Congressional Research Service

MEMORANDUM May 22, 2013

To: Senate Energy and Natural Resources Committee
Attention: Tristan Abbey

Subject: **U.S. Trade and Development Agency: Support for Energy Projects**

This memorandum responds to your request for an overview of the U.S. Trade and Development Agency (TDA) and its support for oil and gas projects, with a focus on projects related to liquefied natural gas. Information in this memorandum may be used to respond to other congressional requests or for CRS reports.

Data analyzed in this memo include the spreadsheet on energy-related projects and other information that was provided to you by TDA, as well as TDA's annual reports, and congressional budget justifications. With respect to the data provided by TDA, CRS assumes that TDA provided you the information you requested. As a caveat, we would caution that the results of an analysis based on TDA energy-related projects undertaken since 2003 may not provide any clear patterns. This is because TDA activities are focused on matching U.S. manufacturers and service providers with foreign buyers. This approach is primarily demand-driven, but TDA has increasingly focused its resources on fewer countries and sectors that offer expanded export opportunities for U.S. companies. TDA also prioritizes funding for sectors that extend beyond energy and are subject to change over time. From 2000 through 2009, TDA obligated $312 million for all foreign assistance projects.[1] This memo provides background, an overview of TDA activities and programs, and a discussion on TDA support for countries and projects, with an emphasis on energy-related activities.

Background

TDA is a foreign assistance agency, authorized under section 661 of the Foreign Assistance Act of 1961, as amended.[2] TDA operates under a dual mission of promoting economic development and U.S. commercial interests in developing and middle-income countries. It seeks to connect U.S. businesses with prospective export opportunities by funding feasibility studies, reverse trade missions, technical assistance, and other activities, while creating sustainable infrastructure and economic growth in partner

[1] The $312 million figure is a ten-year rolling average that reflects all TDA activities completed during the period. TDA, *Fiscal Year 2014 Congressional Budget Justification*, April 2013, http://www.ustda.gov/otherinfo/FY2014_CongressionalBudgetJustification.pdf, p. 23.

[2] 22 U.S. Code 2421. Sec. 201 of the Jobs Through Exports Act of 1992 (P.L. 102-54; 106 Stat. 3655) amended and restated sec. 661. It was originally added by Sec. 31 of the Foreign Assistance Act of 1974 (P.L. 93-559) as "Reimbursable Development Programs."

countries.[3] TDA activities are also intended to help level the playing field for U.S. businesses against foreign competition. TDA targets its activities in the energy, transportation, and telecommunications sectors in developing and middle-income countries. TDA-funding decisions for its activities are based on factors such as the likelihood that proposed projects will receive implementation financing or support trade liberalization efforts, and whether proposed projects offer mutual economic benefit for both the host country and the United States.[4] In FY2012, TDA funded $43.9 million in program activities.

TDA is among the federal government agencies involved in the National Export Initiative (NEI), President Obama's plan to double U.S. exports by 2015. TDA estimates that for FY2012, its activities supported $2.2 billion in new exports.[5] TDA-funded projects may help open markets for increased U.S. exports by positioning U.S. companies to compete successfully as suppliers of goods and services for follow-on projects. These infrastructure investments may present opportunities for U.S. exports of goods and services. TDA reports, for example, that a TDA-funded feasibility study (associated with a reverse trade mission) led to a Colombia refinery receiving approval in 2011 of a $2.8 billion loan/loan guarantee from the Export-Import Bank of the United States (Ex-Im Bank), to finance the purchase of equipment and services from U.S. engineering/design, equipment supply, contracting, and process license firms.[6]

Compared to other foreign assistance and export promotion agencies, TDA is relatively small in terms of budget and personnel. In recent years, the annual appropriation for TDA, provided within the annual Department of State, Foreign Operations and Related Programs appropriation, has been around $50 million. Congress appropriated for TDA $50 million for FY2012, and $47.5 million for FY2013.[7] For FY2014, the Administration requested $62.7 million for TDA. Direct civilian full-time equivalent (FTE) employment for TDA has hovered around 50 in recent years.

Overview of TDA Programs and Activities[8]

TDA defines its mission as helping "companies create U.S. jobs through the export of U.S. goods and services for priority development projects in emerging economies." TDA's activities can be categorized under two main types of programs: (1) Project Development; and (2) International Business Partnership. Activities under these programs are described below.

Project Development Program

Under the Project Development Program, TDA is involved in the early stages of project planning, with the goal of "getting it right from the start." It funds activities such as feasibility studies, pilot projects, and technical assistance. TDA provides grants to overseas project sponsors (both public and private sector grantees) who select U.S. companies (primarily small- and medium-sized businesses) to conduct TDA-funded projects, helping the sponsors make informed investment decisions. TDA's historical focus on "pre-export" projects that lay the groundwork for U.S. commercial activity has often distinguished it from other federal agencies involved in export and investment promotion.

[3] U.S. Trade and Development Agency (TDA), "USTDA At-A-Glance," http://www.ustda.gov/about/ataglance.asp.

[4] TDA, "U.S. Business Guide to USTDA," http://www.ustda.gov/pubs/brochures/USTDA_USBusinessGuide.pdf.

[5] TDA, *U.S. Trade and Development Agency 2012 Annual Report*, http://www.ustda.gov/pubs/annualreport/2012/.

