



2016 Top Markets Report Upstream Oil and Gas Equipment

Overview and Key Findings

Introduction

Over the past 18 months, the world has seen the price of crude oil drop by more than 75 percent as a result of high production by the Organization of Petroleum Exporting Countries (OPEC), the United States and Russia. At the same time, natural gas prices in the United States have dropped below \$2/mm Btu and have been decreasing in countries around the world. While there has been significant growth in the global oil and gas (O&G) market over the previous decade, recent price declines are a result of increased global production coupled with slowed growth in the rate of energy demand. This is one of the most dramatic changes the sector has experienced in decades, and the impacts to the U.S. O&G sector are still developing. The challenge for O&G companies and their suppliers is to find ways to decrease costs and maintain revenues in this low price environment. In such a tight market environment, it can be difficult to see the opportunities in the face of a multitude of challenges.

ITA's 2016 *Upstream Oil and Gas Equipment Top Markets Report* ranks 74 markets based on export potential for U.S. O&G equipment through 2019. The report is designed to provide market intelligence to U.S. companies, as well as provide trade policy information for policy-makers to identify upstream

O&G markets where U.S. Government (USG) resources can make the biggest impact in support of increased U.S. equipment exports. Markets ranked highly by ITA represent those countries with significant potential for increased U.S. O&G equipment exports. The *2016 Upstream Oil and Gas Equipment Top Markets Report* looks at the export opportunities for the U.S. O&G equipment sector in 10 strategic markets with additional information on Russian sanctions, emerging offshore opportunities and frontier markets in unconventional O&G.

Key Findings: Top Markets and Methodology

Top Markets

This report evaluates the following markets in greater detail: Argentina, Brazil, China, Iraq, Mexico, Nigeria, Norway, Oman, Saudi Arabia and Singapore. ITA chose markets that offer potential opportunities for increased exports of upstream O&G equipment where there is a strong need for USG engagement. Some of these countries may be more challenging markets for U.S. exporters and do not appear on ITA's list of top 30 export markets for upstream O&G equipment [see Figure 1]. This is because higher rankings do not necessarily indicate markets with the greatest need for USG engagement or where U.S. companies are otherwise limited in their ability to sell O&G equipment by foreign government

Figure 1: Top 30 Upstream Oil & Gas Equipment Export Markets

1. UAE	7. Brazil	13. Argentina	19. Iraq	25. Nigeria
2. Canada	8. Norway	14. China	20. Russia	26. South Korea
3. Australia	9. United Kingdom	15. Indonesia	21. Peru	27. Israel
4. Mexico	10. Ghana	16. Kuwait	22. Oman	28. India
5. Saudi Arabia	11. Singapore	17. Chile	23. Ecuador	29. Thailand
6. Colombia	12. Malaysia	18. Venezuela	24. Angola	30. South Africa

Figure 2: Summary of Country Case Studies			
Country/ Projected 2019 Market Size	Market Characteristics	Country/ Projected 2019 Market Size	Market Characteristics
High Risk/High Reward		Low Risk/High Reward	
Brazil \$5.2 bn	Poor fiscal terms, strict regulatory environment and ongoing corruption scandal, but strong O&G resources and significant reforms likely.	Norway \$4.7 bn	Stable policy environment, favorable tax regime and high level of capital spending in O&G sector.
China \$18 bn	Regulatory uncertainty and uncompetitive policies, but robust energy demand growth.	Oman \$1.4 bn	Stable in an unstable region, favorable policies (relative to others in the region) and existing U.S.-Oman FTA, but recently increased tax rates.
Iraq \$2.8 bn	Political instability, security concerns and limited resources to support O&G projects, but high increases in crude oil production.	High Risk/Low Reward	
		Argentina \$1.5 bn	Political volatility and history of credit default, but numerous reforms as a result of new administration.
Nigeria \$1.7 bn	Regulatory issues, security concerns and corruption, but significant reforms expected to meet investment needs.	Mexico \$6.9 bn	Historic energy reforms and reasonable regulatory and fiscal terms, but troubled national oil company.
Saudi Arabia \$7.7 bn	Strained economy and vulnerable infrastructure, but strong push for shale and deepwater resource production.	Low Risk/Low Reward	
		Singapore \$9.5 bn	Regional hub for O&G equipment trade and transparent business practices, but declining product demand in region due to low oil prices.

measures— i.e., where the USG has a relatively important role in creating export opportunities.

