



MYTHS OF THE OIL BOOM

AMERICAN NATIONAL SECURITY
IN A GLOBAL ENERGY MARKET

STEVE A. YETIV

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List of Abbreviations

ARAMCO	Arabian American Oil Company
bbl	billion barrels
CIA	Central Intelligence Agency
CO ₂	carbon dioxide
CRS	Congressional Research Service
EIA	Energy Information Administration
EV	electric vehicle (fully electric)
FBIS	Foreign Broadcast Information Service
GCC	Gulf Cooperation Council
GPO	Government Publishing Office
HEV	hybrid electric vehicle
IEA	International Energy Agency
IOC	international oil company
IPCC	Intergovernmental Panel on Climate Change
mb/d	million barrels per day
NGO	nongovernmental organization
NOC	national oil company
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
p/b	per barrel

PDVSA	Venezuela’s national oil company
PHV	plug-in hybrid vehicles
POV	privately owned vehicle
SPR	strategic petroleum reserve
WMD	weapons of mass destruction

Introduction

The Nexus between Oil and Security

OIL IS BY far the most important energy source in the world,¹ and demand for oil will only increase over time. The US Energy Information Administration (EIA)—the statistical branch of the Department of Energy—estimates that the global use of oil, primarily of petroleum, will increase from 87 million barrels per day (mb/d) in 2010 to 97 mb/d in 2020 and 115 mb/d in 2040.² The United States has been and remains one of the most influential players in global energy. It has a voracious appetite for oil, accounting for about 22 percent of the world’s daily use, and its behavior in the energy arena is felt worldwide, all the way from wars in the Persian Gulf to the local gasoline pump.

This book addresses a farrago of notions about oil security in general and American oil security in particular that are overly optimistic or under-appreciated, and, in so doing, helps illuminate oil security broadly. Oil security can be defined in various ways,³ but I define it as having three aspects. The first is about achieving reasonable oil prices, which are shaped by numerous economic, political, and security factors.⁴ We can all debate what the term “reasonable oil prices” really means, but large spikes in oil prices or oil shocks that cause major economic dislocation are problematic. In fact, such disruptions

in oil supplies are linked to most of America's economic recessions, beginning with the 1973 Arab oil embargo.

The second, related aspect of oil security is about assuring that oil supplies are not easily subject to severe oil disruptions from global events or the deliberate manipulation of energy supplies for power goals. This includes, of course, the free flow of oil, most prominently from the Middle East, which is viewed as a vital US and global security goal;⁵ it also includes the flow of oil from actors such as Russia, which has periodically cut off its oil and natural gas exports to try to influence European politics. This threat to oil security is sometimes referred to as geopolitics. Geopolitics is certainly related to oil prices, in that unreliable oil supplies drive prices higher, but oil prices also rise and fall for reasons other than geopolitics.

The third aspect of oil security concerns the negative effects of using oil, such as pollution, global terrorism, and conflicts within and between nations. Oil has been a central driver of global growth as a relatively cheap energy source and has played a critical role in allowing for globalization, but it also has produced a range of complex and negative effects.⁶

Oil as a Core Factor in World Affairs

Exploring overly optimistic or under-appreciated notions about oil will serve as a vehicle for understanding central aspects of our oil world. It will also help shed light on diverse subjects that are connected to oil, including US foreign policy and global power, war and peace, terrorism, anti-Americanism, globalization, oil market dynamics, the role of multinational oil corporations, global economic vitality, and climate change. These links tie oil to US national and global security and make oil one of the defining features of our age.⁷

The global oil trade is far more significant than most people would guess.⁸ According to a World Bank study, \$2 billion worth of oil is traded globally per day, which makes oil the largest single item in the balance of payments and exchange between nations.⁹ Oil, and the

petroleum products that are derived from it, also represent the largest share in total energy use for most countries, and petroleum taxes are a major source of income for more than 90 countries in the world.¹⁰ Oil has a virtual monopoly on the transportation sector, and oil is also crucial in numerous other areas, including the production and transport of food.

