on how to address environmental issues that have emerged since FERC last updated its NEPA regulations. Additionally, in 2018, FERC and PHMSA updated their 1985 bilateral memorandum of understanding to establish agreement on the division of responsibilities and articulate the agencies’ respective statutory obligations when verifying proposed facilities’ compliance with federal LNG safety standards. However, FERC has not fully incorporated the key practice of reviewing and updating its written guidance and agreements. FERC’s 2002 and 2004 interagency agreements related to LNG facility permitting have not been updated and do not reflect changes in the permitting process for onshore facilities.³⁸

Table 1: Federal Energy Regulatory Commission’s (FERC) Incorporation of Key Collaboration Practices in the Permitting Process for Onshore Export Facilities for Liquefied Natural Gas (LNG)

Key collaboration practice	Extent incorporated	Examples of findings
Defining outcomes and monitoring accountability	Sufficiently incorporated	FERC has defined collaborative outcomes for the onshore LNG permitting process in several interagency agreements with cooperating agencies. Outcomes include timely and efficient reviews; coordinated, non-duplicative federal efforts; and maximizing information exchange among all federal stakeholders. Also, FERC uses periodic interagency meetings and performance metrics to track progress against these outcomes.
Bridging organizational cultures	Sufficiently incorporated	FERC has signed interagency agreements with cooperating agencies such as the Pipeline and Hazardous Materials Safety Administration, the U.S. Army Corps of Engineers, and the Department of Defense to clarify different statutory obligations for environmental review during FERC’s review process, among other things.

³⁸These agreements include the *Interagency Agreement on Early Coordination of Required Environmental and Historic Preservation Reviews Conducted in Conjunction with the Issuance of Authorizations to Construct and Operate Interstate Natural Gas Pipelines Certificated by the Federal Energy Regulatory Commission* (2002) and the *Interagency Agreement Among the Federal Energy Regulatory Commission, United States Coast Guard, and Research and Special Programs Administration for the Safety and Security Review of Waterfront Import/Export Liquefied Natural Gas Facilities* (2004). Later in 2004, Congress established PHMSA and transferred to it the pipeline safety authorities previously held by the former Research and Special Programs Administration, which had been a party to the 2004 agreement. Norman Y. Mineta Research and Special Programs Improvement Act, Pub. L. No. 108–426, § 2, 118 Stat. 2423 (2004).

Key collaboration practice	Extent incorporated	Examples of findings
Identifying and sustaining leadership	Sufficiently incorporated	FERC has issued regulations to implement its authority to permit natural gas facilities under Section 3 of the Natural Gas Act. FERC's regulations also describe how some cooperating agencies' requirements for applications fit into FERC's overall permitting process.
Clarifying roles and responsibilities	Sufficiently incorporated	FERC has signed interagency agreements with cooperating agencies to clarify each agency's role, define how they will collaborate, and help ensure interagency coordination in FERC's permitting process.
Reviewing and updating written guidance and agreements	Partially incorporated	In 2017, FERC updated its guidance to applicants on how to address environmental issues that have emerged since FERC last updated its NEPA regulation. Some of FERC's interagency agreements do not reflect changes in the permitting process, such as recent requirements established by the One Federal Decision policy, among other things. ^a
Including relevant participants	Sufficiently incorporated	FERC has taken steps to help ensure that cooperating agencies and other stakeholders are included in the application review process, such as by establishing a pre-filing process to help ensure applicants identify and coordinate with all relevant federal agencies with permitting or consultation requirements before filing an application.
Identifying and leveraging resources	Sufficiently incorporated	According to FERC officials, FERC has, to date, had the resources it needs to complete permit application reviews, and has leveraged third party contractors to assist with reviews during periods of high demand.

● Sufficiently incorporated – We found one or more examples of FERC's actions or processes that incorporated this key practice, and did not find examples of FERC's actions or processes that did not incorporate this practice.

○ Partially incorporated – We found one or more examples of FERC's actions or processes that incorporated this key practice, and one or more examples that did not incorporate this key practice.

○ Not incorporated – We did not find an example of FERC's actions or process that incorporated this key practice.

Source: GAO analysis of information from FERC, the Pipeline and Hazardous Materials Safety Administration, the U.S. Army Corps of Engineers, the Department of Defense, and the Council on Environmental Quality. | GAO-20-619

^aSection 5 of Executive Order 13807 requires federal agencies such as FERC to process environmental reviews and permitting decisions for major infrastructure projects as one federal decision, meaning agencies with environmental review, permitting, or consultation responsibilities for such projects generally agree to a permitting timetable, coordinate on a synchronized environmental review process, elevate issues for resolution, and sign a joint record of decision. In the case of the permitting process for onshore LNG export facilities, guidance from the Council on Environmental Quality provides for cooperating agencies to sign a joint record of decision following FERC's order.

FERC officials said that they believe FERC's 2002 and 2004 interagency agreements remain generally relevant. However, the agreements do not address some recent changes to the permitting process. For example:

- The agreements do not reflect new steps introduced by the One Federal Decision policy. For example, under the memorandum of understanding implementing Executive Order 13807, FERC agreed to obtain written concurrence, at specific points in the NEPA process, from cooperating agencies as to the sufficiency of information available for all parties to proceed to the next stage of the process. Under the memorandum of understanding, cooperating agencies agreed to sign a joint record of decision on the application after FERC issues its final order approving or denying an application.

- The agreements do not discuss the role of the Federal Permitting Improvement Steering Council, an interagency council established in 2015 and tasked with, among other things, facilitating the coordination of environmental review and authorization decisions for certain major infrastructure projects.

FERC's interagency agreements do not address these changes to the permitting process because FERC does not have a process to regularly review and update its written agreements in cooperation with other agencies. According to FERC officials, FERC generally takes an ad hoc approach to updating its written agreements. According to key practices for effective collaboration, however, written agreements are most effective when they are regularly reviewed and updated.³⁹ In the near term, reviewing and, if necessary, updating FERC's current interagency agreements would help FERC ensure recent changes to its processes are clearly understood and implemented consistently by cooperating agencies. In turn, this action would help ensure the permitting process is carried out efficiently. For the longer term, establishing a process to regularly conduct such reviews would help FERC ensure its agreements will address future policy changes, such as recent revisions to CEQ's NEPA regulations and anticipated revisions to PHMSA's LNG facility safety regulations; both of which may further change FERC's permitting process.

MARAD and the Coast Guard Have Incorporated All Key Collaboration Practices in the Permitting Process for Deepwater Facilities

MARAD and the Coast Guard have incorporated all seven key collaboration practices in the permitting process for deepwater facilities, as shown in table 2. They have defined, in regulations and in a memorandum of understanding, outcomes such as meeting the Deepwater Port Act's 330-day permitting time frame, and they use tracking tools, regular project meetings, and a pre-application completeness review with cooperating agencies to monitor progress toward these outcomes. To help bridge organizational cultures, the Coast Guard obtains input from agencies such as FERC and the Corps—which have permitting jurisdiction for onshore components of deepwater

³⁹[GAO-12-1022](#).

facilities—to ensure the Coast Guard’s environmental review is useable for these agencies’ permitting decisions.

Table 2: Maritime Administration’s (MARAD) and U.S. Coast Guard’s (Coast Guard) Incorporation of Key Collaboration Practices in the Permitting Process for Deepwater Export Facilities for Liquefied Natural Gas (LNG)

Key collaboration practice	Extent incorporated	Examples of findings
Defining outcomes and monitoring accountability	Sufficiently incorporated	MARAD and the Coast Guard have defined outcomes for the permitting process—such as meeting the Deepwater Port Act’s 330-day permitting time frame—in regulations and a 2004 memorandum of understanding (MOU) between MARAD, the Coast Guard, and cooperating agencies. MARAD and the Coast Guard use tracking tools to monitor progress toward these outcomes during application review.
Bridging organizational cultures	Sufficiently incorporated	The Coast Guard seeks input from agencies such as the Federal Energy Regulatory Commission and the U.S. Army Corps of Engineers—which have permitting jurisdiction for onshore components of deepwater facilities—to help ensure the Coast Guard’s environmental review will be useable for these agencies’ permitting decisions.
Identifying and sustaining leadership	Sufficiently incorporated	MARAD and the Coast Guard have issued documents, such as MARAD’s 2015 Deepwater Ports Application Policy, that describe the agencies’ authorities and leadership roles under the Deepwater Port Act.
Clarifying roles and responsibilities	Sufficiently incorporated	Cooperating agency officials generally agreed that MARAD’s and the Coast Guard’s leadership roles, and cooperating agencies’ respective roles and responsibilities, are clearly defined in the 2004 MOU and Coast Guard regulations implementing the Deepwater Port Act.
Reviewing and updating written guidance and agreements	Sufficiently incorporated	In December 2019, MARAD issued voluntary guidance encouraging applicants to coordinate with lead and cooperating agencies regarding the environmental review process, document management, and other issues before submitting an application. MARAD officials stated that MARAD, the Coast Guard, and cooperating agencies have reviewed and are finalizing an update to the 2004 MOU, though officials stated MARAD has not determined when the update will be complete.
Including relevant participants	Sufficiently incorporated	MARAD and the Coast Guard work with cooperating agencies to ensure that permit applications include sufficient information to comply with all applicable cooperating agencies’ requirements. MARAD staff use a checklist to track completed permits and consultations with cooperating agencies and other stakeholders to help ensure all relevant participants are included in the permitting process.
Identifying and leveraging resources	Sufficiently incorporated	The Coast Guard funds activities related to permitting deepwater LNG export facilities from its annual budget and tracks costs by individual project. The Coast Guard charges a \$350,000 application fee, and if costs exceed this amount, the applicant pays the difference; fees are remitted to the U.S. Treasury. The Coast Guard also leverages third party contractor support for the environmental review. The third party contractor is paid by the applicant and managed by the Coast Guard.

