

We've thought long and hard about the costs and risks of *preventing* Iran from getting a nuclear weapon—but not nearly enough about the costs and risks of *allowing* it.

Iranian Nukes and Global Oil

Matthew Kroenig & Robert McNally

Iran's rapidly advancing nuclear program is one of the most acute national security challenges facing the United States, for reasons that are not entirely well appreciated. Whatever else it would portend, an Iranian nuclear breakout would pose first-order challenges to the stability of the entire global economic order via its impact on energy prices, a concern with obvious broad strategic implications.

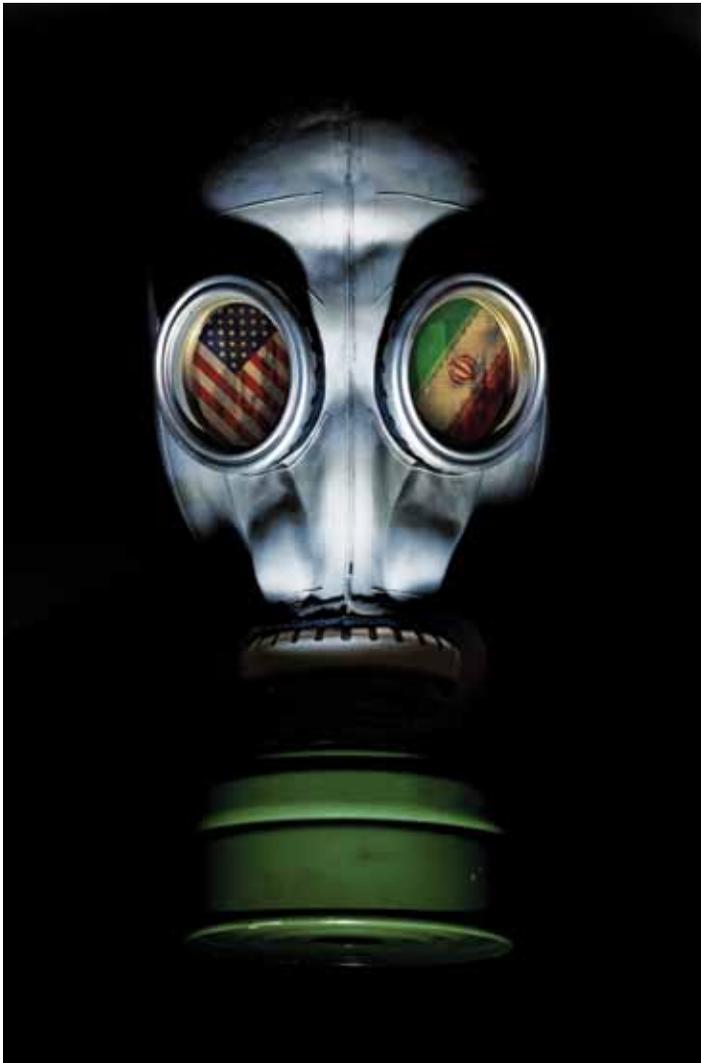
As policymakers formulate strategies to curb Iran's nuclear ambitions, the oil market has loomed large, and with good reason. Iran is the third-largest producer in the Organization of the Petroleum Exporting Countries (OPEC), and its location and military capabilities enable it to disrupt up to 17 million barrels of oil a day

(mb/d)—roughly 30 percent of the global oil trade—produced in and exported from the Persian Gulf. Iran holds a knife across the jugular of the world economy.¹

The Obama Administration's dual track pressure-and-negotiate strategy has been crafted with the risk of oil price spikes in mind. But its calculations pull up short by considering only the relatively short term. Administration analysts know that a complete embargo on Iranian oil would take 4.6 percent of traded oil off the market at a time when OPEC's spare capacity is tight, contributing to a bias toward rising oil prices. Washington thus designed oil sanctions so as to keep Iran's oil flowing into the tight global market while at the same time reducing Iran's revenues. The plan called on some importers of Iranian oil to reduce or stop Iranian imports and others to demand large discounts as the list of Iran's customers diminished. Unfortunately, the plan has not worked as intended. Instead of dropping prices, Iran dropped production. The unexpected production drop is due

