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*INSIGHTS FROM A CFR WORKSHOP*

# Oil Prices, Low-Carbon Energy, and Climate Policy

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*In May 2015 the Council on Foreign Relations' (CFR) Maurice R. Greenberg Center for Geoeconomic Studies held a workshop on oil prices and climate policy. The workshop was hosted by CFR Senior Fellow Michael Levi and CFR Fellow Varun Sivaram. The views described here are those of workshop participants only. **The Council on Foreign Relations takes no institutional positions on policy issues and has no affiliation with the U.S. government.***

## INTRODUCTION

For decades, oil prices have influenced the outlook for alternatives to oil and policies that support those alternatives. Expensive oil makes substitutes more appealing; cheap oil makes the economic case for alternatives that much more difficult. High prices in the 1970s kick-started clean energy, including the first modern electric vehicles, while the oil slump beginning in the 1980s pummeled sources like wind and solar power and undermined the push for more fuel-efficient cars.

Given the sharp decline in global petroleum prices beginning in late summer 2014, which saw the cost of benchmark grades of oil fall as much as 60 percent in six months before recovering slightly, the relationship among oil, alternatives, and government policies is again of critical concern for business and policymakers. In light of that, the Maurice R. Greenberg Center for Geoeconomic Studies at the Council on Foreign Relations convened a workshop in Washington, DC, in May 2015 with roughly two dozen participants with backgrounds in state and federal public policy, economics, energy, and the automotive and alternative-fuels sectors. The workshop set out to understand the implications of relatively cheap oil for cleaner alternatives, such as natural gas-fueled and electric vehicles and renewable energy, with a special focus on the future shape of ambitious fuel-economy standards that are slated for review in 2017 and 2018. This report summarizes the discussion's highlights.

Discussion among participants ultimately underscored how deep uncertainty over the future of the oil market is upending past assessments of the economics of oil alternatives and climate-related policies, with particularly important implications for the future of U.S. fuel-economy standards. Both market forces and policy changes determine the outlook for low-carbon energies and climate policies. What is more, neither operates in isolation: policy decisions can fundamentally alter market dynamics, for example by creating or destroying demand for a given fuel, which can then shred previous price assumptions—in turn throwing existing policies out of whack. Simply put, oil-market uncertainty—especially whiplash-inducing price spikes and busts—puts a premium on policymakers' ability to establish clear and predictable policies that can serve, as it were, like oil on the water to smooth choppy seas.

## SO WHERE WILL OIL PRICES GO, ANYWAY?

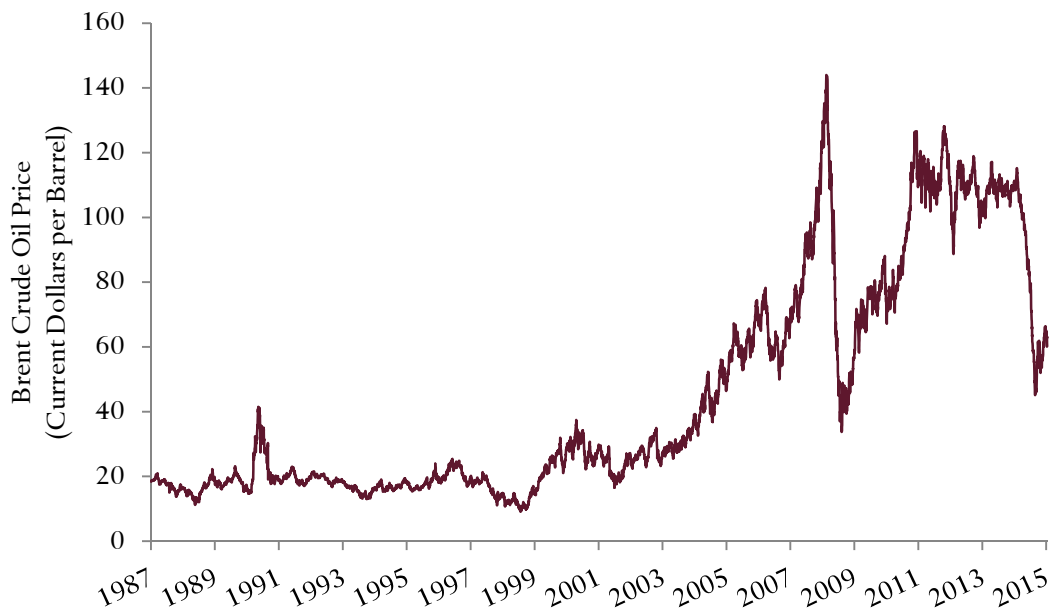
The general consensus was that oil prices will likely remain relatively low for the next few years. Longer term, a majority of participants felt fairly confident that oil would return, if perhaps only temporarily, to the \$100 per barrel mark within five years, and a large majority saw triple-digit oil as likely within the next decade. But uncertainty persists over the world's future thirst for oil—an important driver of future prices. Most experts expect demand to continue to grow in China, for example, but the Chinese economy is slowing, dampening the pace at which consumption grows. At the same time, Chinese leaders are trying to limit oil use on both environmental grounds and for energy security, which could end up keeping prices lower than expected in the future. Meanwhile, clean-energy and climate-change policies around the world could themselves end up eroding

