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Using US Strategic Reserves to Moderate Potential Oil Price Increases from Sanctions on Iran

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The United States has initiated new sanctions against Iran aimed at preventing it from collecting revenue from exports of crude oil. The European Union has followed, embargoing all imports of Iranian crude from July 1, 2012 and preventing any firms from entering into new contracts to import Iranian oil after January 23, 2012. The new US and EU sanctions could be the most draconian in many years. If implemented fully, US sanctions would force trading partners to choose between the United States and Iran. EU sanctions would cut Iran off from an important market. These sanctions, while reducing Iranian income, could pose a very serious economic threat to countries that have significant trade with the United States and/or import significant quantities of oil from Iran.

A number of US trading partners have raised serious alarms regarding the new sanctions. China, South Korea, and Turkey, in particular, publicly expressed concern the first week after President Barack Obama signed the establishing legislation. For example, Turkey immediately announced its intention to request a waiver. In response to such worries, US Treasury Secretary Timothy Geithner and senior State Department officials visited several Asian countries in the

second week of January. These trips assuaged some but not all fears held by America's trading partners.

Nations such as China, South Korea, and Japan, which obtain significant amounts of oil from Iran while enjoying large trade surpluses with the United States, are justifiably anxious. No doubt, these countries and others also worry that the new US and EU sanctions will disrupt oil markets, increase crude prices, and further slow global economic growth, which would, at a minimum, cut their export revenues. Iran has also objected to the sanctions, threatening an immediate cut in trade with Europe and warning of higher oil prices.

The United States can allay some of these apprehensions, as can the Europeans, by not being aggressive about enforcing the tighter sanctions. The new US sanctions law, H. R. 1540, grants the president authority to waive sanctions or exempt countries on a case-by-case basis. The European program offers its EU member governments some flexibility as well. Politicians and the public in the United States, Europe, and many other nations are set on using every economic means possible to stop Iran's nuclear weapons development. However, public support will quickly wane if aggressive enforcement of sanctions results in higher oil prices, recession, and greater friction with trading partners in Asia. As is often the case with sanctions, the actions taken by Iran's opponents may inflict as much or more harm on themselves as they do on their target.

There is, however, a way to put real pressure on Iran while moderating or eliminating economic fallout for the US and EU economies and those of their trading partners. Changes in the US energy sector have made a significant portion of the US Strategic Petroleum Reserve (SPR) superfluous. As of January 2012, the US government held almost 690 million barrels of crude in reserve. Thanks to reduced consumption and increased production, one-third of the SPR—roughly 280 million barrels—is no longer required to meet US obligations under the 1974 Agreement on an International Energy Program. This oil could be sold as surplus government property, just as the United States has disposed of surplus stocks of other commodities in the past. Such sales would make a modest contribution to the country's debt reduction efforts.

More importantly, the surplus SPR stocks could be used to solidify support by reducing the likelihood of a significant oil price increase and the attendant threat of recession.

Many fear that world oil prices will climb if Iran is pushed from the global crude market. Such concerns are justified even though Saudi Arabia has indicated it would replace oil previously purchased from Iran. Saudi sales may dampen but will not totally stop price escalation, though, if the Kingdom's

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incremental output is inferior to the crude it supplants. Here again, the United States can help. The United States originally purchased large volumes of high-quality crude for the SPR. That crude was needed by refineries 25 years ago because they could not process heavier sour crudes. Much of this higher-quality crude is now surplus because US facilities have been rebuilt or closed. Sales of some SPR volumes to support tighter sanctions on Iran would likely aid the Saudi sales in moderating any price increase.

As noted, China and other Asian countries have already expressed concern that prices pushed upward by stricter sanctions on Iran could harm the world economically. They are more likely to cooperate with US sanctions if the United States commits to a strategic stock release to forestall or dampen any impact on world oil prices. Prices might even be lower than presanction levels if the release is really successful.

Europe, too, can offset the effect of EU sanctions by using strategic stocks, although at this point such action does not seem necessary. Unrelated closures of European refineries and increases in Libyan production, shut during the revolution there, should offset the loss of Iranian imports.

In this policy brief, I describe how SPR oil could be used strategically. In section I, I summarize the details of the latest US and EU sanctions. In section II, I examine the alternatives to Iranian oil available to the world market. These include increased production by Saudi Arabia and other members of the Oil and Petroleum Exporting Countries (OPEC). From this analysis, I conclude that the sanctions should have no impact on the oil market. However, should a market distortion occur, the price impact could be countered in part by oil sales from the US SPR. Section III describes how SPR oil might be used to moderate potential price increases resulting from the Iran sanctions.

I. NEW SANCTIONS ON IRAN

US Sanctions

President Obama signed H.R. 1540, the National Defense Authorization Act of 2012, on December 31, 2011. Section 1245 of the act imposes sanctions on Iran's financial sector. In particular, subsection (d)(1)(A) of Section 1245 states that, 60 days after enactment, the president

...shall prohibit the opening, and prohibit or impose strict conditions on the maintaining in the United States of a correspondent account or a payable-through account by a foreign financial institution that the President determines has knowingly conducted or facilitated any significant transactions with the Central Bank of Iran or other Iranian financial institution designated by the Secretary of the Treasury for the imposition of sanctions pursuant to the International Emergency Economic Powers Act (50 U.S.C. 1701 et seq).

In effect, the law offers central banks across the globe a Hobson's choice. They can open accounts with the United States Federal Reserve to facilitate payments for exports and imports to the United States and conduct other financial transactions or they can open accounts with Iran's central bank. They cannot do both. This means, in theory, that nations buying Iranian exports, predominantly oil, must terminate purchases from or find other ways to carry out transactions with that country by March 1, 2012, if they wish to keep doing business with the United States.

