

# Oil and the Trade Deficit

RISING ENERGY EXPENDITURES AND U.S. ENERGY SECURITY

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DIPLOMATIC COUNCIL  
ON ENERGY SECURITY



Securing America's  
Future Energy

MAY 2012



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The Diplomatic Council on Energy Security is a bipartisan coalition of former U.S. ambassadors who have come together to call attention to the diplomatic and foreign policy constraints posed by America’s dependence on oil. Members of the group add their prominent voices and bipartisan credibility to the crucial national debate and push for policies intended and required to strengthen economic stability and bolster national security for current and future generations.

In the first of a series of reports, the Council explores an increasingly pertinent issue associated with the rising cost of U.S. oil imports. This cost is a major factor behind the growth of the U.S. trade deficit to a potentially unsustainable and damaging level.

IN MEMORIAM

Ambassador Charles T. Manatt  
DOMINICAN REPUBLIC, 1999-2001

Ambassador Peter Terpeluk, Jr.  
LUXEMBOURG, 2002-2006

Securing America’s Future Energy and members of the Council extend our deepest appreciation to Ambassadors Charles T. Manatt and Peter Terpeluk, Jr. for their service to the nation.

Ambassador Manatt served as a founding co-chair of the Council. His insight and expertise were critical to its formation. Ambassador Terpeluk served as a member of the Council since its establishment. Both will be greatly missed.

## LETTER TO THE PRESIDENT, CONGRESS, AND THE AMERICAN PEOPLE

The nation's dependence on oil poses a serious and ongoing threat to economic and national security.

Oil is traded globally and oil prices are set in open commodity markets. These prices are affected by events in oil-producing and oil-consuming nations around the world in addition to events in nations that host important shipping channels or infrastructure. High and volatile oil prices driven by both demand and supply factors result in vast wealth transfers and cause severe economic disruption and dislocation, and every American recession over the past four decades has been preceded by—or occurred concurrently with—an oil price spike, including the most recent.

U.S. armed forces expend enormous financial and human resources patrolling oil transit routes and protecting chronically vulnerable infrastructure across the globe. American diplomacy is constrained by the need to minimize disruptions to the flow of oil. Hostile regimes in numerous oil-producing countries and regions, that share neither our values nor our interests, grow rich with petrodollars. Both the United States and its allies are put at risk.

The events that unfolded across the Middle East and North Africa last year and continued regional tensions today—particularly with respect to Iran—demonstrate clearly how both physical supply outages and the fear of future disruptions play an important role in determining the price of oil. A history of regional instability and few reasons to be optimistic that a prolonged period of instability is not ahead only serve to underscore the necessity of urgent action to address U.S. oil dependence.

As recently as 2002, the annual U.S. trade deficit in petroleum was less than \$100 billion and its contribution to the total U.S. trade deficit in all goods and services below 25 percent. Six years later, when oil prices peaked at \$147 per barrel in July 2008, the trade deficit in petroleum contributed 65 percent of the

monthly total. Progressively higher oil prices have in fact increased the total cost of the net U.S. oil import burden in recent years even as import volumes have declined. As a result, the United States has run an aggregate deficit in petroleum of more than \$1.5 trillion since 2007. In 2011, oil import prices averaged a record \$103 per barrel. Despite continued growth in domestic oil production and a first year of net petroleum product exports since 1949, the U.S. trade deficit in oil increased to \$327 billion, contributing 58 percent to the total, its highest ever annual share.

The size of the U.S. trade deficit creates significant risks and vulnerabilities for the economy, including an increased dependence on consistent capital inflows from foreigners. This compounds America's international debt burden while lowering the prospects for long-term U.S. economic health. A readjustment of the U.S. trade balance is almost certain to be necessary. This process will likely harm the American economy and American families.

There are opportunities to mitigate this damage. Petroleum represents a crucial component of the U.S. trade deficit on which changes in policy can have a clear, direct, and significant impact. This report outlines the threat that this emergent challenge poses to the nation. It is yet another important argument for taking critical steps to end U.S. dependence on oil.



Ambassador Elizabeth Frawley Bagley  
PORTUGAL, 1994-1997  
CO-CHAIR, DIPLOMATIC COUNCIL  
ON ENERGY SECURITY



Ambassador Alfred Hoffman, Jr.  
PORTUGAL, 2005-2007  
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## Introduction

In 2011, petroleum products accounted for 58 percent of the total U.S. trade deficit—more than double the percentage just a decade earlier.<sup>1</sup>

Despite sporadic efforts since the oil crises of the 1970s and a more aggressive focus in very recent years to reduce U.S. oil consumption, petroleum is still used to supply nearly 40 percent of total U.S. primary energy demand.<sup>2</sup> The transportation sector, which accounts for approximately 70 percent of total U.S. oil consumption and is crucial to the strength of the broader economy, derives 94 percent of its total energy from oil.<sup>3</sup> The economic significance of oil is therefore unmatched by any other fuel or commodity. With no commercial fuel substitutes currently available at scale to the transportation sector, the nation will likely remain heavily dependent on petroleum for several decades.

Determined in global commodity markets, oil prices can be high and extremely volatile. After peaking at \$147 per barrel (/bbl) in July 2008 then falling as low as \$30/bbl by December, they have once again risen to exceed \$100/bbl. A combination of increasing global demand and particularly threats to supply over

the past 18 months has prompted the renewed rise. Last year, popular uprisings in the Middle East and North Africa, for example, and lost Libyan production (peak) of 1.5 million barrels per day (mbd) helped send oil prices upward by more than 20 percent.<sup>4</sup> At its peak, Libya's oil production declined by 1.5 million barrels per day (mbd). An expected supply response from other members of the Organization of Petroleum Exporting Countries (OPEC)—primary holders of spare production capacity—was not forthcoming. In fact, increased production only came a full five months into Libya's protracted civil war after OPEC's June meeting ended in disarray as members failed to come to a consensus to raise output.<sup>5</sup> In more recent months, strengthened international sanctions against Iran (including restrictions on petroleum purchases) and Iran's equally aggressive posture towards the international community (including threats to close the Strait of Hormuz, through which approximately 17 mbd is shipped) have continued to rattle the global market, and prices remain high and volatile.<sup>6</sup>

1 U.S. Census Bureau, *U.S. International Trade in Goods and Services, (FT900)*, February 2012, Exhibits 1 and 9; and Id., Annual Revision for 2003, Exhibits 1 and 8.

2 BP, plc., *Statistical Review of World Energy 2011* (Statistical Review), at 41.

3 Energy Information Administration (EIA), *Annual Energy Review 2010* (AER), Figure 2.0, at 37.

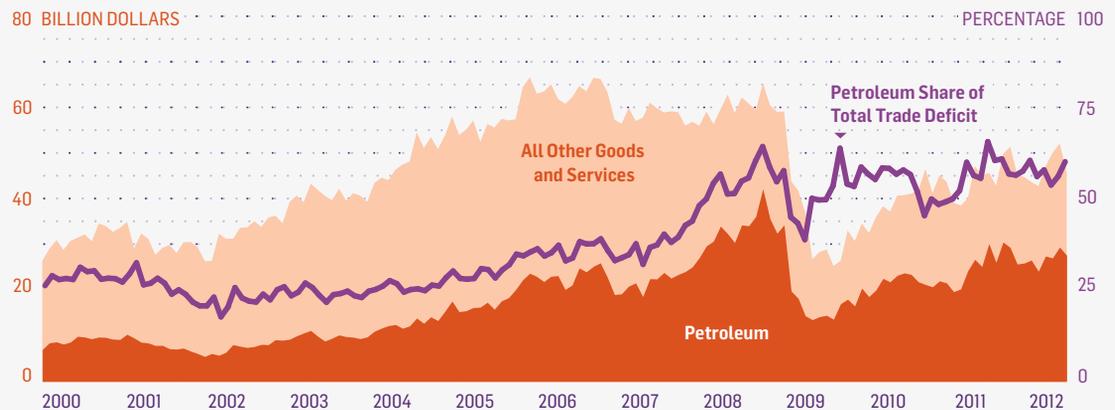
4 EIA, Spot Prices.

5 International Energy Agency (IEA), *Oil Market Report (OMR)*, July 2011, at 19.

6 Id., Analysis Briefs, World Oil Transit Chokepoints.

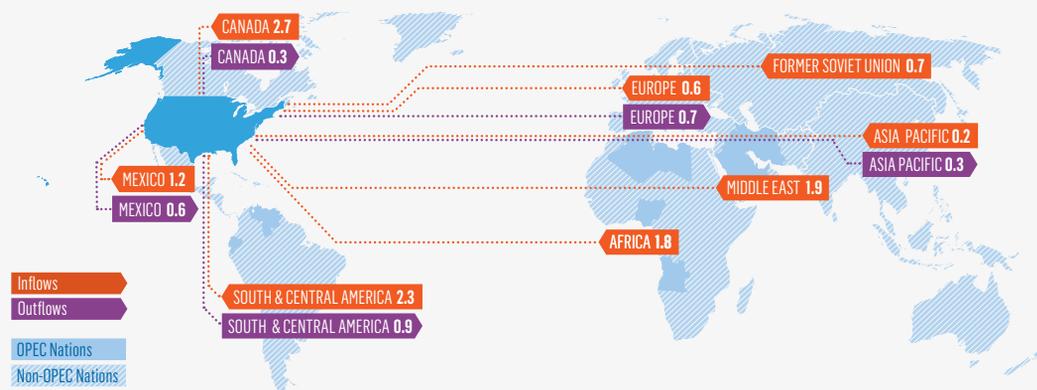
FIGURE 1

### Monthly U.S. Trade Deficit



Source: U.S. Census Bureau

FIGURE 2  
U.S. Petroleum Trade Flows, 2011  
MILLION BARRELS PER DAY



Source: EIA

These high prices help to strengthen global oil producers—many of which are hostile to U.S. interests—while simultaneously threatening national security and the domestic economy. For example, the U.S. military today carries the burden of protecting the unstable regions and vulnerable supply routes through which oil passes. America's ability to wield international influence is also undermined by its need to minimize supply disruptions, a condition that extends to allies and partners in Europe and Asia.

