

Organization of the
Petroleum Exporting
Countries

OPEC



MUNUC 36

Model United Nations at the University of Chicago

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CHAIR LETTERS

Dear Delegates,

Welcome to MUNUC 36! I am Emma Tung, and I am thrilled to have the opportunity to co-chair the Organization of the Petroleum Exporting Countries (OPEC) committee. OPEC presents a wide conflict that allows our committee to run through topics of global energy politics, economic dynamics, and sustainable development. Together, we will embark on engaging discussions exploring the intricate relationships between member nations and the global energy market.

I am a second-year Psychology and Business Economics Major. I have been doing MUN since middle school and am now chairing this conference! Outside of MUNUC, I also chair a committee for CHOMUN, UChicago's conference for college students. Additionally, I work for a psychology lab during the school year. Outside of the Model UN and academic world, I love to play tennis, watch movies, and dance for UChicago's NEXUS dance team.

As delegates, you have the incredible opportunity to engage in meaningful discussions, learn from each other's perspectives, and shape a better world. We all share a common passion for diplomacy, international affairs, and global problem-solving. OPEC's influence on global oil markets will be deeply discussed, and I am hoping we all observe its impact to maintain market stability and address global energy concerns all at once. I eagerly await our gathering at the conference and look forward to working alongside each one of you. Please let me know if you have any questions, and I am excited to see what comes next.

Yours sincerely,

Emma Tung

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Dear Delegates,

Welcome to MUNUC 36! I am Kevin Gu, and I am excited to be serving as one of your co-chairs for the Organization of the Petroleum Exporting Countries (OPEC). This committee will focus on the topics of the impact of transitions of energy usage on OPEC, as well as how OPEC will seek to respond to global supply chain disruptions. These topics will blend together the complexity of such a regional body with aspects of politics and economics that you, as delegates, will have to navigate. I cannot wait to see how these discussions will unfold.

A little bit about me: My name is Kevin, and I am a second-year student at the University of Chicago studying Economics and Public Policy. When I was a high schooler, I attended several Model UN conferences while they were in-person, and during MUNUC 35, I was an assistant chair for a crisis committee, Cabinet of Florvil Hyppolite, Haiti 1889. In addition to OPEC at MUNUC 36, I will also be serving as a crisis director for ChoMUN, UChicago's collegiate conference in the spring. Outside of Model UN, I participate in several business clubs, and I am also an avid member of intramural basketball and frisbee teams.

Through this committee, we hope that you will not only engage in meaningful discussions about the topics we have outlined, but also seek to expand your knowledge about the importance of governing bodies like OPEC in the workings of our world. Despite a push towards renewable energy sources and sustainable energy production, petroleum remains the major driving force behind our daily lives. As that is something that you navigate, we also hope that you have fun! I am very much looking forward to having a meaningful, yet enjoyable, weekend with all of you, and hope that this background guide can provide a good basis of information to catapult your experience at MUNUC. Please feel free to reach out if you have any questions, and I am excited to get started!

Sincerely,

Kevin Gu

kevingu@uchicago.edu

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Dear Delegates,

Welcome to MUNUC 36! I am Nolan Shaffer, and I cannot wait to serve as one of your co-chairs for the Organization of the Petroleum Exporting Countries, or OPEC. Throughout the course of the committee, we will get to dive into some of the most pressing and exciting issues of our time, exploring first-hand how one of the most influential stakeholders in the fossil fuel industry responds to green energy transitions and global supply chain disruptions. There are a multitude of questions and discoveries that lie ahead, and I can't wait to delve into them with you all.

Some background about me: I am a second-year student double majoring in Computer Science and Biology. I am from New York City and studied drama in high school. Outside of MUNUC and ChoMUN, our collegiate Model UN conference, I founded the UChicago Alt Protein Project and organized UChicago's Effective Altruism chapter. Additionally, I act in our theater and film clubs, and enjoy running, cooking, rock climbing, and skateboarding. If you ever come to visit the University of Chicago, you might have me as a tour guide!

Throughout MUNUC 36, our aim is to cover two of the biggest problems facing the organization: the green energy transition and the global supply chain. By diving into how such a large player in fossil fuels responds to these modern, pressing issues, we hope you learn about the future of global energy and get a sense of the many sides of this complex issue.

After all, these two topics, climate change and supply chains, affect nearly every human being on the planet, and the issues they pose do not have simple solutions. How do you, as an OPEC country, manage calls for saving the planet while protecting your country's economic stability? How do you defend against supply chain disasters that could potentially put your representative country into financial ruin? Together, I'm looking forward to making sense of these topics, answering the questions that come up, and learning about what the world looks like from the perspective of the largest energy consortium in the world. Most importantly, I am excited to have fun! Please don't hesitate to reach out to me if you have any questions.

Kind regards,

Nolan Shaffer

nolanshaffer@uchicago.edu

HISTORY OF THE COMMITTEE

OPEC, the Organization of the Petroleum Exporting Countries, was created on September 14th, 1960 by Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela. OPEC membership continued to expand beyond these five countries, the most recent addition being the Republic of Congo in 2018. The organization was initially founded as a counterweight to the “Seven Sisters”, a multinational company that at the time dominated the international oil market.¹ OPEC’s mission was simple: to unify and coordinate petroleum policies and to set fair and stable prices for member countries.

In the 1970s, many OPEC members nationalized their oil industries, giving them greater control over the movement of their resources and, in turn, a greater influence over global oil prices. These initial countries then urged their fellow members to follow suit. This included controlling prices in times of conflict, which would be displayed a few years later. In 1973, OPEC imposed an oil embargo— a restriction in trade leading to an increase in oil prices—and fully disrupted the global supply of oil. This restrictive action was targeted at the countries supporting Israel during the Yom Kippur War, which paved the way to an oil crisis, where barrel prices quadrupled and the global economy crashed. In the 1980s and 1990s, OPEC implemented various production quota systems to stabilize oil prices and manage global supply.

In the 21st century, OPEC has continued to control its oil production. This comes as the organization has faced numerous problems with competition from non-OPEC oil producers and fluctuations in global oil demand. To solve this, OPEC reached agreements in Vienna between 2016 and 2020 to reduce oil production collectively in order to stabilize prices, and the oil market was rebalanced. The Covid-19 pandemic severely impacted global oil demand, as pitfalls in demand lead to dramatic decline in oil prices. OPEC and non-OPEC partners negotiated cuts in price to stabilize the markets and prevent economic fallout and inflation.

These negotiations continued into 2020. In March, OPEC demanded a 1.5% cut in global oil production, but Russia rejected the proposal, ending the three-year partnership and causing the failure of the 'OPEC plus' agreement, while Saudi Arabia increased output and offered discounts, leading to a price war. All the while, the US considered passing the NOPEC bill to protect its own crude oil market share, which would allow the US to pursue antitrust lawsuits against its OPEC partners. In an effort to continue collaborations, in April 2020, OPEC and other oil producers extended production cuts until July to stabilize oil prices. However, the UAE rejected an eight-month extension of OPEC+ oil output curbs due to COVID-19.

¹ “OPEC : Brief History.” Accessed June 12, 2023. https://www.opec.org/opec_web/en/about_us/24.htm

Further negotiations led to a compromise, allowing the UAE to increase its output to 3.65 million barrels per day, while Russia also agreed to increase production.²

Following the COVID-19 pandemic, global energy demand surged, leading to record-high energy prices. US security adviser Jake Sullivan called for OPEC+ to boost oil production, leading to the highest oil price since 2014, the reason for which was to recuperate losses that the pandemic brought. The global oil trade landscape shifted after Russia's invasion of Ukraine, leading to production cuts and increased interest in NOPEC bills. In October 2022, OPEC+, led by Saudi Arabia, cut its oil output target, dissatisfying the US and benefiting Russia. As a result, US President Biden threatened consequences and reassessed its relationship with Saudi Arabia. The latter country defended the decision, arguing it was an economic move. However, the US rejected Saudi Arabia's claim, claiming it would bolster Russian revenues and undermine sanctions.³



² “The Impact of Coronavirus (COVID-19) and the Global Oil Price Shock On ...,” OECD, September 30, 2020,

<https://www.oecd.org/coronavirus/policy-responses/the-impact-of-coronavirus-covid-19-and-the-global-oil-price-shock-on-the-fiscal-position-of-oil-exporting-developing-countries-8bafbd95/>.

³ Rosemary Griffin, “Infographic: Russian Invasion of Ukraine Impact on OPEC+ Economics,” S&P Global Commodity Insights, June 2, 2023,

<https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/oil/100322-infographic-strong-ruble-weakens-russia-position-opec-plus-negotiations-crude-oil#:~:text=Russia's%20invasion%20of%20Ukraine%20has,continues%20to%20be%20below%20quota.>

TOPIC A: IMPACTS OF ENERGY TRANSITIONS ON OPEC

Statement Of The Problem

It is a clear and glaring issue that the world is under immense pressure to switch to clean and renewable energy sources. Governments around the globe have made agreements and set goals for clean energy usage. For instance, the Paris Agreement, an unprecedented global effort, was signed by 196 parties around the world including OPEC member states. It aimed to combat climate change by limiting global warming to well below 2 degrees Celsius above pre-industrial levels⁴. The agreement was groundbreaking in its size and had a nearly unanimous acceptance. Aside from the Paris Agreement, other intergovernmental forums, such as the United Nations Framework Convention on Climate Change (who meet annually at the United Nations Climate Change Conference, commonly referred to as COP) or G20, continue to bring conversations about renewable energy to the global stage.



A graphic summary of the 2015 Paris Climate Agreement⁵

Alongside the global conversations, public pressure is building toward clean energy transitions. A study in 2022 by the Pew Research Center found that 69% of U.S. adults now prioritize developing alternative energy sources, such as wind and solar, over fossil fuels⁶. This type of consensus is significant and daunting for the future of OPEC. It means that oil is increasingly becoming socially frowned upon. This has implications on OPEC from both a PR and sales standpoint—public pressure to invest in alternative energy sources to oil in the US means a loss of business for OPEC. In the same survey by the Pew Research Center, 69% of the population

⁴ Davenport, Coral, Justin Gillis, Sewell Chan, and Melissa Eddy. "Inside the Paris Climate Deal." *The New York Times*, December 12, 2015, sec. Science. <https://www.nytimes.com/interactive/2015/12/12/world/paris-climate-change-deal-explainer.html>.

⁵ Infographic courtesy of Yale (<https://sustainability.yale.edu/explainers/yale-experts-explain-paris-climate-agreement>)

⁶ Tyson, Alec, Cary Funk, and Brian Kennedy. "Americans Largely Favor U.S. Taking Steps To Become Carbon Neutral by 2050." *Pew Research Center Science & Society* (blog), March 1, 2022. <https://www.pewresearch.org/science/2022/03/01/americans-largely-favor-u-s-taking-steps-to-become-carbon-neutral-by-2050/>.

was in favor of the U.S. taking steps to become carbon neutral by 2050—another large majority. These views are not unique to the United States. Surveys conducted by the European Commission in 2023 found that over three-quarters (77%) of EU citizens think climate change is currently a “very serious problem”. Over eight in ten Europeans (86%) think that their national government should take action to improve energy efficiency by 2030, and over half (58%) think that the use of renewable energy sources should be accelerated⁷. This is a serious problem for OPEC. America and Europe are significant customers, and shifting buying and approval rates of OPEC means a major loss of revenue. Additionally, the US and Europe could pressure other countries to take similar steps against oil dependency, which would spell greater trouble for OPEC who might look to these countries to make up their lost revenue.⁸



The U.S. and other governments around the world have been increasingly passing policies aimed at strengthening renewable energy.⁹

It's not just public consensus that has begun to turn on oil and cast a shadow over OPEC's future. These opinions have been increasingly reflected in politics and policy. In the US, research by the Energy Policy Institute at the University of Chicago found that Democrats rank climate policy as the third most important issue, behind the economy and healthcare.¹⁰ In 2021, President Biden signed into law a \$1.2 trillion infrastructure bill that provided billions of dollars toward renewable energy and climate goals, such as electric vehicle transitions.¹¹ Only a year later in

⁷ “Climate Change.” European Commission, July 2023.
<https://europa.eu/eurobarometer/surveys/detail/2954>.

⁸ Siripurapu, Anshu, and Andrew Chatzky. “OPEC in a Changing World.” Council on Foreign Relations, March 9, 2022.
<https://www.cfr.org/backgrounder/opec-changing-world>.

⁹ Image courtesy of unsplash
(<https://unsplash.com/photos/L8lbuhnSPD8>)

¹⁰ “Americans’ Views on Climate Change and Policy in 10 Charts.” Energy Policy Institute at the University of Chicago, April 10, 2023.
<https://epic.uchicago.edu/insights/americans-views-on-climate-change-and-policy-in-10-charts/>.