On its face, the policy gives trading partners of the United States a clear choice. They can trade with the United States or they can trade with Iran. The US Congress, however, created certain exceptions for petroleum in H.R. 1540. First, the law stipulates that the US Energy Information Administration (EIA) must prepare and provide reports to the president every 60 days regarding world oil market conditions. These reports must describe "the availability of petroleum and petroleum products produced in countries other than Iran in the sixty days preceding the submission of the report."¹

Following receipt of this information, the president has 90 days to determine "whether the price and supply of petroleum and petroleum products produced in countries other than Iran is sufficient to permit purchasers of petroleum and petroleum products from Iran to reduce significantly in volume their purchases from Iran."² The sanctions described

1. H.R. 1540, Section 1245(d)(4)(A).

2. H.R. 1540, Section 1245(d)(4)(B).

in subsection (d)(1)(A) are to be imposed on foreign financial institutions 180 days after the law's enactment (June 30, 2012) if the president determines that

...there is a sufficient supply of petroleum and petroleum products from countries other than Iran to permit a significant reduction in the volume of petroleum and petroleum products purchased from Iran or through foreign financial institutions.³

The law is clear. Sanctions must be imposed on financial institutions dealing with Iran if President Obama determines that oil supplies are available. However, as noted, Congress recognized such measures are extreme and thus permitted the president to grant exceptions or waivers.

Specifically, the president can waive the sanctions if he determines that a country has significantly reduced its crude purchases from Iran during the previous six-month period.⁴ The president is also authorized to grant a four-month waiver to a country if he deems this to be in the national interest.

EU Sanctions

As the United States institutes these new sanctions, the European Union is moving ahead with a program to limit imports of Iranian oil. Foreign ministers from EU members met at the end of January to address the issue. Prior to this, several countries had proposed an immediate comprehensive ban on oil imports from Iran. However, some of the southern EU members, particularly the already financially troubled Italy and Greece, asserted that such measures would cause additional economic hardship. As a result, EU sanctions on oil imports have been delayed six months, as the *Washington Post* reported on January 13, 2012:

The agreement, reached at a meeting of European Union ambassadors Thursday in Brussels, still has to be confirmed in European capitals and ratified by foreign ministers at a meeting scheduled for January 23. It is designed to dilute the painful effects of a European oil embargo while at the same time seeking to maintain the gesture's political impact.

The United States has been seeking to build worldwide agreement on reducing or halting Iranian oil exports, which amount to an estimated 450,000 [sic] barrels a day. The goal is to pressure Iran into opening its

nuclear development program to meaningful inspection by the United Nations' nuclear watchdog, the International Atomic Energy Agency.

Under the terms of the agreement, Greece, Italy, and Spain—the three European Union countries that are particularly dependent on Iranian oil imports—would be exempted from the embargo for even longer than six months, the diplomats said.

Greece, Italy, and Spain account for almost all European oil imports from Iran, with Greece counting on Iran for 22 percent of its imports, Spain almost 10 percent, and Italy 13 percent. By comparison, France, which pushed for an immediate implementation of the embargo, buys less than 4 percent of its oil from Iran.⁵

The program approved by EU ministers adhered to these lines. Effective January 23, member countries cannot enter into new contracts with Iran for oil or petrochemicals. They can, however, still import oil from Iran until July 1 under contracts signed before January 23, 2012.⁶

The EU program may not be as rigid as it seems. The European Commission will review the proposed embargo on May 1 to make sure no member country is being adversely affected. Platts explained the details:

According to the EU statement on the Iranian oil ban, there is an option for the embargo to be reviewed “no later than May 1” to see how well EU countries are coping with finding alternative suppliers.

The EU imports around 500,000 b/d of Iranian crude, with Italy, Spain, and Greece particularly dependent. Countries and companies now have little over five months to secure alternative supplies.

There was no mention of any country specifically in the EU statement, though it is expected Greece could receive EU help in finding alternative suppliers willing to provide them with oil on the same financial terms as those with Iran.⁷

Platts quoted Catherine Ashton, a senior EU official, as saying the goal of the EU sanctions was to punish Iran, not

3. H.R. 1540, Section 1245(d)(4)(C).

4. H.R. 1540, Section 1245(d)(4)(D).

5. Edward Cody, “E.U. Commits in Principle to Iran Oil Embargo,” *Washington Post*, January 13, 2012.

6. “EU Slaps Iran with Oil Import Ban from July,” *Platts Oilgram News*, January 24, 2012, 1.

7. *Ibid.*, 1.

EU refining countries: “When you look at sanctions, you have to take into account decisions that affect individual economies and the EU economy as a whole. We have to make sure the impact is the right impact.”⁸

Whether this flexibility is real, though, is an open question. Other EU officials told Platts that a change in the sanctions program would require unanimous consent of all European members, adding that “France was unlikely to agree to any change to the July 1 date.”

Another report made it obvious that the French would say *non* to any revisions.

Ahead of today’s foreign ministers meeting, EU ambassadors met to agree on small changes to the sanctions text to appease concerns from Greece. An addendum was added establishing a review of the measures on 1 May “with a view to continuing oil supply in member states.”

But any changes to the oil embargo measures will require unanimity, which is unlikely according to one diplomat. “The French will never agree to any change. It is so clear,” the official said.⁹

US officials have demonstrated firmness that matches that of France. Treasury Secretary Geithner visited China and Japan in January to discuss the new sanctions. Separately, officials from Treasury visited South Korea for similar talks. A *New York Times* dispatch published on January 14 noted the United States’ determination to move rapidly on the sanctions issue. An official quoted in the article made the government’s intention absolutely clear:

“We do mean to close down the Central Bank of Iran,” said a senior administration official, adding that oil purchases were the key to that effort because oil “is the largest source of their revenue.”¹⁰

Reactions to Sanctions

The US goal seems obvious. Sanctions on Iran will be tightened. Foreign central banks will be denied access to the United States after June 30, 2012, unless their governments begin to take steps to cut off or at least reduce oil imports from Iran. The sanctions

8. *Ibid.*, 6.

9. “EU Agrees on Iran Sanctions Date,” *Argus Crude*, January 23, 2012, 20.