Most of the economic risks of U.S. oil dependence are also well understood and widely recognized. But a new challenge is emerging. The rising cost of net U.S. petroleum imports is a major factor behind the growth of the U.S. trade deficit to an unsustainable and potentially damaging level.

Despite the remarkable increases in oil prices, particularly in the past decade, U.S. oil consumption remained relatively stable through 2007. Although demand fell considerably in 2008 and 2009 as the recession took hold, steady economic recovery and lower average petroleum prices (more comparable to 2007 levels) prompted a rebound in 2010. Continued upward pressure on prices in 2011 helped push U.S. demand back down by approximately 1.7 percent.<sup>7</sup>

However despite marginally declining consumption and a third-straight year of growth in domestic production, the United States still imported almost 50

percent of its oil in 2011.<sup>8</sup> The total value of the U.S. trade deficit exceeded half a trillion dollars, and—for the fourth straight year—the net import bill for crude oil and petroleum products contributed more than 50 percent of that total.<sup>9</sup> Imported crude prices are currently forecast to average more than \$112/bbl in 2012, which is likely to further increase the petroleum-related trade deficit this year despite another expected year-over-year decline in import volumes.<sup>10</sup>

A trade deficit of this magnitude cannot be sustained indefinitely. It creates significant risks and vulnerabilities for the U.S. economy, including an increased dependency on consistent foreign capital inflows and the accumulation of liabilities to foreigners. This accumulation compounds America's international debt burden while lowering the prospects for long-term U.S. economic health.

A readjustment of the U.S. trade deficit from current levels is almost certain to be necessary. This process, whether controlled and more limited in its negative impacts, or severe and more damaging, will likely harm the U.S. economy. There are, however, opportunities to mitigate the damage, and petroleum represents a crucial component of the trade deficit on which changes in policy can have a significant impact.

8 Id.; and Id., U.S. Net Imports by Country.

9 U.S. Census Bureau, *FT900*, Annual Revision for 2010, Exhibits 1 and 9; and Id., *FT900*, February 2012, Exhibits 1 and 9.

10 EIA, *Short Term Energy Outlook (STEO)*, April 2012, Forecast Imported Crude Oil Price, Production, and Consumption data.

7 Id., Product Supplied.

## Petroleum and the Trade Deficit

Each day, the United States consumes as much oil as China, Japan, Russia, and Germany combined.<sup>11</sup>

### HISTORY AND BACKGROUND

Almost 40 percent of total U.S. energy needs are met by petroleum—more than any other energy source—and at approximately 19 mbd, the American economy is responsible for more than one-fifth of total global oil consumption.<sup>12</sup> For decades, much of this oil has been imported—in recent years at an increasingly high cost. Despite a recent turnaround in domestic oil production, including three consecutive years of growth (2009-2011), and an increasingly positive long-term production outlook, more than 60 percent of U.S. crude oil was still imported in 2011.<sup>13</sup>

As recently as 2002, the U.S. trade deficit in crude oil and petroleum products was less than \$100 billion. By 2008, with oil prices reaching all-time highs, the number was close to \$400 billion, which represented 55 percent of the total U.S. trade deficit.<sup>14</sup> Even in 2009, when oil prices collapsed, crude oil and petroleum products still accounted for more than 50 percent of the total U.S. trade deficit. By 2010, as the global economy entered a period of recovery, total expenditures on petroleum products were growing again, exceeding 2007 levels.<sup>15</sup> Despite further decline in the volume of oil imported, expenditures rose again in 2011 as prices continued on a generally upward trajectory and demand remained reasonably robust.

The vnear-immediate impact of an oil price increase is shown clearly by the unequal adjustment of petroleum and non-petroleum balances. For example, the monthly trade deficit in all goods and services increased from \$59 billion to \$66 billion between July 2007 and July 2008—the 12 months preceding the price of oil peaking at \$147/bbl. The petroleum deficit alone increased from \$24 billion to \$42 billion during this period.<sup>16</sup> Therefore, while the trade deficit in other

goods and services actually declined by approximately \$11 billion over the period, the entire decline was more than offset by the increased cost of petroleum imports. In other words, a worsening of the petroleum trade deficit accounted for fully 100 percent of the worsening in the overall trade deficit. Similar phenomena, even on a month-to-month basis, have been observed within the past year.

While oil has not always driven U.S. trade deficits to the extent that it does now, it has been a contributor for decades. For almost 40 years, the nation's net oil import bill has represented at least 0.5 percent of gross domestic product (GDP).<sup>17</sup> Higher petroleum prices in the past decade have greatly increased this contribution. In fact, the net oil import bill has exceeded 1 percent of GDP for the past nine years. It reached a record high of 2.7 percent of GDP in 2008, and exceeded 2 percent once again in 2011.<sup>18</sup> Today, the U.S. trade deficit in oil is typically larger than the trade deficit with any single bilateral or regional trade partner, including China and Canada/Mexico.

### Unique Impact

The nation's oil import bill is driven by a variety of factors that are unique to the petroleum industry, including; high levels of consumption and limited alternatives on the demand side, changes in domestic production, and prices driven by global market factors.

### HIGH LEVELS OF CONSUMPTION AND LIMITED AVAILABILITY OF SUBSTITUTES

Despite several short and sometimes very damaging recessionary periods, the U.S. economy has in general prospered greatly over the past three decades. Relatively low oil prices throughout the 1980s and 1990s helped facilitate expansions in domestic and

11 BP, plc., *Statistical Review 2011*, at 9.

12 *Id.*, at 8, 9, and 41.

13 EIA, *Crude Oil Production*; and *Id.*, U.S. Net Imports by Country.

14 U.S. Census Bureau, *FT900*, Annual Revisions for 2009, Exhibits 1 and 9.

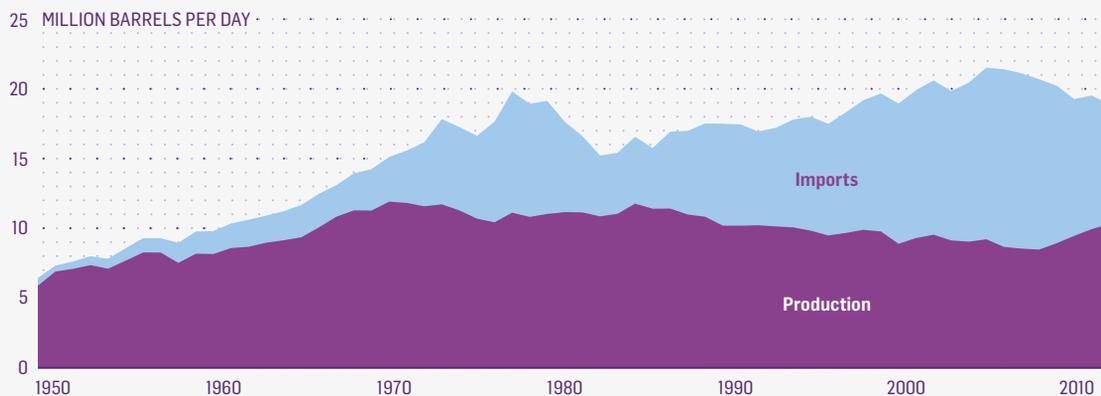
15 *Id.*; and *Id.*, *FT900*, August 2011, Exhibits 1 and 9.

16 *Id.*, *FT900*, Annual Revisions for 2009, Exhibits 1 and 9.

17 EIA, *AER 2010*, Table 3.9; and U.S. Department of Commerce, BEA, National Income and Product Accounts (NIPAs), Table 1.1.5.

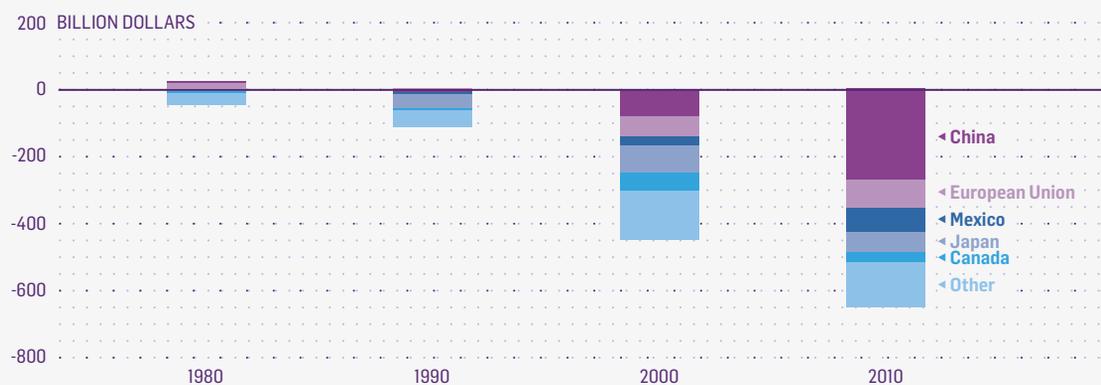
18 *Id.*; and EIA, *STEO*, April 2012, Imported Crude Oil Price, Production, and Consumption data.