● Sufficiently incorporated – We found one or more examples of MARAD’s and Coast Guard’s actions or processes that incorporated this key practice, and did not find examples of MARAD’s and Coast Guard’s actions or processes that did not incorporate this practice.

○ Partially incorporated – We found one or more examples of MARAD’s and Coast Guard’s actions or processes that incorporated this key practice, and one or more examples that did not incorporate this key practice.

○ Not incorporated – We did not find an example of MARAD’s and Coast Guard’s actions or process that incorporated this key practice.

Source: GAO analysis of information from MARAD and the Coast Guard. | GAO-20-619

CEQ Has Issued Guidance for Implementing the One Federal Decision Policy, but Agencies Noted Challenges Following the Guidance in the Onshore Permitting Process

Section 5 of Executive Order 13807 directs CEQ to issue regulations, guidance, and directives as necessary to ensure optimal interagency coordination and more clearly define responsibilities for agencies implementing the One Federal Decision policy.⁴⁰ To help agencies implement the policy in the permitting process for onshore LNG export facilities, CEQ has taken the following actions:

- As discussed above, in March 2018, CEQ and OMB jointly issued guidance and an accompanying memorandum of understanding implementing Section 5 of the executive order. Under the memorandum of understanding, which FERC and several other agencies signed in March and April 2018, those agencies agreed to sign a joint record of decision on a permit application after FERC issues its order approving or denying the application.
- In August 2019, CEQ issued an additional memorandum to FERC recommending that cooperating agencies plan to prepare a joint record of decision before FERC issues its final environmental impact statement, and encouraging FERC to facilitate cooperating agencies' selection of an appropriate agency to lead development of the joint record of decision during routine agency coordination associated with the NEPA review.

Additionally, in July 2020, CEQ published a final rule to comprehensively update its NEPA regulations.⁴¹ According to CEQ, the final rule includes provisions that codify the steps that agencies need to follow to implement the One Federal Decision policy, including signing a joint record of decision.

As previously discussed, since the executive order was signed, no LNG export facility permit application has gone through all of the processes

⁴⁰Executive Order 13807 (Aug. 15, 2017), published at 82 Fed. Reg. 40, 463 (Aug. 24, 2017), at § 5(e)(i).

⁴¹CEQ, "Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act—Final Rule," 85 Fed. Reg. 43304 (published July 16, 2020; effective Sept. 14, 2020).

established by the One Federal Decision policy. Cooperating agencies are currently preparing their first joint record of decision for a proposed facility called Jordan Cove LNG. Cooperating agency officials involved in preparing that joint record of decision stated that based on their experience, the process for preparing the joint document may benefit from additional clarity. Specifically, officials stated that they have encountered the following two issues with the process, which, in these officials' views, CEQ's guidance for implementing the policy does not fully address, but which may also be resolved as agencies gain additional experience on future permit reviews:

1. **How to ensure a joint record of decision fulfils all agencies' regulatory obligations in cases where these obligations conflict.** Officials stated that some agencies' regulations may require the agencies to take actions at different times, which can make development of the joint record of decision challenging. For example, officials from the Department of the Interior—the agency leading development of the Jordan Cove LNG joint record of decision—stated that the Bureau of Land Management's and the U.S. Forest Service's respective NEPA regulations require the agencies to issue records of decision on a project at different times. These officials stated that clearer guidance from CEQ may help the agencies harmonize their different requirements in the process of developing a joint record of decision. These officials also acknowledged that the two agencies may find ways to address this challenge as they gain experience preparing the joint documents on future permit reviews.
2. **How to decide whether a cooperating agency may opt out of a joint record of decision.** As mentioned previously, the executive order establishing the One Federal Decision policy allows agencies to opt out of issuing a joint record of decision if the applicant requests agencies issue their documents separately, the NEPA obligations of a cooperating agency have already been satisfied, or if the lead agency determines that a single record of decision would not best promote completion of the review process.⁴² The Corps opted out of the Jordan Cove LNG joint record of decision because, according to Corps officials, the Corps does not anticipate being able to complete its permit—which requires the proposed facility to obtain a water quality certification from the State of Oregon—until much later than the remaining cooperating agencies. Department of Interior officials stated that, in their view, a joint record of decision will always make the overall permitting process longer by tying agencies' individual

⁴²Executive Order 13807, § (5)(b)(ii).

permitting time frames to the time frame of the agency whose decision comes last. These officials noted that letting several or all agencies opt out of the joint record of decision, while generally permitted by the executive order, appears to run counter to the One Federal Decision policy's goal of streamlining the federal permitting process. They noted that, given the many reasons applicants and agencies may have for agencies to opt out, it might be helpful if CEQ clarified what criteria should inform this decision.

According to CEQ staff, CEQ encourages agencies to select a permitting approach that is best suited to the circumstances of a given application, and the One Federal Decision policy provides agencies with sufficient discretion to choose not to sign a joint record of decision if they or the applicant determine that signing a joint document would be less efficient. According to these staff, CEQ's guidance provides a clear expectation that FERC and cooperating agencies address their different statutory and regulatory requirements and agree on the substantial aspects of a project before FERC issues its order and before cooperating agencies issue their joint record of decision. Staff also stated that Section 5 of the executive order provides agencies with clear discretion to choose not to sign a joint record of decision if they or the applicant feel that doing so would be inefficient, and that CEQ encourages agencies to select a permitting approach that is best suited to the circumstances of a given application. Cooperating agency officials acknowledged that despite the challenges identified above, cooperating agencies have not yet completed the first joint record of decision for an LNG export facility, and so it is too early to tell whether these challenges require further guidance from CEQ or will be resolved as agencies learn how to most efficiently work together through future permit reviews.

Agencies Have Not Updated Their Regulations for Permitting LNG Export Facilities to Incorporate All Current Technical Standards

FERC, PHMSA, and Coast Guard regulations incorporate technical standards that are outdated.⁴³ As shown in table 3, FERC regulations for permitting LNG export facilities incorporate one technical standard, PHMSA regulations incorporate nine, and Coast Guard regulations incorporate eight. As of May 2020, all of FERC's and the Coast Guard's incorporated technical standards for permitting LNG export facilities were

⁴³We assessed FERC and Coast Guard regulations because of their role as lead agencies for permitting LNG export facilities. We also assessed PHMSA regulations because FERC regulations require applicants to identify how the facility design will comply with PHMSA's regulations for LNG facilities. MARAD has not issued its own regulations for permitting deepwater LNG export facilities, but instead uses regulations issued by the Coast Guard.

outdated, and most of PHMSA’s were outdated.⁴⁴ (For more information about these technical standards, see appendix II).

Table 3: Number of Technical Standards Incorporated in Regulations for Permitting Liquefied Natural Gas Export Facilities and Number of Outdated Standards, as of March 2020

Agency	Total number of incorporated technical standards	Number of incorporated technical standards that are outdated
Federal Energy Regulatory Commission	1	1
Pipeline and Hazardous Materials Safety Administration	9	8
U.S. Coast Guard	8	8

Source: GAO analysis of regulations issued by the Federal Energy Regulatory Commission, the U.S. Coast Guard, and the Pipeline and Hazardous Materials Safety Administration. | GAO-20-619

Note: For the purposes of this report, we define technical standards as “outdated” if the standard has been updated by the issuing standards-developing organization since the regulation that incorporated it was issued, or if agency officials identified the standard as being outdated.

Under OMB guidance, federal agencies whose regulations incorporate technical standards should conduct a standards-specific review of regulations regularly and, if needed, revise the regulations to reflect updated technical standards.⁴⁵ According to OMB, agencies should undertake such a standards-specific review every 3 to 5 years. According to PHMSA’s website, standards must be updated regularly in order to remain effective and relevant in their role to ensure safety at LNG facilities.

Although FERC, PHMSA, and the Coast Guard have all updated their regulations for permitting LNG export facilities in recent years, none of these agencies has recently conducted and documented a standards-specific review, according to the agencies’ officials. In addition, none of the agencies has a written process for ensuring that such a review is undertaken every 3 to 5 years, as called for by OMB. Without such a process, the agencies do not have reasonable assurance that they will comply with OMB’s directive and cannot be assured that the technical

Federal Agencies’ Use of Technical Standards for Protecting Safety and the Environment

Technical standards are used by federal agencies, such as the Pipeline and Hazardous Materials Safety Administration (PHMSA) and the U.S. Coast Guard, to ensure the safe design and operation of export facilities for liquefied natural gas (LNG). For example, PHMSA uses technical standards to ensure that flammable gas in pipelines and tanks at LNG export facilities is purged safely. Other technical standards used by PHMSA include standards for the design of buildings, standards for pressurized welded tanks, and fire safety standards unique to LNG export facilities. The Coast Guard uses technical standards such as ones related to welding safety in flammable environments, electrical safety, and the availability and functioning of fire extinguishers. The figure shows PHMSA inspectors inspecting LNG facilities to ensure safety.