10. Mark Landler and Clifford Krauss, “Gulf Nations Aid US Push to Choke Off Iranian Oil Sales,” *New York Times*, January 14, 2012. (The title of the print article was “US Efforts to Wean Asia from Iran Oil Gain Ground.”)

will have the greatest impact on countries that have large trade volumes with the United States and purchase significant oil volumes from Iran, especially China, Japan, and South Korea.

Leaders of these countries have responded strongly to the United States taking unilateral action against them for trading with Iran. Chinese officials dismissed the US action during Secretary Geithner’s January visit. A foreign affairs vice minister, Zhai Jun, voiced his country’s disapproval: “We oppose pressuring or international sanctions because these pressures and sanctions are not helpful. They have not solved any issues. We believe these problems should be solved by dialogue.”¹¹

Japan has indicated it may request a waiver or exemption from the sanctions. According to Platts, Minister of Economy, Trade, and Industry Yukio Edano made this statement at a press conference on January 20: “Regarding implementation of the US sanctions, we have asked the United States to be flexible, including the granting of exemptions.”¹² The article explained that the minister’s comments were made following a “working meeting” of US and Japanese officials regarding the sanctions. It added that the Japanese believe they needed an exemption due to the rise in national oil use after the disastrous 2011 earthquake. The minister also hinted at concerns over the efficacy and inherent risk of sanctions: “Edano said Japan has been scrutinizing the US sanctions from ‘effectiveness’ and energy security perspectives.”

South Korea has indicated it would seek an exemption rather than a waiver from the US program. According to a Platts dispatch,

The country will ask for a temporary exemption from restricting imports of Iranian oil in return for significantly reducing other transactions with the Islamic Republic, according to a senior South Korean official.¹³

Meanwhile, South Korea’s central bank is struggling with how to deal with the sanctions:

South Korea owes Iran’s central bank some \$5 billion for crude oil imports, but the money is trapped in its banking system because of the difficulty of sending money to Iran without falling foul of US sanctions.¹⁴

11. Michael Wines, “China Balks as Geithner Pressures China on Iran Curbs,” *New York Times*, January 11, 2012.

12. Takeo Kumagai, “Japan Seeks Exemption from US on Iran Sanctions: MITI Minister,” Platts on the Net, January 20, 2012.

13. “S Korea to Ask for US Understanding over Sanctions on Iran,” Platts on the Net, January 12, 2012.

14. Cho Mee-young, “South Korea Hikes Iran Crude Imports 20 pct in 2011,” Reuters, January 25, 2012.

Government energy policymakers and oil company officials in the three countries have not been quick to cooperate. The general response is that sanctions will not work. The oil industry in these nations apparently intends to ignore them for now. Most company executives indicated they had several months to prepare and were awaiting government instructions.¹⁵

India, another one of Iran's principal customers, has begun to take steps to address the US sanctions program. In the process, the country seems to be using its leverage over Iran to drive down crude prices. The Indian approach appears to acknowledge the threat of US sanctions against its central bank since India is terminating relationships with Iran's central bank. As an alternative, however, Iran is being offered the "opportunity" to open an account with a private bank in India. Indian firms would then deposit payments in rupees, the Indian currency, in those accounts for oil purchased from Iran. Vaijayanthi Chakravarthy, a Platts reporter, provided some details on this strategy:

An Indian delegation led by finance ministry officials with representatives from the Reserve Bank of India, foreign affairs ministry, and the oil ministry visited Tehran last week to try to work out a payment system.

Paying in rupees was one of the possible solutions discussed, according to an industry source who explained that Iran could open an account with an Indian bank and any payments can be made in rupees, which would also mean that Iran would earn interest.

*But India has a trade deficit with Iran, which makes it difficult to make payments in rupees. While India imports around \$12 billion worth of crude oil from Iran every year, Indian exports to Iran are slightly less than \$3 billion. Furthermore, the rupee is not a fully convertible currency.*¹⁶ [emphasis added]

In effect, the Indian action would force Iran to shift its trade from other countries such as Germany to India or take very large discounts on the crude it sells to India. No doubt oil buyers in other countries will seek similar relationships. In fact, there are clear indications that this is happening in Turkey.

Those with long memories will recognize the resemblance between Iran's current predicament and that faced by Iraq in

the mid-1990s. Iraq was subjected to extreme sanctions after its abortive invasion of Kuwait. Under a UN program, the country was allowed to sell oil to purchase food. However, Saddam Hussein sought to circumvent the sanctions to generate revenue for his own purposes. Oil was shipped out by truck and other methods to bring cash into the country, albeit at prices well below world levels.¹⁷

Conclusion

US and European sanctions will dramatically circumscribe Iran's market. Most of the country's customers in large industrialized nations in Europe, in Japan, and in South Korea will have to terminate or dramatically reduce crude purchases. Importers in China will also be required to cut back or engage in more convoluted arrangements that allow China's central bank to limit or end relations with Iran's central bank. As a consequence, Iran will sell less oil and be forced to accept very large discounts on volumes it does market.

In the next section I analyze the alternatives available to the world oil market. These include increased production from Saudi Arabia and other OPEC members. I then note in section III that changes in consumption patterns and increased North American crude production could facilitate oil sales from the US SPR, which, as noted above, holds more than 280 million surplus barrels.

II. OIL MARKET DYNAMICS: CAN SANCTIONS BE IMPOSED WITHOUT AFFECTING CRUDE PRICES?

Economic analysis of what effect the Iran sanctions will have is complicated. In theory, removing Iranian oil from the market should drive prices up—unless, of course, other countries raise output. Here as elsewhere, there is a huge gap between theory and reality. The sanctions could even cause prices to fall, possibly significantly. As explained in this section, prices could decline if the Iranian production affected by European and US sanctions goes to refiners in countries such as India, where it would sell for substantial discounts to world prices. These sales could in turn cause refiners in importing countries to boost production. The incremental product output would infiltrate the world market, reducing product prices and pulling crude prices down.

15. "Business as Usual for Asian Buyers of Iranian Crude," Platts, January 6, 2012.

