



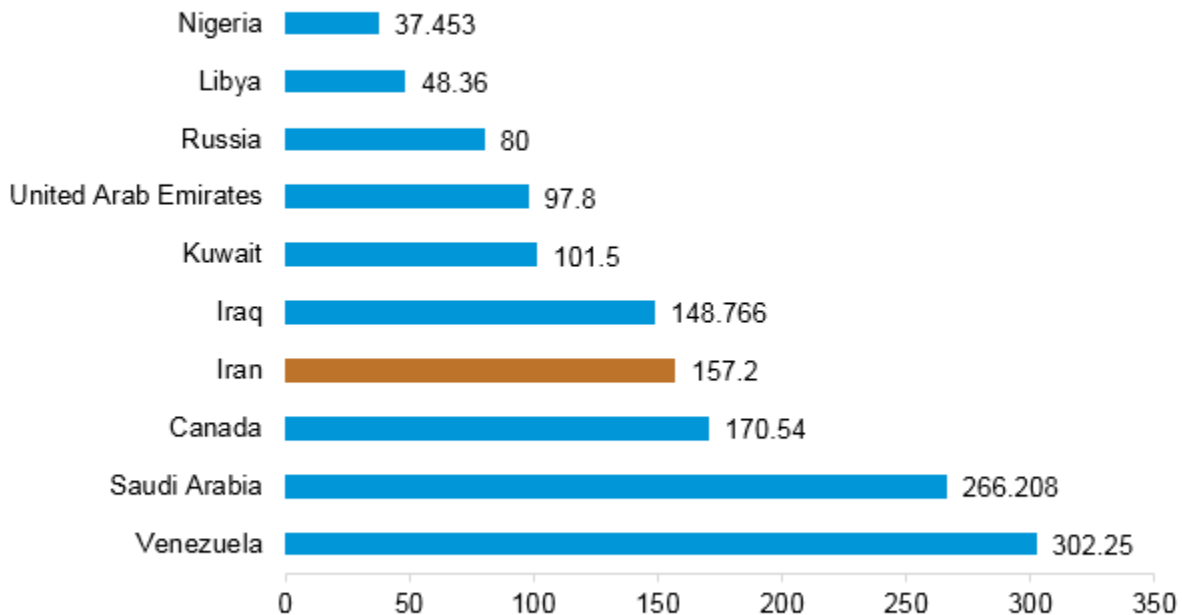
## Country Analysis Executive Summary: Iran

Last Updated: January 7, 2019

### Overview

- Iran holds some of the world's largest deposits of proved oil and natural gas reserves, ranking as the world's fourth-largest and second-largest reserve holder of oil and natural gas, respectively (Figure 1). Iran also ranks among the world's top 10 oil producers and top 5 natural gas producers.

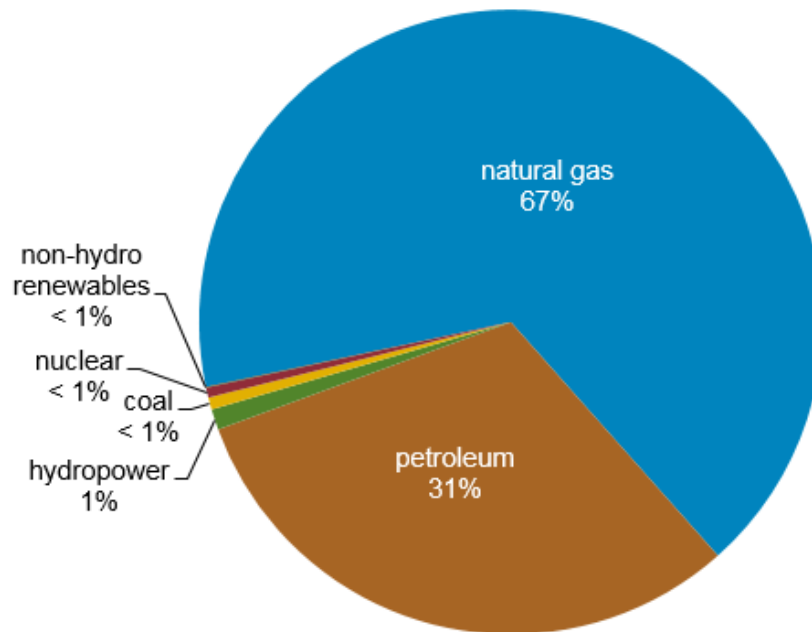
**Figure 1. Largest proved reserve holders of crude oil**  
billion barrels