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demand for oil by displacing the very products that use it, which could also spell lower-than-expected prices.

Absolute prices aside, participants noted that there is another aspect of the oil market that could have big implications for clean-energy manufacturers, oil producers, and policymakers alike: volatility. Historically, global oil markets were relatively stable because one big producer played a moderating role, actively working to balance supply and demand. The United States held that position from World War II through the late 1960s; afterward, Saudi Arabia was the “central banker” of oil. That kind of oversight largely avoided rollercoaster oil-price swings and made long-term planning much easier.

FIGURE 1: CRUDE OIL PRICES



Source: U.S. Energy Information Administration.

Today, Saudi Arabia seems to have abdicated that role and keeps pumping near-record levels of oil even when prices are falling. U.S. oil producers can in theory respond to low prices by pumping less, and to higher prices by pumping more; but the hundreds of small U.S. oil companies do not act with any central authority, which leaves the oil market bereft of any overall boss. All that adds up to price swings that make it hard to know where oil prices will be next month, let alone next year (see figure 1). And that further complicates policymakers’ task of trying to design clean-energy and climate policies that will be in place for years with potentially radically different oil-price environments from one year to the next.

A majority of participants said that they expected future oil prices to be both higher than they are today and volatile. The one thing that almost no participants expected was a future with stable oil prices, whether high or low.

## AND WHAT DOES THAT MEAN FOR ALTERNATIVES?

For now, participants agreed, a relatively cheap oil world is bad news for alternatives to petroleum-fueled transportation, including biofuels, natural gas-fueled vehicles, and hybrid and electric vehicles. But there are important wrinkles. Early years for technologies that are not yet widely used are focused on proof-of-concept research and scaling up manufacturing, without worrying about the product's immediate cost-competitiveness. Only once those new technologies are ready for prime time and wide deployment do they focus squarely on competing directly on cost with more mature technologies. Meanwhile, some technologies, such as electric cars, can be appealing for reasons that go beyond simply the price at the pump. Some modern electric vehicles (EVs) actually offer better performance than many mainstream gasoline-fueled cars, such as much quicker acceleration. Those kinds of benefits can push some consumers to opt for electric cars even when gasoline is cheap.

For other would-be alternatives to oil, the current price climate is clearly an albatross. Biofuels other than corn ethanol were more expensive than gasoline when oil was at \$100 a barrel; today, they are flailing. For manufacturers who were already struggling to produce even a fraction of government-mandated volumes, cheap oil “crushed them” and “finished the deal,” one participant said.

