



Supporting Iran in implementation of an integrated energy efficiency market

The important Role of Energy Exports in Iran

Figure 1. Top 4 destinations for Iranian exports in oil, gas and electricity (2018, electricity 2019)



Source: Chatham House, The Royal Institute of International Affairs (UK), resourcetrade.earth; SATKAB

State revenues depend on exporting oil

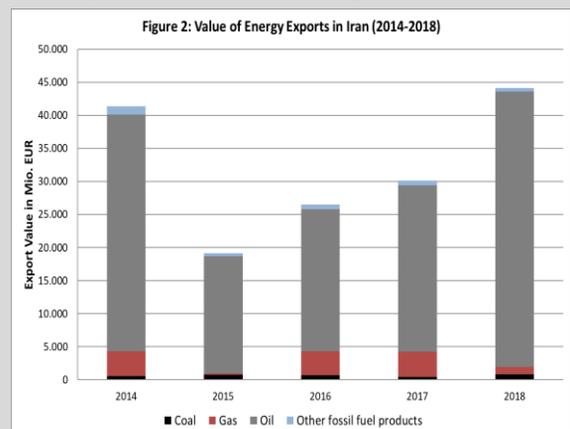
Almost 55 % of Iran's total government revenues are generated by selling oil and oil products. The export of fossil fuels contributes 9.3 % to Iranian government revenues¹. 82 % of Iran's export revenues in 2018 were generated by oil and gas.² Domestic energy sales and energy exports are thus the main sources of state income for Iran.

According to the International Energy Agency, 80 % of the 115,935 kt crude oil produced was exported, predominantly to Asian countries (figure 1). In 2018, Iran received 41.7 billion EUR from oil exports, accounting for 94% of export revenues from fossil fuels.

Natural gas and electricity exports are negligible

Although Iran is one of the largest gas-producing countries worldwide, exports of natural gas are at 1.1 billion EUR (only 3% of fossil fuel exports) relatively small compared to oil export revenues. The huge majority of natural gas produced in Iran is consumed domestically. In 2018, only 5 % of natural gas production was exported.

The main receiving countries of the natural gas exports are Indonesia (27 %), India (17 %), and Azerbaijan (12 %) as shown in figure 1.



Source: resourcetrade.earth

A large part of the domestic natural gas supply is used for producing electricity.

About 3 % of the produced power was exported to neighboring countries, namely Iraq (6,652 GWh), Afghanistan (775 GWh), Pakistan (516 GWh), Armenia (53 GWh) and Azerbaijan's Nakhchivan Autonomous Republic (33 GWh) in 2019.³

High energy intensity and opportunity costs

Although energy exports account for a large share of Iran's government revenues, a growing share of the energy produced in Iran is consumed domestically. Iran has one of the most energy-intensive economies worldwide, which means that it uses much more energy for each unit of output produced than most countries.

This inefficient use of energy implies a huge opportunity cost: the energy consumed domestically at low prices could instead be exported at much higher prices and could thereby increase government revenue. This opportunity cost is due to the fact that energy prices in Iran are exceptionally low, even in comparison with resource-rich neighboring countries.

Differences between domestic and export prices further lead to the creation of informal markets which exploit the price differences by smuggling petrol and diesel to Iraq, Turkey, Pakistan and Afghanistan. The most recent average price for Persian Gulf Normal Gasoline was about 0.36 EUR (112,500 IRR)⁴ per litre, while the domestic Iranian final consumer price was about 0.10 EUR (30,000 IRR). The difference of 0.26 EUR (82,500 IRR) per litre is the potential trading gain for smugglers and the resulting loss in government revenue per litre of gasoline crossing the border informally.

The difference between domestic and export prices is 0.14 EUR (43,900 IRR) per m³ of natural gas and 0.058 EUR (18,200 IRR) per kWh of electricity.

Considerable potential of increased government revenues by allowing market prices

In 2016, the Iranian National Energy Strategy set the goal to reduce energy intensity by 50% until 2041. According to OPEC data, domestic demand in 2016 was 444,000 b/d gasoline, 94,299 million m³ gas and 253.1 TWh electricity.

To achieve the goal of reducing energy intensity by 50% until 2041, energy consumption must be reduced by 2.7 % per year. The amount of energy saved per year can be multiplied by the difference between the export and domestic price to calculate the total increase in government revenue.

While the annual energy savings increase over time as Iran becomes more energy efficient, on average the additional export revenues amount to 3.5 % of its GDP in 2019/2020⁵. Between 2020 and 2050, Iran would generate a total increase in government revenues of 400 billion EUR, which matches the GDP of Austria. This though experiment highlights the substantial unrealized government revenue potential from improving energy efficiency in Iran.

The most effective measure to increase energy efficiency is the implementation of market prices on the domestic market since this would provide households and firms with strong economic incentives to save energy. The additional government revenues could then partially be used within a targeted social assistance program to reduce the financial burden of for private households. Alternatively, in the absence of domestic market prices, energy efficiency investments could be incentivized by offering households and firms the opportunity to sell saved amounts of energy at exports prices, as envisioned in Article 12 (see IREEMA Newsletter September 2019).

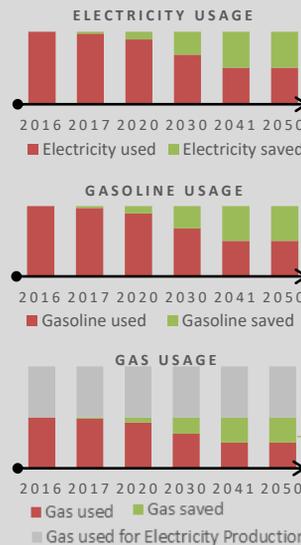


Figure 3. Illustration of Opportunity Cost Calculation



The sum of potential exports in 2020-2050 matches the GDP of Austria.

Footnotes

1. <https://www.cbi.ir/category/3394.aspx>
2. The Royal Institute of International Affairs, resourcetrade.earth
3. Electrical Power Equipment Manufacturing and Provision Company (SATKAB), <https://tinyurl.com/y6c4log5>
4. <https://bonbast.com/historical/eur/2020/11>, average exchange rate for November 2020: 313,323 EUR/IRR
5. We assume that the production volume remains constant and that all energy not-consumed because of efficiency gains can be exported. Data from OPEC (https://www.opec.org/opec_web/en/data_graphs/40.htm) and the National Accounts of Iran have been used.

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