[6] TDA, *U.S. Trade and Development Agency 2011 Annual Report*, http://www.ustda.gov/pubs/annualreport/2011/.

[7] TDA, *Fiscal Year 2014 Congressional Budget Justification*, p. 36.

[8] Information in this section is drawn from TDA's annual reports, as well as TDA's website. In particular, see TDA, "Program and Activities," http://www.ustda.gov/program/.

- **Feasibility studies:** TDA-funded feasibility studies evaluate the technical, financial, environmental, legal, and other aspects of major infrastructure development projects. Comprehensive analysis provided by feasibility studies can assist infrastructure investments in securing financing and achieving implementation. Feasibility studies are a core component of TDA activities.

- **Pilot projects:** TDA-funded pilot projects are intended to demonstrate the effectiveness of U.S. U.S. goods, services, and technologies in the foreign buyer's setting. They provide the analysis, evaluation, and empirical data to enable foreign projects to secure funding.

- **Technical assistance:** TDA funds technical assistance to support legal and regulatory reform related to commercial activities and infrastructure development, the establishment of industry standards, and infrastructure-planning activities.

- **Project definition missions (DMs) and desk studies:** TDA-funded DMs and desk studies provide preliminary assessments of the economic viability of proposed projects and determine whether they meet TDA's funding criteria.[9] TDA contracts with technical specialists who perform this function.

International Business Partnership Program

Under the International Business Partnership Program, TDA seeks to connect U.S. firms with foreign buyers through activities such as reverse trade missions, conferences and workshops, and training. Some of these activities are intended to foster business environments in host countries that are more conducive to U.S. exports and investment. While conferences, workshops, and training have been a longstanding part of TDA programs, the emphasis on reverse trade missions has increased as TDA seeks to support the National Export Initiative.

- **Reverse trade missions (RTMs):** TDA hosts RTMs to provide opportunities for foreign delegates, including foreign government and private sector officials, to meet with U.S. businesses and to foster commercial relationships.
- **Conferences and workshops:** TDA organizes worldwide conferences, workshops, and technical symposia (TS) to help build partnerships and provide export opportunities for U.S. companies. Such events are intended to provide U.S. companies with the opportunity to showcase their technologies and services, as well as to meet with foreign project sponsors and potential customers. They also can connect overseas project sponsors with U.S. firms and entities that supply project finance, technology, and industry expertise that may be useful in project implementation.
- **Trade-related training (TR):** TDA provides training for foreign decision-makers in economic sectors where there are opportunities for the sale of U.S. equipment and services. The training typically focuses on technology or regulatory issues. Training can be conducted in the United States and/or in in the host country.

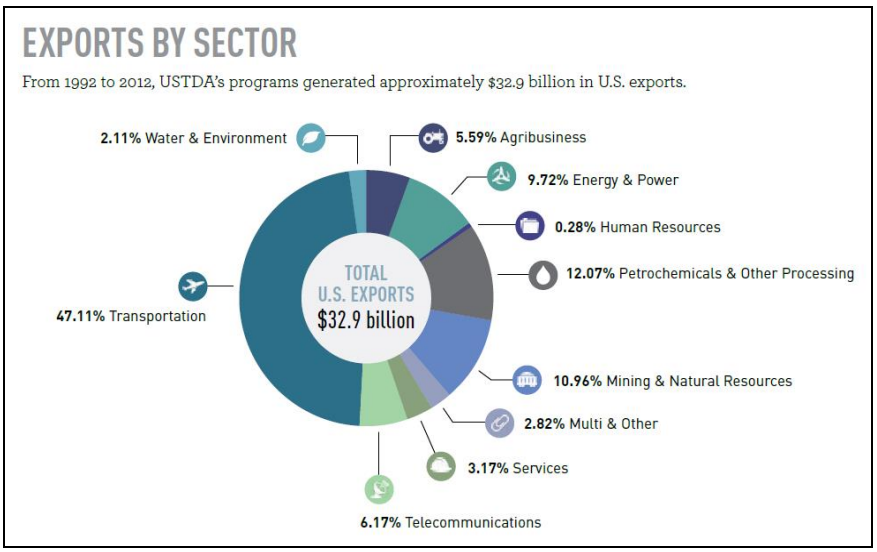
[9] DMs and desk studies appear to take place at an earlier stage of the project planning process than feasibility studies.

TDA Project and Country Priorities: An Evolving Agenda

According to its *2012 Annual Report*, TDA claims that its programs have generated approximately $32.9 billion in U.S. exports since it became an independent agency in 1992. Of the total exports generated by TDA programs over the last 20 years, energy and power accounted for 9.72%; mining and natural resources accounted for 10.96%; and petrochemicals and other processing accounted for 12.07% (see **Figure 1**).[10]

Figure 1. U.S. Trade and Development Agency-Generated U.S. Exports by Sector

1992-2012



Source: U.S. Trade and Development Agency, *2012 Annual Report*, p. 11.

TDA Grants: A Focus on Export Mission and Priority Countries

TDA's focus on various sectors has evolved as country needs changed and new technologies and opportunities developed. TDA's *FY2014 Congressional Budget Justification* identified 18 "priority countries" as a focus of agency investments based on an expectation that these countries will experience fast growth (averaging 6.7%) and result in U.S. job creation and economic growth (see **Figure 2**). In FY2012, TDA invested $34.7 million (79%) of total program obligations in 20 priority countries.[11] Additionally, priority countries accounted for 31% of U.S. exports in 2011.[12] Priority countries and programs have shifted over the years, as the needs of developing and middle-income countries have changed, although the agency's mission has not. While project planning activities such as feasibility studies have traditionally been a core part of TDA's programs, the agency has placed increasing emphasis on fostering business relationships through activities such as reverse trade missions.

