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Does OPEC Still Matter?

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Hearing on Energy Trends and Outlook

The United States needs to give further examination of its long run strategy regarding the Organization of Petroleum Exporting Countries (OPEC). While it is true that we use 60 percent less oil per dollar of Gross Domestic Product (GDP) than we did in the 1970s, oil's concentration in the U.S. transportation sector continues to leave the United States, and importantly, average Americans vulnerable to oil price shocks. Oil still currently has few substitutes in the existing U.S. domestic transport fuel system and therefore since it is difficult to shift away from its use in our daily lives, consumers bear the burden of any manipulation OPEC can wring onto global oil prices. Sharp oil price increases affect consumer spending patterns and consumer confidence, particularly influencing purchase patterns of durable goods like vehicles. Moreover, high oil prices still have large impacts on emerging market countries and this can, in turn, negatively affect global trade and financial markets which matter to the U.S. economy. Despite rising U.S. domestic oil production, temporary international events that affect oil supply can give OPEC, and even Saudi Arabia on its own, substantial if brief market power. The result can be extreme oil-price volatility that can still harm the global economy and financial system, despite long-run expectations of abundance. The U.S. Congress should maintain, or better yet, strengthen policies that support the makers of electric cars and other programs that promote advanced alternative fuel automobiles and trucks in the United States because alternative engine technologies help wean the global economy off its reliance on OPEC oil more rapidly. As recent commodity price volatility and OPEC deliberations show, that will take more than just exporting an additional one or two million barrels a day of oil from U.S. shores. That's because instability in many oil producing regions will continue to threaten global oil supply. The U.S. should also consider stronger efficiency standards for

delivery trucks and large freight vehicles. Congressional leaders should also press the Trump administration to quickly settle favorably with California and the 13 other states that follow California's policies on standards for diversified fueling options to ensure that OPEC's current ability to manipulate oil prices is permanently and effectively ended by curbing demand for oil from the transportation sector. More weight should be given to the fact that use of alternative fuels in cars and trucks (biofuels, electricity, and natural gas) would free more U.S. oil for export to water down remaining OPEC market power.

Does OPEC Still Matter?

It is true. There is a coming wave of energy innovation that could some day soon mean that Saudi Arabia and its colleagues in OPEC will play less of a role in changing global energy markets. Saudi Arabia's leadership – as well as Russia's President Vladimir Putin – is well aware of this existential problem and are taking steps to try to maintain global influence, together and separately. Technological gains, while important to cultivate, are nonetheless not a spigot. Their exploitation requires the investment decisions of dozens of independent private companies who are following market signals and government incentives. When those market signals and government incentives are unsteady, it weakens the benefits this innovation has to the U.S. consumer. The gradual nature of the digital energy transformation means that temporary events, most recently the economic crisis in Venezuela and U.S. sanctions on Iranian oil, can give OPEC, and even Saudi Arabia on its own, substantial influence over global oil prices. That means major oil producers still have some leverage over a U.S. president, constraining U.S. foreign policy. This proved an uncomfortable fact this past autumn and for the fragile global economy more generally. We are still asking our "allies from the Middle East" to increase oil supplies but with what strings attached. There is still reason to seek out policies that will reduce this interdependence, even if we choose to support our allies for a wider variety of interests. Our alliances should be based on common security interests, shared values and aligned co-benefits. They should not be based on the worry about blackmail.

Last year, even with higher U.S. oil production and exports, global oil demand was sufficiently robust that unexpected supply outages gave OPEC + Russia sudden market power. We started to see a large increase in oil prices that the U.S. Treasury department and others believed would destabilize the global economy and financial system, in a manner perhaps not as severe but certainly reiminscent to 2007 when oil prices rose significantly. This situation gave Saudi Arabia and Russia undue leverage over global financial trends and was reflected in the U.S. President having to deal with OPEC in a way that seemed very similar to years past when the United States had less of its own oil. Here is what Saudi Arabia had to say when U.S.-Saudi tensions were high amid investigations over the death of *Washington Post* columnist Jamal Khashoggi.

If Saudi Arabia "receives any action it will respond with greater action" and it cited its "influential and vital role in the global economy."