¹¹ Cochrane, Emily. “Senate Passes \$1 Trillion Infrastructure Bill, Handing Biden a Bipartisan Win.” *The New York Times*, August 10, 2021, sec. U.S.
<https://www.nytimes.com/2021/08/10/us/politics/infrastructure-bill-passes.html>.

2022, President Biden signed into law the Inflation Reduction Act, which provided nearly \$400 billion in federal funding to clean energy, with the aim of substantially reducing the nation's carbon emissions¹². Similarly, in 2023, the European Union reached a deal to ramp up its 2030 renewable energy targets, sourcing 42.5% of its energy from renewable sources by 2030, an increase from the previous target of 32%¹³. Initiatives and goals like these require a massive transformation in energy sourcing and infrastructure, that includes a major scaling-up of renewable energy. Such transitions are likely to only increase in speed and adoption over the next few decades as climate change presents worsening challenges and public opinion continues to shift toward prioritizing renewable energy. This is bad for OPEC as it means that Europe and the US are following through on their peoples' sentiment against oil dependency which already impacts the current and near-term future of OPEC's revenue from them.



What will the future of renewable energy look like? Windmills in Stockton, CA.¹⁴

Undoubtedly, as the world moves towards cleaner and more sustainable energy sources, such as renewables and electric vehicles, the demand for fossil fuels, including oil, is expected to decline in the long term.¹⁵ This shift in energy consumption patterns poses a threat to OPEC member countries which are heavily dependent on oil revenues. The invention of new renewable technology and the enactment of bills and agreements aimed at adopting and increasing the usage of such technology, are bound to increase and pose a continuing challenge to OPEC.

In addition to selling a product that the world is generally moving away from, OPEC must also deal with PR issues. OPEC's name and validation have been demonized as it is seen as one of the greatest sources of pollution. Schools,

¹² "The Inflation Reduction Act: Here's What's in It." McKinsey & Company, October 24, 2022. <https://www.mckinsey.com/industries/public-sector/our-insights/the-inflation-reduction-act-heres-whats-in-it>.

¹³ European Commission. "European Green Deal: EU Agrees Stronger Legislation to Accelerate the Rollout of Renewable Energy." Accessed August 4, 2023. <https://ec.europa.eu/commission/presscorner/home/en>.

¹⁴ Image courtesy of Unsplash (<https://unsplash.com/photos/o-T0gQajblA>)

¹⁵ Reed, Stanley. "The World's Demand for Oil Is Set to Slow." *The New York Times*, June 14, 2023, sec. Business. <https://www.nytimes.com/2023/06/14/business/oil-demand-slowng.html>.

companies, and big organizations choose to promote saving energy and avoiding oil-related products. As the U.S. government encourages society to switch its sources of energy, OPEC increasingly suffers.



A pump-jack mining crude oil.¹⁶

How have they responded? In past statements OPEC has struck a delicate balance, acknowledging that sustainable energy is important while emphasizing the value of the oil industry in creating cheap and accessible energy, and in playing a role in energy transitions. For instance, after signing the Paris Agreement, OPEC wrote in a press release that “The oil industry can contribute to this effort by increasing the diversity and continuity of energy services to the poor... While all OPEC Member Countries are developing countries and aspire to develop, they have also been supportive of other developing nations... The petroleum industry has rapidly evolved to become ever-more efficient and environmentally friendly. Improving technology

will enhance this ongoing push in the future.”¹⁷

By focusing on equitable energy access and technology improvements, OPEC has branded themselves as on board with climate change mitigation and equality efforts while not ruling out their products.

At the same time, OPEC has sought to make a case for oil by advocating for energy security. “In times of high uncertainty, policy focus shifts to energy security,” OPEC wrote in their 2045 World Oil Outlook.¹⁸ Additionally, OPEC has sought to make up revenue loss from the US and Europe by turning toward rapidly growing economies like India and China¹⁹.

However, OPEC’s actions have largely been short-term, and changing energy priorities pose a significant risk to its long term future. The future is inevitably trending toward green energy, and while there may always be a market for oil, growth is expected to take a significant cut.^{20 21}

¹⁷OPEC Bulletin Commentar. “OPEC : OPEC Embraces Adoption of Historic Paris Agreement on Climate Change,” February 2016. https://www.opec.org/opec_web/en/press_room/3432.htm.

¹⁸ “World Oil Outlook 2045.” OPEC, October 2022. <https://woo.opec.org>.

¹⁹ “Competition in Energy Markets.” OECD Competition Policy Roundtable Background Note. OECD, 2022.

²⁰ Reed, “The World’s Demand for Oil Is Set to Slow.”

²¹ Timperley, Jocelyn. “Is the Decline of Oil in Sight?,” July 26, 2023. <https://www.bbc.com/future/article/20230726-an-experts-guide-to-peak-oil-and-what-it-really-means>.

¹⁶ Image courtesy of Unsplash (<https://unsplash.com/photos/GrmwVnVSSdU>)

The global focus on reducing greenhouse gas emissions and combating climate change necessitates a shift away from fossil fuels. Many countries are adopting policies to achieve their climate goals, including the phasing out of coal and the promotion of renewable energy. These efforts can limit the use of oil and pose a challenge for OPEC, as it may struggle to maintain its market position and influence in a world transitioning to cleaner energy sources.

In terms of the financial importance of OPEC, oil exports and imports help contribute to this world's economy. It contributes to the national budget, and it is the primary source of foreign exchange earnings, government revenues, and investment opportunities. OPEC's role provides stability for the economy. The energy transition introduces uncertainties and volatility in oil prices. The increasing use of renewable energy sources can lead to fluctuations in oil demand, which in turn affects prices. OPEC member countries rely on stable and predictable oil prices to plan their national budgets, so such volatility can be challenging for them.²²

To mitigate the risks associated with the energy transition, OPEC member countries would need to diversify their economies and reduce their dependence on oil. This requires significant investments in other sectors, such as renewable

energy, manufacturing, technology, and services. However, diversification takes time and resources, and not all member countries have the necessary infrastructure or financial capacity to undertake such transitions easily. Equatorial Guinea, for example, reduced its economic dependence on oil by reducing exports from being totally dependent on oil in 2000 to only around 60 percent in 2020, filling the difference with chemical products and wood²³.

All in all, the past decade has shown that the world is beginning to take climate change seriously, which means transitioning away from fossil fuels like oil. This has been reflected in public opinion, investments, and policy in some of OPEC's largest importers. OPEC must adapt its strategy toward overcoming these changing sentiments, and balance its short-term and long-term future. In the present and near future, OPEC has demonstrated a focus on increasing imports to rapidly growing economies like China and India, and on emphasizing the need for energy security. However, OPEC's long term plan of adapting toward slowing demand is undefined, and there is much brainstorming needed for member countries to figure out how they will adapt to the impending obsolescence of their primary export.

²²Calderón, Alvaro Silva. "The Role of OPEC in the 21st Century." July 9, 2003. https://www.opec.org/opec_web/en/918.htm.

²³Buchholz, Katharina. "OPEC Countries Further Diversify Exports." Statista, October 1, 2021. <https://www.statista.com/chart/18310/petroleum-and-other-export-from-opec-countries>.

History Of The Problem

The 21st century has ushered in a new era of global energy efforts focused on transitioning to renewable sources, driven by mounting concerns over climate change, resource scarcity, and the environmental toll of fossil fuels. It has been characterized, in large part, by a growing recognition of the environmental consequences of traditional fossil fuel reliance. Mounting concerns over climate change, resource scarcity, and ecological degradation have driven societies, governments, and industries to reevaluate their energy strategies. The evolving global energy landscape since the year 2000 has posed challenges and opportunities for OPEC. As the world shifts towards renewable energy sources and heightened concerns about climate change and environmental sustainability emerge, the organization has found itself in a dynamic situation. Traditionally focused on maintaining oil market stability and managing production quotas, OPEC has gradually acknowledged the changing preferences of energy consumers and the geopolitical shifts towards cleaner alternatives. To adapt to these changes, OPEC member countries have increasingly engaged in discussions surrounding energy diversification, investing in renewable projects, and exploring collaborations with non-OPEC nations in pursuit of a more balanced and sustainable energy future.

Since the turn of the century, the pursuit of renewable energy has gained momentum. A surge

of technological advancements in solar photovoltaic (PV) cells, wind turbines, and biofuels has transformed these once-niche technologies into economically viable and scalable energy solutions. Solar PV efficiency has greatly improved, enabling wider adoption in residential and commercial settings. Likewise, wind power has evolved with larger, more efficient turbines that harness stronger winds at higher altitudes. According to the International Energy Agency, by 2026 global renewable electricity capacity is forecast to rise more than 60% from 2020 levels, and account for almost 95% of the increase in global power capacity through then, with solar PV alone accounting for more than half.²⁴



A solar farm in Offingen, Germany.²⁵

²⁴IEA. "Renewable Electricity Growth Is Accelerating Faster than Ever Worldwide, Supporting the Emergence of the New Global Energy Economy - News." Accessed August 18, 2023. <https://www.iea.org/news/renewable-electricity-growth-is-accelerating-faster-than-ever-worldwide-supporting-the-emergence-of-the-new-global-energy-economy>.

²⁵ Image courtesy of Unsplash (<https://unsplash.com/photos/Ilpf2eUPpUE>)

Governments around the world have responded to mounting environmental concerns by implementing policies aimed at accelerating the transition to renewable energy sources. They have spurred the adoption of renewables through tariffs, tax breaks, investments, and portfolio standards. For example, Germany's pioneering feed-in tariff system, implemented in the early 2000s, incentivized homeowners and businesses to install solar panels by guaranteeing fixed payments for generated renewable energy.²⁶ This initiative spurred a solar energy revolution and set a global precedent for incentivizing decentralized renewable energy production. In the United States, tax credits like the Investment Tax Credit, the Production Tax Credit, and the Residential Clean Energy Credit have been instrumental in promoting solar and wind energy development.²⁷ These tax incentives have catalyzed significant growth in renewable energy capacity, making solar and wind power increasingly competitive with traditional fossil fuels. According to a report from the International Energy Agency in 2022, wind and solar power are expected to overtake

²⁶ futurepolicy.org. "The German Feed-in Tariff," July 15, 2015.
<https://www.futurepolicy.org/climate-stability/renewable-energies/the-german-feed-in-tariff/>.

²⁷ Gelles, David, Brad Plumer, Jim Tankersley, Jack Ewing, Leo Dominguez, and Nadja Popovich. "The Clean Energy Future Is Arriving Faster Than You Think." *The New York Times*, August 13, 2023, sec. Climate.
<https://www.nytimes.com/interactive/2023/08/12/climate/clean-energy-us-fossil-fuels.html>.

coal by 2025 as the world's largest source of electricity.²⁸ More than \$1.7 trillion worldwide are expected to be invested in technologies such as wind, solar power, electric vehicles, and batteries globally this year, according to the IEA, compared with just over \$1 trillion in fossil fuels.²⁹ Furthermore, nations like China, recognizing the economic and environmental imperatives of renewables, have strategically invested in domestic clean energy industries.³⁰ More than half of the world's 4.3 million solar jobs, for example, are in China.³¹ These substantial investments in solar manufacturing have not only bolstered the country's technological prowess but have also positioned it as a global leader in renewable energy production, dominating the global stage in solar and wind production (though the country is also notoriously reliant on coal, which generated 61.3% of its energy in 2022).³²

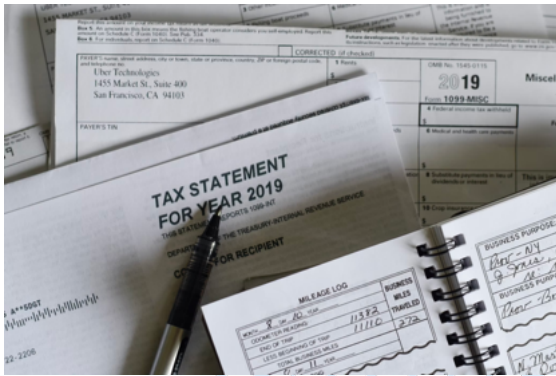
²⁸ "Renewable Energy Market Update." Paris: IEA, May 2022.
<https://www.iea.org/reports/renewable-energy-market-update-may-2022>.

²⁹ "Renewable Energy Market Update."

³⁰ Evans, James. "How China Is Winning the Race for Clean Energy Technology." *Fairbank Center for Chinese Studies* (blog), October 26, 2022.
<https://fairbank.fas.harvard.edu/research/blog/how-china-is-winning-the-race-for-clean-energy-technology>.

³¹ IEA. "China - Countries & Regions." Accessed August 18, 2023.
<https://www.iea.org/countries/china>.

