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THE MYTH OR REALITY OF US ENERGY INDEPENDENCE

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US "independence" from energy imports has been a key source of political dispute ever since the October War in 1973 and the Arab oil embargo that followed. Much of this debate has ignored or misstated the nature of the data available on what the US options are, as well as the uncertainties involved in making any long range projections.

This situation has become more critical during the last year as it becomes increasingly apparent that the US has far more commercially exploitable oil and gas reserves than most previous estimates have indicated. Some estimates go so far as to project the US could actually become an energy exporter in the future.

Keeping US "Energy Independence" in Perspective

There is every reason to develop US domestic energy resources, and to explore the degree to which the US can cost-effectively reduce its dependence on imports, while carefully considering the longer-term impact of such measures in depleting US supplies for the future. There are also highly respected US analysts who believe that the US can virtually eliminate imports at some point between 2020 and 2030, under best case assumptions.

Such estimates should, however, be kept in perspective. They do not affect the US near-term dependence on direct energy imports for at least the next decade, even under the most optimistic assumptions. These estimates do not affect the fact the US must pay world oil prices in an energy crisis, nor do they take into consideration the fact the US is dependent on the health of a broader global economy that is becoming steadily more dependent on the security Gulf energy exports.

In fact, accurate estimates on the true nature of US import dependence should include metrics of how much oil and other energy America imports from Europe and Asia that are directly dependent on Gulf and other MENA oil and gas exports. Moreover, these estimates do not adequately consider the wisdom of a "deplete America first" approach to oil and gas procurement.

US "Energy Independence" and the Strategic Challenge in the Gulf

These are critical issues and come at a time when the US must make hard strategic and budgetary considerations. The US is faced with tough choices considering cuts in military spending, at the same time as the US-Iranian military and security competition is intensifying in what may lead to a regional war, and the Gulf faces Iranian threats to close the Strait of Hormuz. Iran's nuclear programs and Iran's reactions to sanctions and preventive strikes are only part of the risks involved. The steady growth of Iran's capabilities for asymmetric warfare illustrate its growing willingness to threaten or attack US, Arab Gulf, and European interests – the most important of which is the flow of Gulf petroleum exports to the global economy.

It is important to stress that Iran can threaten this traffic at many points inside the Gulf, throughout the Strait of Hormuz, and in the Gulf of Oman. The Strait, however, does force all shipping activity to move through a very narrow target area both in the Straits and on either side, particularly in the areas where the shipping channels pass by Iranian-held islands to the west of the Strait.

The Strait is deep and wide enough to handle the world's largest crude oil tankers, with about two-thirds of oil shipments carried by tankers in excess of 150,000 deadweight tons. At its narrowest point, however, the Strait is 21 miles wide, but the width of the shipping lane in either direction is only two miles, separated by a two-mile buffer zone.

The Energy Information Agency report notes that,[1]

> Closure of the Strait of Hormuz would require the use of longer alternate routes at increased transportation costs. Alternate routes include the 745 mile long Petroline, also known as the East-West Pipeline, across Saudi Arabia from Abqaiq to the Red Sea. The East-West Pipeline has a nameplate capacity of about 5 million bbl/d. The Abqaiq-Yanbu natural gas liquids pipeline, which runs parallel to the Petroline to the Red Sea, has a 290,000-bbl/d capacity. Additional oil could also be pumped north via the Iraq-Turkey pipeline to the port of Ceyhan on the Mediterranean Sea, but volumes have been limited by the closure of the Strategic pipeline linking north and south Iraq.

US Energy Dependence and the Gulf

It is not the security of Strait alone that is of such vital strategic importance to the US and the West, but rather its impact on the secure flow of all petroleum exports to the US and Global economy and its impact on world oil prices. Iran can attack or impede this flow from anywhere within the Gulf, and can terrify captains and shipping companies with only a few attacks. Moreover, there is little near to mid-term possibility that the world's dependence on the Strait will be reduced to any meaningful sense. Iraq has sought to

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[1] DOE/EIA, "World Oil Transit Chokepoints," December 30, 2011, http://www.eia.gov/cabs/world_oil_transit_chokepoints/full.html.

negotiate an agreement with Turkey to extend the operation of the 1.6 million barrels per day pipeline, as well as to upgrade its capacity by 1 million barrels per day.