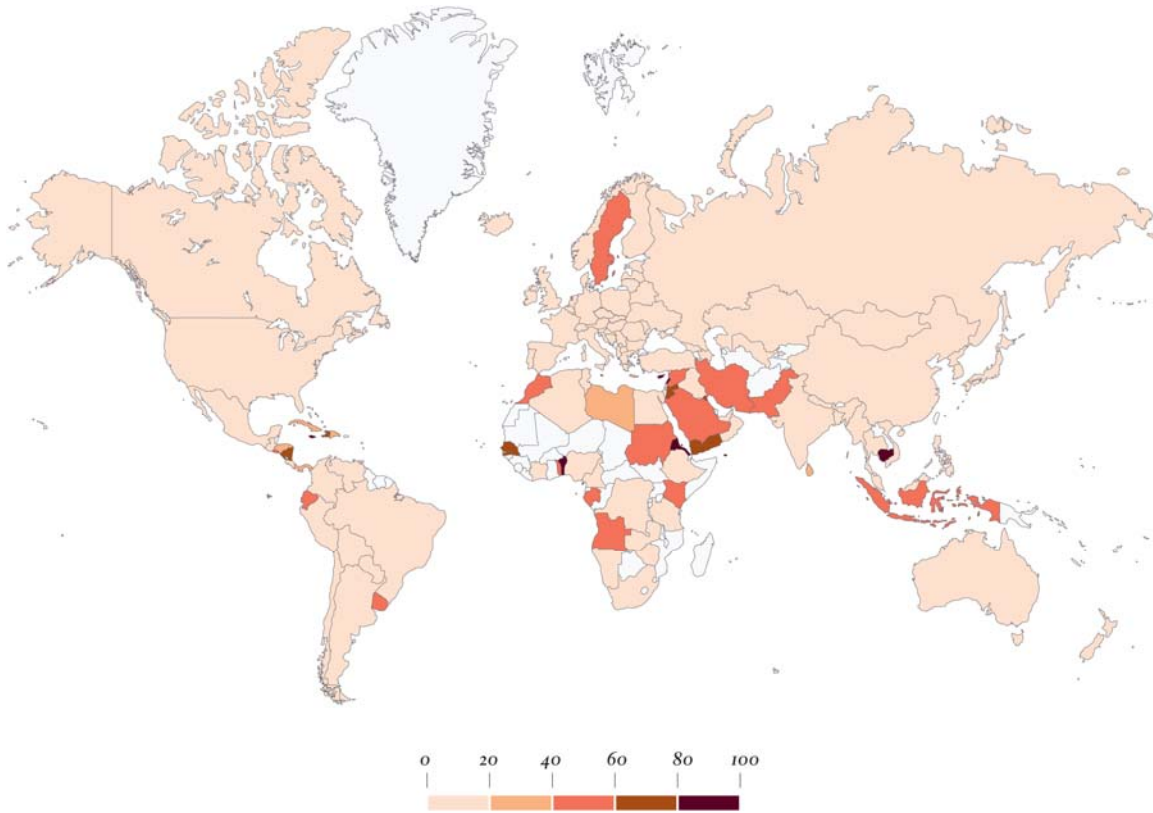
The recent drop in oil prices has also significantly lessened commercial appetite for vehicles powered by liquefied or compressed natural gas. “The thrill is gone,” said one participant, recalling recent enthusiasm among long-haul trucking fleets that were able to repay the cost of converting diesel semis to burn natural gas in just a couple of years. Unlike biofuels, however, natural gas-fueled vehicles can still make an economic case, since natural gas is still relatively cheap. That is especially true for big fleet managers who need to hedge against volatile oil prices, since natural gas prices in the United States do not tend to spike when oil and diesel prices do.

### *Plug a Tiger in Your Tank*

As oil prices have dropped, so have sales of hybrid vehicles—but not of pure EVs. Some participants noted that this underscores one of the crucial differences between EVs and other alternatives to oil-powered transportation: EVs are not hostage to oil prices alone. Some participants argued that the biggest uncertainty in the future competitiveness of EVs is the cost of the battery pack, not oil prices. That means the future for EVs may depend more on advances made in laboratories and factories than on the price of Brent crude. Second, as noted above, some EVs offer other benefits, such as a neck-snapping driving experience, which can push cars off the lot whether oil is cheap or expensive. Finally, the “fuel” for EVs comes from a power socket in the form of electricity. Electricity prices are more stable than prices at the pump. So to the degree that oil-price volatility is a concern in the future, EVs—and to a lesser extent, plug-in hybrid electric vehicles—offer a way to

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FIGURE 2: PERCENTAGE OF ELECTRICITY GENERATION FROM OIL AND OIL PRODUCTS



Source: World Bank.

ensure predictable fuel prices. Traditional hybrids, such as the Toyota Prius (which include an electric engine but cannot be charged by being plugged in), and other more efficient traditional vehicles, offer another way to protect against volatility, simply by virtue of using less gasoline.

