

The Perfect Storm: Energy Crisis Affects Policies in EU and China

Lauren Morstad

School of Law, IE University, Madrid, Spain

Bachelor of Law

E-mail: lmorstad.ieu2021@student.ie.edu

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Abstract

The energy market and related policies underwent massive shifts in 2022, caused by the Russia-Ukraine conflict and an unprecedented heat wave across the northern hemisphere. The EU energy market was especially impacted by these two events as in years previous, energy policies had been mainly focused on the development of sustainable energy in the Union. The loss of the Russian energy market forced policy makers within the EU in desperate need of reform to adapt a new perspective. Blackouts and increased demand for energy due to heatwaves in China occurred simultaneously with the EU energy crisis, creating an energy crisis in China as well. Russia provided relief to combat the energy crisis in China. The main purpose of this paper is to examine energy policies before and after the crises in China and the EU, reflecting on how the events during the energy crisis created the perfect storm for major changes in the international energy market. The paper will further analyze the interplay between the energy policies of the EU toward Russia and the intentions of China to take advantage of the void in the market. The analysis concludes that the central components of new policies will address what the energy sector previously lacked: independence, affordability, sustainability, and security.

Keywords: energy policy, European Union, China, energy crisis, Russia, sustainability

1. Introduction

In the post-modern world, energy is a vital resource on which societies depend to properly function. The continuous and secure access to an energy source is the lifeblood of every industry, city, business, and daily actions by an average person. The fundamental necessity of this resource for all aspects of life constitutes the importance of heavy-handed policy and governmental regulation, both domestic and foreign, across the world. The energy policy of a country is highly dynamic and requires a complex understanding of both the needs of the people as well as the process by which energy will be secured through a

particular source. These sources are more critical than in any other industry, as huge portions of the energy industry are dominated by only a few main state actors who have the available resources to produce vital energies like oil. These actors have incredible power over the lives of people in countries who rely on them for their resources. With limited resources, the energy industry is an incredibly political one. A country's foreign policy is key in determining where the country's energy will come from and at what price, both monetary and in allegiances. The desire for secure energy requires that most states heavily rely on fossil fuels for the bulk of their energy, as these materials are

the most dependable, easily transported, and efficiently stored. In 2019, 84 percent of energy was produced through the burning of fossil fuels and coal, with the percentage only decreasing slightly in the past three years to around 75 percent.¹

The global reliance on coal, gas, and oil, along with the finite nature of these resources, makes for an interesting game in the energy market and in energy policy. The global trend of energy policy moving away from these forms of energy pollution has been reflected in various international treaties such as the Paris Climate Agreement. The world has begun to recognize that our world's dependence on 'bad' energy has played a significant role in causing climate change. New and inventive ways of producing energy are becoming increasingly incorporated into both policy and reality, with around 13 percent of the world's energy derived from renewable sources in 2021.² Regardless of this transition, oil and gas remain the main source, in part due to the expense of renewable energy infrastructure and the security that fossil fuels offer to the energy sector.

Climate change may be catching up faster than the energy transition can take place, extreme weather being the most apparent evidence. In 2021, Asia and Europe experienced unusually frigid winter months which drove up energy demand. The sudden increase in demand shocked the energy market, causing global prices to rise as countries attempted to keep people warm. The summer of 2022 saw the same problem across Europe and Asia,

particularly China, as temperatures stayed consistent at forty degrees celsius or higher. People were forced to consume unprecedented amounts of energy attempting to stay cool. According to the World Bank Energy Index data, the global price increase of energy was about 50 percent from January 2020 to April 2022 and 26 percent from January to April of the year 2022. These intense temperature changes and consequential price spikes have sparked new urgency for governments to address energy security and keep people safe. China and the EU share a common demand for imported energy, similarly both experienced some of the most intense weather shocks.