There is no question about US strategic dependence in the near to mid-term. While the volume of Gulf exports varies according to demand and the state of the global economy, the US Energy Information Agency estimated in January 2011 that the Strait of Hormuz, which is located between Oman and Iran, is the world's most important oil chokepoint. Some 15.5 to 17 million barrels a day have flowed through the Strait to world markets in recent years, or some 30% of global petroleum exports. This has been 33% to 40% of all seaborne traded oil, and some 17% of all oil traded worldwide – and these percentages ignore a substantial trade in liquefied natural gas.[2]

In a similar report issued in January 2012, the Energy Information Agency of the US Department of Energy reported that a daily oil flow of almost 17 million barrels moved through the Strait of Hormuz in 2011, up from between 15.5-16.0 million barrels a day in 2009-2010. On average, 14 crude oil tankers per day passed through the Strait in 2011, with a corresponding amount of empty tankers entering to pick up new cargos. More than 85 percent of these crude oil exports went to Asian markets, with Japan, India, South Korea, and China representing the largest destinations.[3]

Saudi Arabia can export another 4.5 million barrels a day of crude and 2 million barrels a day of natural gas liquids and products through the Yanbu' terminal on the Red Sea, but this pipeline is already in use and does not represent surplus capacity. Iraq has one major crude oil export pipeline, the Kirkuk-Ceyhan (Iraq-Turkey) pipeline, which transports oil from the north of Iraq to the Turkish Mediterranean port of Ceyhan. This pipeline has a capacity of around 300,000 barrels a day, but has been subject to repeated disruptions this decade, limiting exports from the northern fields.

The United Arab Emirates is also completing an Abu Dhabi Crude Oil Pipeline with a capacity of the 1.5 million barrels per day that will cross the emirate of Abu Dhabi and end at the port of Fujairah just south of the Strait. Other alternate routes could include the deactivated 1.65 million barrels a day Iraqi Pipeline across Saudi Arabia (IPSA), and the deactivated 0.5 million barrels a day TAPLINE to Lebanon. [4]

The effect of such changes, however, will be limited even when they are complete and will be largely offset by future increases in Gulf exports. Both the US EIA and International Energy Agency estimate there will be a steady increase in Gulf production capacity through 2030 – rising from some 25 million barrels a day of capacity in 2008 to some 35 million in 2035. The EIA report on the *International Energy Outlook* for 2010 estimates that Gulf oil production capacity will rise from 28 of the world total today to 31%

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[2] DOE/EIA, "World Oil Transit Chokepoints," December 30, 2011, http://www.eia.gov/cabs/world_oil_transit_chokepoints/full.html.

[3] DOE/EIA, "World Oil Transit Chokepoints," December 30, 2011, http://www.eia.gov/cabs/world_oil_transit_chokepoints/full.html.

[4] :DOE/EIA, "World Oil Transit Chokepoints," December 30, 2011, http://www.eia.gov/cabs/world_oil_transit_chokepoints/full.html.

in 2035 and do so in spite of major increases in production in other areas and in liquids from alternative fuels.[5]

Iraq has signed an agreement with Turkey to extend the operation of the 1.6 million barrels per day pipeline, as well as to upgrade its capacity by 1 million barrels per day. This will add a total additional capacity of over 7 million barrels per day to the flow through the Strait of Hormuz. However, such pipeline expansions take significant time, and construction will likely take years from start to finish even if sanctions do not intervene.

Official Estimates of US Strategic Dependence on Oil Imports

In the short to mid term, it is equally critical to point out that the US Energy Information Agency (EIA) of the Department of Energy has just issued a new estimate of US import dependence that shows continued US strategic dependence on oil imports to 2040 – and that this dependence will begin to increase again after 2030.

Anyone can make back of the envelope calculations, or provide their own estimates, but only a few organizations have the resources to model US supply and demand and the EIA is the leader in the field. These estimates are shown in **Figure One** and **Figure Two**.

Figure One shows that the EIA estimate indicates the decline in US oil and energy liquids imports will still leave the US strategic dependent on imports and the security of world oil flows through 2040. The EIA Annual Energy Forecast for 2013 states that, [6]

> U.S. dependence on imported liquid fuels continues to decline in the *AEO2013* Reference case, primarily as a result of increased domestic oil production. Imported liquid fuels as a share of total U.S. liquid fuel use reached 60 percent in 2005 before dipping below 50 percent in 2010 and falling further to 45 percent in 2011. The import share continues to decline to 34 percent in 2019 and then rises to about 37 percent in 2040, due to a decline in domestic production of tight oil that begins in about 2021 (Figure 11).