Source: *Oil & Gas Journal*, December 2017

- Iran produced almost 4.7 million barrels per day (b/d) of petroleum and other liquids in 2017 and an estimated 7.2 trillion cubic feet (Tcf) of dry natural gas in 2017.<sup>1</sup>
- Iran consumed more than 270 million tons oil equivalent of primary energy in 2016 (Figure 2).<sup>2</sup>

Figure 2. Iran's total primary energy consumption, share by fuel, 2016



Note: Chart does not include traditional biomass and waste, such as burning firewood and waste.

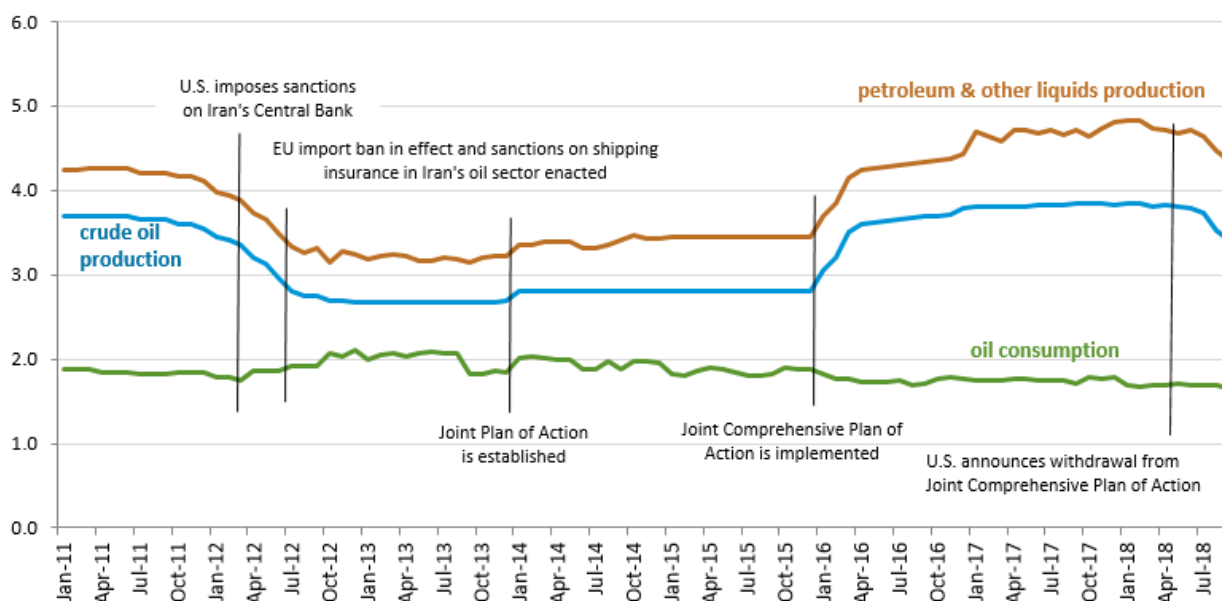
Source: *BP Statistical Review of World Energy 2017*

## Petroleum and other liquids

- According to the *Oil & Gas Journal*, as of January 2018, Iran had an estimated 157 billion barrels of proved crude oil reserves, representing almost 10% of the world's crude oil reserves and about 13% of reserves held by the Organization of the Petroleum Exporting Countries (OPEC).<sup>3</sup>
- Iran produced 4.7 million b/d of petroleum and other liquids in 2017, of which 3.8 million b/d was crude oil and the remainder was condensate and hydrocarbon gas liquids.
- Iran's crude oil exports and production have declined since the May 2018 announcement by the United States that it would withdraw from the Joint Comprehensive Plan of Action (JCPOA) and reinstate sanctions against Iran (Figure 3).
- EIA estimates that [Iran's oil net export revenues](#) totaled \$55 billion in 2017.