16. Vaijayanthi Chakravarthy, "India Says 'To Tap Iran Fully,' on Oil, Respects Only UN Sanctions," *Platts Global Alert*, January 23, 2012.

17. See Paul A. Volcker, Richard J. Goldstone, and Mark Pieth, *The Management of the United Nations Oil for Food Programme*, volume I, September 2005. This report was done for the Independent Inquiry Committee into the United Nations Oil for Food Programme.

Thus, as I explain, the sanctions—combined with lower demand growth caused by the sharp slowdown in the US and EU economies—could decrease world crude prices significantly. What happens will depend on the market's evolution.

Understanding the Problem

Sanctions imposed on Iran will have two direct impacts. First, some oil that would have been sold by Iran into the world market will not be sold. Instead, it will be sterilized or left in the ground. Second, some of the oil Iran would have sold will still be sold but probably at a much lower price.

Whether the sanctions on Iran will affect the world market will hinge on seven factors: (1) the amount of oil Iran does not sell, (2) the amount of oil added to the market by other producers to offset the effect of sanctions on Iran, (3) the response of other producers to market opportunities created by sanctions, (4) the quality of the oil put into the market by other countries, (5) the response of the United States and other trading partners, (6) the actions taken by refiners in countries that buy Iranian oil at a discount, and (7) the ability of world refiners to adjust to changing crude slates.

Iran's Role in the World Market

The sanctions on Iran could remove roughly 1.5 million barrels per day from the world market if data published by the International Energy Agency (IEA) are correct. This number differs from the 3.5 million barrels per day cited in many reports.¹⁸ I calculate the 1.5 million barrels per day by subtracting Iran's internal consumption of two million barrels per day from its output. Table 1 summarizes the IEA estimates of Iranian crude production and consumption. The net, 1.5 million barrels per day, represents the amount Iran presumably sells.

It should be noted that this estimate is only an approximation. Iran produces 600,000 barrels per day of condensates and possibly 100,000 barrels per day of natural gas liquids, according to the Energy Intelligence Group. EIG experts have also noted that Iran's product imports declined recently from almost 200,000 barrels per day in 2006 to less than 50,000 barrels per day in 2012. After other adjustments, EIG puts Iran's crude exports at two million barrels per day.

The quality of this oil is on a par with crude exported by Saudi Arabia, Iraq, and other countries. Indeed, as can be

18. Details on Iran's participation in the world oil market are opaque, to say the least. Our solid information is limited to estimates of Iran's oil production and oil consumption. As noted on this page, Iran exchanges some volumes of crude oil exports for products, primarily with India and Turkey.

Table 1 Rough estimate of Iranian petroleum supply/demand balance, 2011 (million barrels per day)

	Q1	Q2	Q3	Q4
Crude oil production	3.63	3.65	3.53	3.55
Estimated petroleum consumption	2.09	2.05	2.04	2.04
Net exports	1.54	1.6	1.49	1.51

Source: International Energy Agency.

Table 2 Quality of crude oils produced in Iran and Saudi Arabia

Country	Crude	Volume (million barrels per day)	Sulfur content (percent)	Gravity (degrees)
Iran	Azadegan	40	32.00	34–38
	Doroud	120	2.90	32.8
	Froozan	350	2.30	30.1
	Iran Heavy	1,500	1.90	29.5
	Iran Light	1,600	1.36	33.4
Saudi Arabia	Arab Extra Light	1,450	1.07	39.5
	Arab Heavy	2,000	2.94	27.6
	Arab Light	6,200	1.83	33.0
	Arab Medium	1,200	2.56	30.5
	Arab Super Light	330	0.05	51.4

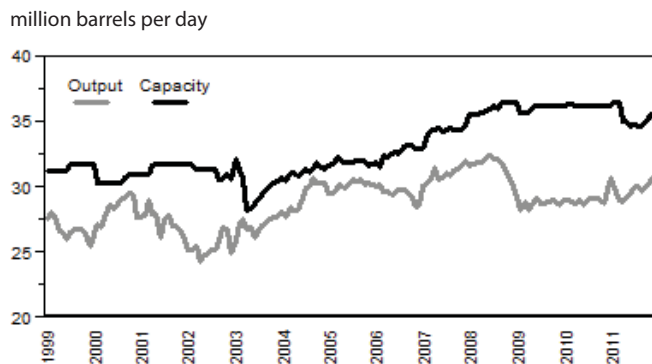
Source: Energy Intelligence Group, *International Crude Oil Market Handbook*, 2010.

seen from table 2, the crudes produced by Iran are not very different from those in other countries. This similarity implies that other producers can supply oil of like characteristics. As a result, the loss of Iranian crude should not threaten the world in the way the loss of sweet crude from Nigeria or Libya did in 2008 or 2011, assuming, of course, that other nations boost output to replace the loss.¹⁹ Data on OPEC productive capacity (see figure 1) suggest the organization has incremental capacity of five million barrels per day, more than enough to replace any reduction in Iranian exports.

The effect of sanctions on Iran can be seen in figures 1 and 2. As noted, figure 1 shows OPEC crude production and capacity. Figure 2 presents an estimate of OPEC surplus

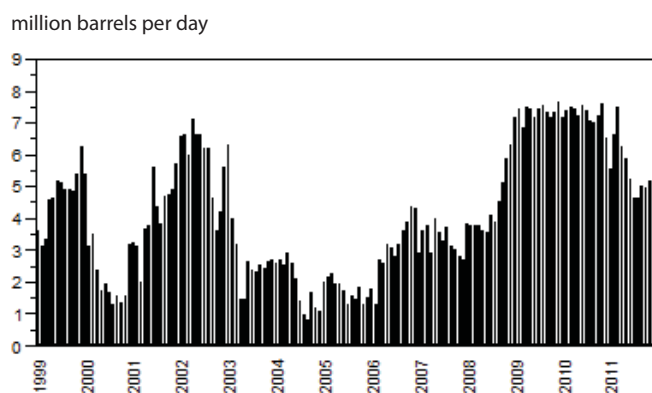
19. Philip K. Verleger, Jr., "Rising Crude Oil Prices: The Link to Environmental Regulations," *Business Economics* 36, no. 4: 239–48.