[10] These percentages should not be added together because not all mining or petrochemical production is related to energy production, so these figures overstate energy-related activities. U.S. Trade and Development Agency, *2012 Annual Report*, p. 11.

[11] TDA, *FY 2012 Performance and Accountability Report*, November 7, 2012.

[12] TDA, *Fiscal Year 2014 Congressional Budget Justification*, April 2013, p. 12.

Figure 2. TDA Priority Countries for FY2014

TABLE 1: GDP GROWTH PROJECTIONS IN USTDA'S PRIORITY COUNTRIES

Real GDP growth	2011 estimate	2012 forecast	2013 forecast	2014 forecast
World	3.9	3.5	3.9	4.4
High Income	1.6	1.4	1.9	2.4
United States	1.7	2.0	2.3	2.9
Priority Countries	6.9	5.8	6.4	6.7
Brazil	2.7	2.5	4.6	4.0
Chile	5.9	4.3	4.5	4.5
China	9.2	8.0	8.5	8.7
Colombia	5.9	4.7	4.4	4.5
Egypt	1.8	1.5	3.3	5.0
Ghana	13.6	8.8	7.4	6.6
India	7.1	6.1	6.5	7.5
Indonesia	6.5	6.1	6.6	6.9
Kenya	5.0	5.2	5.7	6.3
Mexico	3.9	3.9	3.6	3.8
Morocco	4.3	3.7	4.3	4.8
Nigeria	7.2	7.1	6.6	6.5
Panama	10.6	7.5	6.6	5.9
Philippines	3.7	4.2	4.7	5.0
Romania	2.5	1.5	3.0	3.7
South Africa	3.1	2.6	3.3	4.0
Turkey	8.5	2.3	3.2	4.0
Vietnam	5.9	5.6	6.3	6.9

Source: IMF World Economic Outlook

Source: U.S. Trade and Development Agency, *Fiscal Year 2014 Congressional Budget Justification*, April 2013, p. 12. This chart is based on International Monetary Fund data.

While TDA assistance is available in more than 100 countries around the world, the agency prioritizes its activities in countries that represent the strongest and most viable markets for U.S. exports. In its *FY2014 Congressional Budget Justification*, TDA has identified three *major emerging economies* (Brazil, China, and India) that are especially attractive markets for U.S. exporters, as well as a secondary or "next tier" of countries that are likely to experience relatively high growth rates and are also important U.S. export markets. Major emerging economies are located in East Asia (China), South and Southeast Asia (India), and Latin America (Brazil). *Next tier countries* are located in the following TDA-defined regions: Latin America; Southeast Asia; Middle East/North Africa and Europe/Eurasia; and Sub-Saharan Africa.[13]

- Latin American: Mexico, Chile, Colombia, and Panama.
- Southeast Asia: Indonesia, Vietnam, and the Philippines.
- Middle East, North Africa, Europe and Eurasia: Morocco, Egypt, Turkey, and Romania.
- Sub-Saharan Africa: Nigeria, Ghana, South Africa, and Kenya.[14]

[13] TDA definitions of regions and countries that are included in regions have changed over time. TDA *U.S. Trade and Development Agency 2005 Annual Report*, http://www.ustda.gov/pubs/annualreport/USTDA_AnnualReport_2005.pdf, p. 47.

[14] USTDA, *Fiscal Year 2014 Congressional Budget Justification*, April 2013, p. 13-18.

TDA: Support for Energy-Related Projects, 2003-May 2013

In the spreadsheet you provided to CRS concerning energy-related projects sponsored by TDA between 2003 – May 2013, 32 countries across five regions received energy-related grants from TDA that totaled $37,860,696.[15] A total of 87 contracts were awarded to U.S. firms to conduct work on behalf of the grantees. **Table 1** provides a breakdown of these projects. The two largest categories, Feasibility Studies and Technical Assistance, together accounted for 81% of energy funding during the period. The table in **Appendix A** provides a list of TDA-funded projects organized by region, country, project, project type, cost, and funding; it also identifies seven projects that are related to liquefied natural gas (LNG) production and distribution (shaded lines in table). Of the seven LNG projects, five were Feasibility Studies; these accounted for 10% of all energy-related projects during the period. The other two projects were Reverse Trade Missions, which amounted to 0.9% of energy-related projects.

A number of energy-dependent countries have received TDA program assistance to develop the capacity to import LNG and to build regasification plants and storage facilities. Other grantee countries produce natural gas and export LNG. TDA-supported LNG-related projects include land-based regasification terminals, floating LNG storage and regasification units, LNG regasification and power generation projects, and LNG-distribution networks (see shaded entries in **Appendix A** and detailed descriptions of projects in **Appendix B**). None of the TDA project descriptions appear to indicate support facilities to liquefy natural gas.

For the period 2003 – May 2013, feasibility studies accounted for 56.6% of TDA energy-related program activity. Funding for TDA's other energy-related program activity was distributed across technical assistance (24.5%); reverse trade missions (9.3%); trade-related training (8.6%); workshops (8.6%); and unidentified program activity (1%) (see **Table 1**). The distribution of energy-related program funding across regions is also shown in **Appendix A**.