FIGURE 3  
Total U.S. Oil Consumption



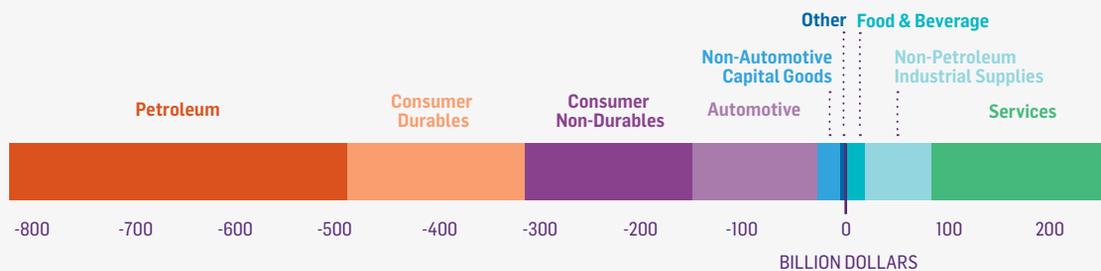
Source: EIA

FIGURE 4  
Goods Trade Balance by Trading Partner



Source: U.S. Department of Commerce

FIGURE 5  
Trade Balance by Product Type, 2011



Source: U.S. Department of Commerce



There are both direct and indirect effects of rising oil prices on the trade deficit. The primary direct effect is that rising prices increase the total cost of oil imports and cause the trade deficit in oil and petroleum products to increase. Inelastic U.S. demand for petroleum products prevents substantial offsetting of this effect through reduced consumption.

Indirectly, higher oil prices raise costs and leave U.S. businesses and consumers with fewer resources to purchase non-petroleum items. For businesses this can include hiring and therefore negatively affect employment levels. The resulting contraction in domestic demand (for both domestic and foreign non-petroleum items) generates a downward readjustment of relative prices. Subsequently, higher foreign demand, spurred by these lower relative prices—and for oil-producing nations, higher incomes—increases U.S. exports and helps return the trade deficit towards its baseline level over time.

However, in practice, the reaction to changes in relative prices will encounter some lag and some level of attrition. For example, oil-producing nations do not typically expand spending as much as revenues go up. If the quantity of these ‘petrodollars’ exceeds internal needs, they must be reinvested in profitable opportunities abroad (including in the United States) in order to approximately maintain a constant level of global economic activity. Illustrative of the imbalance is the fact that for each dollar the United States spent on oil imports from OPEC in 2011, only 34 cents came back by way of U.S. exports to those countries.<sup>19</sup>

Without a downward adjustment of the non-petroleum deficit, the overall adjustment process will be slow. For example, the non-petroleum deficit only began to show substantial decline in 2007 and has not fluctuated as severely as the petroleum balance (which has become closely aligned with the movement of the total trade deficit). The adjustment process of the total deficit is further slowed by oil prices remaining high.

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<sup>19</sup> Financial Times, “OPEC trade fails to cushion US and Japan,” April 17, 2012.

international trade, enabling Americans to take advantage of low-cost travel and low-cost goods from all corners of the globe.

Between 1985 and 2005, total U.S. petroleum consumption increased by more than 5 mbd—32 percent. U.S. oil demand growth initially leveled off in 2005 and total consumption was essentially flat through 2007 at roughly 20.7 mbd. The recession that began in December 2007 caused oil demand to fall by approximately 5.5 percent in 2008 and a further 4.0 percent in 2009—a total domestic demand reduction of approximately 2 mbd.<sup>20</sup>

Regardless of transitory or cyclical economic conditions, U.S. oil consumption continues to be dominated by the transportation sector. At approximately 13 mbd, this sector alone consumes more oil than any other national economy.<sup>21</sup> With no substitutes currently available at scale, petroleum products provide 94 percent of the sector's delivered energy.<sup>22</sup> At approximately 23 percent, the industrial sector is the next largest consumer. The residential and commercial sectors

(6 percent) and the electric power sector (1 percent) account for the remainder.<sup>23</sup>

For most Americans, fundamental daily needs, whether commuting to work or shopping for groceries, necessitate the use of their vehicles. Demand for oil is highly inelastic in the short term, with consumers only able to reduce consumption to a limited extent when fuel prices rise.

Indeed as consumption remains reasonably flat, rising prices prompt large increases in expenditures on petroleum products by consumers and businesses alike. In fact, in 2011, despite an annual decline in overall consumption, these expenditures reached \$900 billion—equivalent to approximately 6 percent of gross domestic product—and more than \$200 billion higher than in 2010.<sup>24</sup>

The transportation sector, and highways in particular, will remain the key driver of U.S. oil consumption in the future. The U.S. driving population is expected to increase from 209 million in 2010 to 265 million in 2035, leading to a 36 percent increase

20 EIA, Product Supplied.

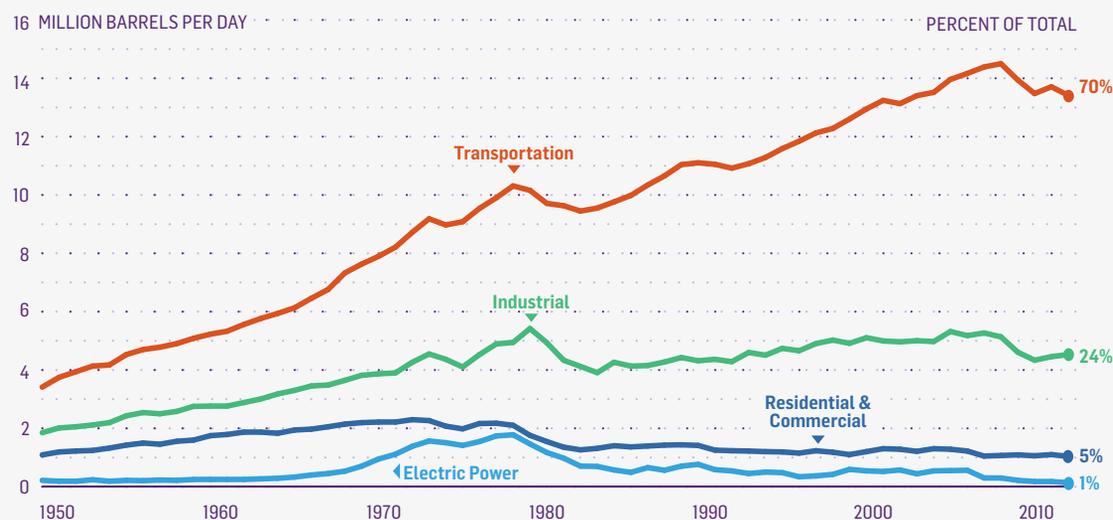
21 Id., *AER 2010*, Table 5.13c; and BP, plc., *Statistical Review 2011*, at 9.

22 EIA, *AER 2010*, Figure 2.0.

23 Id., *Monthly Energy Review (MER)*, March 2012, Tables 3.7a, 3.7b, and 3.7c.

24 Id., *AER 2010*, Table 3.9; and U.S. Department of Commerce, BEA, NIPAs, Table 1.1.5.

FIGURE 6  
U.S. Oil Consumption by Sector



Source: EIA

## RISING COSTS OF DEVELOPMENT

Low-cost resources still exist in substantial quantities, but they are most commonly located in countries or regions that do not permit international oil companies (IOCs) to operate freely. As a result, IOCs have increasingly expanded the boundaries of technological possibility in those places where they can operate. Finding and developing these resources is costly and complex.



in light-duty vehicle miles traveled.<sup>25</sup> Freight miles traveled are forecast to increase by 46 percent over the same period.<sup>26</sup> Air travel is also expected to experience rising demand. Although improvements in vehicle fuel efficiency are expected to lower long-term gasoline consumption, particularly in the light-duty fleet, use of jet, diesel, and other liquid transportation fuels is expected to rise.<sup>27</sup> In fact, the U.S. Department of Energy currently forecasts total liquid fuels consumption to increase by approximately 4 percent between 2010 and 2035.<sup>28</sup>

### IMPROVED PROSPECTS FOR GROWTH IN DOMESTIC OIL PRODUCTION

In direct contrast to U.S. oil demand, U.S. oil production peaked in 1970 and fell steadily from the mid-1980s until 2007.<sup>29</sup> Since 2008, however, high oil prices and continued technological advances that enable both more complete production from mature fields and the development of new fields in challenging locations have spurred a renaissance in domestic production.

Although some onshore areas, particularly in Alaska and on the West Coast, have seen production declines, onshore crude production has increased in the Gulf Coast and Midwest since 2005, largely thanks to the application of new technologies to shale oil resources. Growth in production of these unconventional resources has been impressive—output from the Bakken shale in North Dakota, for example, increased from just a few thousand barrels per day in 2005 to 490,000 barrels per day in February 2012.<sup>30</sup>

Congressional moratoria, litigation, and leasing and permitting decisions each can play a role in slowing the development of the domestic resource base. Nevertheless, offshore, and deepwater areas in particular, have become an increasingly important source of U.S. oil production and are expected to remain so in the future. Deepwater and ultra-deepwater production accounted for more than 80 percent of total offshore production in the Gulf of Mexico in 2009, for example, up from less than 20 percent in the mid-1990s.<sup>31</sup>

25 EIA, *Annual Energy Outlook 2012* (AEO), Tables 7 and 60.

26 Id., Table 7.

27 Id., Table 2.

28 Id.

29 BP, plc., *Statistical Review 2011*, Historical data.

30 North Dakota Industrial Commission, Department of Mineral Resources, Drilling and Production Statistics.

31 EIA, *This Week in Petroleum*, "Production, Proved Reserves and Drilling in the Ultra-Deepwater Gulf of Mexico," May 26, 2010.

There remain some reasons to be cautious, particularly with respect to the development of onshore resources which are still in the early stages of development. Downside risks to domestic production could in fact take a number of forms, from lower oil prices, to faster-than-expected well decline rates, to regulatory shifts. Extracting these “new” resources also requires the investment of substantial capital per barrel, from specialized drilling equipment and oversized offshore platforms to additional costs for pipelines, tankers, and refineries. Simply put, whether it is a question of more wells or more complex wells (or both), the development of incremental domestic resources is becoming more expensive.