Each country has different challenges and opportunities, so business leaders will need to evaluate the strengths and weaknesses of exporting to and initiating projects in a target country. At the same time, policy-makers will also need to adapt commercial and policy strategies to address foreign trade barriers in the O&G sector. ITA believes that by evaluating a country’s market size, resource endowment and investment climate, appropriate strategies become clear. In particular, we note that policy-makers and exporters alike should consider the risk and potential reward associated with each market. The country case studies in this report were selected based on their commercial opportunity and trade policy environment.

Methodology

Ample data exist to analyze upstream O&G exploration equipment, allowing detailed export and import projections and trends through 2019. The

analysis in this report relies primarily on U.S. export data to support the policy recommendations. To determine market rankings, the *2016 Upstream Oil and Gas Equipment Top Markets Report* employed a modified “score card” analysis that grouped countries with greater or lesser amounts of opportunities for increased exports from the United States.

The score card methodology used in this study employed qualitative and quantitative indicators to measure future opportunity for exports from the United States. Indicators included are:

- 1) Proximity of a country to the United States;
- 2) U.S. export trends for O&G field equipment;
- 3) The U.S. share and the market size of a country’s O&G equipment imports;
- 4) A country’s future natural gas and oil production and reserves;
- 5) Total upstream project investments in the country (as publicly available);
- 6) An institutional risk assessment variable;
- 7) An overall business environment variable; and

- 8) A qualitative ranking of the country as an export destination.

For each of the major export opportunity indicators, the quantitative information was ranked and then re-grouped into quartiles for each of the 74 key countries involved in upstream activities. The “score” for each indicator was an average of the quartile ranking across the sub categories, which were then summed and weighted for a final score. Using quartiles allows for relative rankings rather than absolute rankings; that is, the rank is an indicator showing whether the export opportunity indicator is a high (quartile rank 4), medium high (quartile rank 3), medium/low (quartile rank 2) or small/low range (quartile rank 1). Analyzed as a whole, this approach allows the top prospective markets across multiple “best” categories to rise to the top. (see Appendix I: Methodology, for greater detail of the methodology)

Caveats

The *2016 Upstream Oil and Gas Equipment Top Markets Report* focuses on upstream U.S. O&G equipment exports to draw larger conclusions about the nature of the global O&G sector as a whole. As export data on services is neither readily available nor consistent across markets, trade statistics for O&G equipment are used as a proxy indicator for services exports. If a country imports O&G equipment, it will likely have associated trade in services related to O&G exploration and production as well. The report utilizes 2015 trade data, when available (i.e., U.S. export figures), and uses 2014 trade data to analyze global imports. ITA projections for U.S. exports and global imports do not take into account price-based forecasting.

The report uses country data on O&G resource endowments as an indicator of demand for O&G equipment, but it does not evaluate international trade in crude oil or natural gas. The U.S. government promotes the export of equipment and services related to O&G exploration, production, transportation, refining and storage.

This analysis also does not fully take into consideration the recent fluctuations in the international price of oil and its impacts on the O&G sector. While the price of crude oil will impact a company’s investment decisions, this report employs historical data to analyze global exports of

equipment and current O&G resource endowments. Trade data was adjusted to consider the current low price environment where possible, and U.S. export and global import market projections for 2015 and 2016 (when actual 2015 figures were unavailable) were reduced to reflect expected market changes.

Case Studies

Ten countries were identified from the top 30 for greater analysis: Argentina, Brazil, China, Iraq, Mexico, Nigeria, Norway, Oman, Saudi Arabia and Singapore. Russia is included to provide additional context on ongoing energy sanctions. The markets in the *2016 Upstream Oil and Gas Equipment Top Markets Report* represent a range of opportunities to demonstrate the typography of commercially focused opportunities in the O&G sector.

Comparison to 2015 Report

ITA’s methodology to determine the greatest market opportunities for O&G equipment exports largely remains unchanged from the *2015 Upstream Oil and Gas Equipment Top Markets Report*. To strengthen the methodology for the *2016 Upstream Oil and Gas Equipment Top Markets Report*, the following modifications were made:

- 1) Improving the Qualitative Rating indicator
- 2) Addition of the Business Environment indicator
- 3) Standardization of the Proximity to the United States indicator quartiles
- 4) Inclusion of the Compound Annual Growth Rate in U.S. Exports and Import Market indicator legends
- 5) Revision of HTS codes for calculating O&G equipment trade

Seventy percent of the top markets identified in the *2015 Upstream Oil and Gas Equipment Top Markets Report* were again ranked in the top 20 markets in the *2016 Upstream Oil and Gas Equipment Top Markets Report*. In general, the countries which fell from the list saw moderate decreases, while those who entered the list for the first time did so through comparatively large jumps in the rankings. The majority of the changes to this year’s standings can be attributed to the inclusion of the Business Environment indicator to the methodology. The inclusion of this indicator was especially impactful on emerging markets, helping large OECD countries on the list to remain in relatively stable positions (see

Figure 3: World Market for O&G Equipment



Appendix III: Comparison to the *2015 Upstream Oil and Gas Equipment Top Markets Report* for greater detail).