A search of the TDA online database provided additional information on countries with energy-related projects funded by TDA.[16] The seven shaded projects in the table in **Appendix A** are the LNG-related activities that were supported by TDA, while the rest of the table describes other energy-related projects that received TDA funding. TDA program activities cover a range of diverse activities in other sectors not reflected in the data provided to your office by TDA. In particular, the telecommunications and transportation sectors in developing and middle-income countries increasingly play an important role in generating U.S. exports of goods and services and are closely tied to manufacturing and energy use.[17]

Trends in TDA Priorities, 2003-2013

TDA has, in the past decade, accommodated the changing needs of countries and sectors based on anticipated markets for U.S. exports and U.S. foreign policy objectives. In doing so, the agency has reprioritized and narrowed its focus from 51 countries in FY2006, 24 countries in FY2010, 20 countries in FY2012, and has proposed 18 priority countries for FY2014. The agency also continues to refine its program priorities. The Europe and Eurasia region was reorganized and resources were focused

[15] CRS had no ability to compare energy-related grants to other sectoral grants provided by TDA for the 2003-May 2013 period.

[16] The TDA library database is available at https://www.ustda.gov/library/search_criteria.cfm. Other sources include TDA press releases (also available on the TDA website).

[17] For additional information on TDA projects, see "USTDA by Sector," http://www.ustda.gov/program/sectors/.

elsewhere. The goal of narrowing the list of priority countries is to better position U.S. companies in the international arena and to invest in projects that provide the highest returns.[18]

The difference in priorities is reflected in **Table 2**, which compares spending in the top five sectors in FY2008 and FY2012. The ongoing shift in funding priorities to a narrower group of countries (major emerging economies and middle income countries) reflects changing policy priorities that go back almost a decade. The five largest sectors for program and project funding also appear to align with the needs of the grantee countries and the ability of U.S. companies to export advanced technologies that facilitate and strengthen trade relationships. The TDA *FY2014 Congressional Budget Justification* discussion of the energy sector is quoted in full in **Appendix C** to this memo.

In addition, TDA, as with a number of other export promotion agencies, is generally demand-driven. While the agency formulates program priorities in certain sectors and regions, utilization of TDA's resources relies, to a large degree, on mutual interests and incentives. TDA's mission is to bring parties together and promote relationships that are mutually beneficial.

[18] TDA, *Fiscal Year 2014 Congressional Budget Justification*, April 2013.

Table 1. TDA Energy-Related Activities by Funding and Region

2003-May 2013

Program Activity	Number	Total Obligated Funds by Activity	Total Obligated Funds by Region
Feasibility Studies	38	$21,434,409	
Europe and Eurasia	8		$6,052,162
Middle East	1		$502,798
North Africa	7		$3,575,570
Latin America	2		$600,000
East, South, and Southeast Asia	13		$6,899,616
Sub-Saharan Africa	7		$3,272,081
Reverse Trade Missions	14	$3,514,891	
Europe and Eurasia	9		$1,383,385
Middle East	3		$620,103
North Africa	0		$0
Latin America	2		$89,486
East, South, and Southeast Asia	4		$878,546
Sub-Saharan Africa	4		$588,372
Technical Assistance	16	$9,240,107	
Europe and Eurasia	3		$2,672,803
Middle East	1		$339,448
North Africa	1		$335,581
Latin America	6		$3,272,610
East, South, and Southeast Asia	3		$1,496,265
Sub-Saharan Africa	2		$1,123,400
Training	4	$3,270,445	
Europe and Eurasia	1		$736,823
Middle East	3		$2,533,622
Workshops	1	$278,759	
Multi-regional	1		$278,759
Unknown	1	$122,086	
Multi-regional – Middle East, North Africa, Europe and Eurasia	1		$122,086

Source: Data provided by U.S. Trade and Development Agency.

Table 2. TDA Activities by Economic Sector, FY 2008 and FY 2012

Sector	FY2008 Funding	% of Funding	FY2012 Funding	% of Funding
Transportation	$12,449,410	26.8%	$17,373,332	39.6%
Energy and Power[a]	$10,948,326	23.5%	n.a.	n.a.
Clean Energy/Energy Efficiency	> $5.01 million[b]	n.a.	$16,335,973	37.2%
Telecommunications	$6,060,674	13.0%	$3,282,419	7.5%
Water and Environment[a]	$4,380,012	9.4%	$2,730,171	6.2%
Multi-Sector and Other	$3,567,543	7.7%	$675,224	1.5%

Source: U.S. Trade and Development Agency, *FY2012 Congressional Budget Justification*, Attachment 1; *FY2014 Congressional Budget Justification*, Attachment 3.

Notes:

a. For FY2008, Clean Energy projects were included in the Energy and Power and Water and Environment Sectors. After FY2008, Clean Energy project funding appears to have been singled out as a priority sector distinct from conventional energy projects. The latter appear to be reported under the category "Other."

b. Spending on clean energy and energy efficiency projects was greater than $5.01 million in FY2008.