Unlike other commodities or goods, oil is a major factor in international politics, security, and socioeconomic development. Oil is much more likely to contribute to military conflicts and to other security and political issues than other energy sources.¹¹ Partly because of its dominant position in global trade, oil affects our lives all the way from what we pay at the local gasoline pump to its link to faraway wars, such as those America has engaged in to contain the dictator Saddam Hussein and to fight terrorist groups like al-Qaeda and its various offshoots, which use oil monies and issues to fund and fuel their terrorism.¹² Of course, oil use is also central in driving climate change, according to the vast majority of scientific studies.¹³

Understanding oil and its effects will enhance security studies in general, and will benefit students, scholars, and practitioners of US national and global security. Indeed, oil is fascinating in part because it fundamentally crosscuts traditional conceptualizations of security that focus on war, power, coercion, and national interests with newer conceptualizations that seek to broaden our view of security to include political, societal, human, and environmental factors.¹⁴

The American Oil Boom: A Major Boost in Production

In this book, the term “American oil boom” will refer to the overall surge in US oil production, which many consider to be a revolution for American and global energy security. Both the American oil and natural gas booms have been achieved largely due to new discoveries of “tight oil” and shale gas using enhanced technologies called hydraulic fracturing and horizontal drilling.¹⁵ Tight oil refers

to oil found within reservoirs with very low permeability, including but not limited to shale. Permeability is the ability of fluids, such as oil and gas, to move through a rock formation.¹⁶ Inasmuch as we think about oil and gas drilling at all, we imagine lakes of oil underground that drillers exploit. That's not the case with tight oil. This oil exists in what would sometimes appear to be solid rock, usually shale. In many cases, only high-tech machinery can actually find the oil. It is stuck between the grains of porous rock like sandstone or at best resides in small oil reservoirs. Hydraulic fracturing shoots pressurized, chemically tipped liquids into compact, underground rock formations to discover oil. Horizontal drilling provides access to this energy from the side, where more reservoir rock is exposed, providing much better results with far fewer drilling wells and attempts.

Surely, the oil boom is a tremendous phenomenon. American oil production rose from 5 mb/d in 2008 to well over 7.44 mb/d in 2013,¹⁷ continuing its climb through 2014. It is projected by the EIA to rise to around 9 mb/d by 2015.¹⁸ In one central scenario, the EIA sees the boom leveling off at around 9.6 mb/d in 2020, before falling to around 7.5 mb/d through 2040.¹⁹ Meanwhile, the International Energy Agency (IEA), which is the authoritative watchdog for global energy consumers and adviser to industrialized countries, expects the boom to reach 9.1 mb/d by 2018.²⁰

Fatih Birol, chief economist of the IEA, opined in 2012 that the United States "in five years of time, will overtake Saudi Arabia as the largest oil producer of the world, a development that was difficult to imagine a few years ago,"²¹ but is now even likely. Although Deutsche Bank analysts have doubted the IEA's predictions,²² many other analysts agree with the prediction and even go further in describing what it means for energy. Reflecting some of these optimistic views, Robin M. Mills, the head of consulting at Manaar Energy, described a "shift as momentous as the US eclipse of Britain's Royal Navy or the American economy's surpassing of the British economy in the late 19th century. . . . The United States is set to become the world's biggest oil producer by 2017."²³