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¹At the same time, Iran's production has fallen sharply this year (from 3.45 mb/d in January to 2.6 mb/d in November) due to sanctions, and November 2012 data from the U.S. Energy Information Agency show Iran tied in third place with Kuwait.



partly to unforeseen constraints on exports arising from problems with tanker insurance, a reduction in foreign investment in Iran's oil fields, and a policy decision by Tehran to choose lower output over big discounts as the lesser of evils. The U.S. Energy Information Administration has noted that unexpected loss of Iranian supply, among other factors, has contributed to the recent upward pressure on global crude prices. Some of the lost Iranian supply may take many years to return to production, if ever, due to the nature of Iran's fields. This unexpected loss of supply has made Washington skittish about taking additional steps that could cut Iranian exports still further.

Nevertheless, Iran's nuclear program remains an important foreign policy challenge, and if diplomacy and sanctions fail to convince Iran to limit its nuclear program, President Obama

has restated standing U.S. policy that all options, including the use of military force, are on the table to stop Iran from building nuclear weapons. Administration officials and other observers frequently point out, however, that a military attack on Iran by the United States or Israel could trigger a regional war that could spread to Gulf producers and the Strait of Hormuz, damaging key oil and gas production, processing and transportation facilities, and disrupting the world's most important transit bottleneck. The result: Economically devastating oil price spikes that would harm the entire global economy and, as usual, hit the poorest countries the hardest.

Oil price issues are therefore an obvious factor to be considered in both kinetic and non-kinetic approaches to dissuading Iranian efforts to acquire nuclear weapons. Much less obvious, and far less studied, are the longer-term oil market and economic consequences if nonprolifera-

tion policies fail and Iran arms itself with nuclear weapons.² Sound policymaking must assess both the costs and risks involved in preventing Iran from acquiring nuclear weapons against the costs and risks of allowing Iran to obtain them. Those risks are multifold, but they certainly involve the oil market and global economic concerns in *both* "preventing" and "allowing" contingencies. As things stand now, analysis is very much overbalanced toward the risks of prevention. The purpose of this essay is to right the balance.

²One notable counterpoint to this is a recent report, "The Price of Inaction: An Analysis of Energy and Economic Effects of a Nuclear Iran", Bipartisan Policy Center, October 10, 2012. One of this article's authors was a reviewer of the report.

Oil Disruptions and Economic Stability

It is difficult to overstate how much modern civilization depends on continuous access to the substantial flow of fossil fuels from producers to consumers. Concentrated and abundant energy stores of coal, gas and oil power virtually all we do at the current state of technological development. Technology changes, of course, and the prospect of radically reducing dependence on fossil fuels is no pipedream; but it is a prospect that cannot materialize overnight. Transportation, which is critical to food supply chains and other core systems society needs to function, today runs almost entirely on oil. Electrical generation is more diverse in its energy sources, but much of it, too, is fossil-fuel powered. Any sudden withdrawal of oil supply and concomitant rise in prices would tip our complex, globalized and interdependent economies into a sharp downturn and, if abrupt and sustained, a systemic crisis.

Not surprisingly, then, history shows that oil price spikes invariably contribute to economic downturns. James Hamilton, an economics professor at UC San Diego, has noted that all but one of eleven recessions since World War II were associated with oil price shocks that raised production costs, hurt productivity and dampened consumer spending.³ Most postwar oil price shocks were associated with supply disruptions due to geopolitical instability in the Middle East. The Iranian Revolution in November 1978, for example, caused a collapse in Iranian production of over 6 mb/d, triggering a large supply disruption by historical standards, and a 57 percent spike in oil prices.⁴ The revolution was followed quickly by the nearly eight-year-long Iran-Iraq War, which caused major and protracted oil interruptions and contributed to the sharp economic recession of the early 1980s. So if a conflict involving Iran led to an increase in oil prices and subsequent widespread economic turmoil, it would hardly be unprecedented. The difference in the case of a nuclear Iran is that future supply disruptions could be much larger and far more protracted.