Appendix A. TDA-Funded Energy-Related Projects by Region, Country, Type, Cost, and Funding

The table below uses the spreadsheet you provided to CRS concerning energy-related projects sponsored by TDA. It lists the 87 energy-related projects by region (or sub-region), country, project, project type, and funding. Depending on the specific type of assistance provided and the time required to complete a project, obligated funds may be paid out in more than one fiscal year. The table combines East Asia (China) with South and Southeast Asia. Over the period covered, definitions of some regions changed, as did countries included in regions:

Table A-1. Energy-Related Projects by Region, Country, Type, and Cost

2003–2009

Year	Country	Project	Type	Obligated Funds
		Latin America		
2003	Brazil	Petrobras Refinery Fire Control	Technical Assistance	$655,998
2006	Brazil	Refinery and Petrochemical Environmental Projects	Technical Assistance	$460,599
2007	Brazil	Natural Gas and Biofuels Regulatory Policies	Reverse Trade Mission	$57,171
2008	Brazil	Marginal Oil Fields Regulatory-OV	Reverse Trade Mission	$32,315
2005	Colombia	Hydrocarbons Sector Development	Feasibility Study	$532,182
2006	Colombia	Barrancabermeja Refinery Modernization	Feasibility Study	$600,000
2006	Colombia	ANH Licensing and Tender Capacity	Technical Assistance	$250,000
2003	Peru	Perupetro Hydrocarbon Exploration	Technical Assistance	$465,500
2004	Peru	Perupetro Hydrocarbon	Technical Assistance	$586,721
2005	Peru	Onshore Hydrocarbon Exploration Opportunities	Technical Assistance	$853,792
		East/South and Southeast Asia		
2005	China	PetroChina Pipeline Preservation Project	Feasibility Study	$321,558
2005	China	Shuangdao Bay Petrochemical Complex	Feasibility Study	$871,673
2003	Cambodia	Energy Sector	Reverse Trade Mission	$399,544
2003	India	Energy Sector	Feasibility Study	$713,630
2005	India	Refineries Modernization	Reverse Trade Mission	$180,516
2006	India	Essar Refinery Expansion Project	Feasibility Study	$143,000
2008	India	HPCL Asset Integrity Management Project	Technical Assistance	$628,926
2008	India	Midstream and Downstream Oil and Gas Regulation	Technical Assistance	$348,339
2008	India	Lignite/Petrol Residue to Synthetic Crude Conversion	Feasibility Study	$603,000
2013	India	Development of Shale Gas and Oil Resources	Feasibility Study	$609,693
2005	Indonesia	CNG / LNG Distribution Systems	Feasibility Study	$491,800
2005	Indonesia	Aceh Fuel Depots Reconstruction	Feasibility Study	$337,300

Year	Country	Project	Type	Obligated Funds
2012	Indonesia	Indonesia Unconventional Gas Development	Reverse Trade Mission	$242,416
2004	Pakistan	Rawalpindi Refinery Upgrade	Feasibility Study	$504,000
2005	Pakistan	PRL Refinery Modernization	Feasibility Study	$403,900
2005	Philippines	Petrochemical Projects	Feasibility Study	$604,617
2006	Sri Lanka	Oil/Gas Regulatory and Licensing	Technical Assistance	$519,000
2004	Thailand	LNG Receiving Terminal and Power Generation	Feasibility Study	$701,945
2003	Vietnam	Blocks B and 52 Gas Pipeline	Feasibility Study	$593,500
2005	Vietnam	Nghi Son Refinery and Petrochemical Project	Reverse Trade Mission	$56,070
		Middle East		
2004	Iraq	Oil and Gas Reconstruction	Reverse Trade Mission	$226,812
2005	Iraq	Oil Training Program – Technical	Training	$1,033,100
2005	Iraq	Oil Training Program – Management	Training	$1,000,546
2006	Iraq	Oil Training Program - Human Resources	Training	$499,976
2011	Iraq	Oil Sector Procurement and Inspection RTM	Reverse Trade Mission	$196,646
2011	Iraq	Basra Refinery Rehabilitation	Feasibility Study	$502,798
2011	Iraq	Oil Sector Procurement and Inspection RTM	Reverse Trade Mission	$196,646
2005	Jordan	Energy Sector	Technical Assistance	$339,448
		North Africa		
2003	Egypt	Petrochemical Projects	Feasibility Study	$761,000
2003	Egypt	Propane Dehydrogenation	Feasibility Study	$253,000
2004	Egypt	Polyvinyl Chloride Plant	Feasibility Study	$273,500
2004	Egypt	Methanol Facility	Feasibility Study	$704,301
2006	Egypt	Aromatics Complex Project	Feasibility Study	$885,900
2008	Egypt	Alexandria Styrene Plant	Feasibility Study	$434,268
2009	Egypt	EHC Steam Cracker	Feasibility Study	$263,601
2008	Morocco	Data Management, Investment Promotion in Upstream Petroleum, Mineral Development	Technical Assistance	$335,581
		Europe and Eurasia		
2004	Kazakhstan	Poltoratskoye and Akyrtobe Underground Gas Storage	Feasibility Study	$644,775
2011	Kazakhstan	Pipeline Automation Reverse Trade Mission	Reverse Trade Mission	$223,168
2007	Turkmenistan	Natural Gas Sector	Reverse Trade Mission	$211,722
2008	Turkmenistan	Oil and Gas Training	Training	$736,823
2003	Afghanistan	Gas and Oil Sector – MMI	Reverse Trade Mission	$68,670
2003	Afghanistan	Hydrocarbon Resource Survey	Technical Assistance	$1,857,326
2004	Afghanistan	Oversight of Oil and Gas Projects	Technical Assistance	$115,477
2003	Azerbaijan	EBRD SOCAR Restructuring	Technical Assistance	$700,000