The weather has not been the only factor contributing to the shifting in the energy market. Russia is a significant player in the oil and gas market, producing about 14 percent of the world's oil, or 10.5 million barrels each day.³ Russia has connections between both China and the EU to deliver oil. These relationships have become severely complicated. Political tensions exacerbated the energy crisis in the EU, causing fundamental change in the market and in energy policy of the EU and China. The changing market, caused by conflict, climate change, and the subsequent energy crisis, has since forced policy amendments in both states. This paper will analyze to what extent domestic and foreign energy policy has changed in the EU and China since the energy crisis began, highlighting which restraints and obstacles these entities face when creating long lasting solutions through policy making. By analyzing the

¹ Ritchie, et al. "Energy" (*OurWorldInData.org*, 2022)

² IEA "Energy Fact Sheet: Why does Russian oil and gas matter?" (*Paris 2022*)

³ IEA "Energy Fact Sheet: Why does Russian oil and gas matter?" (*Paris 2022*)

evolution of energy policy, insight into the fight for resources and implications of under-preparedness may be uncovered.

II. EU Energy Policy

The European Union is a global powerhouse regarding energy transformation. The EU creates and upholds policies that have been changing the way countries generate and consume energy throughout twenty-seven nations. The supranational quality of the EU as an IGO allows exceptional legal capacities which do not fundamentally exist in any other form currently in the international sphere. The accountability created by the Unionization of the member-states gives structure for European countries to change and evolve in an unprecedented manner regarding the current environmental crisis. Member states are held to a standard set by the EU, subject to sanctions if a country does not enact legislation to reach these benchmarks. The legal capacity of the EU adds extra layers of protection and answerability regarding the economic market, general social and political harmony, legislation, etc. High standards are expected in energy policy. The EU plans to have net-zero emissions by 2050, and each member state is to have below 55 percent carbon emissions by 2030.⁴

2.1 BRIEF POLICY TIMELINE

EU energy policy goals produced by the Energy Union, the administrative body responsible for creating and enforcing energy regulation in the member-states, have

been ambitious since 2015. When all member states signed the Paris Climate Agreement, the EU began to enact legislation to adhere to the obligations established in the Agreement, with the first draft of the ‘energy union strategy’ in 2015. The largest new policy contribution was the “Clean energy for all Europeans Package” passed in 2019, which implemented eight new laws focusing on energy performance and efficiency in buildings and homes. According to research by the Union, buildings and homes consume 40 percent of all energy. Section 9 of the directive regarding efficient energy for buildings enumerates, “To achieve a highly energy efficient...to ensure that the long-term renovation strategies deliver the necessary progress towards the transformation of existing buildings into nearly zero-energy buildings... Member States should provide clear guidelines and outline measurable, targeted actions as well as promote equal access to financing, including for the worst performing segments of the national building stock... while taking into consideration affordability.”⁵ The directive reflects the Union’s commitment to generating sustainable energy for buildings, thus establishing the demands for the Member-states to effectively adopt measures that would ensure efficiency and long-term renovation. Additionally, the directive establishes the importance of maintaining energy affordability, thus highlighting another main value of the EU’s energy policy. The directive presents a challenge to states, requiring both affordability and investment.

⁴ *European Commission, “Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions”. (Brussels, European Union, 2021)*

⁵ *EU Parliament, “Directive (EU) 2018/844” (Brussels, European Union, 2018)*

Other directives passed during the “Clean energy for all Europeans Package” focused on investments in renewable energy, governance regulation, and electricity market design. The overarching goal was to maintain low-cost, competitive, sustainable energy for all countries under the Union.⁶ In May 2022, the EU announced that the package had been completed, meaning that the member states had fully transcribed the directives. The regulations and policies enacted by the EU reflect a certain objective to maintain the economical integrity of the energy sector while transitioning the market in a way that is aligned with the goals that EU citizens support. The EU addresses supporting affordability in energy, highlighting the responsibility of policy to protect citizens from the volatility of the market. While these goals have been achieved, current regulations and events exhibit the EU’s ongoing struggle to wrangle the market despite the continued claims that the energy sector has been achieving progress. Past EU policy concerning energy has focused on transitioning markets away from unsustainable practices, relying on foreign energy sources as an intermediate solution to energy demand. Current policies reflect a much different set of values than previous ones as the EU addresses obstacles they had not foreseen. The current policy exhibits a different focal point in order to make up for the EU’s lack of foresight regarding their reliance on energy from unpredictable countries.