Since a quick transition away from fossil fuels is not possible, economic, geological and technical realities dictate that oil demand will

rise sharply in the coming decades, and the Persian Gulf will remain the most critical energy supply region. The International Energy Agency projects that world energy demand will rise 20 percent by 2020 and 47 percent by 2035. Oil and gas demand, which accounted for 47 percent of total energy consumption in 2010, will account for 42 percent of future energy demand growth.⁵ The Persian Gulf accounts for 52 percent of global oil reserves, 31 percent of global oil production and *all* spare production capacity—mainly in Saudi Arabia.⁶ Because the Persian Gulf region holds the vast majority of the world's low-cost oil reserves, its share of global oil supply will likely increase in coming decades, even if North America's oil boom continues.

At the same time, the global oil market is becoming more sensitive to even minor geopolitical disruptions. This is because OPEC producers have not invested sufficiently to meet the galloping demand for crude while maintaining an adequate spare capacity buffer to keep prices stable. When spare capacity is low, oil prices tend to swing wildly and spike on disruption risks. The U.S. Energy Information Administration recently noted that spare capacity is “quite modest by historical standards, especially when measured as a percentage of global oil production and considered in the context of current geopolitical uncertainties, including, but not limited to, the situation in Iran.”⁷ This basic predicament is likely to persist; strong demand growth and lagging net oil supply growth raise

³Hamilton, “Historical Oil Shocks” (February 2011), NBER Working Paper No. 16790.

⁴Hamilton, “What is an Oil Shock?” (December 2001), NBER Working Paper 7755. Not all of the 1978–79 price increase was attributable to simple supply and demand dynamics. Media-induced consumer panic behavior and mistakes by government officials played roles as well, just as occurred in 1973–74.

⁵*World Energy Outlook 2012*, International Energy Agency, November 12, 2012, Current Policies Scenario.

⁶Reserve and production estimates as of January 1, 2012 from *Oil and Gas Journal*.

⁷“The Availability and Price of Petroleum and Petroleum Products in Countries Other Than Iran”, October 25, 2012.

odds that OPEC will not regain a sufficient spare capacity buffer sufficient to keep prices stable in the face of geopolitical disruption risks.

Hydraulic fracturing technology is unlocking new oil resources and reducing U.S. and North American dependence on imported oil, but reduced imports will not insulate our economy from global oil price spikes. The price of oil is set in a global market. As Daniel Yergin writes, “[t]here is only one world oil market, so the United States—like other countries—still will be vulnerable to disruptions, and the sheer size of the oil resources in the Persian Gulf will continue to make the region strategically important for the world economy.”⁸ Even if North American oil imports fell to zero, our businesses and consumers would still be hit with volatile and spiking oil prices emanating from elsewhere on the globe. In economic terms, it’s not the supply itself to any given group of consumers that matters most but the price.⁹

It is against this backdrop of a world economy increasingly dependent on a tight, fearful and spike-prone oil market whose supply is dominated by the Persian Gulf that we must consider the implications of a nuclear-armed Iran on oil price stability.

After acquiring nuclear weapons, Iran may remain under sanction from an international community intent on rolling back its nuclear capability. As noted earlier, Western sanctions have already led to the drop of about 1.0 mb/d in Iranian production, a nontrivial amount given that OPEC spare capacity is only 2.5 mb/d at best. New sanctions measures could cut further into Iran’s production and exports, contributing to upward pressure on oil prices.

But the impact of sanctions on future Iranian production pales in comparison to the other geo-economic implications of nuclear weapons in Iran. A nuclear Iran will likely increase the frequency and scope of geopolitical conflict in the Persian Gulf and the broader Middle East. While policy analysts continue to debate how to deal with Iran’s nuclear program, most agree a nuclear-armed Iran would have grave repercussions for the region. In March 2012 President Obama stated the U.S. policy was to prevent—not contain—a nuclear-armed Iran, and he explained why:

The risks of an Iranian nuclear weapon falling into the hands of terrorist organizations are profound. It is almost certain that other players in the region would feel it necessary to get their own nuclear weapons. So now you have the prospect of a nuclear arms race in the most volatile region in the world, one that is rife with unstable governments and sectarian tensions. And it would also provide Iran the additional capability to sponsor and protect its proxies in carrying out terrorist attacks, because they are less fearful of retaliation.¹⁰

President Obama’s fears are well-founded. Iran harbors ambitious geopolitical goals. After national survival, Iran’s primary objective is to become the most dominant state in the Middle East. In terms of international relations theory, Iran is a revisionist power. Its master national-historical narrative holds that Iran is a glorious nation with a storied past, and that it has been cheated out of its rightful place as a leading nation: Like pre-World War I Germany and China today, it is determined to reclaim its place in the sun. Currently, Iran restrains its hegemonic ambitions because it is wary of U.S. or Israeli military responses—particularly the former.