PHMSA Inspection of a LNG Facility



Source: PHMSA. | GAO-20-619

⁴⁴In addition to these technical standards that address the permitting of LNG export facilities, PHMSA and Coast Guard regulations incorporate additional technical standards related to natural gas or other liquefied gases. For example, PHMSA’s Part 192 regulations incorporate 55 standards, of which 45 are outdated; and the Coast Guard’s Part 127.003 incorporates another four standards, all of which are outdated.

⁴⁵OMB, *Circular A-119*.

standards incorporated in their regulations remain effective and relevant to ensure safety at LNG export facilities. Details about the agencies' regulations that incorporate technical standards are as follows:

FERC. FERC's Part 153 regulations for permitting LNG export facilities, last revised in 2010, incorporate one technical standard. That standard, issued by the National Bureau of Standards in 1984, is designed to reduce the potential damage to LNG facilities from earthquakes.⁴⁶ According to FERC documents and officials, this 1984 standard is outdated because many of its key requirements have been replaced by new technical information. For example, the 1984 safety standard refers to the Uniform Building Code, which is no longer in widespread use. According to FERC officials, applicants for permits for LNG export facilities are confused by FERC's reference to the outdated 1984 standard and raise questions about complying with the standard.

To address applicants' confusion, in 2017 FERC issued an instruction manual that, according to agency officials, was intended to advise LNG companies and replace the 1984 standard.⁴⁷ FERC officials instruct applicants to use the agency's 2017 manual and follow more current seismic standards in PHMSA's regulations.

According to the Administrative Conference of the United States, an independent federal agency charged with convening expert representatives from the public and private sectors to recommend improvements to administrative processes and procedures, federal agencies should not use non-binding guidance documents, such as FERC's manual, to address difficulties caused by outdated regulations.⁴⁸

⁴⁶The National Bureau of Standards was renamed in 1988 as the National Institute of Standards and Technology, a federal agency whose mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology.

⁴⁷Federal Energy Regulatory Commission Office of Energy Projects, *Guidance Manual for Environmental Report Preparation for Applications Filed Under the Natural Gas Act (Volume II: Liquefied Natural Gas Project Resource Reports 11 & 13 Supplemental Guidance)* (Washington, D.C.: Feb. 2017). Previously, in 2007, FERC sought public comment on guidance that would supersede and replace this standard with a FERC draft report on seismic design. However, FERC did not finalize this 2007 guidance. Federal Energy Regulatory Commission Office of Energy Projects, *Draft Seismic Design Guidelines and Data Submittal Requirements for LNG Facilities* (Washington D.C.: January 3, 2007).

⁴⁸Administrative Conference of the United States, *Administrative Conference Recommendation 2011-5: Incorporation by Reference* (Washington, D.C.: Dec. 8, 2011).

Updated regulations are preferable to advisory documents because regulated entities, such as LNG export companies, are required to follow regulations; in contrast, advisory documents are not binding, according to the Administrative Conference of the United States. Moreover, when issuing or revising regulations, agencies are generally required to give the public—including regulated entities and other interested parties—notice and an opportunity to comment before the rule or revision is finalized. Those parties may not have that opportunity when agencies issue advisory documents. As a result, it may be difficult or impossible for affected persons to have input into an advisory document before it is finalized, even if it is unlawful or unwise.

When FERC revised its Part 153 regulations in 2010, it did not conduct a standards-specific review, according to FERC officials. Additionally, according to FERC officials, the agency does not have a process for ensuring that such a review is undertaken every 3 to 5 years.

PHMSA. PHMSA's Part 193 regulations for permitting LNG export facilities, last revised in 2015, incorporate nine technical standards that, according to a PHMSA document, are the basis for FERC's safety review of LNG export facilities. Eight of the nine incorporated standards are outdated. For example, PHMSA's regulations refer to a 2001 standard for LNG fire protection, established by the National Fire Protection Association, which has updated this standard five times since 2001, most recently in 2019.⁴⁹ The version of this standard incorporated in PHMSA's regulations requires LNG export companies to use a 1992 pressure-testing standard, which is 25 years out of date.⁵⁰

According to representatives of LNG export companies we spoke with, they have incurred additional costs to demonstrate that newer technical standards meet or exceed the outdated standards incorporated in PHMSA's regulations. For example, representatives of three companies told us they were required to spend additional time and money to

⁴⁹Separately, PHMSA's regulations also reference the 2006 version of the same standard. See 49 C.F.R. §193.2013(g)(2). The standard's 2019 version states that its purpose is to provide minimum fire protection, safety, and related requirements for the siting, design, construction, security, operation, and maintenance of LNG plants.

⁵⁰As of June 2020, PHMSA's 49 C.F.R. § 193.2013(g)(1) cited the 2001 version of this standard, entitled National Fire Protection Association, *Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)*, NFPA-59A-2001 (Quincy, Mass: 2001).

demonstrate to PHMSA that the storage tanks they purchased, which had been pressure tested to current standards, would also meet the 2001 technical standard incorporated in PHMSA's regulations.⁵¹ According to the companies' representatives, their companies must take this step because the tank manufacturers no longer make storage tanks that meet the 2001 technical standard. Similarly, representatives of three LNG export companies told us that they had incurred costs and application delays because of two outdated standards for modeling the dispersal of flammable vapor that might result from an accident at a LNG facility. FERC- and PHMSA-sponsored documents recognize that the two vapor dispersion standards in the regulations, both of which were issued more than 16 years ago, are not useful for many possible LNG spill scenarios. To address this issue, PHMSA officials asked companies to provide modeling analyses different from those required by PHMSA's regulations and guidance, according to company officials.⁵²

When PHMSA revised its regulations in 2015, it did not document that it had completed a standards-specific review, according to PHMSA officials. In December 2019, PHMSA officials told us they could not confirm whether PHMSA had reviewed the standards because documentation was not available. In June 2020, PHMSA told us the agency had conducted reviews of all technical standards but that the agency did not have documentation of these reviews. At that time, PHMSA officials also told us the agency was in the process of revising its regulations and planned to conduct a standards-specific review in 2020 as part of this revision, but did not have a time frame for when it would conduct such a review. Additionally, PHMSA officials told us that they do not have a process for ensuring that such a review is undertaken every 3 to 5 years.

Coast Guard. The Coast Guard's regulations for permitting LNG export facilities, last revised in 2016, incorporate eight technical standards, all of which are outdated.⁵³ For example, the Coast Guard's regulations incorporate a 1994 standard for fire extinguishers that has been updated

⁵¹49 C.F.R. § 193.2013 references NFPA-59A-2001, which directs users to the American Society of Mechanical Engineers, *Boiler & Pressure Vessel Code*, 1992 edition. The latest version cited is dated 2017.

⁵²PHMSA issued guidance in 2011 to approve the use of two vapor dispersion models not listed in PHMSA's regulations, according to PHMSA officials.

⁵³These eight standards are included in Parts 127 and 149. In addition to the 2016 revision to the Part 149 regulations, the Coast Guard last conducted a substantive revision of its Part 127 regulations in 2012.

by the SDO five times since then.⁵⁴ The most recent standard, from 2018, lists several safety precautions and technological improvements that the Coast Guard's 1994 incorporated standards do not, such as prohibited types of obsolete fire extinguishers and new standards for electronic monitoring. As a result, Coast Guard regulations do not include safety improvements that are recommended by industry and experts. When the Coast Guard revised its regulations in 2016, it did not conduct a standards-specific review, according to Coast Guard officials. Coast Guard officials said that the agency last conducted a standards-specific review in 2014 and did not update the standards referenced in its regulations, but officials could not provide documentation that such a review had been performed or documentation as to why the standards were not updated in the regulations. The Coast Guard has a process for conducting standards-specific reviews of its regulations, but the agency's process does not specify how frequently such reviews should occur.

FERC, PHMSA, and MARAD Have Generally Addressed Key Principles for Workforce Planning, but the Coast Guard Has Not Addressed Most of These Principles

FERC, PHMSA, and MARAD have generally addressed all of the five key principles for workforce planning in their workforce plans related to permitting LNG export facilities, but the Coast Guard has not addressed four of these principles. We have previously reported that strategic workforce planning should align an organization's human capital program with its current and emerging mission and programmatic goals and should develop long-term strategies for acquiring, developing, and retaining staff to achieve programmatic goals.⁵⁵ To accomplish this, agencies should follow five principles for effective strategic workforce planning. Table 4 lists the five key principles, and the extent to which FERC, PHMSA, MARAD, and the Coast Guard have incorporated the principles into

⁵⁴As of May 2020, Coast Guard regulations at 33 C.F.R. §§ 127.003, 127.603 cited National Fire Protection Association, *Standard for Portable Fire Extinguishers, 1994 Edition* (Quincy, MA: Aug. 5, 1994; errata issued Nov. 2 and Dec. 31, 1994). We found that the Coast Guard's reference to this standard contains a typo, as it refers to the standard as "Portland Fire Extinguishers" instead of "Portable Fire Extinguishers."