Such estimates are uncertain and conflict with other reporting. The EIA report is partially contradicted by a report from the International Energy Agency (IEA) that indicates the US might be a net exporter of natural gas by 2020 and become self-sufficient in terms of its net energy needs by 2035. These IEA data draw on estimates of the impact on US energy supply of recent improvements in drilling technique that allow the US to access first shale gas and later harder-to-reach oil deposits, along with gradual increases in efficiency and renewable energy generation.[7]

The Executive Summary to the IEA report states that,[8]

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[5] US Energy Information Administration, "International Energy Outlook 2010." July 2010. ftp://ftp.eia.doe.gov/forecasting/0484%282010%29.pdf

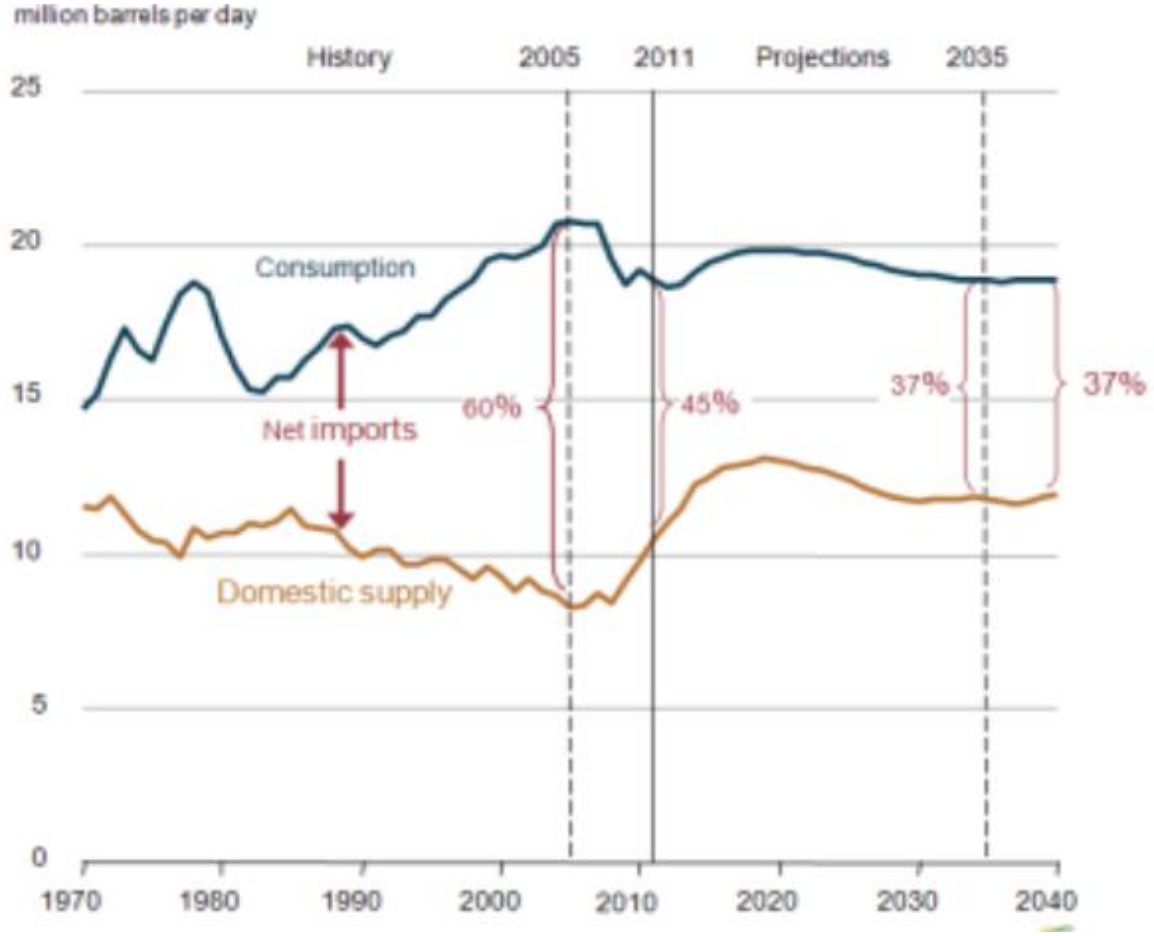
[6]

[7] "North America Leads Shift in Global Energy Balance, IEA Says in Latest World Energy Outlook," IEA, November 12, 2012. http://www.iea.org/newsroomandevents/pressreleases/2012/november/name,33015,en.html

[8] Executive summary, World Energy Outlook, IEA, Paris, November 2012, p. 1, http://www.worldenergyoutlook.org/publications/weo-2012/#d.en.26099

The recent rebound in US oil and gas production, driven by upstream technologies that are unlocking light tight oil and shale gas resources, is spurring economic activity – with less expensive gas and electricity prices giving industry a competitive edge – and steadily changing the role of North America in global energy trade. By around 2020, the United States is projected to become the largest global oil producer (overtaking Saudi Arabia until the mid-2020s) and starts to see the impact of new fuel-efficiency measures in transport. The result is a continued fall in US oil imports, to the extent that North America becomes a net oil exporter around 2030. This accelerates the switch in direction of international oil trade towards Asia, putting a focus on the security of the strategic routes that bring Middle East oil to Asian markets.