More indirectly, in its state controlled media, editorial commentary was less diplomatic:

"If the U.S. sanctions are imposed on Saudi Arabia, we will be facing an economic disaster that would rock the entire world…"

"If the price of oil reaching $80 angered President Trump, no one should rule out the price jumping to $100 or $200 or even double that figure." [i]

There are many oil producing regions where political instability, civil war, corruption and populism will thwart steady oil supply in the coming years. That will create an opening for increased U.S. oil and gas exports but it will also be unpredictable, cause swings in oil prices and giving OPEC temporary leverage and influence over market trends. In recent years, the sudden supply outages from geopolitical factors has been as high as 4 to 5 million barrels a day. That is why we are still seeing oil price volatility despite the general trend of abundance created by steady U.S. production growth.

The United States is rapidly moving towards net oil exporter status. Doesn't that mean the U.S. no longer has to worry about oil shocks?

Oil is a global commodity and as mentioned, oil markets are not fully competitive because of the intervention of OPEC. OPEC can still influence oil prices and oil price changes still affect U.S. consumers. Gasoline and diesel consumption accounts for 65 percent of U.S. oil consumption so any change in oil prices instantly affects consumer budgets through fuel and heating oil prices. Oil price shocks have preceded 10 out of 11 of the last U.S. recessions since the 1960s.

Sudden increases in oil prices also sends dollars to oil producing states whose economies have difficulty absorbing surpluses. This aspect still plagues financial markets via sudden changes in liquidity. When oil prices rise suddenly and strongly, other kinds of bubbles can form in financial markets as oil surpluses are suddenly invested in other instruments. The higher U.S. oil production, the more capital remains in U.S. domestic markets and the less that goes abroad, and this is helpful to the U.S. trade deficit, with implications for the current account. This new fact is one reason the dollar no longer automatically weakens significantly when oil prices go up. Oil imports are only 30 percent of U.S. oil consumption today, versus over 50 percent just a few years ago. This has helped mute the impact of oil shocks or OPEC on the U.S. economy.

But oil price shocks still matter. Even with the large drop in the oil intensity of the U.S. economy over the years, in 2007, rising oil prices led to spending on light duty trucks to fall significantly, leading to a large number of job losses in the U.S. motor vehicle and parts industry.[ii] Oil price shocks still affect U.S. consumer spending by stimulating a loss in consumer confidence[iii] as well as leaving less disposable income. But the U.S. economy uses considerably less oil to generate its GDP today than it has in past years. There is practically no oil used in electricity generation in the United States and the commercial sector use is also greatly reduced. Oil is also used less to heat our homes. Our economy is more efficient and the flexibility of the labor market makes it easier for businesses to cope with sudden changes in energy prices, and businesses like airlines and freight companies can hedge their fuel in futures markets and use digital optimization for logistics to reduce the amount of oil it takes to offer the same services to customers. But rising energy costs can still hamper employment and our overwhelming reliance on oil in vehicles still presents a problem for consumers when oil prices rise suddenly. We can fix all these problems but it will take political resolve.

If U.S. oil production is rising, doesn't that mean we don't need efficiency standards for cars?

It's a matter of arithmetic. If U.S. oil demand is rising, then increasing U.S. oil production will be needed to satisfy that rising oil use and cannot serve to lower U.S. dependence on foreign imported oil.

That could leave us right back where we started with continued exposure to physical supply cutoffs. In other words, because efficiency standards for cars and light trucks have been lowering our oil use, every extra barrel of U.S. oil production has been going to replace a barrel of imported oil on a one for one basis. When oil demand goes up, new U.S. production would have to be used to meet that demand and imports would still be needed. Depending on high U.S. oil use would be without continuation of efficiency standards for cars, imports could even rise over time, especially if Americans continue to prefer larger vehicles and ride hailing services, autonomy and on-demand deliveries add to the number of trips and vehicle miles traveled per vehicle.

To be specific, if today's corporate average fuel economy standards (CAFE) disappeared, the U.S. would not be able to become a net oil exporter in the 2020s. By 2030, U.S. net oil exports would be marginal, if at all, instead of accelerating to 4 to 5 million barrels a day. What is desirable is to have a trend line where U.S. oil use is falling and U.S. production is rising, allowing the United States to have a supply cushion when political turmoil in countries like Venezuela, Nigeria or Liyba tighten oil markets.