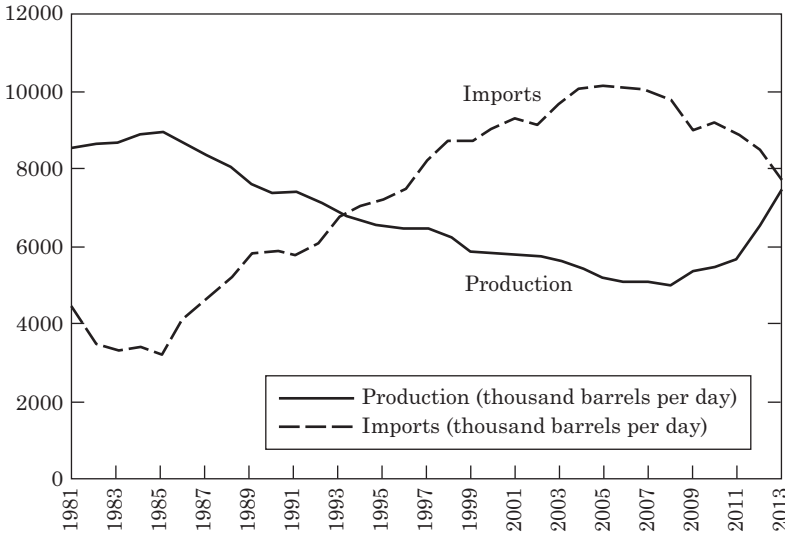


FIGURE 1.1 US Oil Production versus Imports (1981–2013)

Source: Data from US Energy Information Administration, Petroleum & Other Liquids Database, March 14, 2014.

To put this in perspective, the increase in American oil production per day will exceed the amount of oil that Iran exported daily prior to US-led sanctions that were imposed on Iran in response to its nuclear pursuits. That's a truly massive rise in oil production in a world that consumes around 89–90 mb/d. In addition, America's net oil imports have fallen from around 60 percent of total oil consumption in 2005 to less than 40 percent today, and according to one authoritative estimate, will represent less than 10 percent of demand in 2035.²⁴ As Figure 1.1 shows, the change in production compared to imports has been significant over time.

The Arguments of This Book

Estimates of America's future oil production will change based on evolving conditions, yet the boom is certainly yielding extraordinary amounts of oil. But what does the boom mean for American and global oil security? Optimism abounds that it can, among other

things, substantially lower long-term oil prices, get America out of the volatile Middle East, protect against oil supply disruptions, check the power of disruptive oil-rich countries, and shield us from the prospect of diminishing global oil supplies. In his 2014 State of the Union Address, President Obama reflected an aspect of this optimism in asserting that America could potentially achieve energy independence for the first time in decades due to its massive boom in oil and natural gas production.²⁵

The key argument of this book is about longer-term energy security and not about the short-term gyrations of geopolitics, rivalries related to oil and politics, or energy markets. I argue that while many see the oil boom as a game changer, and while it is very important, the boom can only deliver so much in terms of overall American and global oil security over the longer run. This is because the oil surge will eventually face various political, economic, and strategic factors, and because the boom is boosting oil production rather than decreasing oil consumption. There is a tendency to overestimate what it can deliver for American and global oil security, and that tendency is linked to a range of overly optimistic or under-appreciated notions that must be addressed.

However, if the United States combines the American oil surge with a far more serious effort to decrease oil consumption, it can boost oil security far more effectively. I call this combined approach “the Synergistic strategy.”²⁶ Of course, some observers would argue that the American oil boom is a solely negative development because the world needs to reduce its dependency on oil and not produce more. While the world does need to shift away from the petroleum era, we also have to be realistic. We have failed to wean ourselves off oil over the past decades and, according to important estimates, the world will need oil far into the future.²⁷ The boom can help meet that need in the near term at least, but it should not distract us from the far more important goal of pursuing sustainable practices.

The body of this book explores the effect of the oil boom on the three key aspects of oil security: oil prices, geopolitics, and the costs of using oil. For now, I offer a brief preview so as to orient the reader.