But if Iran obtained nuclear weapons, its adversaries would be forced to treat it with deference if not kid gloves, even in the face of provocative acts. Iran would achieve a degree of “inverted deterrence” against stronger states by inherently raising the stakes of any military conflict against it to the nuclear level.¹¹ As such, nuclear weapons would provide Iran with a cover under which to implement its regional

⁸Yergin, “Oil’s new world order”, *Washington Post*, October 28, 2011.

⁹See Gal Luft & Anne Korin, “The Myth of Energy Independence”, *The American Interest* (July/August 2012).

¹⁰Interview with Jeffrey Goldberg, “Obama to Iran and Israel: ‘As President of the United States, I Don’t Bluff’”, *The Atlantic*, March 2, 2012.

¹¹The term “inverted deterrence” was coined and is explained in Adam Garfinkle, “Culture and Deterrence”, Foreign Policy Research Institute, August 25, 2006.

ambitions with diminished fear of a U.S. military reprisal. A nuclear-armed Iran would likely step up its support for terrorist and proxy groups attacking Israeli, Saudi and U.S. interests in the greater Middle East and around the world; increase the harassment of and attacks against naval and commercial vessels in and near the Persian Gulf; and be more aggressive in its coercive diplomacy, possibly brandishing nuclear weapons in an attempt to intimidate adversaries and harmless, weaker neighbors alike.

In short, a nuclear-armed Iran would exacerbate current conflicts in the Middle East, and this likely bears jarring consequences for global oil prices. Because of the heightened threat to global oil supply that a nuclear-armed Iran would pose, market participants would certainly add a large “risk premium” to oil prices. Oil prices reflect *perceived* risk in addition to information on actual events or conditions in the market. Recent history shows that even without nuclear weapons, Iran-related events in the Middle East have affected oil prices on fears they could spark a regional war. Traders bid up oil prices in January 2006 when the IAEA referred Iran to the UN Security Council. In subsequent months, news reports about heated Iranian rhetoric and military exercises helped to drive crude prices up further. The surprise outbreak of the Israel-Hizballah war in 2006, not entirely unrelated to concerns about Iran, triggered a \$4 per barrel spike on contagion fears.

The Iran risk premium subsided after 2007, but a roughly \$10–15 per barrel (10 percent) risk premium returned in early 2012 after the United States and the European Union put in place unusually tough sanctions and hawkish rhetoric on both sides heated up. A survey of nearly two dozen traders and analysts conducted by the Rapidan Group found that a protracted conventional conflict between the United States and Iran that resulted in a three-week closure of shipping through the Strait of Hormuz would lead to a \$25 per barrel rise in oil prices, despite the use of strategic petroleum reserves.¹² Were Tehran to acquire nuclear weapons, the risk premium would greatly exceed the \$4–\$15 per barrel (roughly 4–15 percent at current prices) already caused by a non-nuclear Iran.¹³ We expect a belligerent, nuclear-armed Iran would likely embed a risk premium of at

least \$20–30 per barrel and spikes of \$30–100 per barrel in the event of actual conflict. Such price increases would be extremely harmful to economic growth and employment.

The challenges a nuclear-armed Iran would pose for the oil market are exacerbated by a prospective diminished U.S. ability to act as guarantor of stability in the Gulf. U.S. military presence and intervention has been critical to resolving past threats or geopolitical crises in the region. It has also calmed oil markets in the past. Examples include the destruction of much of Iran’s surface fleet in response to Iran’s mining the Gulf in 1988 and leading a coalition to repel Saddam Hussein’s short-lived invasion of Kuwait in August 1990. Currently, the United States can use, and threaten to use, force against Iran without fear that Iran will retaliate with nuclear weapons. When Iran has threatened to close the Strait of Hormuz in the past, for example, the United States has announced that it would reopen the Strait if Iran went through with it, confident that the U.S. military could quickly prevail in any conventional conflict with Iran while running very little risk of retaliation. If Iran had nuclear weapons, however, U.S. military options would be constrained by inverted deterrence. U.S. threats to use force to reopen the Strait could be countered by Iranian threats to use devastatingly deadly force against U.S. allies, bases or forces in the region. Such threats might not be entirely credible since the U.S. military would control any imaginable es-

¹²“The Short-Term Impact on the Oil Market of a Possible Military Conflict with Iran”, November 2012, The Rapidan Group, LLC (a proprietary analysis).

