Energy and the Great Powers

The Future of Energy Relations

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While most scholars debate whether we are still in a period of U.S. hegemony or its decline, there are very few countries that come close to wielding the same power as the U.S. China is most likely the next most important power in the world, with the European Union third. The EU continues to lag far behind the U.S. and China since the EU is a collection of 28 individual countries with individual goals, unlike the singular bodies of China and the U.S. The U.S., China and the EU consumed 16.9%, 18.4%, and 12.9% of the world's total energy in 2011, respectively, far ahead of the next largest energy consumers. (European Commission, 2014) As the world exhausts traditional energy sources and global energy supplies begin to decrease, more effective possession and usage of energy correlates with geopolitical power. While many countries' oil supplies have reached their peak production levels or are already diminishing, the world's great powers are constantly searching for new sources of energy with which they can keep their countries running. Energy consumption and energy production are already two of the most important factors in the modern global power struggle in terms of how easily a country can sustain its energy consumption and play a role in the global energy market. These factors will only become more important as energy supplies diminish over time.

This essay looks at how energy consumption and production will affect power struggles and relationships between the world's great powers until 2040. Predictions beyond 2040 are difficult to make because the outlooks of the Organization of the Petroleum Exporting Countries (OPEC) and the Energy Information Administration (EIA) only reach 2040. The first part of this essay discusses the current world powers and what role they play in the global energy market, followed by a discussion of the realist and liberal schools of thought and how they predict global energy struggles will play out in the future. Next, this essay makes predictions about which countries will have the most power in 2040 based on their uses of energy. The final portion of this essay outlines how the shifts in global hierarchy will effect the world order and modern institutions.

While there are many powerful countries that are major energy consumers or producers, the U.S. and China are the two most important countries in terms of energy relations as they both produce and consume more energy than every other country. In 2013, the U.S. produced and consumed the most total oil and was the second largest consumer and producer of both natural gas and coal. (EIA, 2015a) China is the world's largest energy consumer, largest consumer of petroleum and other liquids and by far the largest producer and consumer of coal. (EIA, 2015c) The U.S. needs enormous quantities of energy because it has one of the most highly developed populations in the world and extremely high energy use per capita. China's massive energy use is in part due to its population of more than 1.3 billion people and the rapid economic growth it has experienced in the past decade; GDP grew at an annual rate of about 10% between 2000 and 2011. (EIA, 2015c) Both of these nations will continue to be the most important countries in the world in terms of energy relations since they both need so much energy and complete self-sufficiency in energy is very difficult to achieve and maintain.

The secondary tier of major energy players includes the European Union and Russia. As stated earlier, the European Union is the third largest consumer of energy in the world as its member coun-

tries are highly developed. However, the EU only produces 6.1% of the world's energy, lagging behind the US, China, Russia, and Saudi Arabia. Conversely, Russia is one of the most important energy producers as it holds the largest natural gas reserves in the world and is the third largest liquid fuels producer in the world. (EIA, 2015e) Indeed, energy is vital for Russia's power, as energy revenues comprised 52% of its federal budget and 70% of total exports in 2012. (EIA, 2015e) Russia and the EU are highly interdependent as Russia exports about 80% of its natural gas and over 60% of crude oil to the EU. (EIA, 2015e) Russia is also an important consumer of energy as it is the third largest consumer of electricity in the world. (EIA, 2015a) The problem with Russia's energy production is that its two biggest production companies, Gazprom and Rosneft, are highly state-controlled, which has led to a lack of investment in energy production and experimentation practices. Both are highly interconnected in their global energy roles and have a large impact on the energy market, especially since they are both so close to the Middle East and Central Asia, two of the most important energy producing regions in the world.

There are many countries that are important, either as consumers or producers of energy, that do not otherwise have as much power on the global stage. Saudi Arabia has the largest amount of proven crude oil reserves in the world, while fellow OPEC members Iran, Iraq and Venezuela also have massive oil and natural gas reserves. (OPEC, 2015) India is the fourth largest energy consumer in the world, but is still developing its economy and therefore is not able to reap the full benefits of its energy resources. (EIA, 2015b) Brazil is an emerging power, but is still just the eighth largest energy consumer and tenth largest energy producer in the world. (EIA, 2015b) Japan has the fifth largest GDP in the world, but is heavily energy dependent as the largest importer of liquid natural gas and the second largest importer of coal. (EIA, 2015d) While all of these countries play important roles in the current global energy landscape, their roles are less significant. However, this does not mean that countries' roles cannot change in the future. In order to gain a better understanding of what roles countries will play in the future, this paper will discuss the merit of two theories on the topic of global energy relations and what theory is more probable in predicting future global relations.