**Figure 3. Iranian petroleum and other liquids production and consumption**

million barrels per day



**eia** Note: Iran's petroleum and other liquids production includes crude oil, condensate, and hydrocarbon gas liquids (HGLs). Source: U.S. Energy Information Administration.

## Sector organization

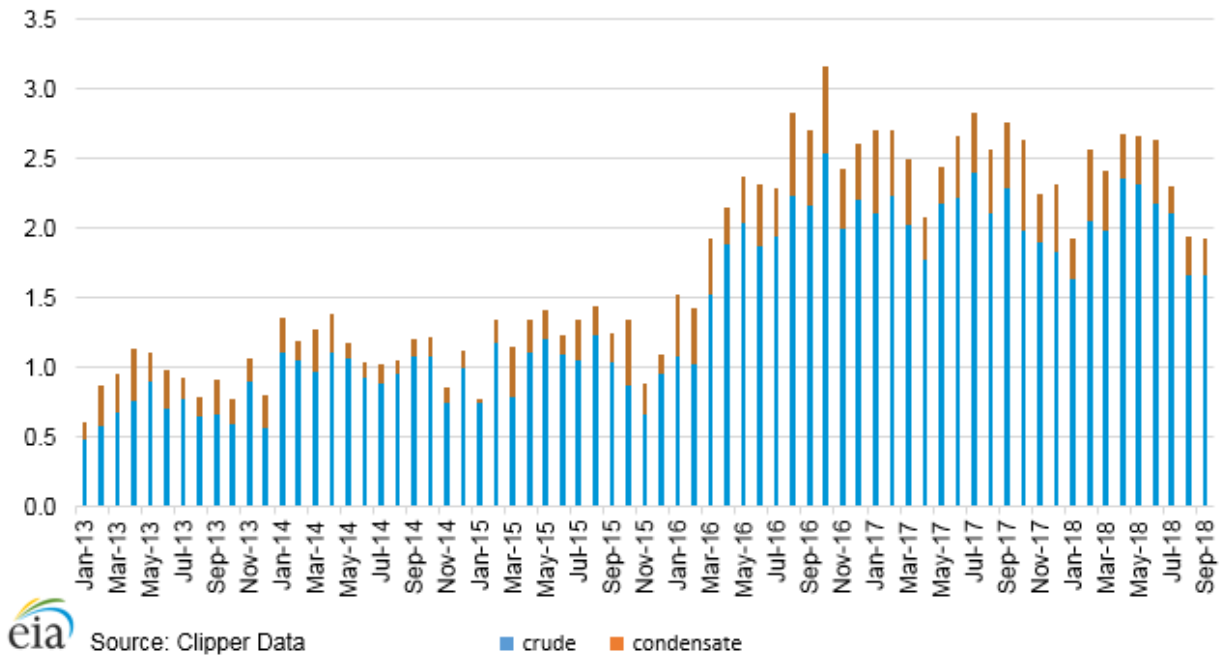
- The state-owned National Iranian Oil Company is responsible for all upstream oil and natural gas projects.