Figure One: Estimated US Dependence on Petroleum Imports: 2010-2040 – Part One



Source: US Energy Information Administration, *Annual Energy Outlook 2013 Early Release Overview*, Table A11, EIA/DOE, December 2012, http://www.eia.gov/forecasts/aeo/er/pdf/tbla11.pdf., and Figure 10, http://www.eia.gov/forecasts/aeo/er/early_production.cfm.

Figure One: Estimated US Dependence on Petroleum Imports: 2010-2040 – Part Two

(million barrels per day, unless otherwise noted)

Supply and disposition	Reference case							Annual growth 2011-2040 (percent)
	2010	2011	2020	2025	2030	2035	2040	
Crude oil								
Domestic crude production[1]	5.47	5.67	7.47	6.79	6.30	6.26	6.13	0.3%
Alaska	0.60	0.57	0.49	0.35	0.38	0.35	0.41	-1.1%
Lower 48 states	4.88	5.10	6.98	6.44	5.92	5.91	5.72	0.4%
Net imports	9.17	8.89	6.82	7.05	7.36	7.37	7.57	-0.6%
Gross imports	9.21	8.94	6.82	7.05	7.36	7.37	7.57	-0.6%
Exports	0.04	0.05	0.00	0.00	0.00	0.00	0.00	- -
Other crude supply[2]	0.07	0.26	0.00	0.00	0.00	0.00	0.00	- -
Total crude supply	**14.72**	**14.81**	**14.29**	**13.84**	**13.66**	**13.63**	**13.70**	**-0.3%**
Other petroleum supply	**3.41**	**3.02**	**4.04**	**4.12**	**3.82**	**3.57**	**3.29**	**0.3%**
Natural gas plant liquids	2.07	2.22	3.13	3.17	2.90	2.91	2.92	1.0%
Net product imports	0.29	-0.30	-0.13	-0.04	-0.08	-0.37	-0.67	2.7%
Gross refined product imports[3]	1.23	1.15	1.47	1.50	1.53	1.50	1.42	0.7%
Unfinished oil imports	0.61	0.69	0.56	0.53	0.51	0.48	0.45	-1.5%
Blending component imports	0.74	0.72	0.63	0.59	0.54	0.48	0.40	-2.0%
Exports	2.29	2.86	2.79	2.66	2.67	2.84	2.94	0.1%
Refinery processing gain[4]	1.07	1.08	1.04	0.99	1.00	1.02	1.03	-0.1%
Product stock withdrawal	-0.03	0.03	0.00	0.00	0.00	0.00	0.00	- -
Other non-petroleum supply	**1.03**	**1.09**	**1.51**	**1.55**	**1.58**	**1.68**	**1.97**	**2.1%**
Supply from renewable sources	0.86	0.90	1.18	1.15	1.14	1.19	1.43	1.6%
Ethanol	0.84	0.84	1.08	1.04	0.99	0.96	0.97	0.5%
Domestic production	0.87	0.91	1.01	0.98	0.95	0.91	0.89	-0.1%
Net imports	-0.02	-0.07	0.07	0.06	0.04	0.05	0.08	- -
Biodiesel	0.02	0.06	0.08	0.08	0.08	0.08	0.08	1.0%
Domestic production	0.02	0.06	0.07	0.07	0.07	0.07	0.07	0.4%
Net imports	-0.01	-0.00	0.01	0.01	0.01	0.01	0.01	- -
Other biomass-derived liquids[5]	0.00	0.00	0.02	0.03	0.06	0.14	0.38	21.6%
Liquids from gas	0.00	0.00	0.08	0.10	0.13	0.16	0.20	- -
Liquids from coal	0.00	0.00	0.00	0.03	0.04	0.05	0.06	- -
Other[6]	0.17	0.18	0.25	0.26	0.28	0.28	0.28	1.5%
Total primary supply[r]	**19.16**	**18.92**	**19.84**	**19.50**	**19.06**	**18.88**	**18.96**	**0.0%**

Source: US Energy Information Administration, *Annual Energy Outlook 2013 Early Release Overview*, Table A11, EIA/DOE, December 2012, http://www.eia.gov/forecasts/aeo/er/pdf/tbla11.pdf., and Figure 10, http://www.eia.gov/forecasts/aeo/er/early_production.cfm.