#### *What Does Cheap Oil Do to Renewable Energy?*

There has long been a belief that cheap oil is bad for renewable energy. In some parts of the world, participants noted, that is true. Oil is especially prominent in Middle East electricity generation and undermines the economic case for big investments in solar power there (see figure 2). In Asia, where natural gas prices are explicitly based on oil prices, another dynamic plays out: over the past year, as oil plunged, so did the price of natural gas used for electricity generation. That makes for an uphill slog for renewable energy in places like Japan.

In the United States, the picture is much more mixed. That is because natural gas is the crucial fuel for determining wholesale power prices, while oil is barely used for power generation. But the price of oil has indirect effects on the outlook for wind and solar. Oil prices can affect the production—and therefore price—of natural gas. And when natural gas is relatively cheap, alternatives including wind, solar, and even nuclear power have trouble competing. Ultimately, though, renewable energy in the United States is most strongly affected not by oil prices, but by policies that encourage clean energy.

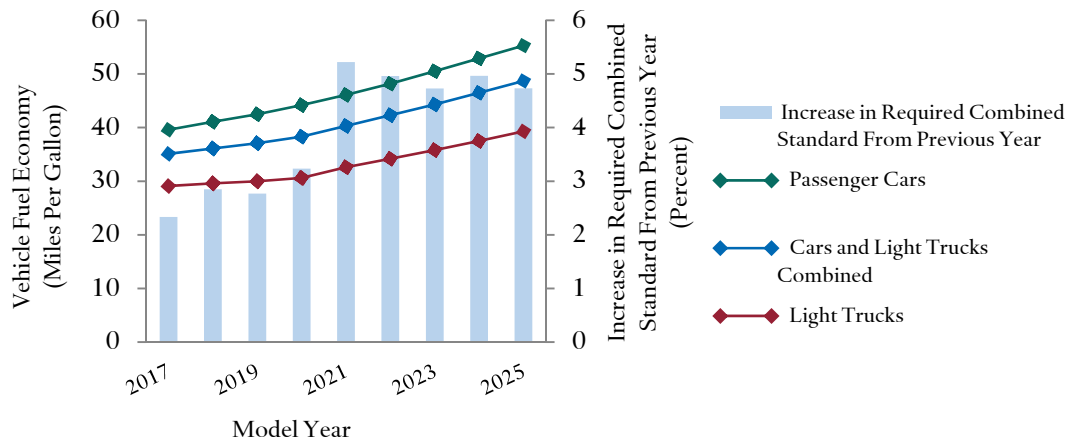
## WHAT HAPPENS TO FUEL-ECONOMY STANDARDS IN THE NEW OIL WORLD?

The Obama administration set aggressive new fuel-economy targets for automakers between 2017 and 2025, with targets for the 2022 to 2025 years subject to an interim review in late 2017 and early 2018. That means the ultimate shape and scope of the standards will be negotiated and implemented by the next administration, likely in a different oil-price environment than the one in which original standards were drafted. Cheaper oil would mean that expected benefits in the form of reduced fuel costs for consumers would be lower than previously expected. Some participants, reflecting warnings from industry, also cautioned that costs of the new technology needed to meet the standards could also be higher than expected; others disagreed. Indeed, among the crucial elements that will form part of the negotiations between policymakers and the automotive sector during the interim review are the anticipated costs of complying with the new rules.

### FUEL-ECONOMY STANDARDS IN BRIEF

- The U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) established new Corporate Average Fuel Economy (CAFE) standards for 2017 to 2025.
- For statutory reasons, the standards for model years 2022 to 2025 must be reviewed in 2017 to 2018.
- NHTSA's standards mandate a combined, fleet-wide target rising from 35.1 miles per gallon (mpg) in 2017 to 48.7 mpg in 2025.
- EPA's standards reach 54.5 mpg in model year 2025 but the program provides credit for emissions reductions that do not actually improve fuel economy; as a result, when the standards were issued, EPA and NHTSA concluded that their targets were equivalent.
- The EPA offers some flexibility in the initial years. Electric cars count double for meeting fleet requirements, before slowly phasing down. Plug-in hybrids and compressed natural gas (CNG) vehicles count as 1.6 vehicles before phasing down. Hybrid pickups are also eligible for a small mileage bonus.