2.2 THE ENERGY CRISIS - IN THE BEGINNING

⁶ Energy Union. “Clean energy for all Europeans package completed: good for consumers, good for growth and jobs, and good for the planet” (Brussels, European Union, 2022)

In September 2021, a sudden chill spread across Europe as temperatures began to drop, foreshadowing a cold, biting winter that would seep into even the warmest homes. This strange weather created a surge in demand for energy as people attempted to stay warm. Although the bitter winter trended across the globe, Europe was left considerably vulnerable amidst a shift in its energy market. As demand increased across the EU, countries required more energy than was available in storage. The EU stored most energy it used in gas. In May 2021, about 30 billion cubic meters (bcm) of oil was stored, compared to about 90 bcm in 2020, of the total EU capacity of about 117 bcm. Storage inventories were at around 55 percent capacity in December 2021.⁷ Internal lack of preparedness during these months was felt by governments and consumers alike as prices rose significantly. In September 2021, prices averaged 6.5 times higher than in 2019 and continued to climb from there.⁸ The sudden demand was clearly caused by the abnormally cold winter in 2021 across the globe. The external energy market suffered abrupt changes as a result of the shifting climate. The US, a major exporter of liquified natural gas, retained exports for people within the country, as did Russia, whose trading policy assures that a degree of energy security needs must be met internally before exporting. Additionally, the competitive market from Asia (particularly China) had already been paying premium prices to ensure that gas would be shipped from places like

⁷ Popkostova, Yana. “Europe’s Energy Crisis Conundrum- Brief 2”. (European Union Institute of Security Studies, Jan 2022)

⁸ Popkostova, Yana. “Europe’s Energy Crisis” (2022)

the US and Russia to Asia. The EU faced a lack of options, resulting in high prices and reluctant government aid. State aid and subsidies are heavily regulated at the EU level as a maintenance of the “single market” in the EU. The EU scrutinizingly reviews national policies regarding state-aid in order to maintain fairness within the market, further complicating high prices. The “Clean Energy for all Europeans Package ” included marginal pricing on oil, gas, and coal, meaning prices for fossil fuels were controlled and raised by the Union in order to disincentivize their use. Along with the lack of energy in storage and from renewables, companies were forced to buy from carbon-emitting sources at high prices, resulting in another price increase at the consumer level. While the EU had set high standards for green energy, the implementation of these directives could not have come at a worse time for Europe, sacrificing security and affordability (despite the aims of the directives) for sustainability. No goals were reached; the lack of energy produced by these sustainable practices forced companies into the hands of carbon resources. The beginnings of the energy crisis faced a juxtaposition; EU countries who desired sustainable change leaned heavily on oil and gas in the rising demand, creating a safety net for the EU market. In 2021, 76 percent of the EU’s energy came from these two carbon emitting sources despite the policy of the EU towards more sustainable energy production. External sources still flowed in, however slowly, managing to keep the EU’s head above water. Nonetheless, the

situation took a turn for the worse as foreign relations began to crumble with a big player; Russia.