All things being equal, rising domestic production will have a beneficial impact on the U.S. trade deficit. The U.S. Department of Energy currently forecasts increases in domestic oil production and global oil prices, and a roughly constant level of domestic oil consumption—the size of the U.S. trade deficit in oil is of course a function of all three. Despite a substantially reduced reliance on oil imports, projected annual net expenditures on these imports increases by approximately \$40 billion over the next decade—an estimated total

expenditure of \$3.5 trillion.<sup>32</sup> Without question, this increase would be significantly larger without rising domestic production displacing imports on a near one-to-one basis.

### U.S. IMPORTS AND THE GLOBAL MARKET FOR OIL

Oil is a fungible, global commodity, the price of which is set in open, global markets. As a result, changes in supply or demand anywhere can have an impact on prices everywhere. All consumers pay the same amount for a given volume of a specific crude variety. Any price disparities are accounted for by differences in oil quality and location.

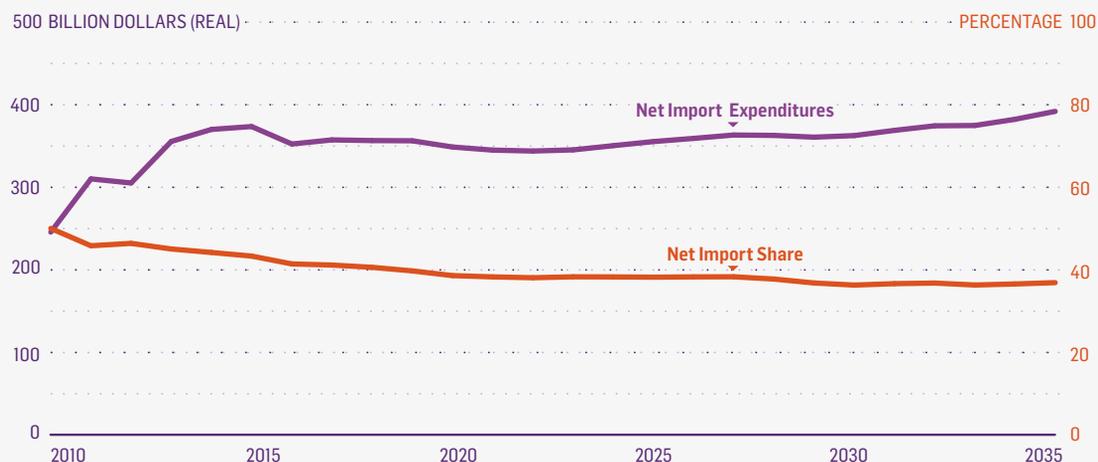
However, despite the global nature of the market for oil, it does not operate freely. Global oil reserves and production capacity are concentrated in relatively few nations. OPEC—a 12-member group of national oil companies (NOCs) which accounts for 77 percent of global oil reserves and more than 40 percent of production—operates as a cartel, setting supply quotas in order to influence market prices.<sup>33</sup>

<sup>32</sup> Id., *AEO 2012*, Table 11.

<sup>33</sup> BP, plc., *Statistical Review 2011*, at 6 and 8.

FIGURE 7

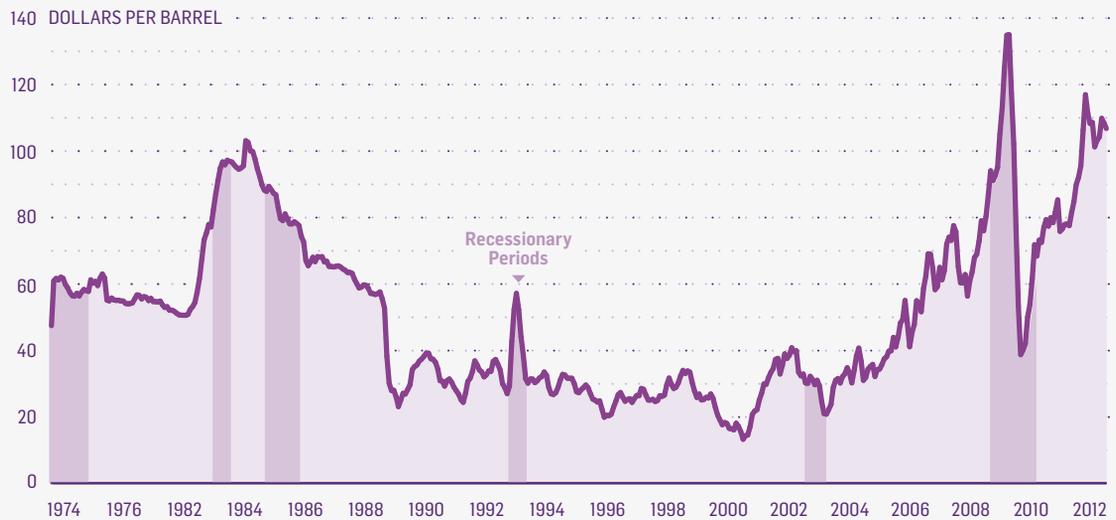
## Forecast Net Import Share and Net Expenditures for Crude Oil and Petroleum Products



Source: EIA

FIGURE 8

## Real Imported Monthly Crude Oil Prices



Source: EIA; and National Bureau of Economic Research

Moreover, geopolitical instability in producing nations has caused sudden disruptions to oil supplies and resulted in price spikes that affect consumers globally. As continued events in the Middle East and North Africa have shown, crises such as civil unrest in oil-producing nations, oil facility closures, and even regional tensions, still retain the power to strongly influence the global price of oil despite levels of spare production capacity that are reasonably high by recent historical standards (when, for example, compared to the period 2003-2008).<sup>34</sup> This occurs in part because when producers with spare production capacity increase output to offset losses elsewhere in the system (e.g. other members of OPEC raising production to offset Libyan losses) their ability to respond to other possible supply interruptions is reduced.

Despite strong recent oil production growth and generally more bullish medium-term forecasts in several non-OPEC nations—including the United States, Brazil, Canada, Columbia, and Russia—over

the long term, the global oil market is still likely to become increasingly reliant on a limited number of OPEC nations whose share of total production is expected to grow from 42 percent in 2010 to 51 percent in 2035.<sup>35, 36</sup>

Oil market dynamics are also highly sensitive to global policy action (or inaction). For example, with ongoing efforts to reduce oil use in every major consuming nation, the demand outlook is continually being adjusted.

However, ultimately, rapid aggregate growth in oil demand from emerging nations threatens to once again tighten the global balance between demand and supply, as it did in the mid-2000s through 2008. In fact, despite lower projected Organization for Economic Co-operation and Development (OECD) oil consumption by 2035, the International Energy Agency (IEA) forecasts total global oil demand to increase by between 15 and 24 percent over the same period, with fully 100 percent of this increase attributable to non-OECD nations.<sup>37</sup>

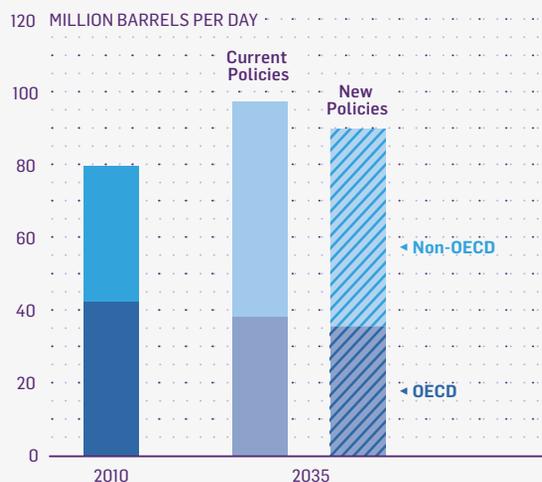
34 Effective OPEC spare capacity has been falling steadily since early-2011 and in recent months has slipped below 3 mbd—a level not seen since 2008 and equivalent to approximately 3 percent of daily global demand.

35 IEA, *OMR*, December 2011, at 24-25.

36 *Id.*, *World Energy Outlook 2011* (WEO), Table 3.4, at 122.

37 *Id.*, Table 3.1, at 105.

FIGURE 9  
Global Oil Demand Projection



Does not include bunker fuels, and excludes biofuels, which are projected to rise from 1.3 mbd in 2010 to 4.4 mbd in 2035 in the New Policies Scenario.

**Current Policies** is based upon a perpetuation of government policies and measures that had been enacted or adopted by mid-2011, without further change.

**New Policies** incorporates the broad policy commitments and plans that have been announced by countries around the world, even where specific measures to implement these commitments have yet to be announced.

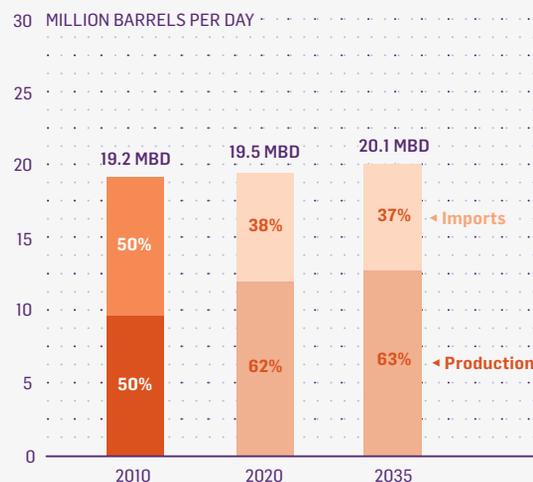
Source: IEA

The interplay between these demand and supply factors and their effect on prices also adds a significant risk premium to investments in new productive capacity—especially in OPEC nations. As a result, some investments that would be profitable at relatively high (but stable) oil prices are foregone.