⁵⁵[GAO-04-39](#).

workforce planning and examples of the agencies' actions to incorporate the principles.

Table 4: Agencies' Actions to Incorporate Key Principles for Workforce Planning in Workforce Plans Related to Permitting Liquefied Natural Gas Export Facilities

Key principle	Extent incorporated by each agency	Examples of actions to incorporate principle
Involve employees and stakeholders in workforce planning	Sufficiently incorporated	The Federal Energy Regulatory Commission (FERC): Used surveys for staff at all levels to gather information on the agency's needs for additional staff and skill sets.
	Sufficiently incorporated	The Pipeline and Hazardous Materials Administration (PHMSA): Included input from staff at all levels when developing its strategic human capital plan, which analyzes its workforce composition, as of 2018.
	Sufficiently incorporated	The Maritime Administration (MARAD): Provided managers the opportunity to articulate the competency needs for their offices when the agency sought new staff through internship programs.
	Sufficiently incorporated	The U.S. Coast Guard (Coast Guard): Used workforce planning teams to gather information to rate the relative health of the agency's workforce, which informs its workforce planning.
Determine critical skills and competencies	Sufficiently incorporated	FERC: Is developing competency models that will identify key competencies and behaviors needed for specific positions.
	Sufficiently incorporated	PHMSA: Identified staff positions that require a certain level of expertise and qualifications.
	Sufficiently incorporated	MARAD: Is identifying areas of knowledge loss and developing methods to capture, retain, and share institutional knowledge.
	Not incorporated	Coast Guard: Has not taken actions to determine the critical skills and competencies needed for its Office of Operating and Environmental Standards.
Address gaps in critical skills and competencies	Sufficiently incorporated	FERC: Is in the process of opening a new office in Houston, Texas, for which it plans to hire eight additional, skilled staff to support facility design and engineering reviews.
	Sufficiently incorporated	PHMSA: Used specific authorities, such as paying new staff with superior qualifications more than the minimum rate for the position, to recruit new staff to address special skill needs.
	Sufficiently incorporated	MARAD: Used special hiring authorities, such as Veteran Recruitment Appointments, to address gaps in skills and competencies.
	Not incorporated	Coast Guard: Has not taken actions to address gaps in skills and competencies for its Office of Operating and Environmental Standards.
Build the capabilities needed to support workforce strategies	Sufficiently incorporated	FERC: Used recruitment incentives, including a student loan repayment program, as part of its recruitment process.
	Sufficiently incorporated	PHMSA: Plans to streamline several recruitment and hiring processes, including by developing a checklist and standard procedures for hiring.
	Sufficiently incorporated	MARAD: Coordinated with other offices in the Department of Transportation to ensure that MARAD continues to have access to technical experts in those offices.
	Not incorporated	Coast Guard: Has not taken actions to build capabilities to support workforce strategies for its Office of Operating and Environmental Standards.

Key principle	Extent incorporated by each agency	Examples of actions to incorporate principle
Monitor and evaluate progress toward reaching human capital goals	Sufficiently incorporated	FERC: Established and monitored staffing-level metrics, such as average hiring time.
	Sufficiently incorporated	PHMSA: Developed performance measures associated with its workforce strategies that can gauge progress toward reaching human capital goals.
	Sufficiently incorporated	MARAD: Monitored and evaluated progress toward reaching its human capital goals through a program for conducting quarterly performance reviews of human capital goals.
	Not incorporated	Coast Guard: Has not taken actions to monitor and evaluate human capital goals for its Office of Operating and Environmental Standards.

- Sufficiently incorporated – We found one or more examples of an agency’s actions or processes that fully incorporated this key principle.
- Partially incorporated – We found one or more examples of an agency’s actions or processes that partially incorporated this key principle, and some examples that did not incorporate this key principle.
- Not incorporated – We did not find an example of an agency’s actions or processes that incorporated this key principle.

Source: GAO analysis of information from FERC, PHMSA, MARAD, and the Coast Guard. | GAO-20-619

Although the Coast Guard has developed human capital plans and taken some other workforce planning actions that incorporate the first key principle, it has not addressed four of the five key principles of strategic workforce planning. In particular, the Coast Guard has not addressed the second principle—determining the critical skills and competencies that will be needed to achieve results. Determining these skills and competencies must be done before the remaining three principles can be addressed. According to Coast Guard officials we interviewed, the agency has not conducted workforce planning for its Office of Operating and Environmental Standards because, to date, it has not had any difficulty conducting required mission activities. These same Coast Guard officials told us they have not experienced difficulties fulfilling their mission because the Coast Guard uses third party contractors to help develop the NEPA document. Third party contractors support the Coast Guard by supplementing the Office of Operating and Environmental Standards’ workforce and helping to mitigate unpredictable fluctuations in workload. Determining the critical skills and competencies needed for future work will allow the Coast Guard’s Office of Operating and Environmental Standards to better ensure that it has the right number of staff with the right expertise to perform future work related to permitting LNG export facilities. Furthermore, once it has determined those skills and competencies, the Coast Guard will be able to address the remaining three principles for effective workforce planning.

Conclusions

Ensuring that permit applications for LNG export facilities meet environmental and safety requirements of federal agencies in an efficient manner depends, in part, on interagency collaboration. We found that the agencies responsible for leading the permitting processes for onshore and deepwater facilities have incorporated all of the key practices for effective collaboration, with one exception. FERC has not fully incorporated the practice of updating interagency agreements in the permitting process for onshore facilities. Reviewing and updating FERC's current interagency agreements and establishing a process to regularly review and update these agreements will help FERC and cooperating agencies to ensure that the permitting process is carried out consistently and that the agreements address future policy changes.

FERC, PHMSA, and Coast Guard regulations are key to building and maintaining LNG export facilities that are safe for the public and the environment. However, these regulations incorporate technical standards that have become outdated, such as a 1984 earthquake standard incorporated into FERC's regulations. Despite OMB guidance stating that federal agencies should conduct standards-specific reviews of regulations every 3 to 5 years and, if needed, update the regulations, none of these agencies conducted a standards-specific review the last time they updated regulations, and none has a process to ensure that such a review is conducted on the schedule specified by OMB. Without reviewing and updating regulations and without processes to ensure that such reviews are conducted every 3 to 5 years, FERC, PHMSA, and the Coast Guard cannot ensure their regulations remain effective and relevant, and applicants may incur unnecessary costs and delays.

Effective workforce planning is key to meeting an agency's needs to carry out its mission, today and in the future. FERC, PHMSA, and MARAD's workforce planning efforts align with the five principles known to make such efforts effective, helping to ensure that these agencies are well positioned to review future permit applications effectively and in a timely manner. However, although the Coast Guard has addressed the principle of involving staff and stakeholders in developing its workforce plans, it has not addressed the remaining four principles necessary to determine the critical skills its workforce needs to achieve desired results. By following the principles for strategic workforce planning for its Office of Operating and Environmental Standards, the Coast Guard can better ensure that it will have the right number of staff with the right expertise to

implement the permitting process for deepwater facilities and can then address the remaining principles for effective workforce planning.

Recommendations

We are making the following nine recommendations to FERC, PHMSA, and the Coast Guard:

FERC should review its current interagency agreements that pertain to its onshore LNG permitting process, and implement any needed updates. FERC's review should include input from cooperating agencies and CEQ. (Recommendation 1)

Once FERC has completed the review and implemented any necessary updates to interagency agreements, FERC should establish a process to regularly conduct such reviews and, as necessary, update the agreements. (Recommendation 2)

FERC should review its LNG regulations and replace the reference to the outdated 1984 earthquake standard. (Recommendation 3)

FERC should establish a process to conduct a standards-specific review of regulations that incorporate standards every 3 to 5 years and to update the regulations, if necessary. (Recommendation 4)

The Administrator of PHMSA should conduct a standards-specific review of regulations that incorporate standards and, if necessary, update the regulations or document its decision for not updating them. (Recommendation 5)

The Administrator of PHMSA should establish a process to conduct a standards-specific review of regulations that incorporate standards every 3 to 5 years and to update the regulations, if necessary. (Recommendation 6)

The Commandant of the Coast Guard should conduct a standards-specific review of the Coast Guard's regulations that incorporate standards and, if necessary, update the regulations or document its decision for not updating them. (Recommendation 7)

The Commandant of the Coast Guard should update the agency's process for conducting standards-specific reviews to include time frames for completing such reviews every 3 to 5 years. (Recommendation 8)

The Commandant of the Coast Guard should develop and implement workforce planning for the Office of Operating and Environmental Standards that addresses the four remaining key principles for strategic workforce planning. (Recommendation 9)

Agency Comments and Our Evaluation

We provided a draft of this report to the Federal Energy Regulatory Commission, the Council on Environmental Quality, the Department of Transportation, and the Department of Homeland Security. In FERC's comments, reproduced in appendix III, FERC generally agreed with our recommendations. In the comment letter, the Chairman of the Commission said that he has directed FERC staff to develop appropriate steps to implement our recommendations. FERC did not provide technical comments. The Council on Environmental Quality provided only technical comments, which we incorporated as appropriate. In the Department of Transportation's comments, reproduced in appendix IV, the department concurred with our recommendations to PHMSA and said that PHMSA is currently developing a proposed rule that would incorporate updated standards, as described in our report. The comments also stated that PHMSA is taking other actions to address our recommendations. The Department of Transportation did not provide technical comments. In the Department of Homeland Security's comments, reproduced in appendix V, the department concurred with our recommendation that the Coast Guard conduct a standards-specific review of its regulations that incorporate standards and explained that it conducts such reviews as part of its ongoing public rulemaking process. The Department of Homeland Security explained in its letter that the Coast Guard regularly reviews and compares the standards incorporated in its regulations to the current edition of each standard and asked us to consider the recommendation implemented. As we state in our report, Coast Guard officials told us that the Coast Guard last performed a standards-specific review in 2014. Because the Coast Guard has not provided documentation that such a review had been performed more recently or documentation as to why the technical standards were not updated, our recommendation stands. The Department of Homeland Security concurred with our two additional recommendations to the Coast Guard and described actions it is taking to

address them. The Department of Homeland Security also provided technical comments, which we incorporated as appropriate.