³² Statista. "China: Coal Power Generation Share 2022." Accessed August 18, 2023.
<https://www.statista.com/statistics/1303368/coal-electricity-production-share-in-china/>.



Countries have increasingly created tax credits to incentivize renewable energy usage.³³

Since 2000, a perceptible shift has occurred in global attitudes towards fossil fuels. Increasing awareness of their environmental impacts, such as greenhouse gas emissions and air pollution, has led to a growing consensus on the need to reduce their use. While oil remains a primary energy source, there has been a heightened focus on diversifying energy portfolios to include more sustainable options. This has caused OPEC's revenue to plummet in certain regions. In 2000, the US, Europe, and Latin America imported 55% of OPEC's crude petroleum. In 2021, they imported only 41% of OPEC's crude petroleum, which is larger than a 25% decline. On their own, the US imports from OPEC declined by 55% from 2000 to 2021, and Latin American imports declined by 39% during the same period.³⁴

³³ Image courtesy of Unsplash (<https://unsplash.com/photos/5616whx5NdQ>)

³⁴ Gaulier, Guillaume, and Soledad Zignago. "BACI: International Trade Database at the Product-Level. The 1994-2023 Version." Working Papers, February 2023. <http://www.cepii.fr/CEPII/fr/publications/wp/abstract.asp?NoDoc=2726>.

However, OPEC has made efforts to adapt to changing energy demand. For example, several OPEC nations have diversified their portfolios by investing in renewable energy projects, like solar and wind initiatives. The United Arab Emirates, for instance, has launched ambitious solar energy ventures like the Mohammed bin Rashid Al Maktoum Solar Park, aiming to not only contribute to renewable capacity but also diversify its energy economy.³⁵ To make up for lost revenue, OPEC nations have also sought to forge partnerships and collaborations with non-OPEC countries. OPEC's presence in Asia, for example, where energy demand is burgeoning, has increased significantly over the past decade, growing by 59% in the period from 2000 to 2021.³⁶ The organization has fostered particularly close ties with countries like China and India, and in doing so, has positioned itself to tap into growing markets while mitigating potential losses from decreased oil consumption in regions such as the United States and Europe. As the global energy landscape continues to evolve, OPEC's measured adaptation showcases its willingness to engage with changing trends and secure its role in an energy future that increasingly emphasizes sustainability and diversification.

³⁵ "Innovation Centre | Mohammed Bin Rashid Al Maktoum Solar Park." Accessed August 18, 2023. <https://www.mbrsic.ae/en/about/mohammed-bin-rashid-al-maktoum-solar-park/>.

³⁶ Gaulier and Zignago, "International Trade Database."



India's booming economy has been a growing source of revenue for OPEC.³⁷

All in all, the 21st century has seen a vast amount of transformation in the global energy sector, driven by the imperative to transition towards renewable energy sources amid the growing pressure of climate disaster. The heightened concerns over climate change, resource depletion, and the environmental consequences of fossil fuel reliance have sparked a worldwide shift in attitudes and policies. Governments have played a pivotal role in accelerating the adoption of renewables and have implemented a number of strategic incentives and investments to make progress toward their sustainability goals. This undeniable rise of renewables is exemplified by projections that indicate their ascendancy as the predominant source of electricity globally. These changes have put pressure on OPEC, whose economies rely primarily on the export of oil. It has forced them to embark on a journey of adaptation to stay increasingly profitable and relevant in the 21st century. While still reliant on

oil revenue, several OPEC nations have taken steps to diversify their energy portfolios through investments in renewable projects. Simultaneously, forging partnerships with non-OPEC countries, particularly in Asia, has become crucial for securing energy markets amidst changing consumption trends. As the energy landscape continues to evolve, pressure will mount on OPEC to develop increasingly creative strategies to mitigate revenue declines.

Past Actions

OPEC has historically focused on promoting and protecting the interests of its member countries in the petroleum industry. While acknowledging the increasing role of renewable energy, OPEC's actions have centered on maintaining the relevance and competitiveness of oil and gas.

Cooperation With Non-Opec Countries

OPEC has engaged in dialogues and supply agreements with major non-OPEC oil producers like Russia to stabilize global oil prices and prevent volatility. For example, the 2016 Declaration of Cooperation led to coordinated production cuts among OPEC and non-OPEC nations, which helped rebalance an oversupplied

³⁷ Image courtesy of Unsplash
(<https://unsplash.com/photos/5XPOy7BiZ3M>)

oil market and bolstered prices.³⁸ While such cooperation aims to ensure the continued viability and strength of the petroleum industry, it also risks flooding the market if not carefully managed and could hinder the transition to cleaner energy sources by making oil overly competitive compared to renewables.

Research And Development Initiatives

OPEC has supported technical workshops, studies, and collaborative R&D efforts related to enhancing oil and gas production efficiency, reducing operational costs, minimizing environmental impacts, and improving value addition.³⁹ For instance, Saudi Aramco has invested substantially in innovative technologies for carbon capture and storage, methane leak detection, energy-efficient engine systems, and converting crude to chemicals.⁴⁰ While such initiatives help curb emissions and extend oil's competitiveness amid climate policies, the

broader focus remains on perpetuating oil's commercial dominance rather than comprehensively shifting towards low-carbon energy sources.

Climate Change Engagement

OPEC has participated in international climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), including conferences of parties and agreements like the Paris Agreement. However, OPEC countries often emphasize the principle of "common but differentiated responsibilities," highlighting their continued development needs, comparatively limited historical emissions, and the importance of oil and gas in poverty alleviation.⁴¹ This has translated to positions that provide flexibility for fossil fuel use and oppose overly ambitious emissions targets or timelines that could severely constrain petroleum's market share and economic contribution.

Diversification Efforts

Recognizing the risks of overdependence on oil, some OPEC member countries have made efforts to diversify their energy mix and economies. For example, the UAE has invested in renewable energy, especially solar power, with aims to generate 50% of its energy from clean sources by

³⁸ "The 10th (Extraordinary) OPEC and Non-OPEC Ministerial Meeting Concludes," OPEC, accessed August 14, 2023, https://www.opec.org/opec_web/en/press_room/5891.htm.

³⁹ "Monthly Oil Market Report," OPEC, accessed August 14, 2023, https://www.opec.org/opec_web/en/publications/338.htm.

⁴⁰ "Carbon Capture, Utilization & Storage," Aramco, accessed August 14, 2023, <https://www.aramco.com/en/sustainability/climate-change/managing-our-footprint/carbon-capture-utilization-and-storage>.

⁴¹ unfccc.int, accessed August 14, 2023, <https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states>.

2050.⁴² Saudi Arabia's Vision 2030 plan also includes goals to develop renewables, promote energy efficiency, and diversify the economy beyond oil.⁴³ However, the scale of renewables expansion outlined remains limited compared to projected oil and gas generation. The intent is reducing domestic oil consumption to enable higher-value exports, developing alternative economic sectors, and creating more diverse government revenue streams, rather than transitioning comprehensively away from oil and gas reliance.

Possible Solutions

To maintain oil and gas relevance amid the energy transition, OPEC could encourage member countries to diversify energy portfolios by investing in renewables alongside continued oil production. OPEC can facilitate integration of renewables into national energy systems and support associated R&D. Some OPEC nations have already begun diversification efforts. Saudi Arabia's Vision 2030 initiative aims to expand renewable energy while enhancing oil production efficiency through new technologies.⁴⁴ Investing

⁴² "World Energy Transitions Outlook," World Energy Transitions Outlook, March 1, 2021, <https://www.irena.org/publications/2021/March/World-Energy-Transitions-Outlook>.

⁴³ "Homepage: The Progress & Achievements of Saudi Arabia," Vision 2030, accessed August 14, 2023, <https://www.vision2030.gov.sa/>.

⁴⁴ Ibid, Vision 2030

in downstream refining also captures additional value from oil resources. The UAE set a target for 50% clean energy by 2050 and is deploying large solar projects.⁴⁵ State oil firm ADNOC launched a carbon capture facility to reduce emissions.⁴⁶ OPEC-wide diversification provides regional energy security benefits and demonstrates climate commitment. However, it risks displacing some oil and gas revenues if pursued aggressively. Member interests also vary — resource-limited countries are more dependent on oil income. And integration of renewables has technical hurdles, requiring modernized grids and storage solutions. While diversification can complement oil and gas's vital near-term role, export-focused OPEC states may limit the scale pursued. Striking the right balance remains challenging, especially for nations lacking the UAE and Saudi Arabia's ample reserves and fiscal capabilities to undertake parallel renewables development. But supporting diversification selectively can allow OPEC to proactively realign with evolving energy realities.

Promoting energy efficiency improvements across sectors is another pathway OPEC could utilize to sustain oil's relevance while demonstrating climate commitment. Efficiency curbs energy consumption, reduces emissions, and extends petroleum's lifespan. Some OPEC nations have

⁴⁵ Ibid, World Energy Transitions Outlook

⁴⁶ "Press Releases," ADNOC, accessed August 14, 2023, <https://www.adnoc.ae/en/news-and-media/press-rel-eases>.

already launched efficiency programs. The UAE's national retrofitting initiative upgrades old AC systems, appliances, lighting and water fittings in large buildings, generating major savings.⁴⁷ Saudi Arabia's Vision 2030 agenda includes goals to promote efficient building codes, vehicle fuel economy standards, and industrial energy optimization.⁴⁸ OPEC-wide efficiency policies and technical support could accelerate such initiatives. This includes tightening equipment standards, incentivizing efficient mobility options, and sharing best practices. Switching power plants, refineries and petrochemical facilities to more efficient technologies directly reduces oil and gas needs too. However, substantially curbing energy demand through efficiency risks decreasing oil revenues, especially for more export-reliant member countries. Efficiency may also make oil more competitive, slowing renewable energy transitions. And developing nations face adoption barriers like high upfront costs and lack of technical skills. While efficiency serves as an argument, OPEC states oil dependent countries may reduce the stringency placed by the environmental policies.

A balanced approach is required to receive the

⁴⁷ "Strategies, Policies, Initiatives and Awards: The Official Portal of the UAE Government," Strategies, policies, initiatives and awards | The Official Portal of the UAE Government, accessed August 14, 2023, <https://u.ae/en/about-the-uae/strategies-initiatives-and-awards>.

⁴⁸ Ibid, Vision 2030

benefits from efficiency while avoiding excessive impacts on oil and gas demand and revenues. Targeted policies and technical assistance can allow OPEC to champion efficiency gains positively.

Investing in technologies that reduce the carbon footprint of oil and gas production is another pathway OPEC could seek to maintain the industry's relevance in a low-carbon future. This includes carbon capture systems, methane leak prevention, advanced biofuels, and more. Some OPEC members are already exploring cleaner hydrocarbon technologies. Qatar has focused on expanding its low-emissions LNG exports and R&D in renewables.⁴⁹ Algeria is leveraging its sizable gas reserves to position itself as a major supplier of this lower-carbon fuel.⁵⁰ Equatorial Guinea aims to grow as an LNG exporter and diversify from oil.⁵¹ OPEC-wide, increasing support for emissions mitigation technologies demonstrates climate commitment while allowing continued oil and gas production. This could involve establishing a joint fund to support CCS, methane abatement, nature-based offsets,

⁴⁹ "Qatarenergy - Home," Qatar Petroleum, accessed August 14, 2023, <https://www.qatarenergy.qa/en/Pages/Home.aspx>.

⁵⁰ "Africa: Oil and Gas – Oil Refining – Overview: Mbendi Website," Mbendi Website | Latest Business News in South Africa, January 23, 2019, <https://mbendi.co.za/indy/oilg/ogrf/af/p0005.htm>.

⁵¹ "Equatorial Guinea - United States Department of State," U.S. Department of State, July 19, 2021, <https://www.state.gov/reports/2020-investment-climate-statements/equatorial-guinea/>.

advanced biofuels, and hydrogen. However, many decarbonization technologies remain prohibitively costly or commercially unproven presently, slowing adoption. Pursuing natural gas and biofuels also risks perpetuating fossil fuel dependence. And low-income OPEC states may require external technical and financial support for widespread implementation. While vital for curbing emissions, OPEC must be selective in backing technologies that offer substantial abatement potential cost-effectively. A balanced approach can boost sustainability credentials while allowing oil and gas' continued role. But the pace of deployment may lag ambitions if solutions prove economically or technically challenging.

Actively engaging in international climate efforts enables OPEC to constructively contribute to sustainability while safeguarding member interests. OPEC already participates in UN climate processes, including conferences of parties. Some members also collaborate bilaterally — Saudi Arabia and China jointly established a \$10 billion fund for renewable tech investments.⁵² The UAE has partnered with governments on renewable energy projects globally.⁵³ OPEC could build on this through leadership roles in net zero alliances, sharing best practices on policy

⁵² “Factbox: Saudi-China Energy, Trade and Investment Ties,” Reuters, December 9, 2022, <https://www.reuters.com/world/saudi-china-energy-trade-investment-ties-2022-12-09/>.