The first section of the book deals with the political, economic, strategic, and psychological underpinnings of oil prices. I stress here that oil prices are fundamentally affected by a range of factors. They include noneconomic factors such as political instabilities that deter investment into oil production and oil supply crises caused by real or feared global conflicts. The American oil boom and a plethora of other factors have certainly contributed to a perfect storm for lower oil prices. Oil prices dropped significantly on the New York Mercantile Exchange in a few short months in 2014. They had averaged roughly in the mid-to-high \$90s per barrel in 2014 until late summer, but by mid-December 2014, they had dropped to the mid-\$50s–60 per barrel. While the oil price drop was hardly unprecedented, it was swift and severe.

But what about the longer run trajectory of oil prices, looking to the period of 2020–2025? The boom has greatly decreased foreign oil imports, but that does not equal longer-term freedom from oil shocks and price spikes for consumers. The book also argues that various political, security, and economic factors in the world are likely to prevent a serious longer-term drop in oil prices, despite the American oil boom.

The second section of the book examines overly optimistic or under-appreciated notions about the geopolitics of oil security. The American oil surge is enhancing the world's ability to address supply disruptions caused by political and security events, but this development predated the oil boom. Thus, the boom's contribution to the geopolitics of oil security is positive but limited. Nor does it appear that the oil boom will allow the United States to diminish its role in protecting the free flow of Persian Gulf oil as many around the world expect or desire, unless it is also combined with a serious approach toward decreasing oil consumption.

The third section of the book explores the many costly effects of using oil, within the larger context of exploring oil security and the American oil boom. These effects remain under-appreciated. By cost, I refer chiefly to the cost for the United States, although other countries also pay many of these costs in the form of war, terror, and climate change. The US oil boom is not dealing with this third aspect of

oil security, the costs of using oil, because it is adding more oil and not decreasing oil use. Adding more oil to the mix won't mitigate the effects of using it in the first place.

The costs of using oil are much higher than most people believe. Our communities, the nation, the world, and future generations bear the real costs of using oil, which are not accounted for in the price that we pay at the gasoline pump. Many observers are aware of these costs in a general sense, but not as much in terms of their complexities, which I seek to explore. In the most basic terms, the copious use of oil bolsters America's adversaries, who sell their oil on global markets and sometimes use their national oil companies to advance domestic and foreign goals that hurt US interests. Oil consumption also contributes to pollution in our cities and drives climate change;²⁸ and it adds fuel to resource conflicts, terrorism, and rivalries, and quite possibly impedes democratization in oil-rich countries.²⁹

Energy Solutions and Challenges: Much Work Left to Do

The overly optimistic or under-appreciated notions examined in this book are not only contributing to an exaggerated view of what the shale oil boom can deliver for American and global oil security, but also are undermining efforts to find and implement solutions to decrease oil use and generate a more sustainable future. The American oil boom is decreasing US oil dependence and helping meet global oil demand, but it's far more important to decrease overall oil consumption in order to achieve oil security. Doing so can address problems that cannot be dealt with easily or at all by increasing oil production.

What makes the oil problem even more pressing is that America's record on energy has been weak and remains dubious, and that is also true for industrializing states. The United States has been better at decreasing oil dependence than at decreasing its oil consumption. In fact, if we take the long view, the United States has not even done

much to decrease oil dependence, much less oil use, with serious advances achieved only in recent years. It did cut its oil imports by half in the period 1977–1982,³⁰ largely in response to the 1973 Arab oil embargo.³¹ But America’s victory was short-lived. As memories of the oil shock faded, so did the US commitment to more long-term energy measures. Its dependence on oil imports grew from 35 percent in 1973 to around 60 percent until around 2007,³² despite the promises and efforts to decrease US oil dependence in that period, and then dropped to well under 40 percent in 2014. That was due largely to the US boom and greater energy efficiencies, but America used almost exactly the same amount of oil in 2013 that it used in 1973 before the oil embargo,³³ albeit for a far larger economy. In this sense, some progress has been made on decreasing oil consumption, but not nearly what was expected in response to the Arab oil embargo, nor what is necessary for oil security.³⁴