We are sending copies to the appropriate congressional committees, the Federal Energy Regulatory Commission, the Chair for the Council on Environmental Quality, the Secretary of Transportation, the Acting Secretary of Homeland Security, and other interested parties. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-3841 or ruscof@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix VI.

A handwritten signature in black ink that reads "Frank Rusco". The signature is written in a cursive style and extends to the right with a long, thin horizontal stroke.

Frank Rusco
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methods

This report examines the extent to which (1) federal agencies collaborate in the permitting processes for liquefied natural gas (LNG) export facilities, (2) the Council on Environmental Quality (CEQ) has provided guidance on implementing the One Federal Decision policy in the permitting process for onshore LNG export facilities, (3) regulations for permitting LNG export facilities incorporate current technical standards, and (4) federal agencies have addressed key principles for workforce planning in their workforce plans related to permitting LNG export facilities. For all four objectives, we included the federal agencies that lead the onshore and deepwater permitting processes. The lead agency for the onshore permitting process is the Federal Energy Regulatory Commission (FERC). The co-lead agencies for the deepwater permitting process are the Maritime Administration (MARAD) in the Department of Transportation and the U.S. Coast Guard (Coast Guard) in the Department of Homeland Security. We also included other federal agencies that were relevant to specific objectives, as described below.

To determine the extent to which lead federal agencies collaborate in the permitting processes for LNG export facilities, we compared these agencies' actions and processes to coordinate the permitting processes with key collaboration practices.¹ Two analysts assessed the information included in our analyses and reached agreement on whether agencies' actions and processes sufficiently, partially, or did not incorporate each key practice. "Sufficiently incorporated" indicates that we found one or more examples of agencies' actions or processes that incorporated this key practice, and did not find examples of agencies' actions or processes that did not incorporate this practice. "Partially incorporated" indicates that we found one or more examples of agencies' actions or processes that incorporated this key practice, and one or more examples that did not incorporate this key practice. "Not incorporated" indicates that we did not find an example of agencies' actions or process that incorporated this key practice.

¹GAO, *Managing for Results: Key Considerations for Implementing Interagency Collaborative Mechanisms*, [GAO-12-1022](#) (Washington, D.C.: Sept. 27, 2012).

The seven key practices that can help agencies enhance and sustain interagency collaboration are:

- **Defining outcomes and monitoring accountability.** Short- and long-term outcomes have been defined, and there is a way to track and monitor progress.
- **Bridging organizational cultures.** Participating agencies have developed ways to operate across any organizational boundaries and address agencies' missions and organizational cultures.
- **Identifying and sustaining leadership.** A lead agency or agencies have been identified. If leadership will be shared between one or more agencies, roles and responsibilities have been clearly identified and agreed upon.
- **Clarifying roles and responsibilities.** Participating agencies' roles and responsibilities, including a process for decision-making, have been clarified.
- **Reviewing and updating written guidance and agreements.** Participating agencies have documented their agreement regarding how they will be collaborating, and these agreements are continually monitored and updated.
- **Including relevant participants.** All relevant participants have been included.²
- **Identifying and leveraging resources.** Financial and other resources needed to initiate or sustain the collaborative effort have been identified.

To assess lead agencies' incorporation of these practices, we reviewed these agencies' documents and actions, reviewed relevant federal laws and regulations, and interviewed officials at FERC, MARAD, the Coast Guard, and cooperating agencies. Specifically, we reviewed lead agencies' documents that describe the permitting processes, including policies, guidance, FERC's and MARAD's respective 2002 and 2004 interagency agreements with cooperating agencies, and the 2018 memorandum of understanding implementing the One Federal Decision policy, among others. We also reviewed documents for 15 LNG export

²Though state, tribal, and private stakeholders may provide input or otherwise contribute to lead agencies' environmental reviews as part of the facility permitting process, we focused on federal stakeholders' participation in order to assess the extent of collaboration among federal agencies.

facility permit applications—13 approved onshore facilities, one denied onshore facility, and one approved deepwater facility—that were approved or denied from April 1, 2012, through August 31, 2019, including interagency meeting minutes and environmental impact statements.³ We examined relevant federal laws and regulations, such as the Natural Gas Act, the Deepwater Port Act, FERC’s regulations establishing filing requirements to obtain LNG export facility permits under section 3 of the Natural Gas Act, and others. We also interviewed officials at FERC, CEQ, MARAD, and the Coast Guard to corroborate and clarify documented information.

To learn cooperating agencies’ perspectives on collaboration in the permitting processes, we gathered documents and interviewed officials from a selection of cooperating agencies that contributed to FERC’s and MARAD’s permitting processes for new LNG export facilities. We selected the following agencies:

- The Advisory Council on Historic Preservation
- The Bureau of Ocean Energy Management
- The Bureau of Safety and Environmental Enforcement
- The Department of Defense
- The Department of Energy
- The Department of State
- The Environmental Protection Agency
- The Federal Aviation Administration
- The National Marine Fisheries Service
- The Natural Resources Conservation Service
- The Pipeline and Hazardous Materials Safety Administration (PHMSA)
- The Federal Emergency Management Agency
- The U.S. Army Corps of Engineers
- The U.S. Fish and Wildlife Service

³Because we made our selection of facilities to review as of August 31, 2019, our selection does not include six facilities FERC approved from September 1, 2019 to May 1, 2020.

To select cooperating agencies that contributed to FERC's onshore permitting process, we identified cooperating agencies that contributed to at least two of the 14 reviews of permit applications to focus on agencies that had the most experience with FERC's process during the years under our review, allowing for time and resource considerations. For MARAD's deepwater permitting process, we identified and interviewed officials from all but one of the cooperating agencies that contributed to the application review for the one deepwater facility MARAD has permitted to date. We did not interview officials from the Bureau of Indian Affairs, which was a cooperating agency for that review, in order not to duplicate ongoing GAO work related to tribal consultation for infrastructure projects.⁴ We interviewed agency officials using semi-structured questions focused on the extent to which federal agencies' documents and actions had incorporated key practices for interagency collaboration.

To determine the extent to which CEQ has provided guidance on implementing the One Federal Decision policy in the permitting process for onshore LNG export facilities, we compared CEQ's implementation of the One Federal Decision policy to the directions provided in Section 5 of Executive Order 13807.⁵ Section 5 of the executive order directs CEQ to issue regulations, guidance, and directives as necessary. For our assessment, we reviewed documents from CEQ and federal agencies involved in the permitting process. We also interviewed CEQ staff and officials at federal agencies involved in the permitting process.

To determine the extent to which regulations for permitting LNG export facilities incorporate current technical standards, we examined relevant federal laws, regulations, and agency guidance related to technical standards for LNG export facilities and compared agency documents and activities to relevant laws and guidance. Specifically, we compared the documents and activities of FERC, PHMSA, and the Coast Guard to the National Technology Transfer and Advancement Act,⁶ the Office of

⁴Recent GAO reports that discuss tribal consultation in federal infrastructure permitting include *Native American Issues: Examples of Certain Federal Requirements That Apply to Cultural Resources and Factors That Impact Tribal Consultation*, [GAO-20-466T](#) (Washington, D.C.: Feb. 26, 2020) and *Tribal Consultation: Additional Federal Actions Needed for Infrastructure Projects*, [GAO-19-22](#) (Washington, D.C.: Mar. 20, 2019).

⁵Executive Order 13807, § 5(e)(i).

⁶National Technology Transfer and Advancement Act of 1995, Pub. L. No. 104-113, §12(d), 110 Stat. 775, 783 (1996).

Management and Budget's guidance to federal agencies on incorporating technical standards,⁷ and recommendations from the Administrative Conference of the United States.⁸

Although not a lead agency with responsibility for permitting LNG export facilities, we included PHMSA in our analyses because FERC regulations require applicants to show that their facility design would comply with PHMSA's regulations for hazardous liquids vapor dispersion for LNG facilities. Additionally, PHMSA's regulations for vapor dispersion calculations from LNG spills over water may also be applicable to ensure compliance with the Coast Guard's LNG regulations. We did not include MARAD in our analysis because it has not issued its own regulations for permitting deepwater LNG export facilities, but instead uses regulations issued by the Coast Guard for that purpose. We also reviewed the technical standards that agencies have incorporated into their regulations related to LNG export facilities and compared them to the most current standards developed by the standards-developing organizations (SDO). To understand the roles of SDOs and the standards they issue, we collected information from representatives of nine SDOs about current standards for LNG export facilities and those standards' implications for safety and security.