⁵³ Ibid, Strategies, Policies, Initiatives, and Awards

frameworks, and joint R&D programs with major economies to spur clean energy innovation. Facilitating knowledge transfer and technical assistance on sustainability solutions to developing nations also demonstrates commitment. However, OPEC must balance climate engagement with members' continued reliance on oil revenues. Limiting involvement to non-binding initiatives may be preferred to mandatory policies that could prematurely curb fossil fuel use. Partnerships with other producers could coordinate responsible oil and gas development aligned with climate objectives. While climate collaboration enables OPEC to exert influence and progress economically prudent transitions, binding commitments that severely restrict oil may face resistance. Savvy engagement that emphasizes win-win sustainability solutions while avoiding overly zealous policies provides a pathway for progressive participation.

Advocating for carbon pricing mechanisms is one approach OPEC could use to incentivize emissions reductions while leveling the playing field across energy sources. Carbon taxes or cap-and-trade schemes would make high-carbon oil and gas less competitive versus lower-carbon renewables. However, some OPEC nations may resist market-based measures that could curb oil and gas demand before adequate substitutes exist. Wealthy Gulf states have the resources to withstand added costs, but smaller producers

with limited alternative revenue sources would suffer. A balanced approach could see OPEC champion pricing schemes in developed regions with significant abatement potentials and ability to absorb costs. Phasing mechanisms over time also allows producers to adjust. Regionally, the UAE has implemented carbon pricing in the electricity sector.⁵⁴ Broader adoption across OPEC may require differentiated timelines and levels reflecting national circumstances. OPEC could call for using carbon revenues to spur sustainability investments in developing countries, reducing the burden of new costs. But measures must align with members' interests — overly stringent schemes risk supply disruptions and them being undermined. Savvy advocacy for pragmatic, economically bearable pricing can demonstrate OPEC commitment on emissions reductions while respecting development priorities.

Forging strategic partnerships allows OPEC to jointly navigate the transition while furthering sustainability aims. OPEC has existing partnerships, including with non-OPEC producers on supply management and major consumers like China on energy investment.⁵⁵ These could be expanded by collaborating with

⁵⁴ World Bank Group, “Climate Change Action Plan Explainer,” World Bank, September 16, 2021, <https://www.worldbank.org/en/news/feature/2021/06/22/what-you-need-to-know-about-the-world-bank-group-2nd-climate-change-action-plan>.

⁵⁵ Ibid, OPEC

energy majors on reducing production emissions through sharing best practices. Partnerships with organizations like IRENA on knowledge transfer can support domestic renewable energy growth.⁵⁶ However, some partnerships may have misaligned interests regarding the pace and scale of transition away from oil. Developed country governments and renewable-focused firms favor more aggressive shifts that may adversely impact OPEC revenues. Partnerships function best when based on mutually beneficial objectives, not external pressure on OPEC's policies. Joint R&D initiatives on carbon capture or energy storage allow continued fossil fuel use while limiting emissions. Partnering with developing nations on capacity building enables sustainable, inclusive development. Saudi Arabia and China are collaborating on clean tech investments.⁵⁷ Such partnerships demonstrate commitment without totally phasing out oil. With astute partner selection and alignment of interests, OPEC can positively leverage cooperation for sustainability while avoiding measures that prematurely render its resources “stranded assets”.

Investing in cutting-edge technologies to enhance production, efficiency, and sustainability of petroleum resources is a key pathway for OPEC to future-proof the industry's relevance. Some members are already exploring advanced technologies. Kuwait's 2035 vision focuses on

⁵⁶ Ibid, IRENA

⁵⁷ Ibid, Reuters

optimizing oil production and expanding into petrochemical manufacturing.⁵⁸ Ecuador has sought partnerships to deploy advanced extraction techniques.⁵⁹ Gabon is reforming regulations to attract expertise and investment in production expansion.⁶⁰ OPEC-wide, the organization could establish a dedicated fund to support upstream research into enhanced recovery methods and carbon-efficient extraction. Downstream, development of technologies for waste heat recovery, carbon capture systems, and energy-efficient refinery processes could be accelerated. However, capital costs of deploying emerging technologies remain high. Low oil prices hinder new upstream investments, while refinery upgrades require significant financing. Poorer OPEC nations would need external support to uptake cutting-edge solutions. While vital for boosting production, operational efficiency, and environmental performance, widespread technology adoption by OPEC may

⁵⁸ State of Kuwait World Bank Country Engagement Framework 2021-2025, accessed August 14, 2023, <https://thedocs.worldbank.org/en/doc/06a7eba0bc51a01f8b1e4ba80be0bcdf-0280012021/>.

⁵⁹ “BNamericas - Ecuador’s Energy Minister Reveals Plans For ...,” BNamericas.com, accessed August 14, 2023, <https://www.bnamericas.com/en/interviews/ecuadors-energy-minister-reveals-plans-for-oil-industry-transition>.

⁶⁰ “Gabon: Positioning Oil & Gas as an Enabler of Countrywide Growth,” Energy Capital & Power, May 25, 2023, <https://energycapitalpower.com/gabon-oil-gas-countrywide-growth/>.

be gradual given budget constraints. Targeted investments in the most impactful and economically feasible solutions can balance maximizing returns with minimizing environmental footprints.

In addition to energy-specific solutions, OPEC can encourage member countries to undertake economy-wide sustainable development to demonstrate commitment and resilience. Some members have sustainability initiatives beyond energy. Nigeria has policies to reduce gas flaring by capturing associated gas for productive use, cutting waste and emissions.⁶¹ Saudi Arabia’s Vision 2030 includes diversifying the economy and investing in education and human capital to reduce oil dependence.⁶² OPEC-wide sustainability efforts could involve facilitating knowledge transfer on topics like circular economy principles, sustainable infrastructure, eco-friendly manufacturing, renewable energy skills training, and responsible resource governance. This supports economic diversification and social development beyond oil and gas. However, resource-dependent members may be reluctant to aggressively promote

non-hydrocarbon sectors that could displace oil revenues. Sustainable investments like gas flare capture, environmental regulations, and

⁶¹ 1. Reuters, “Nigeria Moves to Capture Flare Gas,” VOA, September 14, 2022, <https://www.voaafrica.com/a/nigeria-moves-to-capture-flare-gas/6746988.html>.

⁶² Ibid, Vision 2030

community development projects also increase costs that strain government budgets. While critical for resilience and responsibility, OPEC must selectively champion sustainable development solutions that concurrently uphold member interests. Gradually expanding social and economic initiatives can complement continued prudent oil and gas development.

By embracing these solutions, OPEC can play a proactive role in the global energy transition, ensuring the relevancy of petroleum while also promoting sustainability and addressing climate challenges.

Bloc Positions

As the world pushes all countries to a more sustainable future, the clash between opinions and actions through OPEC causes turmoil in international waters. Some believe that all must be incredibly efficient to transition into renewable energy sources, seeing OPEC as detrimental to these efforts. Others see the opposite, where OPEC is our biggest energy source and we must utilize every part of the organization. As such, good debate and discussion can emerge from opposing viewpoints.

The European Union And The United States

The European Union has embraced aggressive targets for reducing carbon emissions and transitioning to renewable energy sources. They

view OPEC's reliance on oil production as contrary to goals and urge us to transition to a cleaner energy economy. That being said, the EU imports about 30% of its oil from OPEC members, showing that the Union still counts on OPEC to aid its oil usage.⁶³ The first oil crisis in 1973 profoundly altered the relationship between the EU and OPEC. The conflict encouraged European countries to build ties and create a foundational connection with OPEC countries in order to ensure constant supply.⁶⁴ As time continues and the world chooses to promote more renewable energy, the EU begins to distance itself from OPEC. Thus, a potential bloc could be a distance between OPEC and those that are against OPEC. The UK has big targets for carbon neutrality and offshore wind development. Germany attempts to phase out coal and nuclear power while prioritizing a solution for fossil fuels. As these countries shift away, the rest of the Union follows as well. This way, the European Union can come together to create solutions to promote foreign relations while observing the supply chain that promotes a healthy economy.

⁶³ "Organisation of Petroleum Exporting Countries." European Commission. Accessed August 22, 2023. https://energy.ec.europa.eu/topics/international-cooperation/international-organisations-and-initiatives/organisation-petroleum-exporting-countries_en.

⁶⁴ Claes, Dag Harald, ed. *Handbook of OPEC and the Global Energy Order: Past, Present, and Future Challenges*. New York: Routledge, 2020.

As energy prices hiked during that year due to OPEC's cut in oil production, the EU was not prepared to rely solely on renewable energy sources during that time due to a lack of technology. Due to underinvestment during the pandemic, Russia chose to cut the oil supply to OPEC, causing an energy crisis in the EU. Seeing Russia's opposition to the EU's strategy, the European Union would work immensely well with the United States. European countries spent countless hours discussing their solution. They created the Hydrogen Strategy.⁶⁵ The Hydrogen Strategy was supported by this plan aimed at promoting the production, distribution, and use of hydrogen as a clean and sustainable energy carrier as Hydrogen accounts for a big percentage of the energy used in Europe. Hydrogen has the potential to play a significant role in the EU's efforts to transition to a low-carbon and climate-neutral economy. The strategy outlines key objectives, targets, and initiatives to develop a robust hydrogen economy within the EU. The strategy introduces a color-coded classification system for hydrogen based on how it is produced, with different colors representing different production methods and associated emissions. The colors are Green Hydrogen: Produced using renewable energy through electrolysis of water,

⁶⁵ Rodríguez, Laura . "The European Hydrogen Strategy: What You Need to Know." Rated Power, January 16, 2023. <https://ratedpower.com/blog/european-hydrogen-strategy/>.

resulting in no direct carbon emissions; Blue Hydrogen: Produced from natural gas using carbon capture and storage technology to reduce emissions; Turquoise Hydrogen: Produced using methane pyrolysis combined with CCS to minimize carbon emissions; Grey Hydrogen: Produced from natural gas without emissions reduction measures.; Brown Hydrogen: Produced from coal without emissions reduction measures. The strategy aims to increase the production capacity of renewable hydrogen to at least 6 gigawatts by 2024 with the intention to establish a dedicated hydrogen infrastructure, including transport, storage, and distribution networks, to support the integration of hydrogen into different sectors. It highlights the importance of international collaboration to create a global hydrogen market and establish partnerships with countries that have hydrogen potential and resources. The EU's Hydrogen Strategy is a central component of its broader efforts to achieve climate neutrality by 2050 under the European Green Deal. It envisions hydrogen as an energy carrier that can contribute to decarbonizing various sectors of the economy, reducing greenhouse gas emissions, and advancing the EU's environmental and sustainability goals.

Particularly focusing on the U.S., it has experienced a significant increase in domestic oil and gas production in recent years, primarily due to shale extraction. While some states and regions

are actively transitioning to renewables, others remain reliant on oil and gas. The U.S. may seek a balance between energy transition and ensuring a stable domestic energy supply. Thus, the U.S. would be happy to create an alliance with anyone who seeks similar beliefs such as the European Union. Biden aims for complete carbon neutrality by 2050. In pursuit of this objective, Biden advocates for the reintroduction of stricter fuel efficiency standards for automobiles and trucks, alongside initiatives to promote the adoption of electric vehicles, among other propositions. As the pandemic recedes in the United States, there is a resurgence in oil demand, leading to a seven-year peak in gasoline prices.⁶⁶ Especially this year, the relationship between OPEC+ and the United States has become risky. That being said, United States has strong relations with the EU as we move towards a more sustainable future. The pandemic affects the global supply chain, causing conflict and room for discussion during the conference. Because of the stray from oil production, oil prices are rising sharply, resulting in the depletion of oil that the United States must still count on.⁶⁷ Side note:

⁶⁶Council on Foreign Relations. "Oil Dependence and U.S. Foreign Policy," 2022. <https://www.cfr.org/timeline/oil-dependence-and-us-foreign-policy>.

⁶⁷McGregor, Grady. "2022 in Review: The Year That Broke US Relations with OPEC+." Al-Monitor, December 28, 2022. <https://www.al-monitor.com/originals/2022/12/2022-review-year-broke-us-relations-opec>.

Canada is quite similar to the US, creating room for a potential alliance. Its energy landscape includes both fossil fuels and renewable sources. Some provinces are rich in oil and gas reserves, while others are investing in renewable energy.