III. The Problem with Russia

Other sources outside of the EU provided a band-aid to the insufficient energy saved by renewable resources. Russia and the US were two of the primary energy providers to the EU, with gas pipelines running from Russia providing for two-fifths of the gas and a quarter of the crude oil consumed within the EU.⁹ The dependency on Russian oil has existed for decades with varying levels of cooperation between the two entities. In December of 1994, the Energy Charter Treaty was signed by the EU and Russia in order to create a legal framework to facilitate a more peaceful and harmonious relationship between the two, along with securing Russia as an energy trade partner to the EU. A joint statement was made between the EU and Russia to clarify the relations and to express future agreements and peace in May 2004. Further in the 2004 statement, the EU “confirms that it does not impose any limits on imports of fossil fuels and electricity” from Russia.¹⁰ The express protection of Russian oil and its special status as an import into the EU revealed a dependence on this resource, which the EU was willing to bend its policy towards securing. In 2009, Russia withdrew from the Energy Charter Treaty due to complications in the private sector, which controls a massive amount of the supply even with these actors’ close ties to the Russian government. Russia pulling away from the EU market was an early indication of troubles in the

⁹ *Popkostova, Yana. “Europe’s Energy Crisis” (2022)*

¹⁰ *EU Council Press Release. “Joint Statement on EU Enlargement and EU-Russia Relations”. (Luxemburg 2004)*

relationship between the EU and Russia, however, Russia remained the main supplier of EU energy imports into the 2020's.

The final blow to the energy market between the EU and Russia came in February of 2022 when Russia invaded Ukraine in an act of war. The EU had increasingly intertwined relations with Ukraine, deepening political and economic cooperation since the Ukrainian Revolution in 2014. The Ukraine-EU Association Agreement was signed in June of 2014 when the revolution had ceased. The attack by Russia on Ukraine in 2022 deals with several political and cultural tensions left over from the days of the USSR, which is not within the scope of this paper. However, Russian violence against Ukraine forced the EU to take drastic measures to protect a country with whom the Union had grown so close.

Following the attack, the EU began to implement heavy sanctions on all trade sectors with Russia, including extreme shifts to the energy market. In the fifth package of sanctions published April 27, 2022, the EU banned imports of Russian coal. The sixth package issued in June 2022 focused mainly on the oil imports from Russia, including a crude and refined oil embargo to facilitate the phase-out of Russian oil by the end of 2022.¹¹ The sanctions included continued execution of existing contracts regarding seaborne crude oil permitted for the next six months, petroleum contracts for eight months. After the allotted time in the sanctions, all contracts would no longer be in effect. Some member states with particular dependency on

these products, such as Germany and the Netherlands, enjoy temporary exemptions and could still receive oil via pipelines, but only for internal use and not for resale. There were other exceptions in the sanctions: Croatia was granted permission to import Russian vacuum gas oil needed for the refinery until the end of 2023 and Bulgaria was granted permission to import oil and petrol until 2024 due to geographic anomalies. The sanction packages were the heaviest set of regulations the energy market between the EU and Russia had seen in decades regarding the supply of Russian energy. The deterioration of these relations could not have come at a worse time as Europe was in for an overwhelmingly hot summer.

The EU scrambled to find other sources of energy to compensate for the loss of Russian oil during this surge in demand, leaning heavily on good relations with the US. The EU imported more than twice as much liquified natural gas as the year prior, amounting to about 40 billion cubic meters.¹² Other countries such as Qatar, Norway, and Algeria also bulked up the supply of gas to Europe. However, these sources were no match for the soaring demands in hot summer and the lack of storage by European states. Energy prices increased by around 25 percent across the EU, causing countries to implement measures to reduce prices for consumers. State aid intended to lower these prices was under heavy watch by the Union in order to maintain the single market structure of the EU. This frustrated states like Latvia, Denmark, and Estonia whose citizens suffered most from high prices and whose

¹¹ *European Commission. "EU Adopts 6th Package of Sanctions Against Russia." (European Commission, 2022)*

¹² *EU Council. "Infographic- Where does the EU energy come from?" (Oct 2022)*

electricity and gas prices had increased by 50 percent or higher.¹³ The EU has since been more lenient with state aid and has proposed new measures to increase affordability overall. The Commission was tasked with creating a more comprehensive energy security plan to eliminate Russian oil dependency effectively. To prevent consumers from being overwhelmed by the volatility of the market, states can prevent another shock of energy demand by increasing storage, engaging in efforts to save energy through renewables, and creating a price cap on gas.¹⁴