The strategic realist and liberal market-based approaches both provide plausible but starkly different predictions about the future of energy relations between great powers. There is limited literature applying the different schools of international relations to energy struggles and energy security. However, Jonna Nyman provides an in depth theoretical examination of energy relations between the U.S. and China. (Nyman, 2014) Her strategic realist theory depicts "the international struggle for energy security as a zero-sum game, emphasizing competition, national security, state survival and conflict." (Nyman, 2014) With energy as a finite resource, realists say that countries like China and the U.S. would work against each other to increase their control of more energy resources and ensure their own security and economic safety. Alternatively, Nyman argues that the liberal market-based theory "emphasizes integration, interdependence and liberalization of the global energy market." (Nyman, 2014) This theory proposes that countries like the U.S. and China recognize that working together to efficiently use energy resources would benefit them both more than fighting over resources. The struggle for energy is one that can easily transform into violence since energy has become so vital to everyday life, particularly for more developed countries. While developed countries have more domestic resources due to their economic advantages, this does not mean that developing countries will not fight for resources to fuel their own development.

Though it seems like the global energy struggle would lead to conflict, the liberal market-based theory is more likely to prevail by 2040. There have already been signs of cooperation between great powers in the acquisition of energy resources. It is true that in 2005, the U.S. government rejected the private takeover of a U.S. energy company, UNOCAL, by state-owned Chinese corporation CNOOC (China National Offshore Oil Corporation), angering the Chinese government and limiting cooperation in energy pursuits between the two countries for the next several years. (Nyman, 2014) However, negotiations between the two nations over energy usage and business have recently resumed with success. The US-China Clean Energy Research Center (CERC), which was created about five years ago, has led to a positive development of energy relations between the two nations and will continue to make an impact by holding China to tighter carbon emissions standards in its economic development. (Nyman, 2014)

In actual energy production, "both CNOOC and Sinopec (another Chinese energy company) have made large investments in U.S. shale in the last few years, and likewise, American companies, including Shell and ExxonMobil, have been working with Chinese companies to develop shale resources in China." (Nyman, 2014) With the rise in shale oil production, countries that had previously needed to import heavily from other regions like the Middle East are now becoming more self-sufficient in oil production, decreasing the amount of competition necessary for energy. While there are still conflicts over energy sources, like in the Senkaku islands in the East China Sea, and energy networks, like the Keystone Pipeline in the U.S. or the Ukrainian Pipeline network, countries seem to be more willing to work within the international system and refrain from becoming involved with energy conflicts.

With the liberal market-based theory in place, China will likely be the most important player in global energy relations in 2040, both on a consumption and production basis. Even though China has been experiencing incredible economic growth in the past two decades, there remains room to grow, especially as GDP per capita increases. While Chinese industries have fueled a tremendous increase in China's energy usage, it can still continue to grow with the needs of the domestic population. China's GDP per capita is below $10,000 now, and is expected to rise to almost $40,000 by 2040, a greater increase than any other country can expect to experience in this time period. (OPEC, 2015) This means that Chinese citizens will soon be able to consume energy at levels that are closer to those of the citizens of developed countries. OPEC also expects that by 2040, 382 out of every 1,000 Chinese citizens will have cars, while today that number is 96. (OPEC, 2015)

As energy demand continues to grow, China will have multiple avenues through which to acquire energy. The U.S. has seen its relations deteriorate with Middle Eastern countries, including its long-term ally Saudi Arabia. A series of highly unpopular intrusions into the region, starting with the war in Afghanistan, have dealt a serious blow to U.S. soft power in the Middle East. Meanwhile, China has opened its doors and made infrastructure investments in countries like Iran and Iraq, allowing China to purchase more affordable oil from countries that have substantial oil reserves. (Dorraj & English, 2012) Domestically, China has the most technically recoverable shale gas resources in the world, which means that they have the greatest combination of current usable gas reserves and yet-to-be-discovered gas reserves. (OPEC, 2014) Its ability to acquire the energy resources it needs both internally and externally puts China in an enviable position. Though China may have trouble avoiding domestic unrest unless it provides more rights to its citizens, its economic growth will continue to drive its energy needs, ensuring its role as a massive player in the global energy market of the future.

Though U.S. hegemony is arguably declining, it will still remain a major consumer and producer of energy in 2040. As a highly developed country with a large population, the U.S. will always demand a large supply of energy. However, there are already signs that the U.S. is on its way to becoming a more important energy supplier than consumer. According to the EIA, the U.S. is going to become a net exporter of natural gas in the next five years and will continue to be a net exporter for the foreseeable future, no matter how energy prices fluctuate. (Ford, 2015) Unless oil prices remain low, which neither the EIA or OPEC predict, the U.S. will become a net exporter of total energy in the next five to fifteen years. (EIA, 2015f) The ability to domestically provide enough energy for the nation's citizens and industries to operate will put the U.S. in an advantageous economic position that many other major nations are not able to achieve. As a net exporter, the U.S. will be able to provide energy to other countries and earn significant profits while simultaneously importing less energy from other countries. This will reduce the obligations the U.S. has to maintaining peace in energy rich areas of the world, while allowing for burden sharing as other countries will be more reliant on energy imports from these regions than the U.S.