Industry Overview and Competitiveness

For the purposes of this report, the upstream O&G equipment industry is defined as establishments primarily engaged in manufacture of:

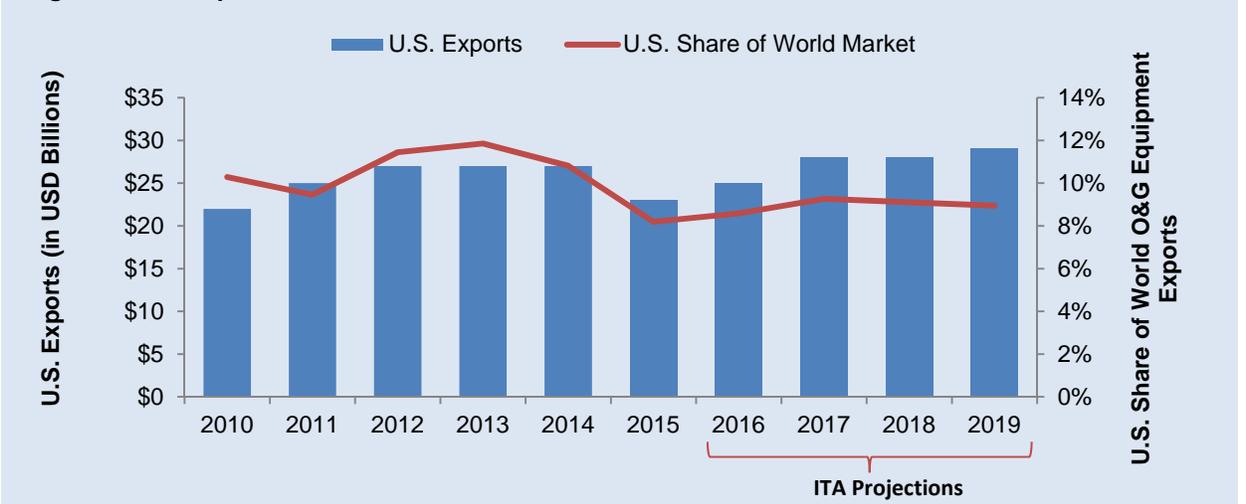
- 1) Submersible and semi-submersible drilling platforms;
- 2) O&G field machinery and equipment;
- 3) O&G field production machinery and equipment;
- 4) O&G field derricks; and
- 5) Pipe and tube.

As export data on services is neither readily available nor consistent across markets, trade statistics for O&G equipment are used as a proxy indicator for services exports (see the Caveats section for further details).

The United States is home to many O&G equipment manufacturers, service suppliers and technology producers, many of which are world renowned. In fact, U.S. companies are very competitive in foreign markets and are known for both quality and service. Over the past 10 years, the global market for this industry has increased by a compounded annual growth rate of 6.5 percent, from \$85 billion in 2004 to \$171 billion in 2014 [see Figure 3].

It is important for policy-makers to consider the nuances of the O&G industry when evaluating international opportunities for U.S. O&G equipment suppliers. The O&G equipment industry includes a wide variety of products, and thus, the export profile of the United States varies considerably relative to other markets. Some markets that are long established O&G producers demand capital-intensive, high-tech seismic and drilling equipment, while other markets that have just discovered O&G resources seek to import conventional drilling equipment and services for infrastructure development.

Figure 4: U.S. Exports and U.S. Share of World Market



U.S. O&G equipment suppliers face strong competition from Chinese and South Korean O&G equipment manufacturers. In general, U.S. exports are particularly competitive in high-end sinking and boring parts and parts for derricks, whereas South Korean exports are concentrated in vessels with derricks with few sinking or boring parts, and Chinese exports are concentrated in vessels with drilling platforms and equipment and pipe. These trends will likely continue with U.S. exports weighted more toward specialized high tech-equipment, especially relating to unconventional and ultra-deepwater O&G exploration and production.