### NHTSA CAFE STANDARDS, MODEL YEARS 2017–2025



Source: National Highway Traffic Safety Administration.

The Obama administration, counting on prolonged expensive oil, initially expected consumer fuel savings to far outweigh the cost of improved vehicles. If manufacturers can indeed build ever more efficient cars and trucks for the relatively low cost that the U.S. government expects, then even somewhat cheaper oil will not vitiate that argument.

However, there was plenty of dissent among participants about the assumptions underlying the fuel standards, especially regarding the cost of compliance for manufacturers. Indeed, half the participants said that the cost of new fuel-efficient technology is a bigger unknown than the price of oil when it comes to the bottom line of the fuel-economy rules.

Amplifying that concern, cheaper oil threatens to retard research and development by the automotive sector into more advanced, fuel-saving technologies—particularly if automakers suspect that fuel-economy rules might be relaxed—which could make it more expensive to comply with the new standards through 2025. That is important, because many participants were already skeptical that the new targets would be achievable with mere incremental advances in technology. One said that “we see no pathway” to get to the target of a fleet average of 54.5 mpg with gasoline or diesel engines using currently commercial or near-commercial technology. Others disagreed sharply, noting that warnings of big compliance costs often come to naught.

#### *Could Tougher Fuel Standards Backfire?*

If, in a world of cheaper oil, automakers have to spend more to meet the new standards, that could have serious and unintended consequences, some participants cautioned. While the government initially expected the new standards would add about \$1,800 to the cost of a new car in 2025—and most participants did not squarely question that—some cited auto-industry claims that new vehicles with all the requisite bells and whistles could cost an extra \$5,000 to \$7,000 instead. That could put new, efficient cars beyond the reach of many consumers, lowering new-vehicle sales and leaving older, more polluting cars in the fleet for longer. “I feel like the policy could actually backlash if it stays the way it is,” one concluded—an undoubtedly controversial idea.

#### *Is There Another Way to Get There From Here?*

To make compliance with the fuel-economy standards more achievable, automakers could exploit other ways to meet them, some participants suggested. Under the existing EPA standards, selling natural gas-fueled and electric vehicles gives automakers extra credit toward meeting their mileage targets; a currently planned phaseout of those credits could be revisited during the interim review, for example. Some participants also argued that similar credits could be extended to hybrid-electric vehicles, which are treated like regular cars under current rules.

And the new oil-price environment could also open the door to other ways for automakers to comply with the new standards. Since fuel-economy rules are actually a mixture of pure mileage targets and emissions objectives, the standards could be changed to allow manufacturers to make progress by cleaning up their emissions rather than changing their cars’ drivetrains. New air conditioning refrigerants, for example, could replace the powerful greenhouse gases currently used for cooling and end up lowering harmful emissions.

### *Which Matters More—Politics or the Price at the Pump?*

The interim review will take place in a new political, and likely a new economic, environment. Participants agreed that the politics of the next administration could be more important than the price of oil in shaping the review. If the next administration is not overly concerned with climate change, and if oil hovers around today's relatively cheap levels, a majority of participants expected that the CAFE standards would be relaxed. Participants thought that such an administration facing \$100 oil, however, would be unlikely to relax the standards. In contrast, a more climate-conscious administration, almost all participants agreed, would likely try to maintain the current standards regardless of relatively cheap oil or a return to \$100 crude.

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### *Are They Watching Overseas?*

Most participants agreed that fuel-economy standards outside the United States will likely only get tougher, not weaker. That is due in large part to the different reasons policymakers pursue fuel-economy standards in other countries: climate concerns in Europe and Japan, and air pollution and energy-security concerns in China, for example. Were the United States to weaken fuel-economy rules during the interim review, it would be unlikely to prompt many other countries to follow suit. Indeed, several countries across North Africa, the Middle East, and Asia are moving the other way, taking advantage of low oil prices to roll back fossil-fuel subsidies that encourage wasteful consumption (read highlights of a recent CGS workshop on [fuel subsidy reform](#) at CFR.org). However, an about-face on the future fuel-economy standards could well undermine U.S. credibility on broader climate issues, underscoring the volatility of U.S. politics and long-term environmental policies and commitments.