Year	Country	Project	Type	Obligated Funds
2003	Croatia	INA CO2 Enhanced Oil Recovery	Feasibility Study	$420,000
2004	Croatia	Zagreb Power Project	Feasibility Study	$457,890
2009	Georgia	Underground Gas Storage	Reverse Trade Mission	$187,394
2003	Hungary	Oil and Gas Policy	Reverse Trade Mission	$87,684
2008	Lithuania	Liquefied Natural Gas Import Terminal	Feasibility Study	$826,501
2008	Romania	In-Line Blending System	Feasibility Study	$216,240
2008	Romania	Liquefied Natural Gas Import Terminal	Feasibility Study	$1,061,975
2013	Romania	Oil and Gas Sector	Reverse Trade Mission	$240,831
2005	Turkey	Underground Gas Storage and LNG Projects	Reverse Trade Mission	$110,705
2007	Turkey	Energy Hub	Reverse Trade Mission	$37,169
2007	Turkey	Energy Hub Orientation Visit	Reverse Trade Mission	$171,043
2007	Turkey	Underground Natural Gas Storage Project	Feasibility Study	$568,761
2007	East Asia and Eurasia	Trans Caspian Pipelines	Feasibility Study	$1,856,020
2007	Middle East, North Africa & Europe	Refineries Modernization	Unknown	$122,086
		Sub-Saharan Africa		
2004	Gambia	Petroleum Product Storage Depot	Feasibility Study	$396,478
2009	Ghana	Oil and Gas Sector	Reverse Trade Mission	$126,323
2011	Ghana	Floating LNG Storage and Regasification Unit	Feasibility Study	$691,000
2005	Nigeria	Independent Power Plant	Feasibility Study	$353,000
2005	Nigeria	LP Gas Sector Policy and Regulatory Framework	Technical Assistance	$564,500
2011	Nigeria	Gas Storage and Processing RTM	Reverse Trade Mission	$132,456
2012	Nigeria	Southwestern Nigeria Gas Pipeline	Feasibility Study	$446,000
2006	South Africa	Transnet New Multi Products Pipeline Project	Reverse Trade Mission	$99,508
2006	South Africa	Khanya Consortium Bid Submission	Technical Assistance	$558,900
2008	South Africa	Coega LNG Regasification and Power Generation Project-OV	Reverse Trade Mission	$230,085
2009	Cameroon	MINEE Petroleum Products Pipeline	Feasibility Study	$615,000
2009	Cameroon	MINEE Gas-to-Market System	Feasibility Study	$615,000
2006	Rwanda-Burundi	Rwanda - Burundi Oil Pipeline Extension Project	Feasibility Study	$155,603
		Worldwide		
2006	Worldwide	APEC Natural Gas Utilization Workshop	Workshop	$278,759

Source: Data provided by U.S. Trade and Development Agency.

Notes: Shaded rows indicate projects that are LNG-related.

Appendix B. TDA Description and Narrative of LNG-Related Projects[19]

Table B-1 provides narrative descriptions of projects as they appear in the TDA Library database or in TDA press releases. Project descriptions have not been edited by CRS: some descriptions appear to be incomplete, while others are in present tense. The purpose of the database is to provide potential U.S. contractors with examples of feasibility and other studies completed for TDA.

Table B-1. TDA-Funded LNG Projects, 2003-2013

Ghana

Ghana Floating LNG Storage and Regasification Unit Reverse Trade Mission

Dates: April 10-19, 2013

Locations: Washington, DC and Houston, TX

Ghana's Minister of Energy and Petroleum and the Minister of State for Public Private Partnerships and Private Sector Development are leading a delegation of senior government officials on a reverse trade mission (RTM) to the United States, sponsored by USTDA. The RTM will explore U.S. solutions for the development of Ghana's oil and gas sector in general, and the development of a floating liquefied natural gas (LNG) storage and regasification unit in particular. U.S. companies can learn about upcoming projects that will require major investments in Ghana's oil and gas sector infrastructure, as well as opportunities to export their equipment and services during a business briefing with the delegation on Tuesday, April 16th. The business briefing will be held at the 17th International Conference and Exhibition on Liquefied National Gas Summit (LNG 17) in Houston, TX.

Indonesia

Activity Name:		CNG / LNG Distribution Systems
Activity Number:		200531026B
Document Date:	2008-03-21	In August 2005 USTDA approved a feasibility study of $487,000 to evaluate the viability of small and medium scale compressed natural gas and liquefied natural gas distribution systems in Indonesia. PT Perusahaan Gas Negara (PGN), Indonesia's leading natural gas utility, is seeking USTDA assistance to determine the optimum strategy for transporting domestic natural gas to various regions of the archipelago that are not served by existing gas transmission pipelines. PGN intends to use this study to determine the benefits of using cleaner-burning natural gas as a substitute for commonly used oil-based fuels. This FS will be sole-sourced to Pendawa USA (Houston, TX) at the request of the Grantee who has agreed to provide a Grantee Contribution of $54,000 (10% of total). U.S. export potential is between $250-400 million for CNG/LNG distribution systems, including transportation and storage systems, and offloading facilities at market destination. The FS was completed in 2008.
Author Company:	Pendawa USA	
Region:	ASIA	
Country:	INDONESIA	
Sector:	ENERGY & POWER	

[19] The main data source for the project descriptions included in this appendix is the searchable TDA library database: https://www.ustda.gov/library/search_criteria.cfm. Other sources include TDA press releases (available on the TDA website).