At the macro level, Figure 1.2 illuminates changes in America’s energy consumption over time and underscores how much work it has to do to shift away from fossil fuels and especially petroleum. As we can see, petroleum, natural gas, and coal have dominated

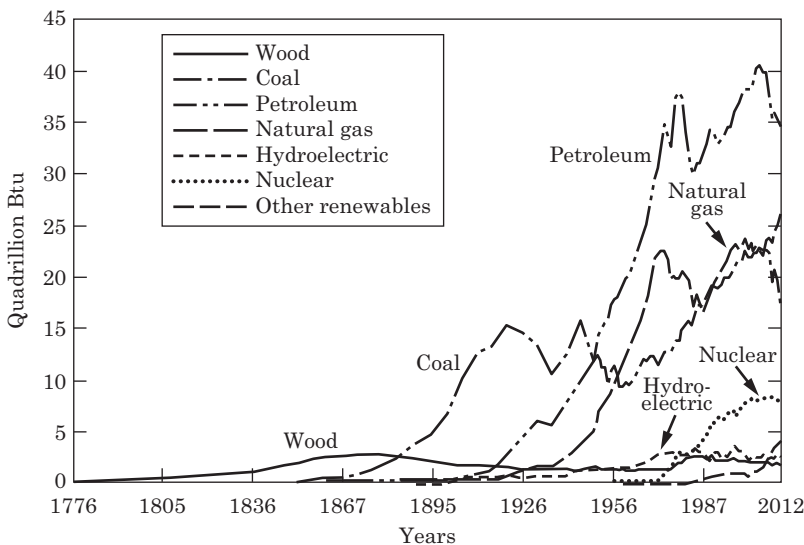


FIGURE 1.2 History of Energy Consumption in the United States (1776–2012)

Source: Adapted from US Energy Information Administration, Annual Energy Outlook 2013, July 2013.

American energy for over 100 years. Although the United States has progressed in terms of drawing upon renewables, the EIA projects in its reference case (which assumes no significant change in current laws, regulations, and policies) that oil, natural gas, and coal will dominate through at least 2040, at which point they will still account for more than three-quarters of the nation's energy consumption.³⁵

The Obama administration has moved further than perhaps any administration in developing approaches for decreasing both oil imports and oil consumption and trying to address climate change, but it has not developed a comprehensive energy policy to meet those goals and is far off from implementing one. Nor is it clear what future administrations will do. They could reverse the thrust of the Obama administration's policies or slow their implementation.

In the post–September 11 environment, and with American troops in both Iraq and Afghanistan, the connection between oil and US national security grew stronger in the public mind and in government.³⁶ The Energy Policy Act of 2005 was the first major energy-related legislation of any kind since the early 1990s, and the even more far-reaching Energy Independence and Security Act of 2007 soon followed.³⁷ Under Obama, the Environmental Protection Agency has also put in place much higher fuel efficiency standards for automakers, requiring a fleet average of 54.5 miles per gallon by 2025.

Indeed, in his 2013 State of the Union speech, Obama stated that if Congress failed to act on climate change, he would direct his “Cabinet to come up with executive actions we can take, now and in the future, to reduce pollution, prepare our communities for the consequences of climate change, and speed the transition to more sustainable sources of energy.”³⁸ He also suggested his administration would work at “shifting our cars and trucks off oil.”³⁹ And he set a goal to cut energy waste through increased efficiency, which can save consumers money, propel investments in manufacturing, improve grid resiliency, and cut carbon pollution.

All these goals are fine, but will plans be developed effectively to meet them? To what extent can they be implemented in the coming

decades? Energy problems cannot be solved overnight or even over several decades, but will instead require a marathon project.