¹³The Bipartisan Policy Center analysis, “The Price of Inaction”, concluded that in the first year after Iran became nuclear “the expectation of instability and conflict that a nuclear Iran could generate in global energy markets could roughly increase the price of oil by between 10 and 25 percent”, roughly \$10–25 per barrel at prevailing oil prices. Over several years, the analysis said a nuclear Iran could trigger instability and conflict that would push oil prices up by as much as 30–50 percent, or \$30–50 per barrel.

calation ladder up to and including the nuclear threshold, but they wouldn't be entirely incredible, either, given the risk of accident or inadvertent nuclear use in a high-stakes crisis.

If, further, Iran develops ballistic missiles capable of reaching the United States—and the annual report of the U.S. Department of Defense estimates this could happen as soon as 2015—Iran could also threaten nuclear strikes against the U.S. homeland in retaliation for the use of conventional forces in the region. Any U.S. President would have to think long and hard about using force against Iran if it entailed a risk of nuclear war, even a nuclear war that the United States would win.

Most worrisome, an unstable, poly-nuclear Middle East will mean that nuclear weapons will be ever-present factors in most, if not all, future regional conflicts. As President Obama noted in the remarks excerpted above, if Iran acquires nuclear weapons, Saudi Arabia, Turkey, Egypt and other states might follow suit. Nuclear weapons in these states would further complicate the nuclear balance in the region and potentially extend the boundaries of any nuclear exchange.

Even if Iran's leaders are less reckless and suicidal than their rhetoric would suggest, international politics, crises and miscalculation do not end when countries acquire nuclear weapons. Nuclear powers still challenge nuclear-armed adversaries. As the early decades of the Cold War remind us, nuclear-armed states do sometimes resort to nuclear brinkmanship that can lead to high-stakes nuclear standoffs. We were lucky to survive the Cold War without suffering a massive nuclear exchange; President Kennedy estimated that the probability of nuclear war in the Cuban Missile Crisis alone was as high as 50 percent.¹⁴

The reference to the early days of the Cold War is not merely decorative here. What made the Cuban Missile Crisis so dangerous is that nearly all of the conditions that helped us avoid nuclear war during the latter half of the Cold War are absent from the Iran-Israel-U.S. nuclear balance. Then, there were only two players, both with secure, second-strike capabilities and strategic depth; relatively long flight times for ballistic missiles between states, enabling all sides to eschew launch-on-warning postures; clear lines

of communication between capitals; and more. In a high-stakes nuclear crisis with Iran and its adversaries, there is a real risk that things could spiral out of control and result in nuclear war.

The oil market impacts and resulting economic and political consequences of a poly-nuclear Persian Gulf range from severely jarring to systemically catastrophic. Periods of high tension and conventional conflict would lead to price spikes measured in increments of at least \$10 per barrel. A nuclear conflict could destroy key oil production, refining or transportation facilities, as well as indirectly render them inoperable by paralyzing the attacked producers' capacity to sustain their operations. Even the use of a radiological dispersion device, or "dirty bomb", at one or more key Gulf facilities could destroy a substantial amount of global oil production. In February 2006 terrorists unsuccessfully attacked the Saudi oil processing facility at Abqaiq, which accounts for some 6 mb/d of production. A successful dirty bomb or nuclear strike on Abqaiq would in one fell swoop remove 7 percent of global oil production and nearly all spare capacity, triggering a price shock that would cause a severe, protracted global recession.¹⁵

The direct and indirect effects of a nuclear war in the Persian Gulf could destroy or render inoperable up to 23 mb/d of crude oil production and 17 mb/d of exports. A conflict that destroyed even one third of this supply would quickly settle the debate over when peak oil production will occur: It will have arrived, at least for many years. A regional nuclear war would first destroy a significant amount of energy supply and then impose a peak at the new lower level. That would spell unprecedented and catastrophic economic and geopolitical calamity. We could not recover quickly, either. A research

¹⁴See Graham Allison, "The Cuban Missile Crisis at 50", *Foreign Affairs* (July/August 2012).