Saudi Arabia, Russia, And Other Opec Members

OPEC members heavily reliant on oil exports, such as Saudi Arabia, may be concerned about the impact of an energy transition on their economies. Numerous OPEC member nations are at the forefront of tackling climate change, employing strategies like eradicating flaring and channeling investments into initiatives like carbon capture, utilization, and storage (CCUS) as well as enhancements in energy efficiency.⁶⁸ However, there exists an inaccurate notion among the public that renewables represent the sole answer to the climate predicament and that the oil and gas sector is the singular or primary origin of environmental degradation. This perception does not align with the perspectives of either scientists nor specialists.

Other members believe that oil will remain number one despite the push for green energy. They band together to continue the oil economy, despite what others may think. With the larger population in developing countries and a larger

⁶⁸OPEC. "Oil Industry Ready and Willing to Tackle Climate Change Issues," November 2019. https://www.opeec.org/opeec_web/en/press_room/5772.htm.

middle class, the dependence on oil may increase its demand, straying from a renewable energy future.⁶⁹ Developing countries can develop a plan together to continue this work to build up their well being rather than focusing on changing energy resources.

In particular regarding Russia, as a major producer of oil, it may be more cautious about a rapid global energy transition, as it relies on energy exports for a significant portion of its revenue. Its strong relationship with OPEC, as a member of OPEC+, shows its heavy reliance on oil, natural gas, and coal. Countries that are more involved with OPEC have the ability to discuss major points of continuing to support OPEC as a bloc. The shift would disrupt its position in global energy markets. European countries are straying from using Russia's production; however, because Russia plays too big of a role in major energy markets. The conflict in Ukraine has intensified the push for an expedited transition in the realm of energy. This transition seeks to steer nations away from heavily polluting fuels, often sourced from a limited number of significant producers, and instead, embrace low-carbon energy alternatives like renewables and nuclear power. This shift has particularly

gained momentum in Europe, where the reverberations of the conflict have been keenly felt, and where Russian gas has historically dominated the import scene.⁷⁰

Countries With Energy Security Concerns (China, India, Etc)

China is both a major consumer of energy and a significant investor in renewable technologies. While it seeks to diversify its energy mix, it may also prioritize ensuring a stable energy supply, which could influence its perspective on OPEC's role in the transition. Clean energy is taking center stage in major emerging economies like China and India, as well as other nations, which are increasingly focusing on energy efficiency, renewables like wind and solar, and low-carbon technologies.⁷¹ This shift is evident in an upcoming high-level meeting of energy ministers from both fossil-fuel producers and renewable-energy pioneers, signaling a global consensus on the importance of decisions made in emerging economies for the energy transition. The International Energy Agency predicts that all energy demand growth in the next 25 years will occur in emerging and developing countries, making effective policies and technologies crucial

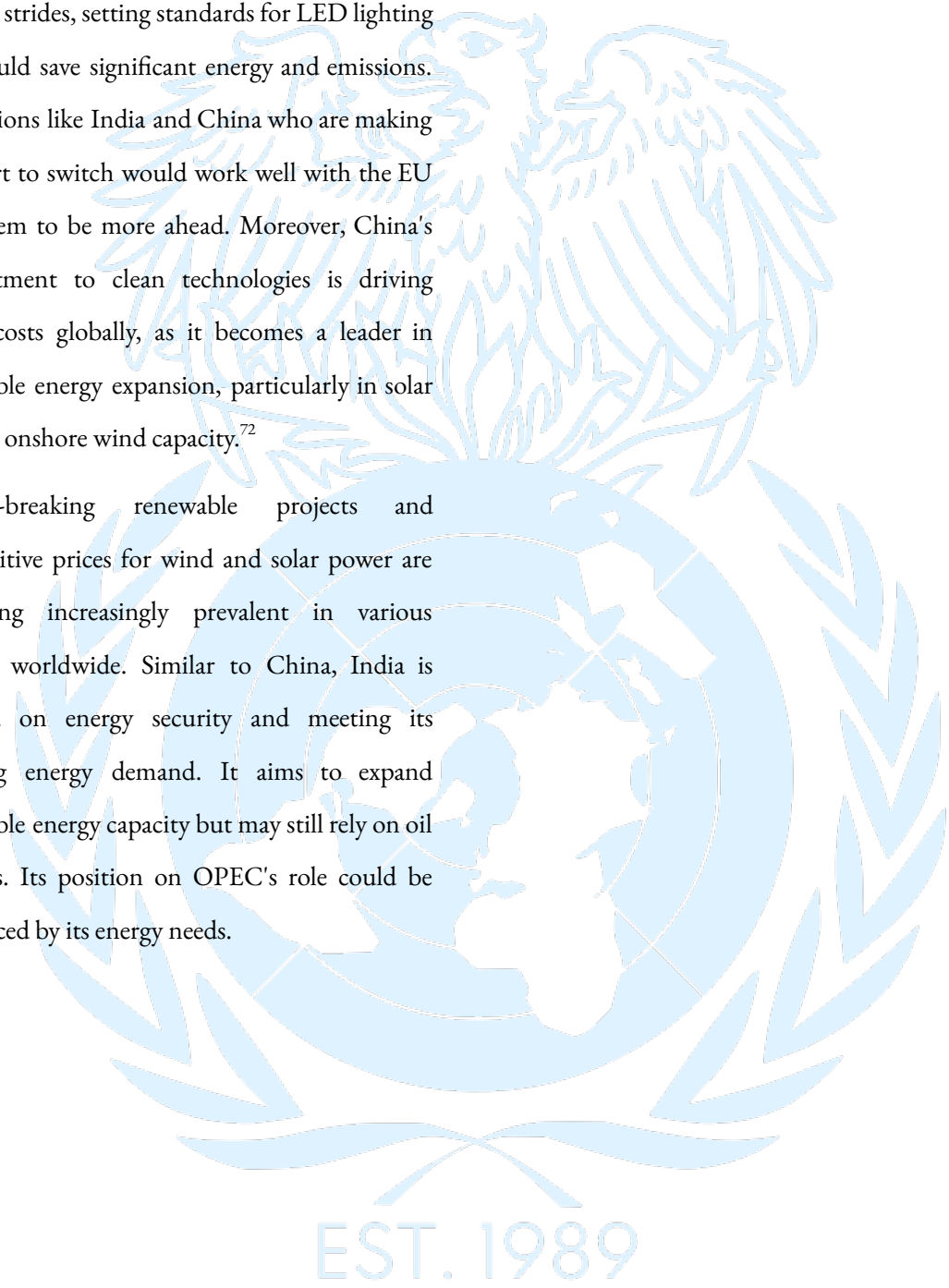
⁶⁹Suleymanova, Radmilla. "OPEC Says Oil Will Remain Number One, Despite Green Energy Push." Aljazeera, September 28, 2021. <https://www.aljazeera.com/economy/2021/9/28/op-ec-says-oil-will-remain-no-1-despite-green-energy-push>.

⁷⁰International Energy Agency. "Russia's War on Ukraine." Accessed August 22, 2023. <https://www.iea.org/topics/russias-war-on-ukraine>.

⁷¹Zinglarsen, Christian. "A New Era of Shared Clean Energy Leadership Begins in China." International Energy Agency, June 4, 2019. <https://www.iea.org/commentaries/a-new-era-of-shared-clean-energy-leadership-begins-in-china>.

for stable supplies and positive environmental outcomes. Countries like India are already making strides, setting standards for LED lighting that could save significant energy and emissions. Big nations like India and China who are making an effort to switch would work well with the EU who seem to be more ahead. Moreover, China's commitment to clean technologies is driving down costs globally, as it becomes a leader in renewable energy expansion, particularly in solar PV and onshore wind capacity.⁷²

Record-breaking renewable projects and competitive prices for wind and solar power are becoming increasingly prevalent in various regions worldwide. Similar to China, India is focused on energy security and meeting its growing energy demand. It aims to expand renewable energy capacity but may still rely on oil imports. Its position on OPEC's role could be influenced by its energy needs.



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⁷²Zinglensen, "A New Era of Shared Clean Energy Leadership Begins in China."

Glossary

OPEC (Organization of the Petroleum Exporting Countries): An international organization consisting of oil-producing nations that collaborate to manage oil production and prices to achieve economic stability for member countries and ensure a steady income from oil exports.

Member Countries: Sovereign nations that are part of OPEC and collaborate on oil production and pricing strategies.

Oil Production Quotas: Agreed-upon limits on the amount of oil each member country is allowed to produce, as set by OPEC to manage global oil supply and prices.

Cartel: A group of producers that work together to coordinate production and pricing to achieve collective goals, such as price stabilization and market influence.

Market Share: The portion of global oil production or sales that a particular country or group of countries controls.

Crude Oil: Unrefined oil extracted from the ground, which serves as the raw material for various petroleum products.

Oil Price Benchmarks: Standardized prices used as reference points for trading and pricing crude oil. Examples include Brent crude and West Texas Intermediate (WTI).

Price Band Mechanism: A system implemented by OPEC to stabilize oil prices by adjusting production levels when prices fall outside predetermined upper and lower limits.

Export Tariffs: Taxes imposed on the export of oil by OPEC member countries, which can affect the cost and availability of oil on the global market.

Emergency Meetings: Unscheduled OPEC meetings convened to address sudden shifts in oil prices or market conditions that require immediate action.

Non-OPEC: Countries that are not part of OPEC but still produce and export oil. OPEC often collaborates with non-OPEC producers to manage oil supply and prices.

Market Demand and Supply Analysis: Assessments of global oil demand and supply trends to inform production decisions and pricing strategies.

Strategic Petroleum Reserves: Stockpiles of crude oil maintained by member countries and some non-OPEC nations to provide a cushion against supply disruptions and emergencies.

Production Cuts: Agreed-upon reductions in oil production levels by OPEC member countries to stabilize oil prices during times of oversupply.

Oil Price Volatility: Fluctuations in oil prices due to various factors, such as geopolitical events, supply disruptions, or changes in demand.

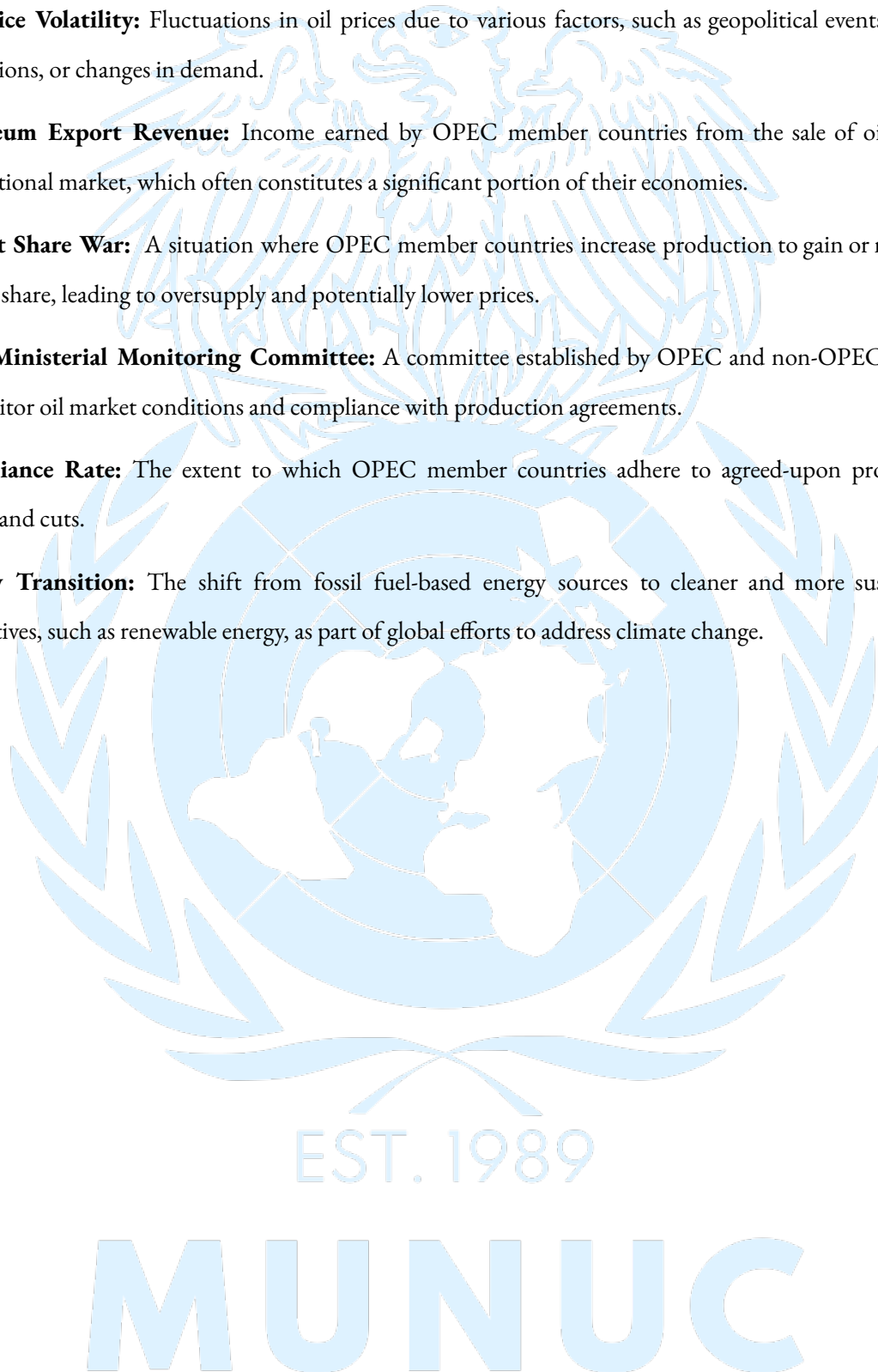
Petroleum Export Revenue: Income earned by OPEC member countries from the sale of oil on the international market, which often constitutes a significant portion of their economies.