Plenty of reasons have been offered for America's lack of a comprehensive energy policy. Often, presidents have blamed the other political party for the problem. Bemoaning the lack of a comprehensive energy policy, President George W. Bush asserted how unfortunate it was that "Democrats in Congress are standing in the way of further development."⁴⁰ For his part, Obama claimed that energy policy was hostage to "the same political gridlock, the same inertia that has held us back for decades."⁴¹ While on the campaign trail in his bid for the presidency, he often repeated a similar tune: "Washington's been talking about our oil addiction for the last 30 years, and McCain has been there for 26 of them. . . . Now is the time to end this addiction, and to understand that drilling is a stop-gap measure, not a long-term solution."⁴²

Another common explanation is that efforts to produce sensible plans have failed because the major energy and automobile companies don't want America to start using less of their product, so they use policy pressures to influence the public, Congress, and the executive branch.⁴³ Other arguments revolve around the notion that members of Congress want to support American energy firms to protect jobs in their districts, that American bureaucracies are too inefficient to address the problem, and that oil is so cheap that other alternatives make less sense and thus are either not pursued or are rejected in the marketplace. And some argue that Americans are just short-term thinkers, from the consumers who seek immediate gratification, which predisposes them against actions that can decrease oil use such as buying more efficient, high-cost vehicles; to the politicians who want to be elected in the next term; to the CEOs of major companies, who want to deliver bottom-line profits to demanding stock holders.

There is much truth in all these arguments and they explain a good part of the picture, but they also miss a simpler answer: we're freighted with notions about oil security and the American oil boom that are overly optimistic or under-appreciated.

Contributing to Thought on American and Global Oil Security

In 2012, Oxford University Press published my bibliography of the best books and articles dealing with the politics of global oil. It showed that relatively few studies in political science focus on global oil, although notable exceptions certainly exist.⁴⁴ This is especially remarkable given the centrality of oil to global economic, strategic, and political challenges and developments. Students of government and world affairs are fundamentally interested in subjects such as war and peace, terrorism, economic development, the environment, international institutions and cooperation, globalization, and hegemony, but despite the fact that energy crosscuts and informs all of these subjects, it is comparatively ignored in the literature. That leaves a blind spot across important areas of study in political science and international studies. It's important to bring energy into the mainstream of international relations scholarship and thinking.

Even in the broader field of energy studies beyond political science, books tend to focus on domestic sources of energy far more than on oil security and the geopolitics of oil writ large.⁴⁵ This book is perhaps the first to examine the American oil boom and one of few to tackle oil security comprehensively. It is hoped that it will appeal to scholars, students, and the layperson who is interested in world affairs, and it is written with this broader audience in mind.

In brief, then, the goal of this book is to give the reader a better understanding of oil-era dynamics, how much the American oil boom will really impact these dynamics, and how under-appreciated or overly optimistic ideas about energy security are impeding our ability to implement more effective energy solutions. The complexities of these interrelated dimensions of the study of oil security are laid out. Each of this book's first three sections examines one aspect of oil security. The fourth section explores energy solutions, and lays out the synergistic strategy for addressing the difficult challenges posed by our petroleum era.

I

Oil Markets, Politics, and Prices

America's Oil Boom Will Substantially Lower Long-Term Oil Prices

THE SURGE IN US oil production has major implications for America and the world. Many people even see it as a revolution in US oil and national security, as suggested by the avalanche of news stories and articles devoted to the prospect of American energy independence. But are we too optimistic about the boom's long-term impact on oil prices?

The Benefits of the Oil Boom

America's oil boom has been widely celebrated, and that does make some sense. By decreasing oil imports, the US balance of trade has improved. A Goldman-Sachs report suggests that the US trade deficit may decrease by as much as 10 percent by 2020, and that the increases in oil and natural gas production will promote US gross domestic product (GDP) growth and generate billions in federal, state, and local tax revenues.¹ A Citigroup report adds that real GDP could increase significantly by 2020,² and that 600,000 jobs could be added in the oil and natural gas extraction sector, and 1.1 million jobs in related industrial and manufacturing activity.³ Lower oil prices also boost the American economy, chiefly