Figure 1 Monthly OPEC output vs. OPEC productive capacity, 1999–2011



Source: Energy Intelligence Goup.

Figure 2 Monthly OPEC surplus capacity, 1999–2011



Source: PKVerleger LLC.

capacity, measured as the difference between OPEC production and OPEC capacity. Clearly, OPEC’s surplus capacity is more than sufficient to offset a total loss of exports from Iran.

However, as noted in section I, Iran will likely continue to export volumes to some countries, particularly India and Turkey, where alternative (a.k.a. barter) payment schedules are being established. As a result, the sanctions will not cut Iranian exports completely. They will, however, reduce its export income dramatically.

Another effect of the sanctions imposed by Europe will be a change in the geographic distribution of Iranian crude. During the first six months of 2011, European countries imported almost 700,000 barrels per day of this oil, according to IEA data. EU members bought two-thirds of this volume (450,000 barrels per day) (see table 3). If new markets are not

Table 3 Iranian oil trade, first six months of 2011

Importing country	Volume (thousand barrels per day)	Percent of country's imports	Percent of Iran's exports
European Union	450		18
Italy	183	13	7
Spain	137	13	6
France	49	4	2
Greece	20	14	1
Germany	17	1	1
United Kingdom	11	1	0
Netherlands	33	2	1
Japan	341	10	14
South Korea	244	10	10
China	543	11	22
India	328	11	13
Turkey	182	51	7
South Africa	98	25	4
Sri Lanka	39	100	2
Taiwan	33	4	1

Source: US Department of Energy.

found for this crude, it will need to remain in the ground in Iran.

At the same time, refiners in EU countries must find crude oil to offset the lost volume. Libya will no doubt replace much of it. Libyan production has increased sharply since the end of the civil war, recently reaching more than one million barrels per day.

Europe’s adjustment may also be eased by the sudden closure of all three refineries owned by Petroplus, an independent refiner that had 670,000 barrels per day of refinery capacity in Europe at the end of December 2011. When European banks cut its credit lines, the firm was forced to cease all operations at these facilities by the end of January 2012, unexpectedly removing 300,000 barrels per day of refinery crude demand from the market. The Petroplus shutdown will cut European crude demand by an amount roughly equal to Iran’s shipments to Europe. As a result, the EU embargo may have no impact on European refiners.

Availability of Replacement Crude for Iranian Supplies

Should cuts in Iran’s crude exports threaten the global supply-and-demand balance, the world’s oil-exporting nations could replace the lost oil with relative ease. For example, Saudi

Arabian officials have said the Kingdom can produce 12.5 million barrels per day. Most authorities believe Saudi production is now roughly 10 million barrels per day.

Saudi Arabia has also indicated its willingness to boost production to keep pace with higher demand. Indeed, Ali Naimi, the country's oil minister, announced on January 15 that Saudi Aramco would meet increased demand, as Platts reported:

Saudi Arabia has total oil production capacity of 12.5 million b/d and is able to meet any increase in demand for crude oil from consuming countries, Oil Minister Ali Naimi was quoted as saying Sunday.

"We have confirmed our ability to do that and any doubts expressed by analysts about our capacity are incorrect," Naimi was quoted as saying by the Saudi *Alwatan* newspaper. At current capacity, the kingdom is able to "meet any increase in demand from consuming countries," Naimi added.

The Saudi minister spoke after signing an agreement Saturday with China's Sinopec for a 400,000 b/d joint venture refinery with Saudi Aramco to be located at Saudi Arabia's Red Sea port of Yanbu.²⁰

Naimi elaborated on his views in an interview with CNN on January 16. Speaking with correspondent John Deferios, he said the country was producing between 9.4 million and 9.8 million barrels per day and then added, "I believe we can easily get up to 11.4, 11.8 almost immediately, in a few days. Because all we need is to turn valves. Now to get to the next 700 (thousand) or so, we probably need about 90 days."²¹

Libya will also boost oil output in 2012, as mentioned above. Civil war in that country limited its 2011 production, which fell to 40,000 barrels per day in the third quarter of last year but is now expected to rise above one million barrels per day in 2012. Indeed, Bloomberg reported that Libyan production had reached 1.3 million barrels per day in January 2012.

The increased volumes from Libya and Saudi Arabia will almost certainly satisfy global petroleum demand through 2012 when added to the projected output of all other producers. Indeed, it would be very difficult to argue that total elimination of Iran's net exports of 1.5 million barrels per day

would affect markets as long as other producers continued at the expected level.²²

The decline in European demand for crude oil, combined with increased Libyan production, addresses any deficit in European crude requirements caused by sanctions on Iran. The situation in Asia, though, could be different. Referring to table 3 again, one observes that Asian buyers jointly acquire one million barrels per day from Iran, with China being the largest purchaser. Furthermore, Asian imports of Iranian crude have been rising. For example, China imported 555,000 barrels per day from Iran between January and December 2011, up from an estimated 388,000 barrels per day in 2010. This rise was no doubt tied to Iran's favorable pricing.

The US sanctions, which take effect June 30, will require China to cut imports substantially to avoid confrontation with the United States, establish alternative barter-type arrangements such as India's, or find another crude source. South Korea and China face the same need. Saudi Arabia's offer of increased production provides a way for these countries to buy less from Iran.

Exercise of Market Power by Other Producers

In the past, some oil exporters have used market disruptions to push oil prices higher. On occasion, for example, exports from Nigeria have unexpectedly declined just when the oil was most needed. Generally, the producing countries attribute such reductions to "accidents." However, these events have a peculiar way of occurring at the most opportune times.

The last example of such exercise of market power came in 2008 when Nigerian output just happened to decrease as Atlantic Basin refiners desperately searched for sweet crude. The loss of Nigerian production was a primary contributor to the crude price rise from \$70 to \$125 per barrel between August 2007 and June 2008. At the time, the production decline was attributed to civil unrest in Nigeria. We will likely never know, though, whether it occurred from this discord alone or if other factors were involved.