The IEA projections are far more optimistic than the EIA projections, however, and even if these predictions prove accurate this will not affect the critical impact of any Iranian threat to world energy exports for the next decade. Like wheat and other global commodities, the strategic importance of oil exports is not dependent on whether petroleum goes from one nation to another at any given time, but rather it is dependent on the supply of the overall global market and balance of supply and demand.

The Growing Dependence of the World (and US) Economy on Gulf Oil Exports Regardless of US Oil Production

Both the EIA and IEA agree that the world economy will become steadily more dependent on Gulf energy exports through 2035-2040. And once again, it must be stressed that as the US pays world oil prices, it is steadily more dependent on the health of the global economy. Additionally, the US is a massive indirect importer of Gulf and MENA oil through its imports of Asia and other manufactured goods – imports that remain dependent on energy from this region not calculated by either EIA or IEA.

The US Energy Information Agency estimate for 2013 is shown in **Figure Two.** It indicates there will be a steady increase in a Gulf-dominated OPEC production capacity through 2040 – rising from some 25 million barrels a day of capacity in 2008 to some 37 million in 2040. While the 2013 forecast only shows the total for Middle East OEC, it does not materially differ from the earlier EIA *International Energy Outlook* for 2010 estimated that Gulf oil production capacity will rise from 28% of the world total today to 31% in 2035 and do so in spite of major increases in production in other areas and alternative fuels.

The Executive Summary of the IEA report a notes that global energy demand for oil exports will rise steadily in spite of any shifts in North American – China will increase its use of oil by as much ass 66% between 2011 and 2030 and India will increase dependence by more than 100%. Moreover, the world will become even more dependent on the Gulf after 2020, [9]

> Growth in oil consumption in emerging economies, particularly for transport in China, India and the Middle East, more than outweighs reduced demand in the OECD, pushing oil use steadily higher in the New Policies Scenario. Oil demand reaches 99.7 mb/d in 2035, up from 87.4 mb/d in 2011, and the average IEA crude oil import price rises to $125/barrel (in year-2011 dollars) in 2035 (over $215/barrel in nominal terms). The transport sector already accounts for over half of global oil consumption, and this share increases as the number of passenger cars doubles to 1.7 billion and demand for road freight rises quickly.
>
> The latter is responsible for almost 40% of the increase in global oil demand: oil use for trucks – predominantly diesel – increases much faster than that for passenger vehicles, in part because fuel-economy standards for trucks are much less widely adopted. Non-OPEC oil output steps up over the current decade, but supply after 2020 depends increasingly on OPEC. A surge in unconventional supplies, mainly from light tight oil in the United States and oil sands in Canada,

[9] Executive summary, World Energy Outlook, IEA, Paris, November 2012, pp. 3-4, http://www.worldenergyoutlook.org/publications/weo-2012/#d.en.26099 . for a short commentary, see Floyd Norris, "Oil Supply is rising, But Demand Keeps Pace and Then Some," *New York Times*, November 24, 2012, p. B5.

> natural gas liquids, and a jump in deepwater production in Brazil, push non-OPEC production up after 2015 to a plateau above 53 mb/d, from under 49 mb/d in 2011. This is maintained until the mid-2020s, before falling back to 50 mb/d in 2035.
>
> Output from OPEC countries rises, particularly after 2020, bringing the OPEC share in global production from its current 42% up towards 50% by 2035. The net increase in global oil production is driven entirely by unconventional oil, including a contribution from light tight oil that exceeds 4 mb/d for much of the 2020s, and by natural gas liquids. Of the $15 trillion in upstream oil and gas investment that is required over the period to 2035, almost 30% is in North America.
>
> …Iraq makes the largest contribution by far to global oil supply growth. Iraq's ambition to expand output after decades of conflict and instability is not limited by the size of its resources or by the costs of producing them, but will require coordinated progress all along the energy supply chain, clarity on how Iraq plans to derive long-term value from its hydrocarbon wealth and successful consolidation of a domestic consensus on oil policy. In our projections, oil output in Iraq exceeds 6 mb/d in 2020 and rises to more than 8 mb/d in 2035. Iraq becomes a key supplier to fast-growing Asian markets, mainly China, and the second-largest global exporter by the 2030s, overtaking Russia. Without this supply growth from Iraq, oil markets would be set for difficult times, characterized by prices that are almost $15/barrel higher than the level in the New Policies Scenario by 2035.