Market Share War: A situation where OPEC member countries increase production to gain or maintain market share, leading to oversupply and potentially lower prices.

Joint Ministerial Monitoring Committee: A committee established by OPEC and non-OPEC nations to monitor oil market conditions and compliance with production agreements.

Compliance Rate: The extent to which OPEC member countries adhere to agreed-upon production quotas and cuts.

Energy Transition: The shift from fossil fuel-based energy sources to cleaner and more sustainable alternatives, such as renewable energy, as part of global efforts to address climate change.



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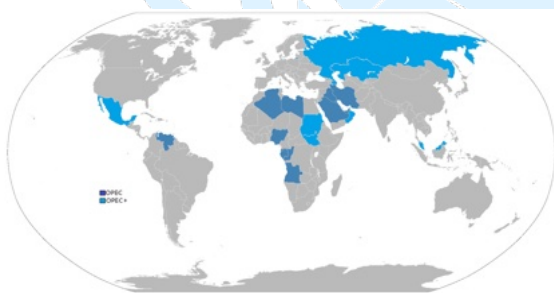
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TOPIC B: RESPONSE TO GLOBAL SUPPLY CHAIN DISRUPTIONS

Statement Of The Problem

Every country, developed and developing, relies on oil production. If there is a disruption to the chain in the economy in terms of trade, transportation, or production speed, it impacts all countries whether they are in OPEC or not. The transition to renewable energy causes tension between countries not only dividing in ethical beliefs but also becoming quite detrimental to trade between OPEC and non-OPEC countries. Because the prices of oil are so volatile, a quick change can impact the economy of every nation.

OPEC holds significant control over global oil prices due to its ownership of 40% of oil supplies and 80% of reserves. While it can impact short-term prices, its control diminishes over time due to differing national interests.



*OPEC countries*⁷³

In 2003, there was a robust increase in global oil demand, which accelerated even further in 2004. While this year's growth has been moderate and sustainable, the challenge of meeting the demand for oil continues to increase. OPEC played a pivotal role by raising its production ceiling multiple times, adding millions of barrels per day. Consequently, OECD commercial oil stocks have risen steadily.⁷⁴

OPEC's efforts extended to stabilizing the market as well. The surge in demand led to a reduction in spare production capacity, especially in 2004. In anticipation of sustained demand growth, OPEC member countries expedited plans to bring new production capacity online. This move aimed to restore a comfortable level of capacity and mitigate potential market turmoil amid robust demand projections. As a result, the projected capacity is more than sufficient to cover oil demand growth in the upcoming winter and 2006, with only a slightly higher call on OPEC compared to 2005. This capacity is poised to accommodate unexpected supply disruptions. For example, a disagreement between OPEC and Russia during the COVID-19 pandemic resulted in oil price collapse and historic production cuts.

⁷³ "File:OPEC-Opec+map.Png - Wikimedia Commons." Wikipedia, March 9, 2022. <https://commons.wikimedia.org/wiki/File:Opec-Opec%2BMap.png>.

⁷⁴ Shihab-Eldin, Adnan. "Meeting the Supply Challenge." OPEC, September 21, 2005. https://www.opec.org/opec_web/en/888.htm.



*Fortune*⁷⁵



*Flooding in Venice, Louisiana*⁷⁶

Hurricane Katrina caused damage to US Gulf Coast facilities, and, although it's unlikely to trigger a major energy crisis due to healthy commercial oil stocks and the International Energy Agency's release of government stocks, it still might bring problems. The situation is gradually improving, with over half a million

⁷⁵ Wardany, Salma El, Grant Smith, and Bloomberg. "OPEC Is Considering Cutting Oil Output by 1 Million Barrels per Day in a Move That Could Add Another Shock to the Global Economy." *Fortune*, October 3, 2022.

<https://fortune.com/2022/10/03/opec-considering-cutting-oil-output-one-million-barrels/>.

⁷⁶ "File:PostVeniceLG.Jpg - Wikimedia Commons." Wikimedia Commons, August 30, 2005.

<https://commons.wikimedia.org/wiki/File:PostVeniceLG.jpg>.

barrels per day of crude output restored, although full refinery operations may take some time to resume. That being said, natural disasters play a major role in making oil prices quite volatile. During major disasters, transportation and infrastructure issues disrupt fuel supply chains, leading to temporary fuel shortages and price increases. Impassable roads, power outages, and disrupted emergency services hinder fuel transportation and distribution. Additionally, damaged refineries and reduced oil production due to the disaster further contribute to supply shortages.

Infrastructure challenges extend to manufacturing, as oil refineries are forced to shut down, causing a significant decrease in fuel entering the pipeline. Damage to storage tanks and distribution fleets further exacerbates the supply chain problems. While some price increases can be attributed to the economic principle of supply and demand, there have been instances of price gouging driven by profit motives. Laws against price gouging aim to curb such practices. Higher fuel prices during disasters create economic incentives for suppliers to prioritize delivering resources to emergency sites.⁷⁷

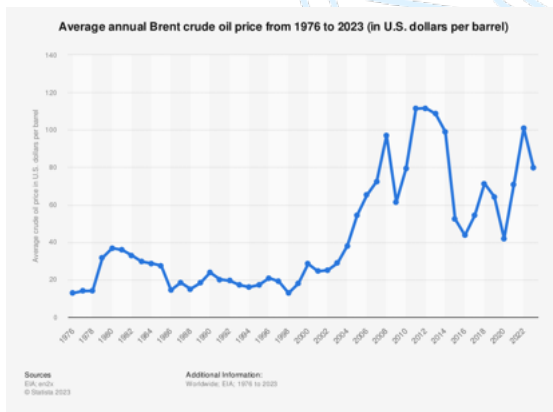
⁷⁷ Moffitt Services. "3 Reasons Fuel Prices Go up Because of Natural Disasters." Moffitt Services, June 25, 2019.

<https://moffittservices.com/3-reasons-fuel-prices-go-up-natural-disasters/>.



Oil Pipelines (Pipeline,

<https://en.wikipedia.org/wiki/Pipeline>)⁷⁸



Average Annual Brent Crude Oil Price from 1976 to 2023⁷⁹

Volatility in pricing has also been affected by disruptions in the supply chain. Above is a chart of the volatile oil prices over the last 2 years, showing the increase during the pandemic because of the quick drop in global oil demand. The price then stabilized once again after the pandemic, and OPEC as a collective agreed to cut

⁷⁸ “Pipeline.” Wikipedia, September 14, 2023. <https://en.wikipedia.org/wiki/Pipeline>.

⁷⁹ Statista. “Average Annual Brent Crude Oil Price from 1976 to 2023,” August 2023. <https://www.statista.com/statistics/262860/uk-brent-crude-oil-price-changes-since-1976/>.

its supply from what was previously supplied during the pandemic. Yet, that increase almost destroyed the economy as demand declined. There is also data from China suggesting that the post-lockdown economic recovery is slower than expected, raising concerns about the world’s second-largest oil consumer.⁸⁰ A slow growth may be incredibly detrimental to the global economy, causing disruption.



The Flag of OPEC⁸¹

Non-OPEC supply growth has lagged behind world oil demand for three consecutive years, and this trend is expected to persist. While some non-OPEC producers experienced declines, others saw output growth. Anticipated annual average non-OPEC supply growth of around 1 million barrels per day until 2010, combined with OPEC’s planned capacity increase, will result in a

⁸⁰ “Why Are OPEC+ Supply Cuts Failing to Boost Oil Prices?” Reuters, July 4, 2023. <https://www.reuters.com/business/energy/why-are-opec-supply-cuts-failing-boost-oil-prices-2023-07-04/>.

⁸¹ Image courtesy of Wikimedia (https://commons.wikimedia.org/wiki/File:Flag_of_OPEC.svg#/media/File:Flag_of_OPEC.svg)

cumulative world oil production capacity rise of about 12 million barrels per day over the next five years. This surplus capacity is well above the projected growth in demand, ensuring ample coverage for anticipated demand increases.

Despite the challenges OPEC faces in its Global Supply Chain, they continue to find solutions to aim to keep their partners informed. The OPEC Monthly Oil Market Report (MOMR) addresses significant factors influencing the global oil market and offers a projection of crude oil market advancements in the upcoming year. It offers an in-depth assessment of critical occurrences that shape trends in oil market demand and supply on a global scale, along with an evaluation of the equilibrium within the oil market.⁸²

As a whole, OPEC countries' vulnerability to global supply chain disruptions stems from their heavy reliance on oil exports, limited economic diversification, import dependency, budgetary dependence on oil revenues, and the potential for social and political instability. These vulnerabilities highlight the importance of economic diversification and long-term planning to mitigate the impact of global supply chain disruptions on these nations.

With far-reaching and complex impacts on OPEC, these disruptions can affect oil demand,

⁸²“Monthly Oil Market Report.” *OPEC*, www.opec.org/opec_web/en/publications/338.htm. Accessed 16 Sept. 2023.

prices, production, transportation, and the overall economic stability of member countries.

Managing these challenges requires effective coordination and diplomacy among OPEC nations to adapt to changing market conditions and maintain their position in the global oil industry.

History Of The Problem

The modern history of the global oil industry has been significantly shaped by global oil supply chain disruptions. They have impacted much of OPEC's strategies and plans and exerted significant pressure on their economic models. As geopolitical tensions, technological advancements, and environmental considerations continue to mold the energy landscape, disruptions to oil supply chains have emerged as pivotal determinants, casting a permanent mark on OPEC's policies and adaptability.

During the 1970s, geopolitical upheavals emerged as powerful disruptors of global oil supply chains and caused massive changes in global markets.

Conflicts, revolutions, and regional tensions have disrupted the steady flow of oil, adding volatility to the global energy landscape⁸³. In 1973, the

Arab-Israeli War led to an oil embargo by Arab members of OPEC against nations who

⁸³“Milestones: 1969–1976 - Office of the Historian.” Accessed September 18, 2023. <https://history.state.gov/milestones/1969-1976/oil-embargo>.

supported Israel during the Yom Kippur War. This included Canada, Japan, the Netherlands, the United Kingdom, and the United States, which later extended to Portugal, Rhodesia, and South Africa⁸⁴. The embargo banned petroleum exports to the targeted nations and introduced cuts in oil production. In turn, it triggered supply shortages and price spikes, causing long lines and increased prices for gas — by the end of the 1970s and beginning of the 1980s, US crude oil imports reached a nominal price of about 14 times what it was at the beginning of 1973⁸⁵. The event highlighted OPEC’s ability to wield oil as a geopolitical tool and was a turning point in the organization’s strategy-making and global stance⁸⁶.



*What will the next oil crisis look like?*⁸⁷

Later, in 1979, the Iranian Revolution and the Iran-Iraq war led to a plummet in Iran’s oil production and exports, which in turn led to supply chain disruptions across international markets. In fact, global oil prices did not return to the pre-crisis levels until nearly halfway through the 1980’s⁸⁸. Combined, the two major oil disruptions of the 1970’s demonstrated the fragility of reliance on OPEC as a source of energy, and catalyzed significant change. Resultantly, countries innovated in order to reduce their consumption of oil, working to increase insulation in homes and improving energy efficiency in factories and cars⁸⁹. This led to a several-year decline in world oil consumption: world oil demand fell by about 10 percent from 1979 to 1983.⁹⁰ Additionally, oil

⁸⁴“Arab Oil Embargo | History, Cause, Impact, & Definition | Britannica,” September 1, 2023. <https://www.britannica.com/event/Arab-oil-embargo>.

⁸⁵ Hervey, Jack. “The 1973 Oil Crisis: One Generation and Counting - Federal Reserve Bank of Chicago.” Accessed August 22, 2023. <https://www.chicagofed.org/publications/chicago-ed-letter/1994/october-86#ftn1>.