The European Union will still be an important consumer of energy in 2040 while Russia will have much less power in the global energy market as an energy producer. The European Union is working towards sustainable energy use more than any other power in the world, and these efforts will continue to decrease its need for traditional energy sources as it shifts to renewable energy sources. It will continue to need oil and other fossil fuels, but it will decrease its dependence on Russia for energy. Granted, the UK just extended its dependency on the Russian energy corporation, Gazprom. (Adams, 2015a) However, as a whole, the EU is cracking down on Russian energy companies, recently bringing a lawsuit against Gazprom claiming that it has monopolistic practices and manipulates the European energy market. (Rohac, 2015) There are also ample opportunities for Europe to develop its energy self-sufficiency if it decides to relax its sustainability standards with respect to fracking. The EU is strongly opposed to fracking, but many countries in the EU, such as Poland and France, have large deposits of gas that could be recovered from using the advanced drilling technique, which would further reduce its dependence on foreign energy exports. (Adams, 2015b)

In addition to the impending decrease of European dependency on Russian energy, Russian energy companies are facing a tough path forward unless they receive seriously needed funding. Russia has unsuccessfully offered China stakes in its energy and pipeline projects multiple times since they are in dire need of funding, but Russia overestimates how much these projects are worth. (Farchy & Hille, 2015) For a country whose revenues and exports are so heavily reliant on energy, Russia's energy companies are facing and will continue to face difficulties because they are not receiving enough investments to maintain the high level of energy production that has occurred for the past decade. The implications for this are that by 2040, Russia will not be in the strong position in the global energy market that it currently maintains, and the European Union will be more self-sufficient in its energy usage, whether that is through loosening its fracking standards or diversifying its energy portfolios.

Lastly, while the other important energy producing and consuming powers may slightly change their roles by 2040, the biggest change will most likely come from Brazil. The largest global oil discoveries in the past few years have been off the coast of Brazil, presenting Brazil with a major opportunity to increase its energy production in the next few decades. (EIA, 2015b) It also has the second largest natural gas reserves in South America and is planning the construction of major hydro-

electric power plants to bolster its domestic energy production. (EIA, 2015b) Though Brazil has had domestic unrest in the past few years and problems with corruption, if it is able to restart its economic growth and get past civil issues, then it will be poised to experience significant growth in its energy sector up into 2040.

Shifts in the global energy landscape will also have profound effects for international institutions, especially OPEC. Historically, OPEC has been the regulator of global oil prices and supply even though the collection of countries does not have any legal obligation to do so. However, with the recent boom of shale gas and major drop in oil prices, the traditional leader of OPEC, Saudi Arabia, has grown disillusioned with being pressured to sacrifice its own economic interests for those of OPEC members and non-OPEC oil exporters. In particular, Saudi Arabia resents the pressure on OPEC to cut oil supplies so every other country can benefit from higher oil prices. (El Gamal et. al., 2015) Internally, Saudi Arabia has also been growing discontent with shouldering a larger burden than the vast majority of OPEC members, all of which are entirely unique in their energy possibilities and their political makeups. (Diapaola & Smith, n.d.) In coming years, there is a chance that OPEC will not continue to exist as the oil cartel that it is today. It is more likely that the members will become individual economic actors or that the smaller countries will coalesce since they do not have as much individual power in the energy market as countries like Saudi Arabia, Iraq, Iran, and Venezuela. This breakup could indirectly necessitate an energy regulating body that would resemble international bodies like the WTO. In this case energy policy could fall to bodies like the WTO or UN for regulation, and the fact that these bodies have shirked energy policy in the past does not present a strong case for them taking on energy policy in the future.

Energy is a major driver for global influence and it is no coincidence that the greatest of the world's powers are also the biggest players in the global energy market. The great powers of the world like China and the U.S. will continue to develop their own energy production opportunities while cultivating foreign energy consumption sources so that they can maintain their power and economic capabilities. The EU will most likely increase its energy production capabilities or at least diversify its energy sources so that it can become less dependent on an unpredictable Russia. Russia is likely to see a reduction in its power in the energy market unless it finds more funding for energy pursuits. Other countries like Brazil and India will see increases in the importance of their positions in the energy landscape, but that will be dependent on their economic growth and domestic stability. In 2040, developing countries may play larger roles in the global energy market and OPEC may even break up. However, it is clear that the most important players in the global energy landscape in 2040 will continue to be great powers.

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