The imposition of new EU and US sanctions on Iran will provide further opportunity for an oil-exporting country to exercise market power. Venezuela or Nigeria, for example, might cut production in an effort to push prices higher. However, changes in the refining industry reduce the probability of success for such actions. These changes include the closure of more than one million barrels per day of refining

20. Kate Dourian, "Saudi Arabia Is Able to Meet Increased Demand for Oil: Naimi," Platts on the Net, January 15, 2012.

21. John Deferios, "Saudi Arabia Is Ready to Turn Valves," CNN Business360 Global Exchange, January 16, 2012.

22. "Libya Oil Output Climbs to 1.3 mln bpd – NOC Statement," Bloomberg, January 26, 2012.

Table 4 Refinery closures announced since September 2, 2011

Refinery	Capacity (thousand barrels per day)
Sunoco Marcus Hook	170
Sunoco Philadelphia	330
Conoco Trainer	185
Petroplus Petit-Couronne (France)	162
Petroplus Antwerp (Belgium)	108
Petroplus Cressier (Switzerland)	68
Hess Virgin Islands	350
Total	1,373

Source: Various industry sources.

capacity in the Atlantic Basin and the imminent opening of the large Saudi/Shell facility in Port Arthur, Texas.

The refinery closures, summarized in table 4, have removed many of the oldest refineries that, due to tightening environmental regulations, could buy only the lightest, sweetest crude oils. Their closing has led to a sharp decline in the premium offered for the best-quality Nigerian crudes relative to Brent and a decline in the premium offered for Brent compared with Dubai crude. These shutdowns greatly reduce the scope of market power once enjoyed by Nigeria. In effect, crude oil has become more homogenous.

The completion of Motiva's enormous refinery rebuild in Port Arthur, a 50-50 joint venture between Saudi Aramco and Royal Dutch Shell, will further reduce producer market power. This facility will be able to process almost any crude into a high percentage of the light products in greatest demand, especially diesel.

Crude Quality Issues

Sanctions imposed on Iran could remove as much as two million barrels per day of Middle Eastern crude. Much of the oil lost to buyers in China, South Korea, and Japan—if it is lost—will be Iranian light crude. This crude has a gravity of 33 degrees and sulfur content of 1.83 percent (see table 2). The replacement crude offered to these buyers by Saudi Arabia may be Arab Heavy, which has a gravity of 27.6 degrees and sulfur content of 2.94 percent (again, see table 2).

The heavier crude could pose problems for some refiners because it will yield less gasoil and the product will contain more sulfur. Refiners with sufficient desulfurization capacity will be able to cope. Some others, however, may face problems.

In the past, this issue of crude quality would have been serious. However, the recent shutdown of refining capacity noted above will make additional light sweet crude available. Those refiners with outmoded facilities should be able to blend this crude into the heavier Saudi oil and resolve their difficulties. Again, the increased homogeneity of crude resulting from refinery closures will make adjustment much easier.

Response of the United States and Its Trading Partners

The US government's response to actions its trading partners—particularly China, South Korea, and Japan—take in reaction to the Iran sanctions will also influence price movements. Chinese officials have made their objections known to the US government. They are not likely to flaunt their displeasure, though, for fear of giving the United States a chance to close financial links and thus impose a large, indirect tax on their imports. Instead, China will likely reduce imports from Iran and ask the United States for an "exemption" as defined under the law. South Korea and Japan will probably follow suit.

Thus, one can expect lower exports of Iranian crude to these countries but almost certainly not a total cessation of oil flows. The continued exports will moderate any upward pressure on prices.

Actions Taken by Refiners Obtaining Iranian Barter Oil

The impact of sanctions on prices will also depend on the ability of refiners purchasing oil from Iran under barter arrangements to move the resulting products onto the world market. One can envision large Indian refiners absorbing significant volumes of Iranian crude purchased at a large discount. These refiners could then offer their products to global markets at a steep markdown, effectively depressing all prices.

Asian product buyers would see the greatest benefits of this initially. In time, though, the product discounting could have spillover effects on crude markets, first in Asia and then the Atlantic Basin. It is hard to know whether this type of discounting will occur. It is also hard to know how much product derived from discounted Iranian crude might hit the market.

Clearly the company to watch here is Reliance, the giant Indian refiner. Reliance could in theory purchase Iranian crude and export products. This would represent a reversal of recent actions, though, and could expose the firm to sanctions. In fact, Reliance terminated a prior relationship where it

Table 5 IMF forecasts of 2012–13 global growth and 2012–13 growth in selected countries made in September 2011 and January 2012 (percent change from previous year)

Country	September 2011 forecast for 2012	January 2012 forecast for 2012	Change	September 2011 forecast for 2013	January 2012 forecast for 2013	Change
World	4	3.3	-0.7	4.5	3.9	-0.6
Advanced economies	1.9	1.2	-0.7	2.4	1.9	-0.5
United States	1.8	1.8	0	2.5	2.2	-0.3
Europe	1.3	-0.5	-1.8	1.5	0.8	-0.7
Germany	1.3	0.3	-1.0	1.5	1.5	0
France	1.4	0.2	-1.2	1.9	1	-0.9
Italy	0.3	-2.2	-2.5	0.3	-0.8	-1.1
Spain	1.1	-1.7	-2.8	1.8	-0.3	-2.1
Japan	2.3	1.7	-0.6	2	1.6	-0.4
United Kingdom	1.8	0.8	-1.0	2.4	2	-0.4
Canada	1.9	1.7	-0.2	2.5	2	-0.5
Emerging-market and developing economies	6.1	5.4	-0.7	6.5	5.9	-0.6
Russia	4.1	3.3	-0.8	4	3.5	-0.5
China	9	8.2	-0.8	9.5	8.8	-0.7
India	7.5	7	-0.5	8.1	7.3	-0.8
Brazil	3.6	3	-0.6	4.2	4	-0.2
Mexico	3.6	3.5	-0.1	3.7	3.5	-0.2

Source: International Monetary Fund.

purchased up to 100,000 barrels per day of Iranian crude and sold gasoline back to Iran.²³

Given the strong support for the Iran sanctions in most countries, I doubt that any refiner will engage openly in such action. However, some products refined from cheap oil may leak into the market and put direct or indirect downward pressure on crude prices.