### FUTURE OUTLOOK

Although substantial uncertainty surrounds the outlook for oil prices, particularly in the short term, most forecasts predict a long-term, upward trend. The U.S. Department of Energy forecasts that oil prices in real terms will increase to \$95/bbl in 2015, and to \$125/bbl in 2035.<sup>38</sup> In their High Oil Price case, they estimate \$200/bbl in 2035.<sup>39</sup> At that price, and using currently forecast production and consumption quantities, the trade deficit in petroleum products would exceed \$530 billion—approximately 60 percent

FIGURE 10  
U.S. Oil Consumption Forecast



Source: EIA

higher than today's level, and similar in size to the total 2011 trade deficit in all goods and services.<sup>40</sup>

Although it is near-impossible to accurately forecast long-term oil prices, it is likely that they will continue to follow the pattern of climbs and sharp spikes followed by periods of relative calm that they have exhibited since the early 1970s.<sup>41</sup>

U.S. oil consumption is projected to average more than 19.5 mbd annually through 2035.<sup>42</sup> Rising domestic production is expected to reduce U.S. reliance on imports to meet this consumption over the forecast period. However, this only does so much to lessen the vulnerability of the U.S. economy to high and volatile oil prices, and further deterioration of the trade balance.

<sup>40</sup> Id., *AEO 2012*, Table 11.

<sup>41</sup> Dr. Howard Gruenspecht, Acting Administrator and Deputy Administrator, speaking at the release of the EIA's *IEO 2011*, at the Center for Strategic and International Studies, September 19, 2011.

<sup>42</sup> EIA, *AEO 2012*, Table 11.

<sup>38</sup> EIA, *International Energy Outlook 2011 (IEO)*, at 27.

<sup>39</sup> Id., at 28.

## Prospects and Impacts

Continuous and growing U.S. trade deficits cannot be sustained indefinitely as the collective interest payments on the accumulated debt grow faster than income.

### OVERVIEW

Every country, including the United States, has two main sets of international accounts. The first—the current account—captures the value of the flow of goods and services across national borders (i.e. the difference between exports and imports). The second—the capital account—captures the value of the transfer of assets between a country and the rest of the world. The capital account is determined by the difference between total national saving and total national investment spending.

In any country, households, businesses, and governments can save (in the form, for example, of government contributions to the pension plans of government workers). If total national savings exceed total national investment spending, then a

country lends some of its capital to the rest of the world. This has been the situation in China in recent years. If, on the other hand, a country saves less than it invests, then it must borrow capital from the rest of the world. The United States has consistently been a net borrower.

By definition, the current and capital accounts must equal one another. Therefore, Americans must give something of value to foreigners to pay for a trade shortfall. This could take the form of ownership of U.S. Treasury bonds, shares in U.S. companies, or holdings of U.S. real estate. These asset transfers result in continuing payments to foreigners over time. Dividends flowing from U.S. stocks would go to the new foreign owners in perpetuity, for example, as would interest payments on U.S. bonds. In other

FIGURE 11

### The Balance of Payments

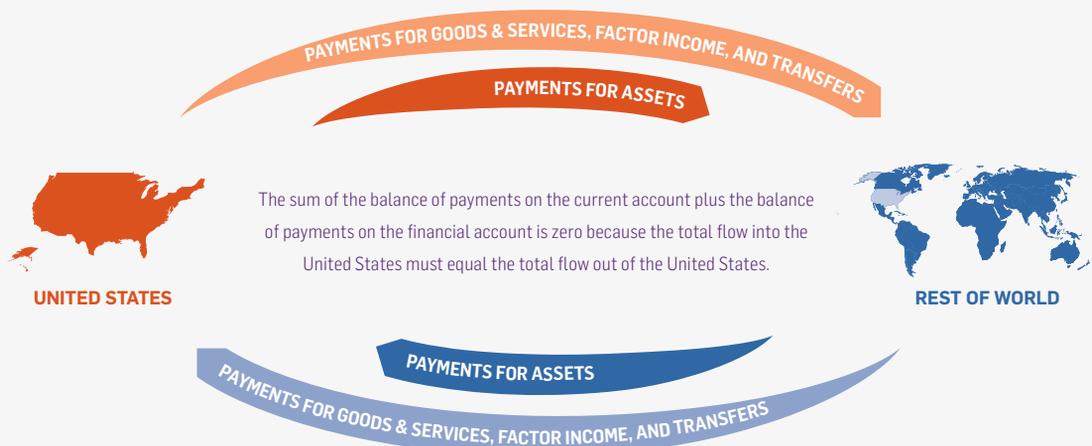
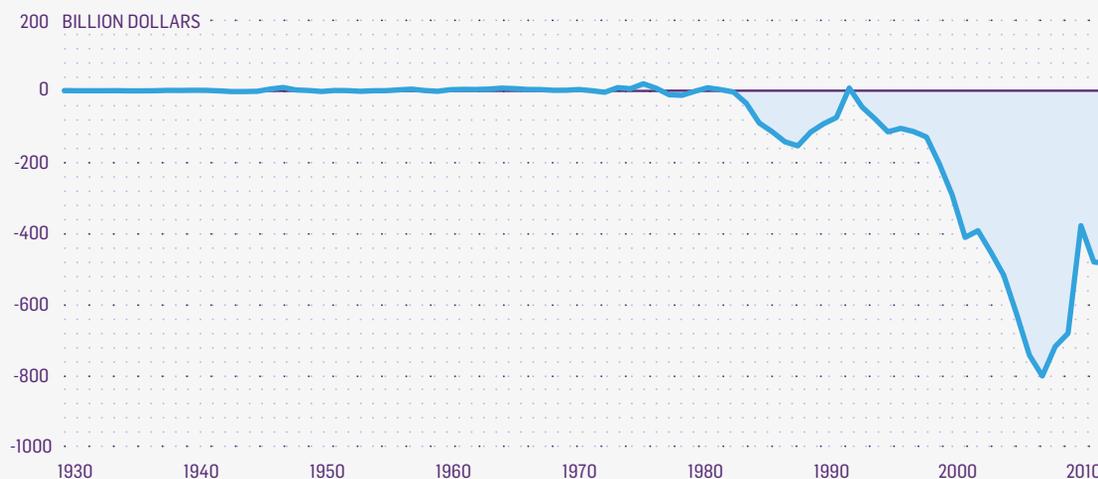


FIGURE 12

## U.S. Current Account Balance



Source: U.S. Department of Commerce

words, the U.S. trade deficit results in the productive benefits of U.S. assets increasingly being claimed by foreign entities as an offset for excessive U.S. consumption.

At an aggregate national level, a larger U.S. trade deficit (or current account deficit) requires greater sales of U.S. assets to foreigners (that is, more foreign willingness to hold U.S. assets). Likewise, greater foreign willingness to hold U.S. assets, whether U.S. debt, shares of U.S. companies, or real estate, would enable the United States to run a larger trade deficit.

### HISTORY AND CURRENT STATUS

For more than a quarter of a century, the United States has had a large and sustained trade deficit with the rest of the world. Over the past decade, the size of this deficit has, with the exception of 2009, trended significantly upwards. In fact, between 2004 and 2008, the total value of the U.S. trade deficit consistently represented more than 5 percent of U.S. GDP.<sup>43</sup>

As the nation fell into recession in late 2007, a rapid and sustained decrease in consumer spending

more than halved a \$700 billion trade deficit in just 12 months.<sup>44</sup> Since the U.S. economy began its slow recovery in mid-2009, the trade deficit has risen once again to more than half a trillion dollars in 2011. This is equivalent to approximately 3.7 percent of GDP, up from 2.7 percent in 2009 and 3.4 percent in 2010.<sup>45</sup>

U.S. domestic saving has declined notably in recent years. This decline has been accelerated by high levels of domestic consumption, low personal savings, and record government budget deficits. While it is far from the only factor, this saving-consumption trend has been heavily reinforced by the rising real cost of imported products, oil in particular.

43 U.S. Census Bureau, *FT900*, February 2012; *Id.*, *FT900*, Annual Revisions for 2009, 2007, and 2005, Exhibits 1 and 9; and U.S. Department of Commerce, BEA, NIPAs, Table 1.1.5.

44 U.S. Department of Commerce, BEA, NIPAs, Table 4.1, Data for Q2 2008 and Q2 2009.

45 U.S. Census Bureau, *FT900*, February 2012, Exhibits 1 and 9; *Id.*, *FT900*, Annual Revisions for 2010, Exhibits 1 and 9; and U.S. Department of Commerce, BEA, NIPAs, Table 1.1.5.

## Major Challenges

### LARGE DEBT BURDEN AND REDUCED ECONOMIC GROWTH POTENTIAL

Lending and borrowing between nations enables the United States to extend the gains from trade through more efficient allocations of saving and a preferred pattern of consumption over time.<sup>46</sup> This allows the nation to enjoy higher levels of economic growth and higher wages today than would have otherwise been possible at current rates of domestic saving.<sup>47</sup>

However, large and persistent trade deficits, growing ever higher, partly as a result of rising oil prices, can have a direct impact on the strength and long-term sustainability of U.S. economic growth. As the United States runs these deficits, it continues to accumulate liabilities and sell assets to foreign entities. These obligations take the form of either debt or equity.<sup>48</sup> This diverts funds towards meeting interest payments on foreign-held debt that would otherwise

be devoted to capital investment and future growth in living standards.<sup>49</sup> The outflow of capital creates a compounding debt burden for future generations while also limiting their ability to afford those payments as profitable assets are sold.

For the past two decades, the United States has run annual trade deficits for both petroleum and non-petroleum goods and services, thereby requiring it to sell physical and/or financial assets to foreign nations in exchange. The accumulated debt and transfer of wealth associated with these persistent trade deficits is substantial. As of the end of 2010, the U.S. net international investment position (NIIP), which represents the difference between the value of foreign investments held in the United States and the value of U.S. investments held abroad, totaled roughly negative \$2.5 trillion.<sup>50</sup> The U.S. NIIP has in fact been negative since 1986.<sup>51</sup> Since 1983, when the United States began running trade deficits, the cumulative principal value of wealth

46 Congressional Research Service (CRS), *The U.S. Trade Deficit: Causes, Consequences, and Cures*, Craig K. Elwell, January 25, 2008, at 15.