Freezing the CAFE standards after 2020 and curbing promotion of electric cars in California and other states with electrification programs could add up to 220,000 b/d to 650,000 b/d in new oil demand by 2030, depending on oil price and economic trends.

China has become the world's largest importer of crude oil, surpassing the United States. How does China's rising need for oil influence the geopolitics of oil?

As China's thirst for oil has grown, so has its geopolitical relationships. China's search for oil resources through the late 1990s to today has embedded China strategically in a large number of oil producing countries, including those in the Middle East, Caspian Basin, and Latin America. China's active role in the oil economies of Venezuela and Iran has created diplomatic problems for the United States as it has tried to use sanctions as a tool to effect changes in those countries' policies. China's oil for loans program with Caracas has contributed to Venezuela's current crisis in multiple ways by fostering corruption and distorting its revenue streams from oil exports. China's loans in other countries such as Ecuador and Angola have proven to be destabilizing to the recipient countries governments and their national budgets. As these economic costs mount, it could become more problematical for regional stability in various locations of importance to U.S. interests.

China has also been the major destination for Iranian oil exports in the face of tightening U.S. sanctions on Tehran. Beijing has also been moving forward with its opportunistic partnership with Moscow, with energy investments and loans assisting the Kremlin to resist pressure from the West.

China is expected to invest more than $6 trillion in clean tech in the coming decades. What does that mean for the United States?

China's energy pivot in not a small, at the margin strategy but part of a larger strategic orientation. China is building spheres of energy dependence via its Belt and Road Initiative (BRI) and via planned expansion into the nuclear energy export market. China envisions building 30 nuclear plants as part of its BRI infrastructure export program and is also looking to dominate global trade in solar panels, wind farms, and eventually battery storage. The U.S. Department of Energy estimates that China's government has already provided $47 billion in funds, incentives, loans and tax credits to its solar manufacturing sector since the sector was prioritized. China now dominates that global industry and is

moving to do the same with electric vehicles, with over 100 local companies producing electric cars and buses in over 800 different styles and models. Chinese federal and local incentives for electric cars are roughly 10 times those in the United States and there are over 1 million electric cars on the road in China today. China is also making a push in autonomous vehicles, drones and other digital technologies that will position it well in the future computer-assisted economy. This new wave of energy innovation—driven by the convergence of automation, artificial intelligence (AI), advanced manufacturing, and big data analytics—is likely to remake transportation, electricity, and manufacturing sectors across the globe and position China to advance its economic and geopolitical status. The United States will need to compete in digital innovation in the energy sector to maintain U.S. global competitiveness—not only for spurring new markets, industries, and companies, but also in producing more cost-effective supply chains, boosting manufacturing productivity, and lowering the U.S. economy's oil intensity.

Moreover, many of the innovative energy technologies being pursued by China have dual-use military applications. Energy innovation and entrepreneurship ensure U.S. national security vis a vis China by providing the U.S. military and space program a technological edge. Failure to keep up could some day be more costly to the United States. It is unimaginable to think of what it might now mean for the United States had it opted against pursuing space technology research in the aftermath of the Russia's successful launch of Sputnik in 1957.

Implications for US Innovation Policy

The United States should rethink its innovation policies, seeking to collaborate internationally on nonsensitive energy and carbon capture technology and domestically promoting long-term investment in advanced nuclear technology, advanced manufacturing, and other emerging energy technologies. Such investment has multiple benefits both in reducing OPEC's market power over the long run while ensuring that the U.S. economy will remain globally competitive as trade in clean technology products grows as expected in the coming decades. Many U.S. start-ups and innovation companies have turned to China as a source of more patient capital than the limited U.S. private sector finance, in light of the decline in U.S. public sector support under the Trump administration, potentially damaging future U.S. competitiveness and, in some cases, national security. China's statist policies often include forced technology transfers to Chinese domestic firms as a precondition for investment and access to Chinese markets. Smartly, the Trump administration is trying to reverse this trend via trade negotiations and proposed restrictions on technologies that might have a military dual use, such as AI and lidar. The 2019 U.S. National Intelligence Strategy specifically mentions emerging digital technologies and AI as enabling U.S. adversaries, noting, "without common ethical standards and shared interests to government these developments, they have the potential to pose significant threats to U.S. interests and security."[iv] The United States can ill-afford to have its future autonomous vehicles infrastructure, domestic freight logistics, and updated electrical grid dominated with Chinese products that might lack the same kind of cyber protections that U.S. designed products could offer to the U.S. military, national guard, and average Americans alike. It should also think twice to cede the development of nuclear power in the developing world to China, whose industry may not engage policing non-proliferation as part and parcel of its nuclear power export program.