Importance of Global Economic Developments

Finally, the impact of the Iran sanctions will reflect developments in the global economy. The effect of any market disruption—whether by natural disaster, war, revolution, or economic policy—depends on economic circumstances at the time. The imposition of sanctions in 2006 or early 2007, a time of rapid global economic growth, would have caused very large oil price increases. Economic conditions today, though, are very different. The world economy is recovering

slowly from the Great Recession. New obstacles to the comeback seem to appear every day, the latest being the inability of European governments to cope with their financial woes. The IMF recently acknowledged this reality, cutting its projection for global growth in 2012 from 4 to 3.3 percent and from 4.5 to 3.9 percent for 2013. Europe's problems are the primary justification for the revision. IMF economists now foresee a contraction in Europe of -0.5 percent in 2012 as opposed to growth of 1.3 percent projected only a few months ago.²⁴

Even emerging-market and developing economies are affected by the slowdown. The IMF cut its 2012 growth projection for China to 8.2 percent from 9 percent and for Brazil from 3.6 to 3 percent. Table 5 presents a more detailed list of IMF forecasts.

One should expect further downward revisions given recent economic developments and the proclivity of forecasts to underestimate rates of decline and expansion. Global

23. Christine Forster, "India's HPCL to Double Iranian Imports amid Iran Sanctions: Report," Platts on the Net, January 10, 2012.

24. International Monetary Fund, *World Economic Outlook Update*, January 24, 2012.

growth in 2012 will probably fall between 2 and 2.5 percent, well short of the current 3.3 percent forecast.

Slower growth will affect global oil consumption and demand for OPEC exports. In July 2011, IEA economists projected 2012 world oil consumption at 91 million barrels per day. This forecast has already been revised to 90 million barrels a day. Further changes are likely. On present trend, global oil use will probably decline in 2012 from the 89 million barrels per day level achieved in 2011 to 88 million barrels per day.²⁵

... sanctions imposed by the European Union and the United States on Iran should have no impact on oil prices.

Given the global oil market structure, the lower consumption forecasts will lead directly to cuts in the projected “call on OPEC,” which is the amount of oil OPEC would have to supply to meet the global consumption share not covered by output from other countries. In July 2011, the IEA projected the “call” at 30.7 million barrels per day. The most recent forecast cuts this to 30 million barrels per day. The reduction reflects a decline in projected consumption offset to an extent by a decline in projected non-OPEC production.

One should expect the “call” to be reduced further. In fact, the world’s requirement from OPEC could fall by at least the amount of Iranian exports, if not more.

Conclusion: No Price Impact from Sanctions

I conclude, then, that sanctions imposed by the European Union and the United States on Iran should have no impact on oil prices. This occurs because Iran is a relatively small exporter of crude, probably selling no more than two million barrels a day. These sales can be offset by increased production from other countries, particularly Saudi Arabia.

The geographical balance of Iran’s exports could cause some difficulties, however, especially since the European Union has prohibited imports from Iran entirely after June 30. The effect of this ban, which will eliminate almost 500,000 barrels per day of supply to Europe, is offset by the closure of more than 300,000 barrels per day of EU refining capacity and the resumption of Libyan production. Europe should not be affected by the imposition of sanctions.

The situation in Asia could be different. China, Japan, and South Korea collectively import one million barrels per day of Iranian crude. Refiners there will no doubt be able to purchase replacement crude. However, those crudes may not be perfectly suited for their facilities. The mismatch could lead to price increases. On the other hand, the global economic malaise will probably make it possible to address any mismatch easily. In particular, the economic slowdown in Europe will reduce global oil consumption, facilitating adjustment.

The world, in short, can live without Iranian crude in 2012 and probably 2013.

III. USE OF SURPLUS SPR STOCKS TO MODERATE PRICE INCREASES

US sanctions on foreign central banks doing business with Iran’s central bank are among the most draconian in recent years. The sanctions constitute a very big “stick.” However, the United States also has an enormous “carrot” to offer countries that work aggressively to lower imports from Iran: excess SPR crude. By my calculation, the United States had 276,394,000 surplus barrels in the SPR as of October 31, 2011. The United States could sell some of this oil—perhaps 500,000 barrels per day for up to 18 months if the United States acted alone—to countries importing oil from Iran that work to reduce those volumes by purchasing crude from other sources.

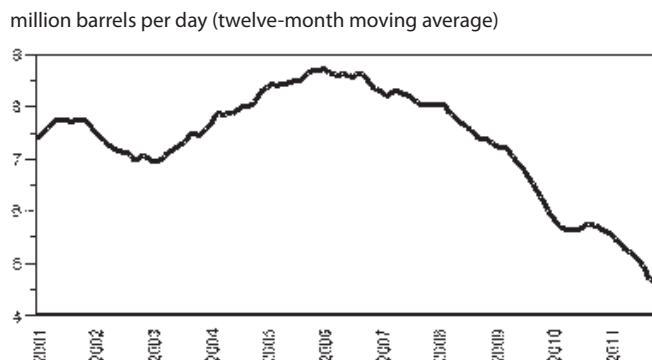
The success of this strategy would reduce Iran’s oil export revenues from roughly \$60 billion to \$70 billion in 2011 to less than \$20 billion in 2012. No doubt Iran would still sell oil at large discounts to countries such as India, but its income would be drastically lower.

The United States can offer this help because changing circumstances have left the nation with excessive strategic reserves. Under the Agreement on an International Energy Program (IEP Agreement), the United States and other signatories pledged to build strategic stocks equal to 90 days of net imports. Declining consumption and increased production have reduced the United States’ IEP Agreement obligation. The US requirement peaked in May 2008 at 785 million barrels, a figure calculated by multiplying US monthly net imports by 90. Figure 3 shows my estimate of US monthly net imports for 2000 to 2011. For descriptive purposes, the data have been smoothed using a twelve-month moving average.