EU policy is in recovery and the panic over the energy crisis has been subsiding since the end of the summer in 2022. The market has begun to adapt slowly to the sanctions, and policy requests by the Council have been met with action by the Commission to enact directives regarding the internal energy workings of the EU. The EU's new domestic and foreign energy policy will focus on becoming energy independent through the production of green hydrogen, mainly from Spain through the BARMAR pipeline, onshore wind farms in the Netherlands and Denmark, solar across the Union, and other renewables.¹⁵ Energy security will also be ensured with these initiatives, seeing as the independence of the EU will give a more stable market.

Part of the Russian sanctions were meant to punish and stop Russia's attack on Ukraine by hitting their most valuable market. In 2021, crude oil exports made up 45

percent of the Russian federal budget. The EU was one of the most significant contributors to this market, so the policy move to ban Russian oil should have impacted the Russian market enough for the government to consider backing down in Ukraine. However, the war has continued well into the second half of 2022 with no clear sign of an end. The European market was not impacting the Russian market the way they intended. What disrupted their impact lies within another country that experienced a similar heatwave in the summer of 2022, one that caused massive demand for energy imports to curb rising prices in China.

IV. China's Energy Policy

China is another global powerhouse of energy consumption, production, and policy. As the most populated country in the world, China has particular power in the energy market in imports and exports, highlighting the importance of reviewing China's policy. With the Communist Party holding the government in China, the ability to implement policy here is met with much less resistance than in the EU. The layers by which policy must pass through in China are much more succinct, a possible reason that China has become a green energy leader in the global sphere. The Chinese drive to innovate in green energy has been unmatched by other countries for the last five to ten years, reaching over 2.5 billion dollars worth of

¹³ Eurostat. "Electricity and gas prices in the first half of 2022" (European Commission, 2022)

¹⁴ European Council. "European Council-Consilium- 20-21 October 2022" (EU Council, 2022)

¹⁵ Interview conducted with César Álvarez Alonso, IE University and Harvard Law Professor, and former Senior Advisor for the State Secretary of Energy in Spain. Álvarez provided insight to the future policy in the EU and China, confirming the need for energy security in both regions.

green energy investment in 2010.¹⁶ However, China's major source of energy is coal, accounting for around 55 percent of total energy consumed.¹⁷ The coal is mostly produced within the country itself as China is rich in natural resources. Like the EU, China has leaned on carbon sources amidst the green energy transition, but the Chinese government plans to have net-zero emissions by 2060.¹⁸

4.1 THE SLOW BUILDING OF CHINESE ENERGY POLICY

The first Five-Year-Plan for the energy sector came in November of 2005, defining the goals of Chinese energy for the coming years. These national policy goals were defined as “growth at any cost model to a sustainable, energy-secure growth path”¹⁹, reflecting early stages of policy initiative. Chinese policy required a much more intense rate of change for the sector than that of other countries' policies at the time. The ability for China to agree on one motive for energy policy proved significantly important. Following the passage of the law, the government allocated budgets to the energy sector to facilitate the achievement of these regulations. In 2008, China's National Energy Administration was established in order to oversee and coordinate energy ministries, commissions, and state-owned energy companies. The Administration facilitated the development of these industries, even allocating 5 trillion yuan to the industry for the next Five-Year-Plan.

The 2011-2015 Plan had a new focus on building up the green energy sector for greater production of the materials needed to create green energy, such as solar panels and wind turbines. China also expressed interest in nuclear investment at a time before other countries saw the potential for nuclear energy as a valuable green source. The goal of this investment was for China to become more energy-independent, and perhaps more importantly, to grow international economic cooperation in the energy market. With all the new technology that China was producing, the country set goals to be the number one producer of green energy building materials. Selling these materials in the global market would create enormous trading power and opportunities for Chinese companies as the world has turned more and more to green energy. In this way, China's energy policy anticipated the future high demand for these materials.