The projected increase in demand for U.S. exports of O&G equipment through 2019 [see Figure 4] may be further driven by the fundamental changes in U.S. O&G production in the last several years. Having been among the first in the world to develop unconventional and ultra-deepwater resources, U.S. equipment manufacturers and service suppliers have the opportunity to seize the first-mover advantage in overseas markets that are seeking to emulate the United States' rapid expansion in energy production.

While the United States may be competitive in the O&G equipment sector, the share of U.S. equipment being exported to the global market (as a proportion of world O&G equipment exports to the global market) has declined. This may be a demonstration of greater consumption of U.S. equipment within the U.S. O&G sector causing a decline in U.S. exports, but this is also a reflection of greater competition from foreign equipment producers, as other countries have increased the proportion of equipment exports to the global market. While U.S. export figures remained relatively flat from 2012 to 2013, the share of U.S. exports to the global market (as a proportion of total world exports) increased. In absolute terms U.S. export figures in the sector are

projected to increase, but U.S. exports as a share of the world market are projected to decrease through 2019 from levels seen in recent years.

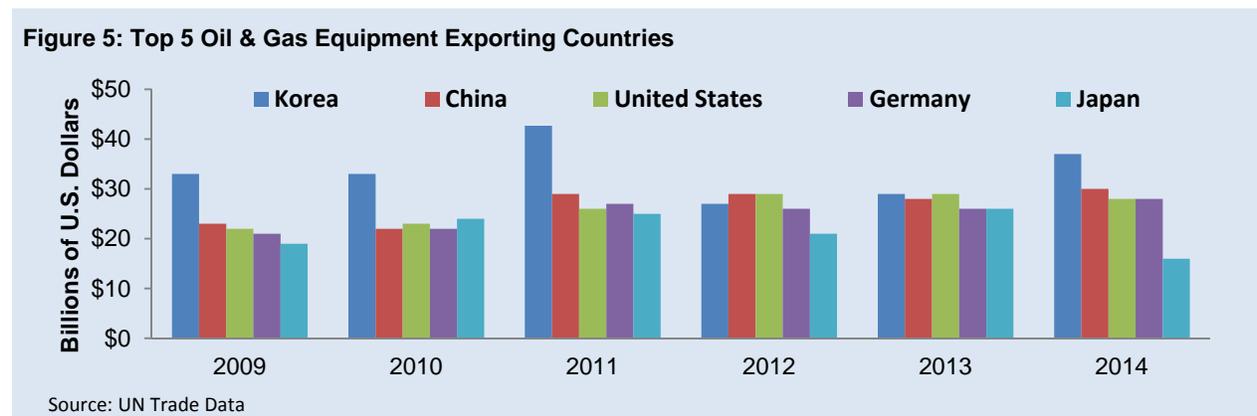
Global Industry Landscape

The international O&G equipment market is characterized by a large presence of heavy manufacturing for the ships and offshore platforms in South Korea, low cost inputs originating from China and high-tech components and advanced manufacturing from the United States, Germany and Japan. In 2014, South Korea was the world's largest O&G equipment exporter, exporting \$36 billion to global markets, while China and the United States were the next largest O&G equipment exporters to the world with \$30 billion and \$27 billion in exports, respectively. In 2014, South Korea represented 15 percent of global exports; China represented 12 percent, and the United States represented 11 percent of these exports by value [see Figure 5].

Global crude oil prices are expected to remain depressed through 2016, with the earliest increase expected in mid-2017. Until global crude oil prices return to the \$50 to \$60 range, new projects will be delayed and existing high-cost production will be shut-in. With international crude oil prices at the time this report was written around \$40/bbl, U.S. O&G equipment suppliers will be pushed to develop new, low-cost extraction and production methods to ensure that U.S. O&G equipment is competitive in the low price environment.