## Trade

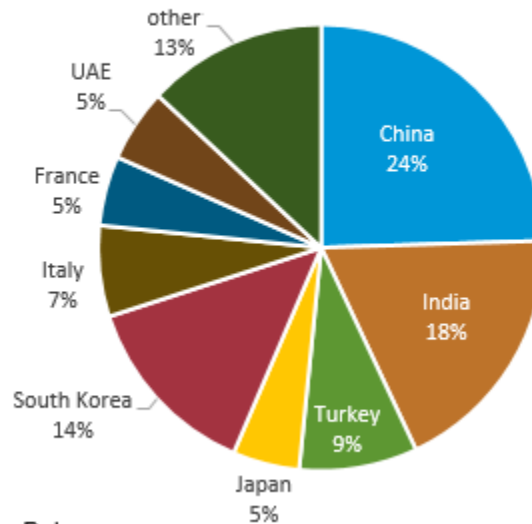
- According to EIA estimates based on tanker-tracking data reported by ClipperData, Iran's crude oil and condensate exports averaged 2.5 million b/d in 2017, about 0.2 million b/d higher than the 2016 average (Figure 4). China and India accounted for about 43% of all Iranian exports in 2017, and Turkey and South Korea took substantial volumes during the year (Figure 5). The United States has not imported crude oil and condensate from Iran in several decades.
- Iran's exports of petroleum products averaged 507,000 b/d in 2017, with LPG and fuel oil accounting for about 83% of total petroleum product exports. Iran's petroleum product exports declined in 2017 compared with exports of 587,000 b/d (including small volumes of gasoline exports) in 2016.
- According to data from ClipperData, in 2018, Iran's exports of crude oil and condensate peaked in June at about 2.7 million barrels per day (b/d), almost 300,000 b/d higher than the average during the first four months of the year (before the May announcement of sanctions). In September, Iran's crude oil and condensate exports fell to 1.9 million b/d.

**Figure 4. Iranian monthly crude oil and condensate exports**

million barrels per day



**Figure 5. Iranian crude oil and condensate exports by destination, 2017**



### Refining

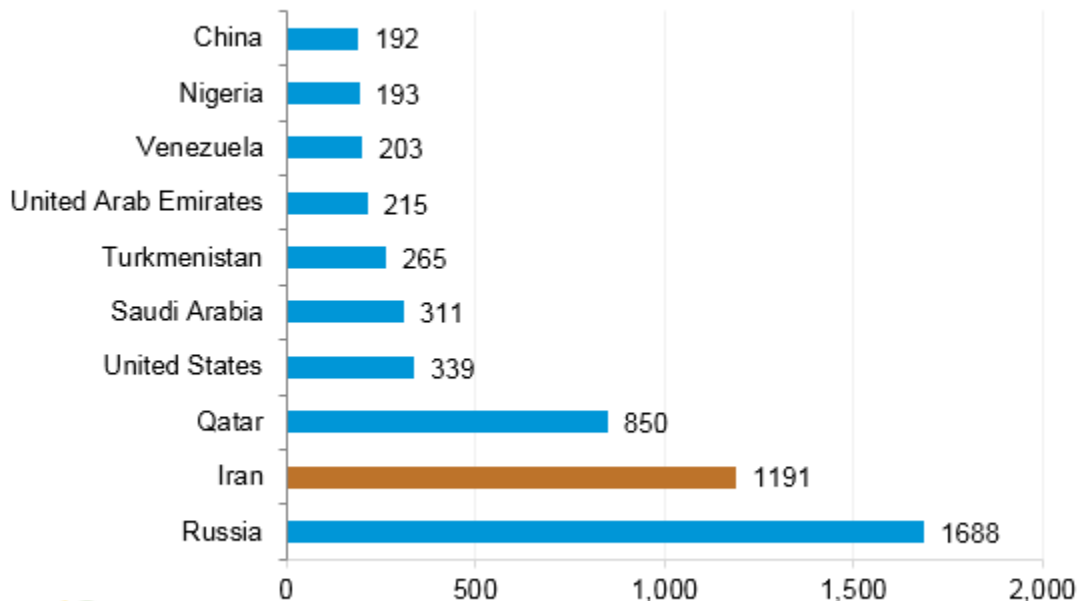
- Iran had a crude oil refining capacity of 2,039,000 b/d in 2017, according to the *Oil & Gas Journal*.<sup>4</sup>