The fourteenth Five-Year Plan, set for 2022-2027, is drafted in the same vein as the twelfth, with the most emphasis on infrastructure and development of the renewable materials industry. Section ten of the Plan outlined a new power grid across China, allowing for greater access and security across the country. The Plan enumerates the greater flexibility and storage of the new grid, as China has experienced many blackouts due to energy overloading the grid. In general, the basic principles

¹⁶ Hu X. et al. “Which types of policies better promote the development of renewable energy? Evidence from China's provincial data”. (*Renewable Energy, Volume 198*. 2022)

¹⁷ EIA. “China-Executive Summary”. (*International - U.S. Energy Information Administration, 2022*)

¹⁸ Hu X. et al. (2022)

¹⁹ Hu X. et al. (2022)

of the Plan highlight that China will focus on security, innovation, and expansion internationally.²⁰

The diversification of energy resources in China has also been explored through policy. China's desire to open up to the world is not simply for their exports but for imports as well. In 2019, of the 14.5 million barrels of oil a day (b/d) consumed, 9.6 million b/d were imported.²¹ In 2021, China consumed 15.44 million b/d, 10.3 million of them having been imported.²² Imports of oil have become more common in China as the country desires to move away from coal due to its polluting quality. Oil is less available in China as a natural resource. As a part of the diversification and expansion policy, places such as Saudi Arabia and Russia began to sell more and more oil to China. The new influx of oil imports was necessary as a result of increased energy demand. However, even with the diversification model and the trillions of yuan poured into the energy sector, China was not prepared for the shock that was the summer of 2022.

4.2 CHINA'S ENERGY CRISIS - CHANGING THE STRATEGY

China had been experiencing blackouts and energy shortages due to the intense growth in the production market. The expansion of the industries around China sucked up more energy than could be provided by China's generation. All types of goods, including aforementioned production of green energy materials were draining the grid.

China had begun efforts to diversify its energy market in order to curb the lack of energy security the country was facing. Over the past couple of years, beginning around 2017, China has become the hungriest importer of crude oil in the world. Previously mentioned Plans aimed at diversification permitted China's creation of oil agreements, such as a long term agreement with Saudi Aramco (a Saudi oil company) in order to provide greater security to the market. Russia had also been providing oil to China through the ESPO pipeline running between the two countries, which Russia uses to pump around 1.6 million bpd of oil into China.²³ The pipeline has existed since 2012 as a part of Russia's attempt to reach the Asian market. Similarly, in 2019 Russia began using the 3,000 km "Power of Siberia" pipeline, pumping thirty-eight bcm into China. Discussions over a second Siberian pipeline have been ongoing but not finalized. This infrastructural investment by Russia and China highlighted early the Russian policy intention to move away from the dependence on the European market.²⁴ Russia and the EU could have been deeply intertwined in the energy market due to the large number of pipelines directly connecting the two, with six main pipelines that branch off into many smaller networks. Slowly Russia began to pull more resources into expanding into the Asian market with the construction of these pipelines.

²⁰ LSE. "14th Five-Year Plan on Modern Energy System Planning". (*Climate Change Laws of the World*, March 2022)

²¹ Barron, Jeff. "China's crude oil imports surpassed 10 million barrels per day in 2019". (*EIA*, 2020)

²² Sönnichsen, N. "China: oil imports by country 2021." (*Statista*, 2022)

²³ IEA. "Energy Fact Sheet: Why does Russian oil and gas matter?". (*IEA*, 2022)

²⁴ (*IEA*, 2022)

In March of 2022, China National Petroleum Corp (CNPC) and Russian oil producer Rosneft extended an existing ten-year contract, originally signed in 2013. The agreement stated that Russia would supply China with approximately two hundred thousand bpd for the next ten years.²⁵ Russia took over Saudi Arabia as the number one provider of crude oil to China. China became the main importer of Russian oil, taking over the space that used to be filled by European demand. At first, the interconnectedness of the two countries did not seem to align with China's main strategy to remain energy-independent. However, events that followed in the summer months proved to be a shift in China's energy transition needs.