To understand the effect of outdated technical standards on LNG export facility permitting, we interviewed representatives from nine of the 12 companies that were responsible for the 15 LNG export facilities' permit applications that had been approved or denied by federal agencies as of August 31, 2019, the time when we made our selection of companies to interview.⁹ Three of the 12 companies were not available for interviews during the time of our review. The nine companies we interviewed included eight companies that had applied to FERC for permits for

⁷Office of Management and Budget, *Circular A-119: Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities* (Washington, D.C.: Jan. 27, 2016). For the purposes of this report, we use the term "technical standard" to refer to standards incorporated by reference.

⁸Administrative Conference of the United States, *Administrative Conference Recommendation 2011-5: Incorporation by Reference* (Washington, D.C.: Dec. 8, 2011). The Administrative Conference of the United States is an independent federal agency charged with convening expert representatives from the public and private sectors to recommend improvements to administrative processes and procedures.

⁹Because we made our selection of facilities to review as of August 31, 2019, our selection does not include six facilities FERC approved from September 1, 2019, to May 1, 2020.

onshore LNG export facilities and one company that had applied to MARAD and the Coast Guard for a deepwater LNG export facility permit. The nine companies we interviewed were:

- Cheniere Energy (sponsor of Sabine Pass LNG and Corpus Christi LNG);
- Dominion Energy (sponsor of Cove Point LNG);
- Driftwood LNG LLC (sponsor of Driftwood LNG);
- Fairwood Group (sponsor of Delfin FLNG, a deepwater LNG export facility);
- Freeport LNG Development, L.P. (sponsor of Freeport LNG);
- Jordan Cove Energy Project, L.P. (sponsor of Jordan Cove LNG);
- Kinder Morgan (sponsor of Gulf LNG and Elba Island LNG);
- Sempra LNG (sponsor of Port Arthur LNG and Cameron LNG); and
- Lake Charles LNG Export Company, LLC (sponsor of Lake Charles LNG).

To determine the extent to which federal agencies have addressed key principles for workforce planning in their workforce plans related to permitting LNG export facilities, we compared the workforce plans and implementation actions of FERC, PHMSA, MARAD, and the Coast Guard against key principles for effective strategic workforce planning.¹⁰

Although not a lead agency with responsibility for permitting LNG export facilities, we included PHMSA in our analyses because FERC regulations require applicants to show that their facility designs would comply with PHMSA's regulations, as stated above. The five key principles of strategic workforce planning are:

1. Involve top management, employees, and other stakeholders in developing, communicating, and implementing the strategic workforce plan.
2. Determine the critical skills and competencies that will be needed to achieve current and future programmatic results.

¹⁰GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, GAO-04-39 (Washington, D.C.: Dec. 11, 2003). GAO identified the five key principles as part of a large body of GAO work examining issues in strategic human capital management.

3. Develop strategies that are tailored to address gaps in number, deployment, and alignment of human capital approaches for enabling and sustaining the contributions of all critical skills and competencies.
4. Build the capability needed to address administrative, educational, and other requirements important to support workforce planning strategies.
5. Monitor and evaluate the agency's progress toward its human capital goals and the contribution that human capital results have made toward achieving programmatic results.

To compare agencies' plans and implementation actions against the key principles, we reviewed agencies' documents and interviewed agency officials to corroborate information and identify specific actions the agencies were taking to implement workforce plans. Two analysts assessed the information included in our analysis and reached agreement on whether agencies' documents and actions met each key principle.

We conducted this performance audit from February 2019 to July 2020 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Technical Standards Incorporated in Federal Regulations for Liquefied Natural Gas Facilities

Regulations that govern liquefied natural gas (LNG) facility design and operations incorporate technical standards related to various aspects of natural gas operations. Agencies regulating LNG facilities—such as the Federal Energy Regulatory Commission (FERC), the Pipeline and Hazardous Materials Safety Administration (PHMSA) in the U.S. Department of Transportation, and the U.S. Coast Guard in the Department of Homeland Security—incorporate technical standards. The technical standards provide procedures for designing and constructing pressurized storage tanks, modeling vapor dispersion, fire extinguisher specifications, and other technical standards related to safe operations and other technical issues for LNG import and export facilities. The technical standards incorporated in regulations that apply to LNG import and export facilities are listed in table 5, which compares the dates of standards referenced in regulation to the standards’ most recent versions.

Table 5: Comparison of the Dates of Technical Standards Incorporated by Reference in Regulations for Liquefied Natural Gas (LNG) Facilities with the Standards’ Most Recent Versions, for the Federal Energy Regulatory Commission (FERC), the Pipeline and Hazardous Materials Safety Administration (PHMSA), and the U.S. Coast Guard

Agency	Citation(s) in Code of Federal Regulations	Title of standard cited in regulation	Year of version cited in regulation	Year of latest version of standard issued
FERC	18 C.F.R. §153.8(a)(6)	National Bureau of Standards Information Report 84-2833, “Data Requirements for the Seismic Review of LNG Facilities.”	1984	Not applicable ^a
PHMSA	49 C.F.R. §§ 193.2013(b)(1), 193.2513(b)–(c), 193.2517, 193.2615(a)	American Gas Association, “Purging Principles and Practices.”	2001	2018 ^b
PHMSA	49 C.F.R. §§ 193.2013(c)(1), 193.2101(b), 193.2321(b)	American Petroleum Institute Standard 620, “Design and Construction of Large, Welded, Low-pressure Storage Tanks.”	2012	2014

**Appendix II: Technical Standards Incorporated
in Federal Regulations for Liquefied Natural
Gas Facilities**

Agency	Citation(s) in Code of Federal Regulations	Title of standard cited in regulation	Year of version cited in regulation	Year of latest version of standard issued
PHMSA	49 C.F.R. §§ 193.2013(d)(1), 193.2067(b)	American Society of Civil Engineers, Structural Engineering Institute, ASCE/SEI 7-05, "Minimum Design Loads for Buildings and Other Structures."	2005	2016
PHMSA	49 C.F.R. §§ 193.2013(e)(1), 193.2321(a)	American Society of Mechanical Engineers Boiler & Pressure Vessel Code, Section VIII, Division 1, "Rules for Construction of Pressure Vessels."	2007	2019
PHMSA	49 C.F.R. §§ 193.2013(f)(2), 193.2057(a)	Gas Technology Institute GTI-04/0032 LNGFIRE3, "A Thermal Radiation Model for LNG Fires."	2004	2004
PHMSA	49 C.F.R. §§ 193.2013(f)(3), 193.2059(a)	Gas Technology Institute GTI-04/0049, "LNG Vapor Dispersion Prediction with the DEGADIS 2.1: Dense Gas Dispersion Model for LNG Vapor Dispersion."	2004	Not applicable ^c
PHMSA	49 C.F.R. §§ 193.2013(f)(1), 193.2059(a)	Gas Research Institute GRI-96/0396.5, "Evaluation of Mitigation Methods for Accidental LNG Releases, Volume 5: Using FEM3A for LNG Accident Consequence Analyses."	1997	Not applicable ^c
PHMSA	49 C.F.R. §§ 193.2013(g), 193.2051, 193.2057, 193.2059, 193.2101(a), 193.2301, 193.2303, 193.2401, 193.2521, 193.2639(a), 193.2801	National Fire Protection Association (NFPA)-59A (2001), "Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)."	2001	2019
PHMSA	49 C.F.R. §§ 193.2013, 193.2101(b), 193.2321(b)	NFPA 59A (2006), "Standard for the Production, Storage, and Handling of LNG."	2006	2019
U.S. Coast Guard	33 C.F.R. §§ 149.3(b), 149.408	NFPA 10, "Portable Fire Extinguishers."	2010	2018
U.S. Coast Guard	33 C.F.R. §§ 127.003(b), 127.611	ASTM International, ASTM F1121-87, "Standard Specification for International Shore Connections for Marine Fire Applications. "	2010	2019
U.S. Coast Guard	33 C.F.R. §§ 127.003(b), 127.603(a)	NFPA 10, "Portland Fire Extinguishers." ^d	1994	2018
U.S. Coast Guard	33 C.F.R. §§ 127.003(b), 127.313(b)	NFPA 30, "Flammable and Combustible Liquids Code."	1993	2018
U.S. Coast Guard	33 C.F.R. §§ 127.003(b), 127.405(b)	NFPA 51B, "Fire Prevention in Use of Cutting and Welding Processes."	1994	2019

**Appendix II: Technical Standards Incorporated
in Federal Regulations for Liquefied Natural
Gas Facilities**

Agency	Citation(s) in Code of Federal Regulations	Title of standard cited in regulation	Year of version cited in regulation	Year of latest version of standard issued
U.S. Coast Guard	33 C.F.R. §§ 127.003(b), 127.101, 127.201(b)–(c), 127.405(b), 127.603(a)	NFPA 59A, “Production, Storage, and Handling of LNG.”	1994	2019
U.S. Coast Guard	33 C.F.R. §§ 127.003(b), 127.107, 127.201(c)	NFPA 70, “National Electrical Code.”	1993	2020
U.S. Coast Guard	33 C.F.R. §§ 127.003(b), 127.005	NFPA 251, “Fire Tests of Building Construction and Materials.”	1990	2006

Source: GAO analysis of regulations and standards. | GAO-20-619

^aSince it was issued in 1984, this standard has not been updated by the issuing authority; however, FERC officials stated that the standard is outdated.