## Natural gas

- According to *Oil & Gas Journal*, as of December 2017, Iran's estimated proved natural gas reserves were 1,191 trillion cubic feet (Tcf), second only to Russia (Figure 7). Iran holds 17% of the world's proved natural gas reserves and more than one-third of OPEC's reserves (Figure 6).<sup>5</sup>
- Iran is the world's third-largest dry natural gas producer after the United States and Russia.
- Iran's gross natural gas production totaled nearly 9.5 Tcf in 2017, of which 7.3 Tcf was dry natural gas, rising almost 9% compared with 2016, according to Rystad Energy.
- Roughly 1.6 Tcf of the total was reinjected into oil wells for enhanced oil recovery (EOR),<sup>6</sup> which plays a central role in Iran's oil production. In addition to the natural gas used for EOR, Iran vented and/or flared approximately 0.6 Tcf of gas in 2017 (Figure 7).<sup>7</sup>
- Most of the natural gas produced is consumed domestically, with Iran's consumption averaging at an estimated 6.9 Tcf in 2017.<sup>8</sup>

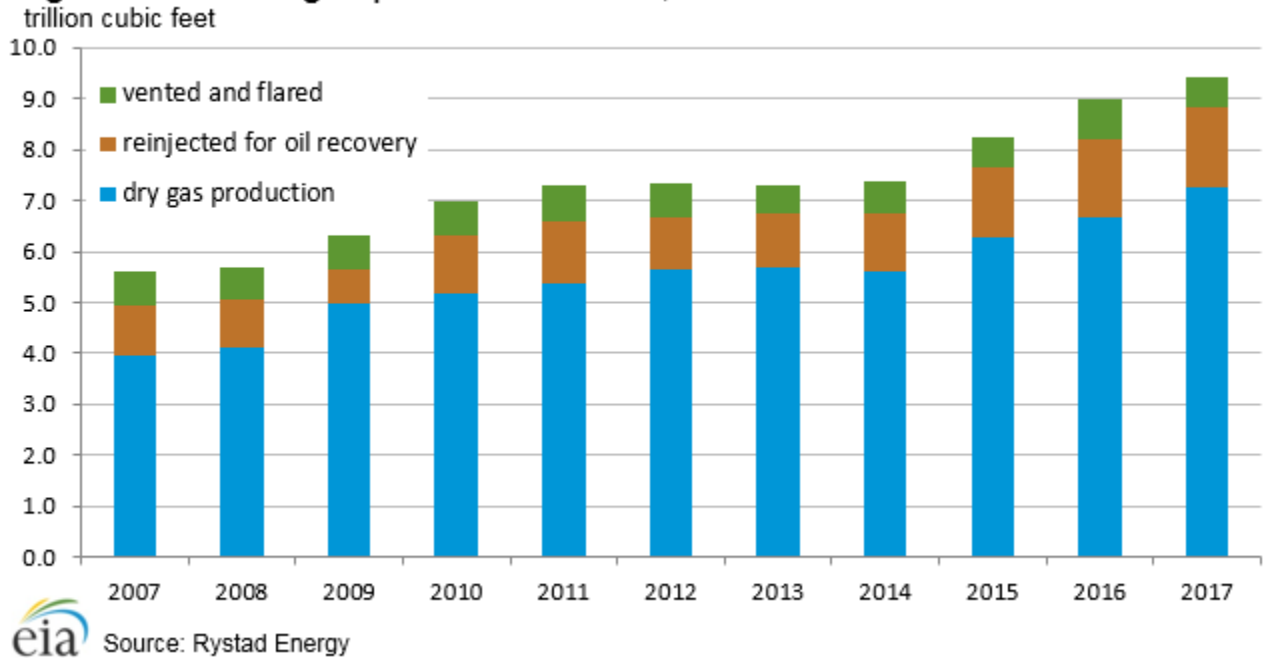
Figure 6. Largest proved reserve holders of natural gas, 2017

trillion cubic feet



Source: *Oil & Gas Journal*, December 2017

**Figure 7. Natural gas production in Iran, 2007-2017**



## Trade

- Iran exports natural gas via pipeline to Turkey, Armenia, Azerbaijan, and Iraq, and it receives imports from Turkmenistan. In 2017, Iran exported about 450 Bcf and imported 170 billion cubic feet (Bcf) of natural gas via pipelines (Figure 8).
- In 2017, about 73% of total natural gas exports were destined for Turkey. Natural gas exports to Armenia averaged 36 MMcf/d in 2017, in return for which Iran received electric power. Iran and Armenia trade natural gas and electric power via a 20-year swap contract.<sup>9</sup>