Lithuania

USTDA DIRECTOR LARRY WALTHER SIGNS GRANT PROMOTING ROMANIA'S ENERGY SECURITY

Date: September 16, 2008

Location: Bucharest, Romania

Director Walther awarded a grant today that will assist in diversifying and augmenting Romania's energy supply. The $1,061,975 grant to Romgaz, the national Romanian gas company, will fund an assessment of the regional market for natural gas and recommend a strategy to implement a liquefied natural gas (LNG) terminal on the Black Sea coast.

"The proposed LNG import terminal represents a major step toward a diversified energy market in Europe," said USTDA Director Larry W. Walther. "The study that we are funding today will help Romania achieve its energy security goals for the benefit of the Romanian people and to ensure Romania's independence."

The grant was conferred during a signing ceremony held at Public Diplomacy Hall at the U.S. Embassy in Bucharest, Romania. Director Walther and Romgaz General Manager Francisc Toth signed the grant agreement on behalf of the U.S. Government and Romgaz, respectively. U.S. Ambassador to Romania Nicholas F. Taubman, Minister for the Ministry of Economy and Finance, Varujan Vosganian and State Secretary for the Ministry of Economy and Finance, Viorel Palasca were witnesses to the grant agreement.

Currently, Romania meets its demand for natural gas through a combination of domestic production and imports from Russia. As domestic production declines, Romgaz is seeking alternate sources to supply the country's growing energy needs. A proposed LNG import terminal is a possible alternative and a site for the terminal at the Port of Constanta has been preliminarily identified. LNG is increasingly seen as a complementary option to pipelines in transporting gas over long distances. In addition, it provides consumers of gas, such as Romania, the benefits of increased flexibility and competition in a quickly developing global market. USTDA has extensive experience in the energy sector, and has helped mobilize U.S. private sector expertise to successfully plan and implement LNG projects in several countries. The study funded by today's grant will assess regional LNG demand to determine the appropriate size and throughput of the terminal, and make recommendations regarding implementation and financing.

The opportunity to provide the USTDA-funded assistance to Romgaz will be competed on the Federal Business Opportunities (FBO) website at www.fbo.gov. Interested U.S. firms should submit proposals according to the instructions in the Federal Business Opportunities announcement. Romgaz will select the U.S. contractor that will carry out the study.

Philippines

Activity Name:		LNG Import Terminal
Activity Number:		200130041B
Document Date:	2003-05-01	In April 2001, TDA approved a $318,000 grant to Pacific Manufacturing Resources (PMR), a private Philippine company. The grant partially funded a feasibility study on the development of a Liquefied Natural Gas (LNG) terminal in Bataan, Philippines. Chicago Bridge & Iron, the primary contractor, signed a success fee agreement. The government of the Philippines made the development of clean energy sources a priority and proposed a 1,400 MW natural gas fired power project in Bataan that would utilize gas supplied from the 1800 cubic meter LNG Import Terminal. The study was composed of several tasks to determine design conditions for the specific site selected for building an LNG port facility. The tasks included a sitting study, design basis specifications, environmental risk assessment, geotechnical investigation, seismic study and meteorological and oceanographic study. US export potential is estimated at $29 million with possible exports of equipment and services. The study was completed in 2003.
Author Company:	Chicago Bridge & Iron Co. Delaware	
Region:	ASIA	
Country:	PHILIPPINES	
Sector:	MINING & NATURAL RESOURCES	

Romania

DIRECTOR WALTHER SIGNS GRANT SUPPORTING DEVELOPMENT OF LITHUANIAN LIQUEFIED NATURAL GAS TERMINAL

Date: September 15, 2008

Location: Vilnius, Lithuania

Director Walther awarded a grant today that will assist in the development of a liquefied natural gas import terminal in Lithuania, in support of the country's intent to diversify source of supply. The grant will be used to fund analysis on the most suitable site and the development of technical specifications for a proposed liquefied natural gas (LNG) terminal.

"Energy security is an important element of a country's overall national security," said USTDA Director Larry W. Walther. "This project has the potential to increase energy security and independence here in Lithuania and throughout the Baltics, since the terminal could serve as an entry point for natural gas destined not only for Lithuania, but for Latvia and Estonia as well."

The $826,501 grant was conferred during a signing ceremony held at the Ministry of Economy. Director Walther and Lithuanian Minister of Economy Vytas Navickas signed the grant agreement on behalf of the U.S. Government and Ministry of Energy, respectively. U.S. Ambassador to the Republic of Lithuania John A. Cloud and Undersecretary of Economy Anicetas Ignotas signed as witnesses to the grant agreement.