47 Congressional Budget Office (CBO), Memorandum, *Causes and Consequences of the Trade Deficit: An Overview*, March 2000, at 14-15.

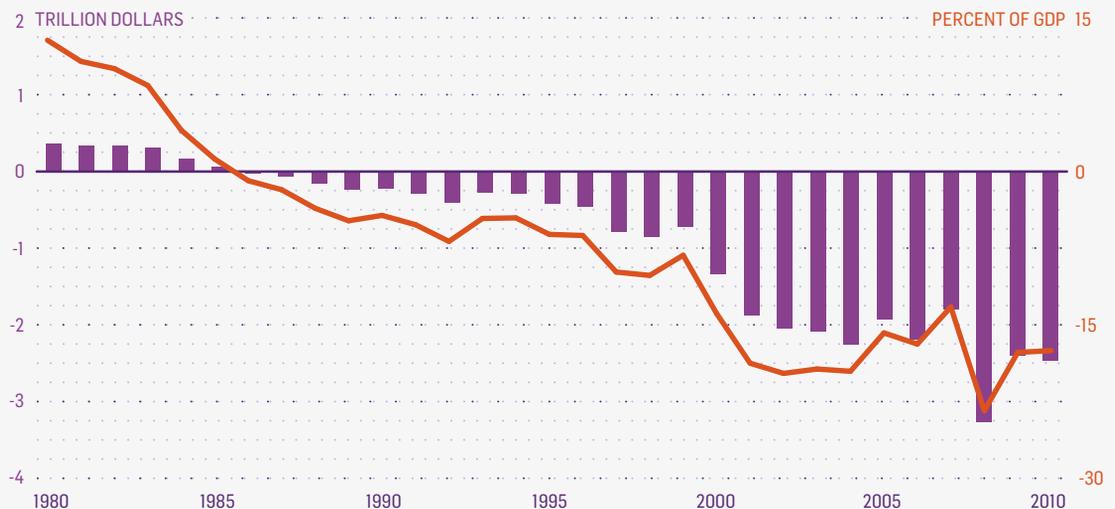
48 A share of profits and dividends must be paid to foreigners who purchase U.S. equities rather than debt. The higher the risk of these investments in comparison to federal debt necessitates a higher expected rate of return for the holder.

49 Governor Edward M. Gramlich, The Federal Reserve Board, Remarks, *Budget and Trade Deficits: Linked, Both Worrisome in the Long Run, but not Twins*, 2004.

50 U.S. Department of Commerce, BEA, International Economic Accounts, International Investment Position, Yearend positions, 1976-2010.

51 Id.

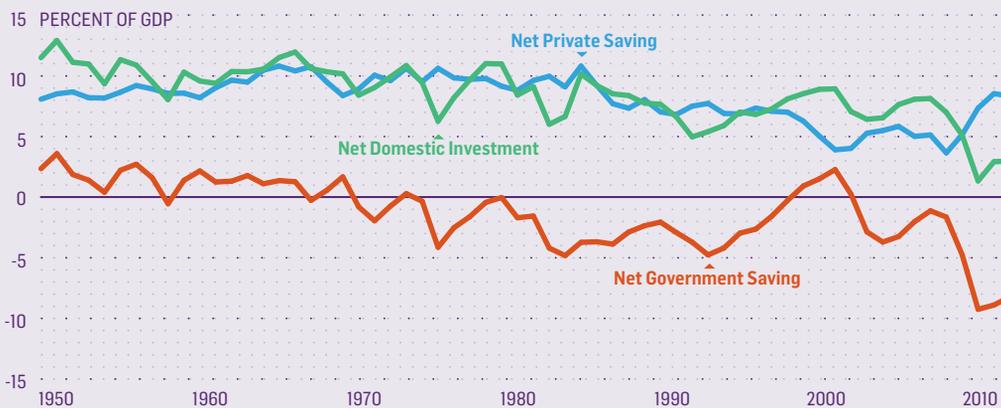
FIGURE 13  
U.S. Net International Investment Position



Source: U.S. Department of Commerce

Large U.S. government budget deficits are effectively negative saving. They cannot be fully offset by higher rates of household and business sector saving, and therefore also contribute to the nation’s dependence on foreign capital inflows to meet the desired levels of investment spending. This is despite the fact that such spending is still at relatively low levels by historical standards.

FIGURE 14  
Net U.S. Saving and Investment



Source: U.S. Department of Commerce

transferred to other nations has been \$7 trillion, approximately \$3.4 trillion of which is attributable to oil imports.<sup>52</sup>

The foreign ownership of U.S. debt and equity to finance the trade deficit, including oil, impacts the long-term growth rate of U.S. GDP and standards of living. It has been estimated that if the trade deficit remains on its strong upward trajectory over the long run, the growing stock of U.S. indebtedness will create deficits in the balance between what U.S. foreign investments earn against what foreign investments in the United States earn. The result of this could be U.S. foreign debt service payments ultimately reaching or exceeding \$100 billion.<sup>53</sup> A \$100 billion debt service obligation would amount to approximately 0.7 percent of U.S. GDP. If the long-term growth rate of real U.S.

output can optimistically be expected to average 3 percent annually, the rate of growth that is effectively available to the domestic economy would thereby be reduced to 2.3 percent. Such a change in the long-term growth rate would represent a significant decrease in the rate of improvement of living standards. At a growth rate of 3 percent, national income doubles about every 24 years, whereas at growth rate of 2.3 percent, doubling occurs only every 30 years.<sup>54</sup> Practically, as it relates to investment potential, the same is true for resources once devoted to a wide variety of other purposes that must now be diverted to cover the higher cost of oil and petroleum products—a driver behind the recent declines in domestic saving.

Large and persistent trade deficits can also have particularly acute and damaging effects on certain industries or sectors of the economy. In recent years,

52 Id., U.S. International Transactions Accounts Data, Tables 1, 2A, and 2B.

53 CRS, *The U.S. Trade Deficit: Causes, Consequences, and Cures*, Craig K. Elwell, January 25, 2008, at 17.

54 Id.

the decline of output and employment in domestic manufacturing serves as a clear example. Conversely, output and employment in more credit-sensitive industries, such as real estate, has increased, stimulated by lower interest rates afforded by foreign capital inflows.<sup>55</sup>

### GROWING DEPENDENCY ON LARGE CAPITAL INFLOWS

In order to offset a growing trade deficit, the United States has become increasingly dependent on large counterbalancing capital inflows from foreign nations. Because of this growing reliance on capital inflows, the limitation or withdrawal of investment by foreign nations could also pose risks to U.S. economic well-being. Maintaining the continued attractiveness of U.S. debt and assets is likely to become increasingly difficult.

High levels of U.S. consumption transfer huge quantities of U.S. dollars to foreign entities. These entities—nations or otherwise—often reinvest these dollars in U.S. debt and assets. Historically, the United States has provided a relatively stable investment climate with high rates of return, and is considered to be very low risk in comparison to other, even highly developed, nations.

In recent years, domestic investment spending in the United States has been heavily depressed as a result of the 2007-2009 recession and its after effects. Therefore, current levels of capital inflow—less than half the size of those during the 2005-2007 period—have still been sufficient to cover the nation's saving-investment balance and allow the United States to sustain a moderately large trade deficit.<sup>56</sup> However, having acquired roughly \$11.4 trillion of U.S. assets in the past decade, foreign investors may be growing less interested in continuing to amass trillions of dollars more in the future.<sup>57, 58</sup> Once a saturation point is reached, investors will inevitably look to diversify their portfolios by capping or reducing their exposure to U.S. dollar denominated assets. Furthermore, a large

proportion of those investments are in U.S. government debt. As the government's debt and interest payments continue to grow, foreign investors may begin to question the capacity of the United States to meet its continuously increasing interest payments.

In August 2011, Standard & Poor's—one of three major agencies that offer advice to investors in debt securities—downgraded its rating for long-term federal debt from AAA to AA+ (the highest grade to one grade lower).<sup>59</sup> This downgrade was widely regarded as a reaction to the lack of political progress toward addressing long-term debt and deficit issues. However, it does begin to raise some concern about whether investor confidence is being undermined and whether investors are growing wary of holding U.S. debt and the overconsumption that drives that debt.

The downgraded outlook relates specifically to U.S. federal government debt, but any apprehension over the federal government's ability to meet its debt obligations is likely to drive speculation of U.S. dollar depreciation. This puts additional upward pressure on U.S. interest rates over the long term as higher rates of return—either through interest rates or simply greater profitability—are required to compensate foreign investors' expectation of a subsequent devaluation of U.S. assets.

### READJUSTMENT OF THE TRADE DEFICIT

Although the U.S. trade deficit will almost certainly need to undergo an adjustment process and decline to a more sustainable level, there is significant uncertainty as to whether this will occur gradually or suddenly. Indeed, the nature and timing of the adjustment process can have a substantial impact on the U.S. economy.

A smooth adjustment process would require the United States to begin living 'within its means.' Americans and government entities—local, state, and federal—would have to save more and consume less. Indebted federal, state, and local governments would have to tax more, spend less, or both.

55 *Id.*, at 19.

56 U.S. Department of Commerce, BEA, U.S. International Transactions Accounts Data, Table 1.

57 If foreigners had an unending appetite for U.S. assets, such as U.S. Treasury Bonds, then conceptually, there would be no constraint on the size of the trade deficit. More and more Treasury bonds could simply be printed to pay for continued growth in U.S. imports, no matter how great.