¹⁵In 2010 the Heritage Foundation used an IHS Global Insight model to evaluate the loss of 8.4 mb/d of Saudi production due to an "Arab Spring" uprising for one year followed by two years of recovery. Strategic stocks were used but failed to offset the loss, causing crude oil prices to more than double, U.S. retail gasoline prices to hit \$6.50 per gallon, a loss of 1.5 million jobs and a \$447 billion hit to GDP.

paper sponsored by the National Energy Technology Laboratory of the Department of Energy found that crash mitigation options undertaken when peak oil occurs would leave a significant supply deficit for decades.¹⁶ Crash programs to increase domestic oil supplies, including from unconventional sources such as coal liquefaction and gas-to-liquids, would almost certainly be implemented, but it would take many years if not decades to replace lost supply.

With no replacement supplies available, oil prices would rise to whatever levels were necessary to ration demand. Since oil demand is less responsive to price than economic activity, the oil price spike would likely trigger a major recession first by crushing gasoline and distillate consumption and auto sales. Consumer confidence would subsequently fall off and investment would ratchet back as productivity dropped in a chain reaction rippling through the economy. This would destabilize credit markets and perpetuate a self-reinforcing cycle of destruction to growth and employment, quickly metastasizing into general institutional failure throughout the real and financial economy. During the years-to-decade-long recovery, political concerns about pollution and global warming would likely be subordinated to the overarching necessity to increase energy production as fast as possible.

Depending on the amount and duration of oil supply destroyed or rendered inoperable in a nuclear conflict, oil prices themselves may eventually cease to be relevant. In the wake of a massive supply shock and resulting oil price spike on traded futures exchanges, the global oil trade could collapse, giving way to bilateral deals between desperate producers and consumers. Market mechanisms could even be suspended as governments invoke emergency powers to commandeer resources, impose rationing, ban exports and ensure energy supplies are directed to critical infrastructure, national security and food production and distribution.

While all countries and regions would suffer economic damage, those that depend on food and energy imports would suffer most. Food prices are linked to oil and gas prices due to the energy-intensive nature of modern agriculture and food distribution. Relatively self-sufficient states in the Americas, Russia and

Australia would not fare as badly as Europe, seaboard Asia and non-oil producing Middle Eastern countries. However, all countries, including the relatively self-sufficient United States, would be exposed to new geopolitical uncertainty as sudden shifts in the balance of power upend global geopolitics.

Some well-known analysts dismiss all such scenarios outright. One prominent academic continues to insist that nuclear weapons are stabilizing under virtually all circumstances, and that Iran's acquisition of nuclear weapons would actually reduce regional tensions and prospects for conflict.¹⁷ We respectfully but totally disagree, as do, we believe, the vast majority of those experienced in the policy world in the United States and abroad. We disagree in part because we do not think that most analysts have factored in the impact of Iranian proliferation on the global economy via the oil market. Pundits have frequently made a major point that confrontational policies toward Iran could damage the global economy, but they have all but ignored the likely longer-term global economic consequences of a nuclear-armed Iran. This is myopic analysis, and it will not do.

We do not claim that the economic implications of an Iranian nuclear breakout are the only or even the major factors that need go into U.S. policy judgments. But it would be a mistake to minimize the broad implications for international security of a severe and protracted global economic collapse emanating from the implications of Iranian proliferation. Alas, that well describes the state of the debate at present; it does minimize longer-term economic implications. That is one more reason why we strongly support President Obama's stated position. For the sake of global peace and security, the United States must be willing to take whatever steps necessary, including the use of military force, to prevent Iran from acquiring nuclear weapons. 

¹⁶Robert Hirsch, Roger Bezdek and Robert Wendling, *Peak of World Oil Production: Impacts, Mitigation, and Risk Management* (February 2005).

¹⁷Kenneth Waltz, "Why Iran Should Get the Bomb", *Foreign Affairs* (July/August 2012).