Opportunities and Challenges

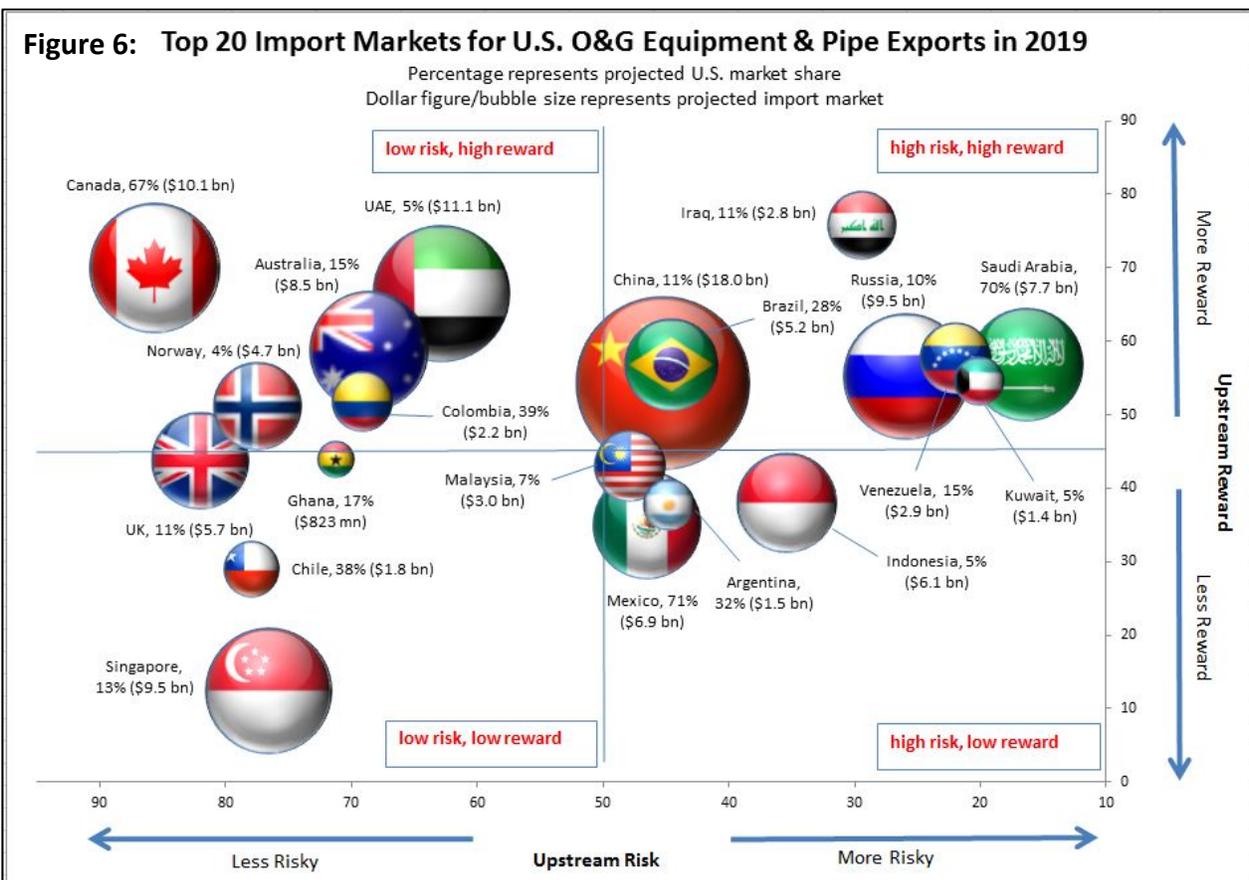
The O&G sector can generate large profits, but has always been characterized by a high degree of risk. O&G companies are faced by a number of risks not only related to finding oil or gas under the ground,



but also financial, political and security risks that exist above ground. The *2016 Upstream Oil and Gas Equipment Top Markets Report* analyze those countries with the most potential for equipment sales against the associated risks and rewards of that country's O&G sector.

The top 20 countries from the *2016 Upstream Oil and Gas Equipment Top Markets Report* are plotted on a Risk-Reward Matrix [see Figure 6], which illustrates each country's relative upstream risks and rewards. The rewards are heavily weighted toward below ground resources, while the risks are more weighted toward above ground government policy. In a case such as Singapore, a company might encounter few unanticipated regulatory challenges (i.e. low risk), but would also have lower profits (i.e. lower reward) from investments. In contrast, a high risk, high reward country, such as Iraq, may

potentially yield significant profits in the O&G equipment sector, but there are a greater number of risks (i.e. import regulations, corruption, infrastructure constraints) that companies will have to consider when conducting business there. In the years ahead, ITA projects world exports of O&G equipment to increase but with limited growth in 2016. Today, the United States is the world's third largest exporter of upstream O&G equipment, with close to \$23 billion in exports to the world. In some strategic markets, U.S. exporters face local content requirements, local labor requirements and other trade restrictions, increasing costs and reducing competitiveness of U.S. exports. Additionally, the low price of oil and gas across the board has decreased investment plans, and there will be stiff competition for new business.



Source: ITA (Figure cites trade data from Business Monitor International, UN Trade Data, and ITA Projections)