^bAs of 2018, the American Gas Association has retitled this standard, which is now titled “Purging Manual.”

^cAccording to PHMSA officials, these two standards are outdated.

^dAs of May 2020, Coast Guard regulations at 33 C.F.R. 127.003(b) cited NFPA, Standard for Portable Fire Extinguishers, 1994 Edition (Quincy, MA: Aug. 5, 1994; errata issued Nov. 2 and Dec. 31, 1994). We found that the Coast Guard’s reference to this standard contains a typo, as it refers to the standard as “Portland Fire Extinguishers” instead of “Portable Fire Extinguishers.”

Appendix III: Comments from the Federal Energy Regulatory Commission



Federal Energy Regulatory Commission
Office of the Chairman

July 21, 2020

Karla Springer
Assistant Director
United States Government Accountability Office
Natural Resources and Environment
442 G Street, NW - 2T44
Washington, DC 20548

Dear Ms. Springer:

Thank you for the opportunity to provide comments on behalf of the Federal Energy Regulatory Commission with respect to the Government Accountability Office's draft report entitled, "Natural Gas Exports: Updated Guidance and Regulations Could Improve Facility Permitting Processes (GAO-20-619)." GAO's examination of such issues is a timely contribution to this area of the Commission's work, and I generally agree with the findings of the draft report. GAO has made the following four recommendations related to the Commission:

- 1) FERC should review its current interagency agreements that pertain to its onshore LNG permitting process, and implement any needed updates. FERC's review should include input from cooperating agencies and CEQ.
- 2) Once FERC has completed the review and implemented any necessary updates to interagency agreements, FERC should establish a process to regularly conduct such reviews and, as necessary, update the agreements.
- 3) FERC should review its LNG regulations and replace the reference to the outdated 1984 earthquake standard.
- 4) FERC should establish a process to conduct a standards-specific review of regulations that incorporate standards every 3 to 5 years and to update the regulations, if necessary.

I believe these recommendations are constructive and I have directed Commission staff to develop appropriate next steps to implement them. If I can be of further assistance in this or any other Commission matter, please let me know.

Sincerely,

A handwritten signature in black ink, appearing to read "Neil Chatterjee".

Neil Chatterjee, Chairman

888 First Street, NE #11-A | Washington, DC 20426 | 202.502.8000

Text of Appendix III: Comments from the Federal Energy Regulatory Commission

July 21, 2020

Karla Springer Assistant Director

United States Government Accountability Office

Natural Resources and Environment

442 G Street, NW - 2T44

Washington, DC 20548

Dear Ms. Springer:

Thank you for the opportunity to provide comments on behalf of the Federal Energy Regulatory Commission with respect to the Government Accountability Office's draft report entitled, "Natural Gas Exports: Updated Guidance and Regulations Could Improve Facility Permitting Processes (GAO-20-619)." GAO's examination of such issues is a timely contribution to this area of the Commission's work, and I generally agree with the findings of the draft report. GAO has made the following four recommendations related to the Commission:

1. FERC should review its current interagency agreements that pertain to its onshore LNG permitting process, and implement any needed updates. FERC's review should include input from cooperating agencies and CEQ.
2. Once FERC has completed the review and implemented any necessary updates to interagency agreements, FERC should establish a process to regularly conduct such reviews and, as necessary, update the agreements.
3. FERC should review its LNG regulations and replace the reference to the outdated 1984 earthquake standard.
4. FERC should establish a process to conduct a standards-specific review of regulations that incorporate standards every 3 to 5 years and to update the regulations, if necessary.

I believe these recommendations are constructive and I have directed Commission staff to develop appropriate next steps to implement them. If I can be of further assistance in this or any other Commission matter, please let me know.

**Appendix III: Comments from the Federal
Energy Regulatory Commission**

Sincerely,

Neil Chatterjee, Chairman

Appendix IV: Comments from the U.S. Department of Transportation

1



U.S. Department of
Transportation

Office of the Secretary
of Transportation

July 17, 2020

Mr. Frank Rusco
Director, Natural Resources and Environment
U.S. Government Accountability Office (GAO)
441 G Street NW
Washington, DC 20548

Assistant Secretary
for Administration

1200 New Jersey Avenue SE
Washington, D.C. 20590

Dear Mr. Rusco:

The mission of the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) is to protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives. Pursuant to 49 U.S.C. § 60103, PHMSA is authorized to prescribe minimum safety standards for the siting, design, construction, operation, and maintenance of liquefied natural gas (LNG) facilities that are subject to its oversight. PHMSA inspects LNG facilities and operators to enforce compliance with Federal pipeline safety regulations. Currently, PHMSA has regulatory jurisdiction over more than 160 LNG facilities, a number that is expected to grow as the United States LNG export market continues to expand. PHMSA incorporates by reference into the safety regulations for LNG (49 Code of Federal Regulations part 193) National Fire Protection Association (NFPA) standard 59A, "Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)," which is a widely used standard for the design and siting of LNG facilities.

PHMSA is currently developing a proposed rule that would incorporate the most recent edition of NFPA 59A that was issued in 2019. PHMSA has also established a timeline for conducting reviews, every 3 to 5 years, of LNG facility regulations, to review any potentially new editions of NFPA 59A, along with other standards that are incorporated by reference in 49 CFR part 193.

Upon review of the draft GAO report, the Department concurs with the recommendations for PHMSA to (1) conduct a standards-specific review of regulations that incorporate standards and, if necessary, update the regulations, or document our decision for not updating them; and (2) establish a process to conduct a standards-specific review of regulations that incorporate standards every 3 to 5 years and to update the regulations, if necessary. The Department will provide a detailed response to each recommendation within 180 days of the issuance of GAO's final report.

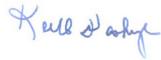
**Appendix IV: Comments from the U.S.
Department of Transportation**

**Appendix IV: Comments from the U.S.
Department of Transportation**

2

We appreciate the opportunity to respond to the GAO draft report. Please contact Madeline M. Chulumovich, Director of Audit Relations and Program Improvement, at (202) 366-6512, with any questions or if GAO would like to obtain additional details.

Sincerely,



Keith Washington
Deputy Assistant Secretary for Administration

Text of Appendix IV: Comments from the U.S. Department of Transportation

Page 1

July 17, 2020

Mr. Frank Rusco

Director, Natural Resources and Environment

U.S. Government Accountability Office (GAO)

441 G Street NW

Washington, DC 20548 Dear Mr. Rusco:

The mission of the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) is to protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives.

Pursuant to 49 U.S.C. § 60103, PHMSA is authorized to prescribe minimum safety standards for the siting, design, construction, operation, and maintenance of liquefied natural gas (LNG) facilities that are subject to its oversight. PHMSA inspects LNG facilities and operators to enforce compliance with Federal pipeline safety regulations. Currently, PHMSA has regulatory jurisdiction over more than 160 LNG facilities, a number that is expected to grow as the United States LNG export market continues to expand. PHMSA incorporates by reference into the safety regulations for LNG (49 Code of Federal Regulations part 193) National Fire Protection Association (NFPA) standard 59A, "Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)," which is a widely used standard for the design and siting of LNG facilities.

PHMSA is currently developing a proposed rule that would incorporate the most recent edition of NFPA 59A that was issued in 2019. PHMSA has also established a timeline for conducting reviews, every 3 to 5 years, of LNG facility regulations, to review any potentially new editions of NFPA 59A, along with other standards that are incorporated by reference in 49 CFR part 193.

Upon review of the draft GAO report, the Department concurs with the recommendations for PHMSA to (1) conduct a standards-specific review of regulations that incorporate standards and, if necessary, update the regulations, or document our decision for not updating them; and (2) establish a process to conduct a standards-specific review of regulations that incorporate standards every 3 to 5 years and to update the regulations, if necessary. The Department will provide a detailed response to each recommendation within 180 days of the issuance of GAO's final report.

Page 2

We appreciate the opportunity to respond to the GAO draft report. Please contact Madeline M. Chulumovich, Director of Audit Relations and Program Improvement, at (202) 366-6512, with any questions or if GAO would like to obtain additional details.

Sincerely,

Keith Washington

Deputy Assistant Secretary for Administration

Appendix V: Comments from the U.S. Department of Homeland Security

U.S. Department of Homeland Security
Washington, DC 20528



July 24, 2020

Frank Rusco
Director, Natural Resources and Environment
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Management Response to Draft Report GAO-20-619, "NATURAL GAS EXPORTS: Updated Guidance and Regulations Could Improve Facility Permitting Processes"

Dear Mr. Rusco:

Thank you for the opportunity to comment on this draft report. The U.S. Department of Homeland Security (DHS or the Department) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

The Department is pleased with GAO's acknowledgment that the Coast Guard incorporated all seven key collaboration practices in its permitting process for liquefied natural gas export facilities. It is also important to note that the Coast Guard has initiated an update to existing policy for conducting standards-specific reviews, to include ensuring adherence to timeline requirements per Office of Management and Budget (OMB) guidance. The Coast Guard remains committed to supporting sound regulatory and policy development to enhance its Marine Safety Security and Stewardship missions, while being mindful to the effects of regulations and policies on the maritime industry, the public, trading partners, and Federal Agencies.