⁸⁶Gross, Samantha. “What Iran’s 1979 Revolution Meant for US and Global Oil Markets.” Brookings, March 5, 2019. <https://www.brookings.edu/articles/what-irans-1979-revolution-meant-for-us-and-global-oil-markets/>.

⁸⁷Image courtesy of Unsplash (https://unsplash.com/photos/j_wlUxN2q9U)

⁸⁸Gately, Dermot, James M. Griffen, and M. A. Adelman. “Lessons from the 1986 Oil Price Collapse.” Brookings. Accessed August 22, 2023. <https://www.brookings.edu/articles/lessons-from-the-1986-oil-price-collapse/>.

⁸⁹ Hervey, “The 1973 Oil Crisis.”

⁹⁰ Gross, “What Iran’s 1979 revolution meant for US and global oil markets.”

producers, in efforts to avoid similar catastrophes and alleviate the current ones, began investing in other sources for the exploration and production of oil. The North Sea, Alaska, and Mexico are a few such examples of the newer large sources of oil. New pipelines, such as the Trans-Alaska Pipeline in 1977, were rushed to construction⁹¹. New oil fields were discovered, and some regions more than doubled their production — Mexico, for instance, went from producing 1.3 million barrels per day in 1978 to 2.8 million barrels per day in 1984. All in all, non-OPEC producers added 5.6 million barrels per day of crude oil production from 1979-85⁹².



An oil rig in Seward, Alaska⁹³

OPEC scrambled to respond to these events, which posed a serious threat to its revenue and grip on the global oil market. In an attempt to keep prices high amidst increasing supply and declining demand, OPEC slashed their

production, cutting it nearly in half from 1980 to 1986⁹⁴. However, an important economic principle soon revealed itself: it is not possible to have artificially high prices while maintaining the same market share. Indeed, for the first time in 1981, OPEC was surpassed by non-OPEC countries in crude oil production. Their market share continued to plummet to a low of less than 30% in 1985⁹⁵. Much of these changes were driven by Saudi Arabia, who proved themselves as a leader in attempts to achieve OPEC's price goals. In 1985, their production dipped as low as 2.2 million barrels per day, just 20% of their levels five years prior⁹⁶. However, the other OPEC members were not nearly as loyal, and many of them rampantly cheated on their agreements and production quotas. In 1986, Saudi Arabia lost its patience and changed their pricing structure, pumping out millions of new barrels per day. While this led to a price crash, it allowed OPEC to slowly recover its market share; however, they have not returned to pre-1980's levels⁹⁷. Ultimately, this period of upheaval reshaped OPEC's strategies, highlighting the need for adaptability and collaboration as it navigated a changing energy landscape.

⁹¹ Gross, "What Iran's 1979 revolution meant for US and global oil markets."

⁹² Gross, "What Iran's 1979 revolution meant for US and global oil markets."

⁹³ Image courtesy of Unsplash (https://unsplash.com/photos/_vuyjbu_c)

⁹⁴ WTRG Economics. "OPEC: Crude Oil Prices Verses Market Share." Accessed August 23, 2023. <https://www.wtrg.com/opec.html>.

⁹⁵ "OPEC: Crude Oil Prices Verses Market Share."

⁹⁶ "OPEC: Crude Oil Prices Verses Market Share."

⁹⁷ "OPEC - Statistics & Facts." Statista. Accessed August 18, 2023. <https://www.statista.com/topics/1830/opec/>.

In 2012, a malware attack known as Shamoon on Saudi Aramco, the Saudi energy company, highlighted the danger technology poses to the stability of the global energy market⁹⁸. It was a defining moment in the realm of cyber warfare and one of the largest cyberattacks of all time. The attack targeted critical oil infrastructure and paralyzed Saudi Aramco's computer systems, ruining 30,000 of its Windows-based machines and halting operations for weeks⁹⁹. The event revealed the vulnerability of modern energy systems to cyber threats and left a permanent impact on OPEC's strategic outlook. It served as a stark reminder that technological vulnerabilities can create real-world ramifications for energy supply chains. In response, OPEC was compelled to incorporate cybersecurity considerations into its strategy, acknowledging the need to safeguard critical infrastructure from cyber threats to ensure uninterrupted oil production and stable

global markets¹⁰⁰. In the past decade, Shamoon resurfaced three more times, in 2016, 2017, and 2018, causing damage (though not nearly of the scale in 2012) and anxiety in the Middle Eastern energy and cybersecurity sector¹⁰¹. The Shamoon malware attack has underscored the imperative for OPEC to mitigate vulnerabilities posed by increasingly interconnected and digitized energy systems, and continues to pressure them in their resilience strategy.



*In an increasingly interconnected world, infrastructure is at greater risk of cyber attacks.*¹⁰²

In 2020, the COVID-19 pandemic cast a profound shadow over global oil supply chains and deeply impacted the strategies of OPEC.

⁹⁸ “Connect the Dots on State-Sponsored Cyber Incidents - Compromise of Saudi Aramco and RasGas.” Compromise of Saudi Aramco and RasGas. Council on Foreign Relations, August 2012.
<https://www.cfr.org/cyber-operations/compromise-saudi-aramco-and-rasgas>.

⁹⁹ Bronk, Christopher, and Eneken Tikk-Ringas. “The Cyber Attack on Saudi Aramco.” *Survival* 55, no. 2 (May 2013): 81–96.
<https://doi.org/10.1080/00396338.2013.784468>.

¹⁰⁰ Perlroth, Nicole. “In Cyberattack on Saudi Firm, U.S. Sees Iran Firing Back.” *The New York Times*, October 24, 2012, sec. Business.
<https://www.nytimes.com/2012/10/24/business/global/cyberattack-on-saudi-oil-firm-disquiets-us.html>.

¹⁰¹ Brewster, Thomas. “Warnings As Destructive ‘Shamoon’ Cyber Attacks Hit Middle East Energy Industry.” *Forbes*. Accessed August 23, 2023.
<https://www.forbes.com/sites/thomasbrewster/2018/12/13/warnings-as-destructive-shamoon-cyber-attacks-hit-middle-east-energy-industry/>.

¹⁰² Image courtesy of Unsplash
(<https://unsplash.com/photos/xcNDjZXQ0q0>)

Lockdowns, travel restrictions, and economic slowdowns in response to the pandemic led to an unprecedented decline in global oil demand. The resulting oversupply of oil and collapsing prices triggered a crisis in the energy markets, with storage capacities reaching their limits. As it would turn out, during mid-April 2020, oil futures in the US dipped below zero, meaning crude oil sellers had to pay buyers to take their oil¹⁰³. An emergency meeting was called with OPEC+ members in April, and an agreement was struck with Russia for a composite cut of 9.7 million barrels per day through the end of June (later extended to July), becoming the largest production cut ever¹⁰⁴. The global shutdowns that occurred due to the Covid-19 pandemic were unprecedented, and OPEC's traditional role in maintaining oil market stability was severely tested as member nations struggled to navigate through the volatility. On top of everything, they were further confounded by Russia, who, as the world's third-largest oil producer, resisted calls

from OPEC for production cuts, and instead sought to gain market share¹⁰⁵. The ability of OPEC to ultimately adapt and come to a ground-breaking production cut with Russia underscores the organization's ability to respond swiftly to unprecedented disruptions. The organization's response to the pandemic illustrates the delicate balance it must strike between stabilizing oil markets and accommodating shifting demand dynamics amidst the evolving challenges of the 21st century.



During the Covid-19 pandemic, oil producers ran out of room to store their product.¹⁰⁶

Ultimately, history has shown that the question is not *if* there will be another global event that disrupts supply chains and the energy market, but *when* it will occur. There is an overwhelming amount of forms such an event could take —

¹⁰³ Reed, Stanley, and Clifford Krauss. "Too Much Oil: How a Barrel Came to Be Worth Less Than Nothing." *The New York Times*, April 20, 2020, sec. Business. <https://www.nytimes.com/2020/04/20/business/oil-prices.html>.

¹⁰⁴ Camp, Kevin M., David Mead, Stephen B. Reed, Christopher Sitter, and Derek Wasilewski. "From the Barrel to the Pump: The Impact of the COVID-19 Pandemic on Prices for Petroleum Products." *Monthly Labor Review*. U.S. Bureau of Labor Statistics, October 2020. <https://www.bls.gov/opub/mlr/2020/article/from-the-barrel-to-the-pump.html>.

¹⁰⁵ Gaffen, David, and David Gaffen. "Analysis: Oil's Journey from Worthless in the Pandemic to \$100 a Barrel." *Reuters*, February 24, 2022, sec. Energy. <https://www.reuters.com/business/energy/oils-journey-worthless-pandemic-100-barrel-2022-02-24/>.

¹⁰⁶ Image courtesy of Unsplash (<https://unsplash.com/photos/IUwLkxL49co>)

geopolitical, climate, technological, pandemic, and the unknown — and OPEC must be prepared to swiftly and decisively respond. In the past, the organization's ability to navigate these disruptions while fostering innovation and cultivating cooperation with non-OPEC stakeholders has formed a model for responding in the future, and has clearly demonstrated that OPEC is up for the task. As OPEC continues through the 21st century, its role emerges as an instrumental force in shaping the trajectory of the global oil industry amidst the intricacies of challenges and the possibilities that will unfurl.

Past Actions

Given its significant control over global oil supplies, OPEC holds substantial influence over energy prices and the stability of energy supply chains around the world. Supply chain disruptions stemming from geopolitical conflicts, natural disasters, changes in energy policies, and other shocks can threaten the reliability of energy access worldwide. As an organization with a vested interest in maintaining stability in energy markets, OPEC has frequently intervened during periods of supply chain instability. However, OPEC's actions have also been criticized at times for prioritizing the economic interests of its member countries over broader energy security goals.

Throughout its history, OPEC has used coordinated changes in oil production levels among its member countries as its primary strategy for balancing the global oil market. During the 1970s, global supply disruptions stemming from wars and revolutions in the Middle East caused sharp oil price spikes that damaged major economies dependent on OPEC supplies.¹⁰⁷ In response, OPEC members collaborated to embargo oil exports and cut production, leveraging their market power to raise prices and revenues. While successful at generating income, these actions intensified economic turmoil and inflation in much of the developed world. The oil embargoes and production cuts engineered by OPEC in the 1970s led to severe oil shortages and price increases in many countries dependent on OPEC oil imports. This reduction in global oil supplies and rapid rise in prices wreaked havoc on oil-importing economies. Industries and consumers faced much higher energy and production costs, fueling inflation. With oil being an essential input for transportation, manufacturing, agriculture, and more, the supply disruptions reverberated throughout economies. Recessions hit as output declined and unemployment rose. Inflation surged into

¹⁰⁷ Le Billon, P., & El Khatib, F. (2004). From free oil to 'freedom oil': Terrorism, war and US geopolitics in the Persian Gulf. *Geopolitics*, 9(1), 109-137.

<https://doi.org/10.1080/14650040412331307812>

double-digits in many countries like the U.S. and the U.K. as prices skyrocketed across sectors. Central banks responded with sharp interest rate hikes to restrain inflation, further dampening economic growth. The turmoil contributed to economic stagnation and high inflation lasting into the early 1980s. OPEC's actions thus only amplified global economic dysfunction, inflicting significant damage on major oil-importing countries and showing how reliant their economies had become on affordable OPEC oil. As it would turn out, the 1970's oil crises highlighted the far-reaching effects of supply manipulations in the interconnected global oil market.

OPEC continued to periodically adjust collective output levels throughout the 1980s and 1990s in attempts to target specific price ranges in accordance with changing market conditions. Compared to the volatility and embargoes of the 1970's, these supply adjustments were more modest and calculated based on OPEC's shifting market share versus non-OPEC oil exporters like Russia, Mexico, and Norway.¹⁰⁸ However, OPEC's production quotas were often exceeded by individual members, limiting their effectiveness at achieving desired price levels.

¹⁰⁸ Fattouh, B., & Sen, A. (2016). Saudi Arabia's vision 2030, oil policy and the evolution of the energy sector. Oxford Institute for Energy Studies, WPM 67.

<https://www.oxfordenergy.org/publications/saudi-arabias-vision-2030-oil-policy-evolution-energy-sector/>

OPEC's effectiveness at influencing global oil prices through coordinated output changes was often undermined by individual member countries exceeding their production quotas. With no meaningful enforcement mechanism, OPEC members faced cheating incentives to overproduce and gain higher export revenues than fellow members adhering to quotas. Countries also had diverging fiscal and market-share objectives that drove overproduction. For instance, some nations wanted to maximize volumes to gain share versus non-OPEC competitors, while others needed additional revenue to fund government spending. When quotas were exceeded, it increased supply to the market beyond OPEC's planned cuts. This extra supply prevented OPEC from achieving its targeted price levels, as prices dropped lower than preferred when supply rose faster than anticipated. Without discipline among its members, OPEC lost control over market prices, eroding the committee's credibility and leverage over time. The lack of quota enforcement was thus a key issue that limited OPEC's effectiveness at using coordinated output changes to influence the global oil market as intended.