Figure 8. Iran's natural gas pipeline imports and exports

billion cubic feet

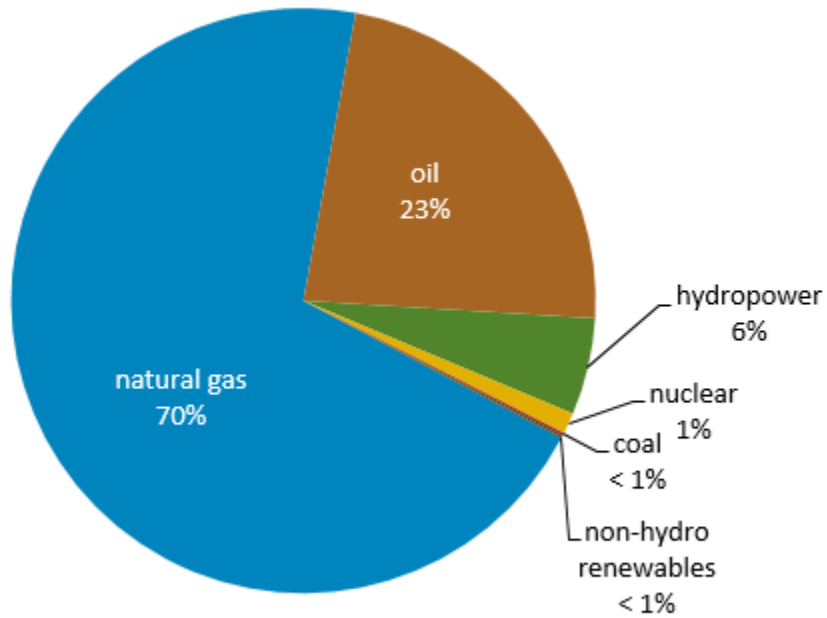


Source: Facts Global Energy

## Electricity

- Natural gas is Iran's primary fuel source for electricity generation. In 2016, Iran generated almost 276 billion kilowatt-hours (kWh) of electricity, of which 93% was from fossil-fuel sources.<sup>10</sup> Natural gas is the largest source of fuel for electricity generation in Iran, accounting for 70% of total generation. Hydropower, nuclear, and non-hydro power renewables make up the remaining fuel sources used to generate electricity in Iran (Figure 9).

Figure 9. Iran's electricity generation capacity by fuel, 2016



Source: Business Monitor International (BMI) Research

## Notes

- In response to stakeholder feedback, the U.S. Energy Information Administration has revised the format of the *Country Analysis Briefs*. As of December 2018, updated briefs are available in two complementary formats: the Country Analysis Executive Summary provides an overview of recent developments in a country's energy sector and the Background Reference provides historical context. Archived versions will remain available in the original format.
- Data presented in the text are the most recent available as of December 12, 2018.
- Data are EIA estimates unless otherwise noted



## Endnotes

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<sup>1</sup> Gas production data: Rystad Energy UCube (January 2018 update)

<sup>2</sup> BP Statistical Review of World Energy 2016 (June 2017)

<sup>3</sup> Oil & Gas Journal, Worldwide look at reserves and production (December 2017).

<sup>4</sup> *Oil & Gas Journal*, "Worldwide Refineries—Capacities as of January 1, 2018," (December 4, 2017), p. 1

<sup>5</sup> Oil & Gas Journal, Worldwide look at reserves and production, (December 2017).

<sup>6</sup> Gas production data: Rystad Energy UCube (January 2018 update)

<sup>7</sup> Ibid

<sup>8</sup> Facts Global Energy, *Iran Oil and Gas Monthly January 2017*, Data File (February 2018).

<sup>9</sup> Facts Global Energy, *Iran Oil and Gas Monthly January 2017*, Data File (February 2018).

<sup>10</sup> Business Monitor International (BMI) Research, *Iran Power Report Q1 2018*.