In the summer months of 2022, like many parts of the northern hemisphere, China experienced a massive heat wave. Temperatures in Europe during the summer broke records, with the average from June to August being 0.4 degrees hotter than the year prior.²⁶ In August over 250 weather stations across China observed new record hot temperatures, reaching on average around forty-three degrees C.²⁷ Temperatures reached up to forty-five degrees celsius in the Sichuan region, a place with much agricultural and industrial significance. This region relies on hydropower from the Yangtze River, however, due to the extraordinary heat, the river dried up and left the hydro

plants unable to produce energy. 16 percent of China's energy mix comes from hydro. Hydro plants along the Yangtze produce just under 1 trillion kWh yearly.²⁸ The Sichuan region produces the most hydropower in China and ships this power to major cities like Jiangsu, Zhejiang, and Shanghai.²⁹ This reliance on the river created a massive loss in China's energy supply at a time when the country had soaring demand for electricity to keep cool.

In mid-July, demand for energy had increased 26.8 percent compared to the year prior.³⁰ The EU experienced similar high demand in the summer months as the weather patterns between the two regions paralleled. The combination of steep demand due to the heat wave and the subsequent drought that caused the river to dry up in places where the hydro plants usually provide energy, facilitated the Chinese energy crisis. In many places in China people were left without energy for many hours of the day. As many as nineteen provincial power grids broke records for electricity loads. Provincial governments were forced to impose energy restrictions in order to keep the grids from being overloaded, leaving many people without a way to stay cool. Not only residential use of energy was affected but industries as well were forced to reduce production due to the restrictions, causing major economic issues for steel, lithium battery production, and electronic producers. The threat to the industrial sector caused a huge political focus

²⁵ *(International - U.S. Energy Information Administration, 2022)*

²⁶ Bonn. "Copernicus: Summer 2022 Europe's hottest on record | Copernicus." *(Copernicus Climate Change Service, 2022)*

²⁷ Ziwen, Zhao. "Why is China facing a power crisis, and what does it mean for the economy?" *(South China Morning Post, 2022)*

²⁸ *International Office of the State Council of the Peoples Republic of China. "China's Energy Conditions and Policies".*

(Information Office of the State Council of the People's Republic of China, 2007)

²⁹ *(Ziwen, 2022)*

³⁰ *(Ziwen, 2022)*

on the energy crisis as not only were the people suffering, but the impact on the industry could be disastrous for business.

China was extremely vulnerable and the need for a solution seemed more dire than before. The early months of the year spent getting closer to Russia proved useful in filling the energy void. China laid the groundwork to lean on Russian oil and reduce the effects of the loss of energy sources such as the hydro-plants. Even if politically silent on the Russia-Ukraine conflict, China took advantage of the sanctions Europe was placing on Russian oil to meet their own energy needs. By August 2022, Russian oil imports to China had increased by 21 percent compared to 2021.³¹

The increased use of Russian energy was not a malicious act by China, but rather an act of self-preservation in a time when the country needed to support its industries and citizens. China created these international policies that opened its energy market to imports to secure a resource that is vital to the functioning of the country. Chinese energy government officials have stated that it is not in China's best interest to begin relying on Russian oil, but in the current scenario, a solution needs to be found.³² China's future energy policy will not be to grow dependent on Russian oil, even with the band-aid the oil is providing right now. Goals towards sustainable practice and energy independence remain, but the reality of the situation requires China to make hard policy decisions.

V. Conclusion - In the Real World

The aim of energy policies around the world can be pinpointed in a few main areas: green energy development, energy security, and energy independence.

Countries have been implementing green energy policies for the past two decades in attempts to reform how we consume and produce energy. The transition to clean energy is a noble pursuit for governments with merit in the attempt alone. If nothing else, policy should be enacted to further these initiatives and strive toward a better, greener future.