Lithuania and the other Baltic states currently depend on Russian imports to meet their demand for natural gas. The Lithuanian Government has prioritized diversifying the country's sources of energy and believes an LNG terminal is a promising option in addition to pipelines in transporting gas over long distances. In addition, it provides consumers of gas, such as Lithuania, the benefits of increased flexibility and competition in a quickly developing global market. USTDA has extensive experience in the energy sector, and has helped mobilize U.S. private sector expertise to successfully plan and implement LNG projects in several countries. The USTDA-funded feasibility study will provide crucial information to the project's key decision makers, including recommendations as to the most appropriate site and technology for the terminal.

South Africa

South Africa LNG Regasification and Power Generation Reverse Trade Mission

Dates: May 2-13, 2011

Locations: Houston, TX, and Washington, DC

This Reverse Trade Mission will focus on state-of-the-art U.S. technologies, equipment, and services, as well as policies, regulations, and financing mechanisms that can support the implementation of a liquefied natural gas (LNG) import terminal, regasification facility, and associated gas-fired power plant in South Africa. Delegates will include representatives from South Africa's natural gas and power sectors. The visit will include participation in the 2011 Offshore Technology Conference (OTC2011) in Houston, TX. The visit will also include meetings with U.S. companies and site visits in Houston, TX, and Washington, DC.

Thailand

Activity Name:		LNG Receiving Terminal
Activity Number:		200430044B
Document Date:	2006-01-01	In January 2005, USTDA approved funding in the amount of $667,000 for a competed feasibility study for a Liquefied Natural Gas (LNG) Receiving Terminal for PTT Public Company Limited (PTT) in Thailand. Pace Global Energy Services, LLC was selected as the Contractor to conduct the FS, with the primary objectives of determining the LNG receiving terminal's most appropriate location, identifying the appropriate technology for the terminal and regasification facilities, and defining the required level of investment for the project. PTT, a privatized state enterprise, would serve as the Grantee for this project. Currently, Thailand fuels 70% of its electricity generation with natural gas. The Thai Government has prioritized the security of its energy supply, as well as the use of cleaner, more efficient fuels. Potential U.S. exports are estimated at $280 million project components such as LNG storage tanks, vaporizers, compressors, and engineering and construction services. The FS was completed in April 2006.
Author Company:	PACE/Global Energy Services	
Region:	ASIA	
Country:	THAILAND	
Sector:	ENERGY & POWER	

Source: TDA library database: https://www.ustda.gov/library/search_criteria.cfm. Other sources include TDA press releases (available on the TDA website).

Appendix C. TDA FY2014 Sector Focus: Energy

The *TDA's FY2014 Congressional Budget Justification* provides an analysis and focus on natural gas and LNG that provides a context for energy as one of TDA's major priorities:[20]

> Recent developments in worldwide energy markets show the importance of implementing, as President Obama has described, "… [an] energy strategy for the future – an all-of-the-above strategy for the 21st century…." Key drivers in the sector that affect USTDA's program include: increased availability of natural gas, the tightening of environmental standards, and increased attention to the need to modernize transmission and distribution networks.
>
> Global energy demand is expected to increase 30 percent by 2040, with the demand for natural gas growing faster than any other fuel type. In fact, the International Energy Association estimates that the use of gas will rise from 21 percent of gas production today to 25 percent by 2035. Combined with the growing global demand for energy, this will translate to a 50 percent increase in global demand for gas between 2010 and 2035. Further, the majority of this increased demand will come from non-OECD member countries, many of which are among USTDA's priority countries.
>
> In support of the Administration's energy policy and climate change agenda, and in response to global demand and requests from U.S. exporters, in FY 2014 USTDA will continue to prioritize investments in the energy sector, particularly in clean energy and energy efficiency projects. Taking advantage of U.S. competitiveness and recent market trends, USTDA will continue to invest in: 1) energy production, natural gas-based projects, and some strategic renewable energy projects; 2) energy efficiency, with a primary focus on smart grid development; and 3) modernizations of power plants, refineries and other energy facilities that will reduce emissions.
>
> As natural gas becomes increasingly available on world markets due to the meteoric rise in unconventional gas production and improved gas transportation facilities, such as liquefied natural gas (LNG) plants, emerging economies will meet burgeoning demand for electric power with a greater reliance on gas for power production. Developing and middle income countries are also tightening environmental standards to provide a better quality of life for their citizens, leading to air pollution control equipment installations in existing and new fossil-fuel electric power plants. Also, recent large-scale blackouts in some emerging economies have highlighted the need for increased power transmission and distribution infrastructure improvements, including the implementation of smart grid solutions to facilitate more efficient use of high cost energy resources. Each of these developments presents opportunities for USTDA to support the Agency's partner countries in addressing these realities, while also increasing the likelihood of U.S. companies.
>
> Although there are significant global opportunities in renewable energy development, the sector still faces significant challenges moving into FY 2014 including the: (1) Eurozone debt crisis and reduced policy support in core European markets; (2) competition from Asia – including Chinese low cost technologies; (3) decreasing carbon prices; (4) tax credit uncertainty; and (5) the shale gas boom around the world. With the culmination of all these factors converging in FY 2014, USTDA will take a balanced approach to renewable energy projects by diversifying its investments so that the Agency does not invest too heavily in one particular subsector until the Agency can see results from its previous investments. This cautious, case-by-case approach is warranted with regard to renewable energy development because the success of these investments depend upon the country in which the project is located and whether that country has the correct balance of regulations and incentives to make the project profitable.

[20] TDA, *Fiscal Year 2014 Congressional Budget Justification*, April 2013, pp. 19-20.