58 U.S. Department of Commerce, BEA, U.S. International Transactions Accounts Data, Table 1.

59 New York Times, "S.&P. Downgrades Debt Rating of U.S. for the First Time," August 5, 2011.



For a variety of reasons, including efforts to limit the appreciation of its currency against the U.S. dollar, China has amassed large quantities of U.S. securities over the past decade. In fact, at approximately \$1.7 trillion—the largest of any individual nation—China’s holdings of U.S. securities accounted for 14 percent of total foreign holdings as of June 2011, up from less than 5 percent nine years earlier.<sup>60</sup>

This level of indebtedness could give China increased leverage over the United States on major bilateral political and economic issues, and reduce the Federal Reserve Bank’s ability to manage U.S. monetary policy. Reports have appeared in the media citing Chinese officials who hint at government plans to reduce holdings of U.S. securities for economic reasons.<sup>61</sup> Indeed, despite marginally increasing its total holdings of U.S. securities in 2011, China continued to diversify its portfolio of foreign exchange reserves away from U.S. dollars—holdings are now estimated at a decade-low 54 percent.<sup>62</sup>

Both before and after Standard & Poor’s downgraded the U.S. debt rating in August 2011, China’s official news outlets released statements expressing concern about the U.S. government’s difficulty in reaching a consensus agreement on the debt ceiling.<sup>63</sup>

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<sup>60</sup> U.S. Department of Treasury, Preliminary Report on Foreign Holdings of U.S. Securities at End-June 2011.

<sup>61</sup> See, for example, USA Today, “China ‘worried’ about U.S. Treasury Holdings,” March 13, 2009; China Daily, “China’s holdings of US Treasury debt slashed,” February 18, 2010; and Bloomberg Businessweek, “China Reduces U.S. Treasury Holdings as Debt Ceiling Debated,” May 17, 2011.

<sup>62</sup> U.S. Department of Treasury, Preliminary Report on Foreign Holdings of U.S. Securities at End-June 2011; Id., Foreign Portfolio Holdings of U.S. Securities, Historical data; and People’s Republic of China, State Administration of Foreign Exchange, Data and Statistics, Forex Reserves.

<sup>63</sup> See, for example, Financial Times, “China calls on US to ‘protect investors,’” July 20, 2011; BBC, “China scolds US over S&P credit downgrade,” August 6, 2011; and Reuters, “China state paper says U.S. debt downgrade a ‘warning bell,’” August 6, 2011.

## GOVERNMENT RESPONSES TO RISING OIL PRICES



Approximately 70 percent of U.S. oil consumption is attributable to the transportation sector.<sup>64</sup> Therefore, it is an important input in almost every aspect of American life, whether that is directly, as the fuel used each day to power personal vehicles, or indirectly, as the fuel that powers the trucks, trains, and airplanes that deliver groceries to local stores or packages to places of business.

Because oil is so integral to economic activity and so heavily consumed, the nation effectively ‘imports’ inflationary pressure. In comparison to other nations with somewhat lower reliance on petroleum and higher taxes, the United States is affected to a greater extent by rising petroleum prices. The United States, for example, consumes approximately twice the quantity of petroleum per capita of Western European nations such as the United Kingdom, France, and Germany.<sup>65</sup>

Rising oil prices ultimately increase the cost of end products for the consumer—effectively functioning like a tax. This impact is widespread and adds to economy-wide inflationary pressures.

Central banks typically look to dampen inflationary pressures by tightening monetary policy. However, rising interest rates can have negative effects on consumer spending and investment similar to those caused by rising oil prices. Thus, by attempting to address the inflationary effect of high oil prices in this way, the bank can compound its deflationary effects and facilitate further economic slowdown. Any policy response is therefore a careful balancing act that requires determining the relative strengths of both inflationary and deflationary effects, and adjusting (or not adjusting) interest rates accordingly, in an effort to promote positive economic activity while keeping price levels as stable as possible.

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<sup>64</sup> EIA, *MER*, March 2012, Tables 3.7a, 3.7b, and 3.7c.

<sup>65</sup> BP, plc., *Statistical Review 2011*, 2009 data, at 9; and World Bank Population Statistics, 2009 data.

Higher interest rates are likely in this scenario, along with higher import prices and lower export prices, which—while encouraging the nation to live within its means—will also further raise the cost of consumption. This process will reduce living standards below what they would be if borrowing continued unabated. Although adapting to this smooth adjustment would be challenging, it will help moderate the trade deficit and U.S. external debt, bringing them back to more acceptable levels.

A severe adjustment is likely to be much more painful. It would also require the United States to start living within its means, but the adjustment will come as a shock, when foreign investors lose their appetite for U.S. securities. This could be for either budget-related reasons, such as a loss of confidence in the ability of the United States to pay off its liabilities, or more trade-specific reasons, such as a fear of an imminent reduction in the value of the U.S. dollar versus other currencies (by way of, for example, a decision by producers to price oil in a different currency).

Even a strong revival in U.S. economic growth (and subsequent rebound in demand for foreign imports), if not matched by foreign willingness to purchase U.S. assets, could cause abrupt pressure to lower investment spending—resulting in fewer new factories, fewer new computers, and fewer other investments—and reduce funding for the U.S. trade deficit, which would have to shrink to align itself with lower foreign capital inflows.

If this kind of adjustment occurs, the nation would run up against a hard budget constraint, and if it could not reduce its reliance on foreign oil, imports of all other goods and services would have to decline. If capital inflows fell low enough, it is possible that

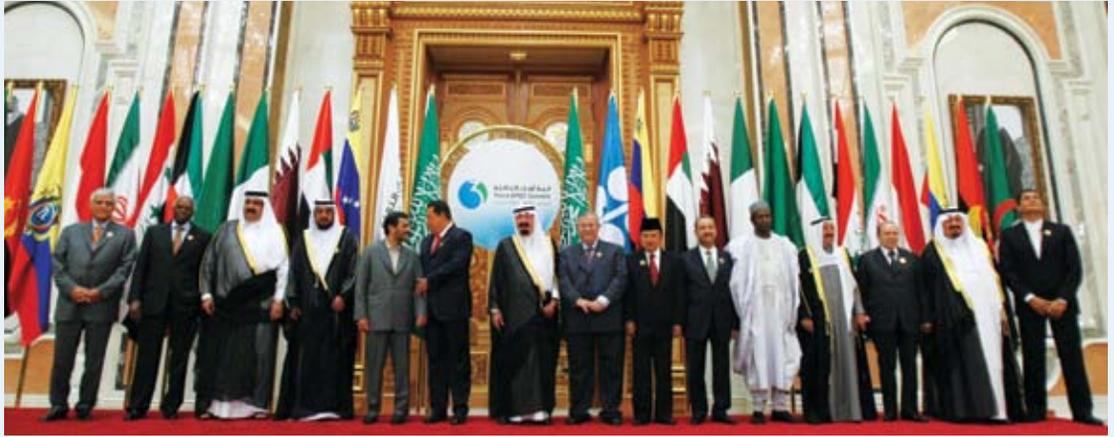
the United States would be unable to afford its oil imports. The result would be fuel shortages and massive disruption to U.S. economic activity.

Such a scenario would result in a crisis with the potential to dwarf the recent economic troubles. This crisis could include a surge in interest rates, a plummeting value of the U.S. dollar, rapidly weakening equity markets, and a dramatic reduction in the availability of capital to American citizens, businesses, and the U.S. government.

The U.S. trade balance will adjust under either scenario, and both scenarios will be painful for the U.S. and global economies. However, a rapid and severe adjustment could be orders of magnitude worse than a more gradual process.

Some experts believe that a severe adjustment can no longer be avoided. Others are more optimistic. Both of these groups, however, are likely to agree that by taking action to decrease its trade deficit sooner rather than later, the United States can reduce the painfulness of the adjustment.

Additionally, those who believe that a severe adjustment is not inevitable would likely agree that preemptive actions taken to decrease the trade deficit sooner rather than later could both help address the challenge before it evolves into a full blown crisis and reduce the risk of having one materialize at all. Many are coming to realize that reducing the amount of money spent on imported oil—either through reduced demand as a result of fuel efficiency improvements and the increased use of alternatives to oil, through increased domestic supply, or through some combination of both—represents an area in which that decrease could actually come to fruition.



Comprised of 12 oil-producing nations, OPEC supplies more than 40 percent of the world's oil.<sup>66</sup> OPEC's actions can have significant effects on the supply and price of petroleum in the marketplace.

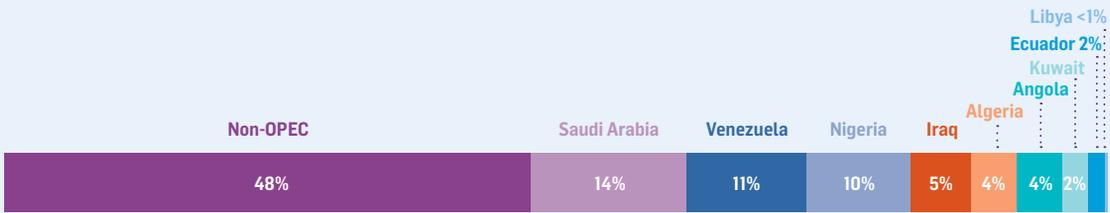
The value of the U.S. dollar can play heavily into OPEC's attempts to maintain a desired price level, something that has been evident in comments made by senior OPEC officials. In December 2009, Saudi Arabian Oil Minister Ali al-Naimi asserted that \$70/bbl to \$80/bbl crude oil prices were in the "right range" for "investors, consumers, [and] producers."<sup>67</sup> In November 2010, al-Naimi revised his stance to a \$70/bbl to \$90/bbl range.<sup>68</sup> Just a day earlier, Shokri Ghanem, then Chairman of Libya's National Oil Corporation, stated he thought oil prices would be closer to \$100/bbl by the end of 2010—which they were.<sup>69</sup> Brent Crude (Brent) ultimately reached \$100/bbl on February 1, 2011, and West Texas Intermediate (WTI) followed on March 2.<sup>70</sup> Prices averaged \$111/bbl and \$94/bbl respectively for 2011.<sup>71</sup> In January, OPEC Secretary General Abdulla Salem El Badri stated that "\$100 [per barrel] is a suitable price for consumers and producers alike."<sup>72</sup> However, prices have averaged even higher so far in 2012—\$119/bbl and \$103/bbl for Brent and WTI respectively.<sup>73-74</sup>

With respect to the market dynamics of trade and currency fluctuation, these OPEC officials have specifically noted that the purchasing power of the dollar has declined, raising the effective cost of food and other commodities for OPEC nations whose economies and foreign buying power rely heavily on oil revenues. When the purchasing power of their oil revenues falls, producers rely on higher oil prices to offset the decline. OPEC, which has the power to influence prices even when the market is relatively loose, is able to exert upward price pressure that affects consumers worldwide. Adverse effects include inflation, which can severely impact the ability of national monetary authorities to implement effective policy.