In short, even if optimistic forecasts of cuts in direct US energy imports eventually prove to be correct, this will not affect the critical strategic importance of the Gulf and other major energy exporters the US for the foreseeable future. Long after 2020, US consumers will still have to pay global prices for their energy needs in any energy emergency affecting major energy exports.

While America may not be a major direct importer of Gulf or other oil exports in the future, it is still susceptible to increased world prices for all its oil and other energy costs in the event of a war or major crisis in the Gulf. Any reduction—or expected reduction—in global supply will increase such costs. Moreover, the US is projected to become even more dependent on a global economy by way of imports of manufactured goods that require the secure flow of Gulf energy exports to Europe and Asia.

In some cases, the US will also bound to share any remain access to exports with its partners in the IEA, and the US economy will be critically dependent on the fact that US trading partners (particularly those in East Asia, according to the IEA) will then be even more dependent on Gulf oil supplies.

Figure Two: Growing Strategic Importance of Gulf Petroleum – Part One

Global Supply

(million barrels per day, unless otherwise noted)

Supply and disposition	Reference case							Annual growth 2011-2040 (percent)
	2010	2011	2020	2025	2030	2035	2040	
Crude oil spot prices (2011 dollars per barrel)								
Brent[1]	81.31	111.26	105.57	117.36	130.47	145.41	162.68	1.3%
West Texas Intermediate	81.08	94.86	103.57	115.36	128.47	143.41	160.68	1.8%
Crude oil spot prices (nominal dollars per								
Brent[1]	79.61	111.26	121.73	147.90	180.04	219.73	268.50	3.1%
West Texas Intermediate	79.39	94.86	119.43	145.38	177.28	216.70	265.20	3.6%
Petroleum liquids production[2]								
OPEC[3]								
Middle East	23.76	25.34	28.81	31.85	34.06	35.58	37.70	1.4%
North Africa	3.76	2.39	3.43	3.43	3.38	3.30	3.36	1.2%
West Africa	4.45	4.31	5.52	5.64	5.51	5.34	5.32	0.7%
South America	2.36	2.42	2.04	2.00	1.85	1.74	1.68	-1.2%
Total OPEC petroleum production	**34.33**	**34.45**	**39.81**	**42.92**	**44.80**	**45.96**	**48.05**	**1.2%**
Non-OPEC								
OECD								
United States (50 states)	8.85	9.40	11.89	11.21	10.48	10.48	10.36	0.3%
Canada	1.91	1.85	1.85	1.86	1.84	1.79	1.74	-0.2%
Mexico and Chile	2.98	2.96	1.95	1.58	1.64	1.64	1.70	-1.9%
OECD Europe[4]	4.36	3.98	3.14	3.01	2.84	2.63	2.53	-1.5%
Japan	0.14	0.13	0.14	0.14	0.15	0.14	0.14	0.2%
Australia and New Zealand	0.66	0.57	0.55	0.56	0.55	0.53	0.53	-0.3%
Total OECD petroleum production	**18.90**	**18.90**	**19.51**	**18.36**	**17.49**	**17.21**	**17.01**	**-0.4%**
Non-OECD								
Russia	10.14	10.23	11.41	12.11	12.64	12.95	12.53	0.7%
Other Europe and Eurasia[5]	3.24	3.25	3.66	4.04	4.15	4.09	4.18	0.9%
China	4.30	4.30	4.65	5.05	5.15	4.80	4.59	0.2%
Other Asia[6]	3.76	3.67	3.51	3.37	3.15	2.93	2.81	-0.9%
Middle East	1.57	1.43	1.21	1.11	1.00	0.89	0.81	-1.9%
Africa	2.46	2.47	2.40	2.53	2.49	2.41	2.39	-0.1%
Brazil	2.19	2.25	3.44	4.03	4.34	4.50	4.69	2.6%
Other Central and South America	2.01	2.09	2.40	2.60	2.79	2.71	2.75	0.9%
Total non-OECD petroleum production	**29.68**	**29.69**	**32.69**	**34.84**	**35.72**	**35.26**	**34.76**	**0.5%**
Total petroleum liquids production	**82.91**	**83.03**	**92.01**	**96.12**	**98.00**	**98.43**	**99.83**	**0.6%**
Other liquids production[7]								
United States (50 states)	0.89	0.97	1.17	1.21	1.25	1.34	1.59	1.7%
Other North America	1.94	2.03	3.08	3.75	4.46	5.16	5.97	3.8%
OECD Europe[4]	0.25	0.24	0.26	0.27	0.29	0.30	0.31	0.9%
Middle East	0.01	0.06	0.21	0.24	0.24	0.24	0.24	4.9%
Africa	0.21	0.21	0.37	0.38	0.39	0.40	0.40	2.2%
Central and South America	1.08	1.07	2.32	2.62	2.91	3.18	3.34	4.0%
Other	0.12	0.14	0.32	0.66	1.00	1.24	1.24	7.8%
Total other liquids production	**4.50**	**4.74**	**7.73**	**9.14**	**10.54**	**11.86**	**13.11**	**3.6%**
Total production	**87.41**	**87.77**	**99.74**	**105.26**	**108.54**	**110.29**	**112.93**	**0.9%**