Washington needs to rethink its industrial innovation policy and consider what steps need to be taken to ensure that the United States maintains its nuclear technology capabilities and safeguards its digital energy technology edge over China and other strategic and economic competitors. National efforts

should be supplemented with participation in multinational initiatives that prioritize global benefits over national priorities. A reevaluation of its industrial innovation policy would enable the United States to find areas for collaboration with China, easing tensions arising from technology programs that will now have to be fenced off as proprietary as part of the new Committee on Foreign Investment in the United States (CFIUS) rulemaking passed by Congress and other proposed Trump administration policies. U.S. participation in global research initiatives should focus on partnering industry with governments on targeted technologies that do not have strategic applications, such as carbon capture and storage, direct air capture, and clean water technologies.

For more strategic energy technologies vitally important to U.S. economic competitiveness and military preparedness, the Department of Energy (DOE) should host regional centers of innovation that would bring together local business, academic institutions, and national labs to promote critical proprietary R&D in energy innovation to meet the challenge of China 2025 and improve U.S. energy security, weaken OPEC, promote technology exports, and reduce carbon emissions by continuing to promote technologies that lessen the oil intensity of the U.S. economy. DOE initiatives contributed to technology development now being used in the U.S. unconventional oil and gas development and in fuel cell technology.[v] Pentagon funding led to the development of GPS, self-driving capabilities, and other digital technologies now used across the U.S. tech sector. To replace existing supply chains that favor competing countries such as China, the U.S. government should explore public-private partnership opportunities for heavy industrial products and durable goods that can be built in the United States with advanced manufacturing techniques.

As suggested by former Michigan governor Jennifer Granholm, the federal government can work with states to study existing industrial ecosystems in the rust belt and elsewhere to develop new technology business clusters based on underutilized factories, skilled workforce, and natural resources.[vi] Clean tech manufacturing has overlap with skills that were used in now defunct products across the United States. The federal government can improve job growth and technology advancement by tying government-sponsored R&D more closely to private industry innovation via the creation of research collaboratives that are jointly funded by the private and public sectors. Government agencies such as the Department of Defense could serve as early adopters of technologies that would emanate from the collaboratives. As part of this effort, the public sector, both local and federal, should consider expand funding of education initiatives, partnering not only with major research universities but also with trade schools and community colleges, to plan effective and affordable curricula for workers to train in the new energy technology fields. Corporations should adopt reverse-mentoring programs and cross-skill training between recruits and experienced workers to share knowledge to promote innovation.

[i] https://www.cfr.org/blog/deja-vu-saudi-style

[ii] Hamilton, J.D., Causes and Consequences of the Oil Shock of 2007-2009, Brookings Papers, 2009

[iii] Edelstein, P. and Kilian, L. How Sensitive are Consumer Expenditures to Retail Energy Prices, Journal of Monetary Economics, 2009

[iv]. Office of the Director of National Intelligence, "National Intelligence Strategy of the United States of America 2019," http://dni.gov/files/ODNI/documents/National_Intelligence_Strategy_2019.pdf.

[v]. Loren Steffy, "How Much Did the Feds Really Help Fracking?," *Forbes*, October 31, 2013, http://forbes.com/sites/lorensteffy/2013/10/31/how-much-did-the-feds-really-help-with-fracking.

[vi]. Mark Golden, "Stanford Professors Recommend Climate and Energy Priorities for Next U.S. President," Stanford Unviersity, http://stanford.edu/2016/05/11/stanford-professors-recommend-climate-energy-priorities-next-u-s-president.