Yet, the world is still in danger of an energy crisis due to climate change and political instability. Between the EU and China, the energy policy response following the war in Ukraine and the abnormal weather seems in juxtaposition with the initiatives for green policy. On the one hand, the energy crisis can be partially attributed to a lack of preparedness caused by the transition to green sources of energy. The EU struggled to generate enough green energy to reasonably rely on during the energy crisis, and China turned back to imported oil as soon as the green sources began to fail. On the other hand, the energy crisis has demanded that policymakers develop energy systems that are long lasting and sustainable. In a way, the energy crisis gave the shove needed for these governments to take the need for energy more seriously, in general and regarding the development of green energy.

Energy policy can and must consider sustainability, affordability, security, and independence all at once. The current policy enacted under the crisis has proven all of

³¹ Lepic, Bojan. "China Increases Crude Oil Imports From Russia." (*Rigzone*, 2022)

³² Bradsher, Keith. "China Is the Wild Card in the Energy War With Russia." (*The New York Times*, 2022)

these goals can be made possible. During the height of the crisis, governments struggled to maintain alignment with green policy goals, but once the weather had settled, policy began to reflect a more succinct understanding of all these issues and their relation to one another. The volatility in the market caused by dependence on outside sources in the EU can be solved by investment in green energy within the Union, aiding in energy independence. With the EU free energetically from the market pressures, the ability to control prices on energy would increase, overall increasing affordability of energy. For China, the lack of policy regarding energy security forced the country into the hands of Russia in desperation. Still, the policy reforms of diversification, continued efforts for sustainable sources, and investment in new infrastructure may aid in the long-term affordability and reliability of energy to the country.

Even when green energy may seem to be a partial cause of the energy crisis, policies do not need to be shifted away from these renewables. Rather China and the EU should conduct a further examination into what went wrong with the current implementation of green policy and the goals these policies were aimed at to ensure they are aligned with real issues. Now that governments understand how to craft green energy policy to promote energy independence and security, the focal point has shifted. Before the energy crisis, the green energy policies were enacted in accordance with the Paris Climate Agreement and other ESG's that the world wanted to achieve. Despite this, the urgency to correctly form and enforce policies did not exist until the energy crisis and war began. Now, governments face a tangible threat that green policies could be used to mitigate.

Although the concern over the changing climate should be enough to drive the enactment of functional green policies, the energy crisis set a fire under the seat of governments much more effectively.

Nations did not make previous policies in an attempt to anticipate the next obstacle that may arise due to an unknown variable. The EU was, of course, on shaky ground politically with Russia before the invasion of Ukraine, so the reliance on an integral resource should have been considered as a possible detriment to the energy stability of the Union. With the knowledge that the climate is warming and with further scientific data proving that weather patterns are becoming more volatile, governments should gear policies toward counteracting this phenomena. Up until this point, governments had not experienced on such a large scale the necessity to stress test the energy market and shape policies according to the responses by the sector. The more scenarios policies prepare for, the more secure the entire process of energy production and access will be.

The lessons the energy crisis taught governments may be applied to other resource markets. The fight for resources is real and on the horizon. If places such as the EU and China continue to battle over resources from exporting countries like Russia, the volatility in the market will never cease and may become more burdensome. The large-scale dependency on the foreign oil and LNG market creates a considerable risk that future policy may aim to curb; to protect citizens. Energy is vital. These interests should be protected, maybe even beyond the national policy of a state but potentially on an international level. The global trend toward green policy is not only vital for the future of the

planet but for the protection of the state as well. When a state is left without resources, vulnerability may lead to degradation. The use of green energy may be the solution to this, as solar, wind, and even hydropower will become more commonplace. Even places such as Europe, who struggle to find sun for solar and rivers for hydropower may benefit from advancements in green hydrogen and off-shore wind farms. Green energy may eventually account for all energy needs of a state, creating a more harmonious and less volatile way of life for the average person as well as a brighter future for the Earth.

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