Source: US Energy Information Administration, *Annual Energy Outlook 2013 Early Release Overview*, Table A21 EIA/DOE, December 2012, http://www.eia.gov/forecasts/aeo/er/pdf/tbla11.pdf.

Figure Two: Growing Strategic Importance of Gulf Petroleum – Part Two

Production by Country: 2007-2035

In Millions of Barrels Per Day

	History (estimates)			Projections					Average annual percent change,
Region/country	2007	2008	2009	2015	2020	2025	2030	2035	2008-2035
OPEC*	**34.4**	**35.6**	**33.4**	**38.6**	**40.8**	**43.1**	**45.0**	**46.9**	**1.0**
Middle East	**23.1**	**24.2**	**22.5**	**27.0**	**28.9**	**31.2**	**33.3**	**35.2**	**1.4**
Iran	4.0	4.2	4.1	4.0	3.8	3.7	3.8	3.9	-0.3
Iraq	2.1	2.4	2.4	2.9	3.6	4.5	5.5	6.3	3.7
Kuwait	2.6	2.7	2.5	3.0	3.1	3.3	3.7	4.0	1.4
Qatar	1.1	1.2	1.2	1.9	2.1	2.3	2.5	2.5	2.7
Saudi Arabia	10.2	10.7	9.6	11.6	12.8	13.9	14.6	15.4	1.4
United Arab Emirates	2.9	3.0	2.8	3.6	3.5	3.5	3.3	3.2	0.2
North Africa	**4.0**	**4.1**	**3.9**	**3.5**	**3.4**	**3.4**	**3.3**	**3.2**	**-0.9**
Algeria	2.2	2.2	2.1	2.6	2.7	2.6	2.5	2.3	0.3
Libya	1.8	1.9	1.8	0.9	0.7	0.7	0.8	0.8	-3.0
Middle East (Non-OPEC)	**1.5**	**1.5**	**1.5**	**1.6**	**1.4**	**1.3**	**1.1**	**1.1**	**-1.3**
Oman	0.7	0.8	0.8	1.0	0.8	0.7	0.6	0.6	-1.1
Syria	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	-1.9
Yemen	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	-3.3
Other	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.6
Gas-to-liquids									
Qatar	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	15.5
Total world	**84.9**	**85.7**	**83.9**	**93.3**	**97.6**	**103.2**	**108.0**	**112.2**	**1.0**
OPEC share of world production	40%	42%	40%	41%	42%	42%	42%	42%	
Persian Gulf share of world production	27%	28%	27%	29%	30%	30%	31%	31%	

*OPEC=Organization of the Petroleum Exporting Countries (OPEC-13).
Note: Conventional liquids include crude oil and lease condensates, natural gas plant liquids, and refinery gains.
Sources: History: U.S. Energy Information Administration (EIA), Office of Energy Markets and End Use. Projections: EIA, Generate World Oil Balance

Source: EIA, "Reference Case," International Energy Outlook, 2011, pp. 229, 231

The Politics of "Energy Independence" versus the Reality

The end result is that the US politics of calling for "energy independence" have little – if any – impact on either US threat perceptions or plans for the defense of the Gulf. In practice, US national security planners accept the fact that the Gulf is and will remain is the location of a strategically vital share of the world's petroleum resources.

This helps explain why senior US, Israel, Arab, European, and other policymakers share a common perception that that the global economy is critically dependent on the stable flow of Gulf oil exports. The politics of calling for "energy independence" have little – if any – impact on either US threat perceptions or plans for the defense of the Gulf over the next decade. In practice, US national security planners accept the fact that the Gulf is and will remain is the location of a strategically vital share of the world's petroleum resources.