I note here that the imports shown in figure 3 exclude volumes from Mexico and Canada. There are two reasons for this adjustment. First, Canada and Mexico are IEP Agreement signatories. Second, in Canada’s case, its oil has no other place to go. Regarding Mexico, most of the country’s oil is unique and can be processed only in a few refineries. The primary

25. IEA, *Oil Market Report*, July 2011 and January 2012.

Figure 3 US net crude oil and product imports excluding Canada and Mexico, monthly data, 2001–11



Source: US Department of Energy.

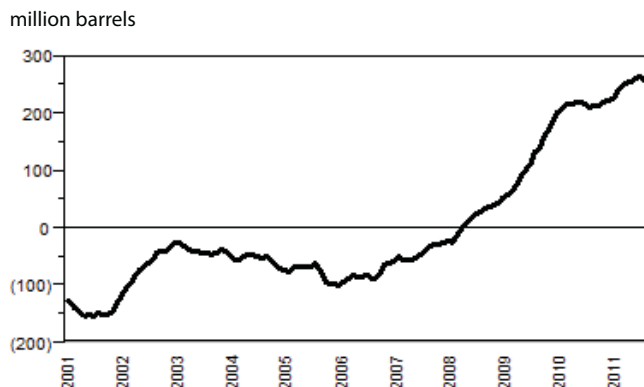
facility for this is jointly owned by Mexico and Shell and located in Houston. That refinery processes the crude and returns a large portion of the products to Mexico.

In the future, this situation may change. Canadian government officials have reacted to President Obama’s rejection of the Keystone Pipeline by pursuing a western export option. This would take oil from Alberta west to British Columbia for shipment to China. The idea faces numerous legal hurdles, however, not the least of which is opposition from one hundred sovereign First Nation bands that enjoy much greater autonomy in Canada than Native Americans do in the United States.²⁶ Moreover, hearings scheduled to last more than a year on the alternative project, dubbed “Northern Gateway,” began only in January 2012. This suggests that the flow of Canadian oil to the United States will increase steadily until 2015 or perhaps even 2017.

As can be seen from figure 3, US net imports, excluding Canada and Mexico, have declined almost 50 percent from a peak of 8.5 million barrels per day in May 2005 to 4.6 million barrels per day in October 2011. Many experts expect imports to decrease further as production from shale formations in Texas and South Dakota rises and consumption falls. (While

26. “First Nations” is the term used by the citizens of Canada to describe the aboriginal groups that settled North America long before explorers from the United Kingdom, Denmark, and Spain first set foot on the North American continent. These native organizations enjoy protection under the Canadian Constitution as independent countries. They have the power to block the construction of pipelines across their lands. Today, they could effectively block the construction of a new pipeline by virtue of their ownership of lands in western Alberta and eastern British Columbia.

Figure 4 US surplus strategic stocks, monthly, 2001–11



Source: PKVerleger LLC.

premature, a *Wall Street Journal* article has celebrated the United States’ emergence as a net fuel exporter.²⁷)

The decline in US net imports frees up significant amounts of SPR stocks. According to my calculations, the United States had 50 million surplus barrels in January 2009, 200 million barrels in January 2010, and 225 million barrels in January 2011. This number may be up to 300 million barrels now. Figure 4 traces the growth in strategic barrels.

The surplus SPR barrels should be used “strategically” to tighten sanctions on Iran. Specifically, the United States could negotiate with countries importing oil from Iran to replace one-third of those imports with oil sourced from other countries. Those that achieve this goal would be allowed to purchase an equal volume from the SPR. If done correctly, this strategy would cut Iran’s net oil exports from 1.5 million barrels per day to 500,000 barrels per day. This would also reduce Iran’s income from oil exports to less than \$20 billion per year.

The sales proposed here could also make it easier for EU members to sustain their sanctions should they encounter difficulty in procuring crude. (The analysis in the previous section suggests, though, that Europe should experience no problems.) European nations, as of this writing, hold stocks covering only 30 days of imports. By comparison, US stocks covered 173 days of net imports at the end of October 2011. Europe should recognize the enormous advantage enjoyed by the United States and seek additional US support for its sanctions program.

27. Liam Pleven and Russell Gould, “US Nears Milestone: Net Fuel Exporter,” *Wall Street Journal*, November 30, 2011.

The primary beneficiaries of offers of US strategic stocks will be China, India, Japan, South Korea, and Turkey. Of the five countries, India and Turkey will no doubt have little interest. Firms in Turkey have already established a means of transacting business with Iran without involving Turkey's central bank. These companies will likely seize the opportunity to squeeze Iran for discounts as other customers reduce purchases. There is very little the United States can do to stop such transactions. As noted earlier, oil firms in India will probably take the same path.

The situation for China, Japan, and South Korea is different. These countries are large importers of Iranian crude. Their manufacturers also produce the types of industrial goods that Iran's nuclear program craves. Their refiners may also prefer lighter crude oils to the heavy types that may be offered as substitutes. It is essential that such firms not be allowed to establish barter arrangements that circumvent US sanctions. Sales of limited volumes of the crude required by refiners in these three countries could encourage complete cooperation by each.

IV. CONCLUSION

The United States and Europe have introduced new, draconian sanctions designed to prevent Iran from earning money from its crude oil exports. The sanctions will affect most oil-importing countries. They need not, however, pose problems for oil importers because OPEC has substantial surplus productive capacity. Furthermore, global oil use will likely remain at current levels or decline due to Europe's economic problems. Thus the sanctions should not affect world oil prices.

The United States can help moderate any market difficulties by selling oil from its strategic reserve, which now holds far more oil than required by treaty obligations. This strategic use of the SPR will increase the effectiveness of sanctions on Iran and ease the adjustment difficulties that confront US allies. The sales might also reduce any price pressure caused by removal of light Iranian crude from the market.

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