The high price of oil and recent U.S. financial decisions have helped revive the question of sustainability with respect to pricing oil in U.S. dollars. In December 2007, Iran stopped accepting U.S. dollars for oil purchases.<sup>75</sup> Although in OPEC meetings held the same year Iran failed to garner the support of key members after suggesting that oil should be sold in a basket of currencies rather than U.S. dollars, the Cooperation

FIGURE 15

## U.S. Net Oil Imports by Origin



Major sources of non-OPEC net oil imports include Canada, Colombia, Mexico, and Russia.

Source: EIA

Council for the Arab States of the Gulf (CCASG)—a political and economic union of the United Arab Emirates, Bahrain, Saudi Arabia, Oman, Qatar, and Kuwait—is actively pursuing a shared currency in an effort to provide the states greater exchange rate flexibility.<sup>76,77</sup>

While it is likely that a shared currency remains many years from being established, given the importance of the oil sector in GDP, exports, and government revenues in these states, they may ultimately decide that selling oil in such a currency or a basket of international currencies would be preferable to selling it in U.S. dollars—particularly as the share of OPEC oil purchased by the United States continues to decline in comparison to other nations (e.g. China). Any move to a basket of currencies, driven by either major producing or consuming nations eager to reduce their exchange rate risk, would undermine the U.S. dollar’s role as the world’s premier reserve currency. This could increase the price of oil to the United States still further as foreign nations would no longer need to hold such large U.S. dollar reserves, potentially limiting the ability of the United States to borrow internationally in U.S. dollars. Further devaluation of the dollar could result which would decrease the value of all investments held in U.S. dollars.

66 BP, plc., *Statistical Review 2011*, at 8.

67 Bloomberg, “Saudi Arabia’s Al-Naimi Says Oil Price is ‘Perfect’ (Update3),” December 5, 2009.

68 Reuters, “Oil price of \$70-90/bbl reasonable—Qatar,” November 2, 2010.

69 The Telegraph, “Oil price spikes on Libyan talk of \$100 barrel,” November 2, 2010.

70 EIA, Spot Prices.

71 Id.

72 Reuters, “OPEC says EU ban on Iran to boost oil prices,” January 30, 2012.

73 EIA, Spot Prices, Estimate using data through April 17, 2012.

74 Since 2009, the price spread between Brent and WTI—two major global benchmarks—has actually widened far beyond historical precedent. While WTI previously carried a small premium (\$1-3/bbl), it has more recently priced at a discount of up to \$25/bbl, largely due to an oversupply of oil into the Midwest caused by higher Canadian imports and rising domestic production from locations such as North Dakota.

75 Reuters, “Iran stops selling oil in U.S. dollars -report,” December 8, 2007.

76 Id.

77 The United Arab Emirates withdrew from the monetary union in 2009, but remains a member of the CCASG.

## Conclusion

High and volatile oil prices have pushed the cost of petroleum to levels that would have seemed unimaginable just over a decade ago. This has contributed to a rapid expansion of the U.S. trade deficit, rendering the nation increasingly dependent on foreign capital inflows and building up an enormous financial liability to foreign entities. A readjustment of the U.S. trade deficit from current levels is almost certain to be necessary. This process could have a severe negative impact on the U.S. and global economies.

From international trends in economic growth and political instability to technology adoption and policymaking, the variety of pressures on the ability of oil-producing nations to meet rising global demand is diverse, and there is little indication that these factors might become more predictable. High and volatile oil prices are likely to persist in this market environment, and the United States is currently set to remain dangerously exposed to the damaging effects that these prices have on U.S. oil trade and the U.S. economy more broadly.

Oil and its numerous byproducts, like other commodities and raw materials, will continue to be critical inputs on which the U.S. economy relies for the foreseeable future, and not only for direct domestic use, but also in the production and shipment of final goods for export. Total U.S. oil consumption is in fact currently forecast to remain roughly constant for the next two decades. Although the prospects for rising U.S. oil production are substantially more positive than they were just a few years ago, and net oil import volumes are forecast to decline as a consequence, projected expenditures on these imports are nevertheless projected to increase in real terms due to higher average oil prices.

The United States must therefore take steps, in coordination with allies and international partners, to better understand and manage the effects of the different

pressures on the world oil market. Maintaining secure international trade in oil, for example, is vital.

It is however clear that there is no simple, single solution to address U.S. oil dependence. Any approach must focus squarely on increasing domestic oil production and decreasing oil consumption through a range of policies. For the United States, new investments to aid the return of strong and sustained growth must also address structural limitations of our economy with respect to oil, most notably, in the transportation sector.

Increasing domestic oil supplies provides little protection from high and volatile prices, but would offset U.S. imports and therefore have a positive impact on the U.S. trade balance in petroleum products.

Higher levels of production from existing resources and new production from currently untapped areas should both be carefully considered. Provided the necessary operational and environmental safeguards are put in place, these domestic resources represent an indispensable component of any

comprehensive energy security strategy.

The transportation sector remains the primary focal point of demand-reduction efforts. Fundamentally, policies to combat oil dependence in this sector come in three categories; vehicle efficiency, alternative fuels, and infrastructure.

Vehicle fuel economy standards and mandates have an ongoing and important role to play. The

Successfully addressing the nation's growing trade deficit challenge is a difficult but critical undertaking.

Energy Independence and Security Act of 2007 and subsequent rulemakings in 2009 and 2010 marked the first substantial improvements to the nation's fuel economy standards in more than 30 years. Proposals have been outlined for equally aggressive annual improvements in fuel efficiency for the 2017 to 2025 vehicle model year period. Similar standards either enacted or targeted globally, including in less developed nations, suggest that the United States can still increase fuel efficiency by a substantial margin, not only in light-duty vehicles, but also in heavier trucks and fleet vehicles.

Alternatives to traditional liquid fuels are increasingly being viewed as a vital piece of oil demand reduction strategies in the United States and around the world. These alternatives have so far taken a variety of forms, including drop-in fuels like those derived from biomass, other fossil fuels such as compressed and liquefied natural gas, hydrogen, and electricity. While all of these alternatives offer the possibility of reducing U.S. oil use, vehicle electrification has so far shown the greatest promise for substantial oil displacement in the transportation sector, especially in light-duty vehicles. Importantly, the spectrum of electric-drive vehicles—hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), and pure electric vehicles (EVs)—offer the most significant, commercially-available improvements in vehicle energy efficiency today. These vehicles are also powered by an established national infrastructure, using a diverse set of largely domestic fuels, including coal, nuclear, geothermal, wind, solar, and natural gas. In freight transportation, the use of natural gas has also been identified as an opportunity for petroleum displacement in heavy-duty, long-haul trucks.

Widespread and growing road congestion across the United States will continue to undermine the

potential gains attributable to increased vehicle efficiency and the expanded use of alternative fuels. Policies to promote more stable road speed conditions are a crucial facilitator of lowering sectoral oil consumption. Oil use must become a key metric by which transportation infrastructure program and project-level decisions are made.

Similarly, improving the efficiency of oil use in industrial processes and providing alternatives to heating homes or commercial properties with oil, among others, are relevant policy initiatives and must continue to be pursued.

Increasing energy-related research and development (R&D) across the spectrum of oil-consuming devices and oil-producing equipment will further facilitate improvements in U.S. energy security, even in the short term. For reducing consumption, these might include the technologies required to deploy real-time traffic updates, open-road tolling systems, and other congestion mitigation measures, in addition to vehicle-related technologies. For increasing production, continued advances in extended-reach drilling, horizontal drilling, and fracturing technologies are critical.

R&D is also a key aspect of breakthrough and cutting-edge technologies that can have both smaller, cumulative impacts and/or a more transformational impact on U.S. oil consumption and production over the long term.

Successfully addressing the nation's growing trade deficit challenge is a difficult but critical undertaking. Reducing U.S. oil dependence is an important part of any approach. In addition to helping make a meaningful improvement in the nation's trade deficit, success in this area will more broadly strengthen U.S. energy security. The nation must accelerate its efforts.



Securing America's Future Energy (SAFE) is a nonpartisan, not-for-profit organization committed to reducing America's dependence on oil and improving U.S. energy security in order to bolster national security and strengthen the economy. SAFE has an action-oriented strategy addressing politics and advocacy, business and technology, and media and public education.

## KEYBRIDGE

R E S E A R C H

Keybridge Research LLC is an international economics and public policy consulting firm. Keybridge provides analytical support and strategic advice to Fortune 500 companies, global financial firms, G-7 governments, and premier industry associations.



The size of the U.S. trade deficit creates significant risks and vulnerabilities for the economy, including an increased dependency on consistent capital inflows from foreigners. This compounds America's international debt burden while lowering the prospects for long-term U.S. economic health. A readjustment of the U.S. trade balance is almost certain to be necessary. The Diplomatic Council on Energy Security's *Oil and the Trade Deficit* highlights petroleum as a crucial component in the growth of the U.S. trade deficit and yet another important argument for taking critical steps to end American dependence on oil.