Making a Meaningful Assessment of Energy Import Dependence vs. Independence

There is, however, a clear need to reassess the way the US analyzes import dependence and the prospects for energy independence after 2020. There are two sets of improvements the US must make it is analysis and planning. The first deals with how US energy analysts make energy forecasts. The second lies in how the US addresses the longer-term considerations related to Gulf security.

Rethinking Forecasting of Energy Dependence

The US cannot afford to allow its analysis of its dependence on imports, and prospects for energy in dependence, to become politicized or lack of effective analysis. For years, the US government has frozen many elements of its analysis around a fundamentally false model dating back to the Carter Administration. As a result, EIA—despite its considerable potential—fails to address key issues.

EIA is the only agency in the US with the capacity to model detailed, credible forecasts of US and global energy supply and consumption. Its forecasts now need to be tied together in a different analytic model that looks at least three decades into the future and is given top priority in US energy analysis.

To be specific, the US needs to give the EIA the resources and jurisdiction necessary to carry out a comprehensive modeling and analysis of energy import needs and the prospects for energy independence on an annual basis, and to encourage the IEA and OPEC to do the same.

This effort should:

- Explicitly model and analyze the prospects for US energy independence by type of fuel with a focus on liquids and transportation needs – the major sources of import dependence.

- Estimate the impact of new technologies and industrial practices on US supply, import dependence, and the global economy.
- Estimate the full range of US energy import dependence, including the size of indirect energy imports in the form of manufactured goods.
- Estimate the level of US dependence on the global economy in terms that explicitly analyze US and global dependence on the secure flow of energy exports and imports with special attention to US dependence on the stability and growth of key European and Asian trading partners.
- Restructure and update its analysis of the risk of interruptions in the flow of energy exports to cover the full range of US imports by sector and the impact of interruptions in other key flows of exports to regions like Asia on the US economy.
- In the process, reexamine the role and size of the US Strategic Petroleum Reserve.
- Examine the costs and benefits of seeking energy independence in the near- and mid-term versus accepting some level of dependence on imports. The US should not seek independence without a risk assessment of the depletion of US energy reserves.
- Run a range of cases looking at the extremes and most-likely cases that explicitly state the level of uncertainty as the results move progressively into the future – earning users of the growing uncertainty with each five-year increment in the estimate.

Rethinking the Security Aspects of Energy Exports and Imports

The US cannot ignore the risks posed by Iran, terrorism, and the wave of instability in the Gulf and other key areas that provide major energy exports. Rather, the US needs to study the extent to which the US should provide the military forces to secure energy exports on a global basis.

In the case of the Gulf, such a study should:

- Examine options for reducing the dependence of forward deployed US forces over time by strengthening the capabilities and unity of the Gulf Cooperation Council states and other regional allies like Jordan, Turkey, Egypt, etc. Moving some US forces “over the horizon” over time could offer savings and reducing tensions in the region and such shifts could become more significant if the Iranian regime changed its current behavior.
- Consider the degree to which a more multinational approach to outside aid in providing security assistance could reduce US costs without reducing US security.

- Carry out similar regional analysis of the longer-term global energy security strategy and force deployments the US should make in regard to African and Latin American and other major energy export regions.
- Rethink the role and membership of the International Energy Agency, and the scope of its membership and the terms of the Agreement on an International Energy Program" (I.E.P. Agreement) in the light of the radical shifts in energy import dependence, and is impact of the global economy, that have occurred since the present system was established in 1974.

Rethinking US Security Interests and Resources

After thorough examination, the US may still conclude that its present security presence in the Gulf and security relations with the GCC states and other regional allies present the most cost-effective use of its resources. It should, however, still consider the trade-offs involved, examine the ways it can enhance the GCC and other regional allies, and assess the longer-term prospects for creating a multilateral and more "over-the-horizon" security structure based on global *cooperation* rather than global *competition*.

Depending on changes in the behavior of the Iranian regime, and the evolution of the security situation in Asia, it may be possible—over time—to create a form of the International Energy Agency with a membership and mission that addresses international energy issues in a cooperative rather than competitive manner. The scope of such an agreement can be modeled on the core commitments of the 1974 Agreement on the International Energy Program (IEP) which led to a multilateral security structure that included the US, China, India, Japan and other Asian powers. This type of action might provide both the military cooperation that would reduce the need for US power projection, as well as address concerns of other powers over their future energy security.