The draft report contained nine recommendations, including three for the Coast Guard with which the Department concurs. Attached find our detailed response to each recommendation. DHS previously submitted technical comments under a separate cover for GAO's consideration.

**Appendix V: Comments from the U.S.
Department of Homeland Security**

Again, thank you for the opportunity to review and comment on this draft report. Please feel free to contact me if you have any questions. We look forward to working with you again in the future.

Sincerely,

**JIM H
CRUMPACKER**

Digitally signed by JIM H
CRUMPACKER
Date: 2020.07.24 14:29:21
-04'00'

JIM H. CRUMPACKER, CIA, CFE
Director
Departmental GAO-OIG Liaison Office

Attachment

**Attachment: Management Response to Recommendations
Contained in GAO-20-619**

GAO recommended that the Commandant of the Coast Guard:

Recommendation 7: Conduct a standards-specific review of the Coast Guard’s regulations that incorporate standards and, if necessary, update the regulations, or document its decision for not updating them.

Response: Concur. The Coast Guard’s Office of Standards Evaluation and Development (CG-REG) regularly reviews and compares the standards incorporated by reference in its regulations to the current edition of each standard. As part of the ongoing public rulemaking process, CG-REG evaluates the standards incorporated by reference to determine whether the regulations should be updated in accordance with OMB Circular A-119, “Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities,” dated January 27, 2016. CG-REG updates standards incorporated by reference as necessary, as regulations are revised during the continuous rulemaking process.

DHS requests the GAO consider this recommendation closed, as implemented.

Recommendation 8: Update the agency’s process for conducting standards-specific reviews to include timeframes for completing such reviews every 3 to 5 years.

Response: Concur. CG-REG is in the process of updating Commandant Instruction 5420.32, “Standards Program For Marine Safety, Security, and Environmental Protection Programs,” dated March 14, 1994, with timeframes for completing standards-specific reviews per OMB Circular A-119. Estimated Completion Date (ECD): September 30, 2021.

Recommendation 9: Develop and implement workforce planning for the Office of Operating and Environmental Standards that addresses the four remaining key principles for strategic workforce planning.

Response: Concur. The Coast Guard Assistant Commandant for Human Resources Directorate is in the process of updating its Manpower Requirements Plan, to include time frames and milestones for completing: 1) manpower requirements analyses; and 2) determinations for positions and units to include the Office of Operating and Environmental Standards. Following this update, the Coast Guard anticipates promulgating the Manpower Requirements Plan during the next periodic report to Congress on March 31, 2022, per 14 U.S.C. § 5104, “Manpower Requirements Plan.” Implementation of further workforce planning recommendations for the Coast Guard’s Office of Operating and Environmental Standards, as appropriate, will follow efforts to update the Manpower Requirements Plan. ECD: To Be Determined.

Text of Appendix V: Comments from the U.S. Department of Homeland Security

Page 1

July 24, 2020

Frank Rusco

Director, Natural Resources and Environment

U.S. Government Accountability Office 441 G Street, NW

Washington, DC 20548

Re: Management Response to Draft Report GAO-20-619, "NATURAL GAS EXPORTS: Updated Guidance and Regulations Could Improve Facility Permitting Processes"

Dear Mr. Rusco:

Thank you for the opportunity to comment on this draft report. The U.S. Department of Homeland Security (DHS or the Department) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

The Department is pleased with GAO's acknowledgment that the Coast Guard incorporated all seven key collaboration practices in its permitting process for liquefied natural gas export facilities. It is also important to note that the Coast Guard has initiated an update to existing policy for conducting standards-specific reviews, to include ensuring adherence to timeline requirements per Office of Management and Budget (OMB) guidance. The Coast Guard remains committed to supporting sound regulatory and policy development to enhance its Marine Safety Security and Stewardship missions, while being mindful to the effects of regulations and policies on the maritime industry, the public, trading partners, and Federal Agencies.

The draft report contained nine recommendations, including three for the Coast Guard with which the Department concurs. Attached find our detailed response to each recommendation. DHS previously submitted technical comments under a separate cover for GAO's consideration.

Page 2

Again, thank you for the opportunity to review and comment on this draft report. Please feel free to contact me if you have any questions. We look forward to working with you again in the future.

Sincerely,

JIM H CRUMPACKER

Director

Departmental GAO-OIG Liaison Office

Attachment

Page 3

Attachment: Management Response to Recommendations Contained in GAO-20-619

GAO recommended that the Commandant of the Coast Guard:

Recommendation 7: Conduct a standards-specific review of the Coast Guard's regulations that incorporate standards and, if necessary, update the regulations, or document its decision for not updating them.

Response: Concur. The Coast Guard's Office of Standards Evaluation and Development (CG-REG) regularly reviews and compares the standards incorporated by reference in its regulations to the current edition of each standard. As part of the ongoing public rulemaking process, CG-REG evaluates the standards incorporated by reference to determine whether the regulations should be updated in accordance with OMB Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities," dated January 27, 2016. CG-REG updates standards incorporated by reference as necessary, as regulations are revised during the continuous rulemaking process.

DHS requests the GAO consider this recommendation closed, as implemented.

Recommendation 8: Update the agency’s process for conducting standards-specific reviews to include timeframes for completing such reviews every 3 to 5 years.

Response: Concur. CG-REG is in the process of updating Commandant Instruction 5420.32, “Standards Program For Marine Safety, Security, and Environmental Protection Programs,” dated March 14, 1994, with timeframes for completing standards-specific reviews per OMB Circular A-119. Estimated Completion Date (ECD): September 30, 2021.

Recommendation 9: Develop and implement workforce planning for the Office of Operating and Environmental Standards that addresses the four remaining key principles for strategic workforce planning.

Response: Concur. The Coast Guard Assistant Commandant for Human Resources Directorate is in the process of updating its Manpower Requirements Plan, to include time frames and milestones for completing: 1) manpower requirements analyses; and 2) determinations for positions and units to include the Office of Operating and Environmental Standards. Following this update, the Coast Guard anticipates promulgating the Manpower Requirements Plan during the next periodic report to Congress on March 31, 2022, per 14 U.S.C. § 5104, “Manpower Requirements Plan.” Implementation of further workforce planning recommendations for the Coast Guard’s Office of Operating and Environmental Standards, as appropriate, will follow efforts to update the Manpower Requirements Plan. ECD: To Be Determined.

Appendix VI: GAO Contact and Staff Acknowledgments

GAO Contact

Frank Rusco, (202) 512-3841, or RuscoF@gao.gov.

Staff Acknowledgments

In addition to the contact named above, Karla Springer (Assistant Director), Wyatt R. Hundrup (Analyst in Charge), Lee Carroll, William Gerard, and David Wishard made key contributions to this report. Additionally, Peter Beck, Jay Berman, Tara Carter, Nirmal Chaudhary, Brett Cheney, Philip Farah, Ellen Fried, Cindy Gilbert, Steven Lozano, Joe Maher, Sara Sullivan, Sarah Veale, and Sara Vermillion made contributions.

GAO's Mission

The Government Accountability Office, the audit, evaluation, and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through our website. Each weekday afternoon, GAO posts on its [website](#) newly released reports, testimony, and correspondence. You can also [subscribe](#) to GAO's email updates to receive notification of newly posted products.

Order by Phone

The price of each GAO publication reflects GAO's actual cost of production and distribution and depends on the number of pages in the publication and whether the publication is printed in color or black and white. Pricing and ordering information is posted on GAO's website, <https://www.gao.gov/ordering.htm>.

Place orders by calling (202) 512-6000, toll free (866) 801-7077, or TDD (202) 512-2537.

Orders may be paid for using American Express, Discover Card, MasterCard, Visa, check, or money order. Call for additional information.

Connect with GAO

Connect with GAO on [Facebook](#), [Flickr](#), [Twitter](#), and [YouTube](#).
Subscribe to our [RSS Feeds](#) or [Email Updates](#). Listen to our [Podcasts](#).
Visit GAO on the web at <https://www.gao.gov>.

To Report Fraud, Waste, and Abuse in Federal Programs

Contact FraudNet:

Website: <https://www.gao.gov/fraudnet/fraudnet.htm>

Automated answering system: (800) 424-5454 or (202) 512-7700

Congressional Relations

Orice Williams Brown, Managing Director, WilliamsO@gao.gov, (202) 512-4400,
U.S. Government Accountability Office, 441 G Street NW, Room 7125,
Washington, DC 20548

Public Affairs

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, DC 20548

Strategic Planning and External Liaison

James-Christian Blockwood, Managing Director, spel@gao.gov, (202) 512-4707
U.S. Government Accountability Office, 441 G Street NW, Room 7814,
Washington, DC 20548



Please Print on Recycled Paper.