Moving into the early 2000s, this era saw renewed cohesion among OPEC members in restraining output to counter the oil price collapse of the late 1990's. Joint production cuts boosted prices from around \$10 per barrel in 1998 to over \$30

by 2000.¹⁰⁹ Additionally, strict compliance with quotas helped OPEC regain market share that had eroded due to previously rampant cheating. This cooperation continued through the 2000's, with OPEC responsibly increasing supply amid rising global demand. Prices stabilized in a profitable \$60 to \$120 per barrel range from 2005 to 2014, reflecting OPEC's general success in balancing markets during this period.

Today, OPEC faces a more complex and unpredictable energy landscape. Growth in US shale oil production has made balancing supply and demand more difficult while weakening OPEC's once-dominant market leverage. Geopolitical tensions in key regions like the Middle East pose ever-present threats to supply continuity. Additionally, transitioning to cleaner energy sources adds uncertainties around long-term oil demand trajectories.

OPEC still retains the capability to strongly influence prices and calm volatile markets through coordinated output adjustments. This was demonstrated in 2020 when OPEC+ (OPEC plus non-member allies like Russia) agreed to historic production cuts amounting to around 10% of world supplies to rebalance an oversupplied market in which oil prices had

turned negative.¹¹⁰ These cuts, which extended through 2022, helped stabilize prices during the COVID-19 pandemic.

However, OPEC's power is not absolute. Constraining production too much risks losing market share to competitors and accelerating the transition away from oil. Producing too little could also jeopardize member countries' fiscal stability given their heavy dependence on oil revenues. Conversely, increasing quotas too quickly may overwhelm demand and trigger renewed price collapses. Navigating these dynamics across divergent member interests adds complexity to OPEC's decision-making.

Rapid disruptions in key supply sources — like those caused by wars, sanctions, or natural disasters - are especially problematic for OPEC to counteract. Compensating for large, immediate supply losses through production hikes takes time given infrastructure constraints. Strategic petroleum reserves help relieve short-term shortages, but stocks are limited. These realities were demonstrated in 2022 when Russia's invasion of Ukraine and ensuing sanctions and embargoes roiled energy markets. Despite maximum OPEC output, prices spiked due to the magnitude of Russian oil displacement.

¹⁰⁹ Huppmann, D., & Livingston, S. (2012). Market power, OPEC, and the global oil market. *International Journal of Industrial Organization*, 30(6), 667-677. <https://www.iaee.org/en/publications/ejarticle.aspx?id=2493>

¹¹⁰ Meidan, M. (2020). *The structure of China's oil industry: Past trends and future prospects*. Oxford Institute for Energy Studies, WPM 75. <https://www.oxfordenergy.org/publications/structure-chinas-oil-industry-past-trends-future-prospects/>

Throughout its over 60-year history, OPEC has played an integral role in shaping global oil market dynamics through coordinated output adjustments among its members. While often achieving its near-term aims of higher revenues, OPEC's supply interventions have also frequently intensified broader economic instability and inflationary pressures on major oil-importing nations. Periods of cohesion and discipline among members have allowed OPEC to stabilize volatile markets and balance supply with demand. However, diverging member interests and the lack of quota enforcement have hindered its effectiveness at times. Moving forward, OPEC faces growing challenges in adapting to a more competitive and fast-changing energy landscape. Though still a dominant force, OPEC's power is no longer absolute. Its future decisions around balancing market share versus price stability in light of decarbonization pressures will continue shaping energy trade and security worldwide. Ultimately, OPEC's complex history illuminates the group's far-reaching but imperfect ability to maneuver the global oil market to serve its members' interests.

Possible Solutions

Improving quota compliance is vital but challenging given the diverse member interests. Saudi Arabia has pushed for binding output

targets, penalizing overproduction.¹¹¹ But countries like Iraq resist constraints on pumping for budgetary needs. A transparent monitoring system could pressure laggards, and collective penalty mechanisms for excess output could incentivize conformity. However, ongoing non-compliance may persist absent shifts in national priorities.

Partnering more deeply with major non-OPEC producers like Russia makes sense economically but faces hurdles. Loose strategic alliances have emerged, like the OPEC+ pact.¹¹² Formalizing information sharing and aligning supply perspectives could aid stability. However, truly integrating policies across disparate producer blocs seems unlikely given geopolitical rifts. Antitrust concerns also impede tighter oligopolistic coordination.

Investing in spare production capacity could allow rapid response to disruptions. Saudi Arabia holds the most spare capacity, enabling it to boost

¹¹¹ Brower, D. (2022). Opec+ agrees cut in crude supply in push to lift oil prices. Financial Times. <https://www.ft.com/content/6cb316ae-3436-47ee-a1da-3867e2dee5d5>

¹¹² 1. Clare Duffy and Jill Disis, "OPEC+ Reaches Deal to Cut Oil Production by 9.7 Million Barrels per Day | CNN Business," CNN, April 13, 2020, <https://www.cnn.com/2020/04/12/energy/opec-deal-production-cut/index.html>.

output during crises.¹¹³ Regional rivals lack comparable buffer capacity. While beneficial for stability, holding excess capacity is costly and risks losing market share if the spare production goes unused. Hence, major investments in idle production may be unfeasible for countries with strained budgets.

International reserve coordination helps tactically but has split incentives. The International Energy Agency (IEA) jointly manages consumer countries' strategic stocks. However, releasing reserves to moderate prices counters OPEC's economic interests.¹¹⁴ Clear emergency trigger points could enable collaboration, but recharging reserves post-release would strain the supply. Replenishing strategic reserves rapidly after an emergency stock release poses major challenges for an already tight global oil market. The sudden surge in demand to recharge reserves requires buying large crude volumes in a compressed time frame, straining supplies. Limited spare production capacity and infrastructure bottlenecks constrain how fast the additional oil can be produced and exported. Plus, expectations

of reserve restocking can further drive up prices by signaling increased tightness. The risk is drawing oil away from meeting regular commercial demand into storage. This perverse incentive could discourage producers from maximizing output at the very moment supplies are needed most. While tactical stock releases provide short-term relief, a phased approach to gradually recharging reserves is essential to avoid causing renewed shortages and price spikes. If not carefully coordinated, the spike in demand from rapidly refilling reserves depleted after an emergency risks severely disrupting global oil supplies.

Phasing quota adjustments over 6-12 months enables gradual adaptation, as Saudi Arabia has advocated in 2022.¹¹⁵ But this moderation reduces flexibility for swift responses. Temporary shocks to production may require urgent action exceeding phased shifts, and longer adjustment periods allow rival output to fill in the gaps. Phasing in OPEC production quota changes over 6-12 months enables a gradual adaptation of global oil supplies. The process involves OPEC+ leaders negotiating incremental monthly or quarterly target adjustments for each member country based on evolving market conditions. National oil companies then communicate these phased shifts to operations teams responsible for executing quota adherence through deferred maintenance, throttling oil field production,

¹¹³ McNally, R. (2017). *Crude Volatility: The History and the Future of Boom-Bust Oil Prices*. Columbia University Press.
<https://www.iwp.edu/wp-content/uploads/2020/06/Crude-Volatility-The-History-and-the-Future-of-Boom-Bust-Oil-Prices-by-Robert-McNally.pdf>

¹¹⁴ Yergin, D. (2020). *The New Map: Energy, Climate, and the Clash of Nations*. Penguin Publishing Group.
<https://digitalcommons.usf.edu/cgi/viewcontent.cgi?article=2030&context=jss>

¹¹⁵ Ibid, Brower

allocating export permits, and other logistical changes. The non-linear progress in scaling supply up or down is continuously monitored and fine-tuned if targets are missed. OPEC+ monitoring committees provide recommendations for mid-course corrections as needed based on demand forecasts and non-OPEC supply dynamics. Strategic reserves offer a buffer to handle temporary crises without disrupting phasing plans. Extensive coordination, analysis, and transparency regarding the timetable and purpose of gradual shifts aligns stakeholder expectations and confidence. While reducing flexibility for swift responses, phased quota adjustments enable smooth adaptation that ratchets production higher or lower over time without major supply disruptions.

Demand restraint through conservation is outside OPEC's influence. Member states lack policy control over consumer behaviors. Attempts at messaging are unlikely to substantially curb consumption during supply crunches. Thus, economic diversification is critical but daunting for petrostates. As an example, Norway's oil fund models invest resource revenues to reduce oil dependence, but major Gulf economies have delayed reforms and lack easy sector transitions. For this reason, quick diversification may be unfeasible.¹¹⁶ Shifting

major Gulf petrostate economies away from heavy reliance on oil and gas faces steep structural challenges that make rapid diversification infeasible. These economies often depend on hydrocarbons for over 50% of GDP and 70% of government revenues. With underdeveloped secondary sectors, limited economic complexity provides few alternatives. State control over economic planning can also hinder entrepreneurial innovation needed to cultivate new globally competitive industries. Demographic dependence on migrant labor and skills mismatches among growing youth populations further obstruct cultivation of homegrown human capital. Additionally, the remote desert geography of Gulf states raises transportation costs and other locational disadvantages for building new manufacturing or service industries. Enormous upfront investments would be required to develop technology, infrastructure, training, and facilities to make new sectors viable. While important for long-term resilience, wholesale reinvention of entrenched Gulf petrostate economies appears to be a gradual, multigenerational process. More feasible near-term steps entail modest diversification around sectors like tourism, finance, and logistics that leverage existing strengths. But overcoming the deep structural challenges still constraining these economies makes quick diversification away from oil dependence extremely difficult.

¹¹⁶ Holden, S. (2013). *Avoiding the Resource Curse: The Case Norway*. *Energy Policy*, 63, 870-876. <https://doi.org/10.1016/j.enpol.2013.09.010>

While OPEC faces challenges in addressing current supply instability, implementing prudent reforms could bolster its capabilities and promote global energy security. With adaptation, OPEC can remain relevant in stabilizing markets amid the energy transition. For over 60 years OPEC has played an influential role in managing global oil supplies and prices. Its power to impact markets has evolved alongside changing energy dynamics. During periods of stability, OPEC's leverage to balance markets through coordinated output adjustments has proven effective. However, its dominance has eroded, and major supply disruptions now often exceed its capacity for quick market correction. To enhance its future contribution to supply chain reliability as the energy landscape transforms, OPEC should embrace reforms enhancing transparency, flexibility, and collaboration. With prudent modernization, OPEC can continue supporting energy security even as the world transitions to a new energy future.

Bloc Positions

The global economy is interconnected through intricate supply chains that span continents, linking raw material suppliers to manufacturers and consumers. These supply chains facilitate the movement of goods, ensuring products are available when and where they are needed. However, recent years have witnessed a series of disruptions that have exposed vulnerabilities in

these supply chains, resulting in shortages of essential goods. The Organization of the Petroleum Exporting Countries Plus (OPEC+), a prominent player in the energy sector, is comprised of 23 member countries¹¹⁷. While energy resources are not typically associated with supply chain shortages, OPEC nations are not immune to the effects of these disruptions due to their economies' diverse dependencies.

OPEC+ Power Players: Saudi Arabia And Russia

Saudi Arabia and Russia export the most crude oil of OPEC+ by a large margin, with 20.7 million barrels per day in 2023¹¹. As a result, their supply chain decisions are highly influential.

Saudi Arabia

Saudi Arabia, the de facto leader of OPEC¹¹⁸, has been at the forefront of economic diversification, leading the way among OPEC members. Its "Vision 2030" plan outlines the kingdom's ambition to reduce its reliance on oil by developing sectors like tourism, entertainment,

¹¹⁷ "Short-Term Energy Outlook." U.S. Energy Information Administration, April 2023. <https://www.eia.gov/outlooks/steo/>.

¹¹⁸ Dahan, Maha El, Vladimir Soldatkin, and Maha El Dahan. "Saudi Arabia, Russia to Continue Voluntary Oil Cuts." *Reuters*, October 4, 2023, sec. Energy. <https://www.reuters.com/business/energy/saudi-arabia-continue-voluntary-cut-one-million-bpd-2023-10-04/>.

and technology¹¹⁹. This diversification strategy is driven by the realization that reliance on oil exposes the economy to fluctuations in global demand and prices. While Saudi Arabia might be less vulnerable to supply chain shortages due to its focus on non-oil sectors, it still remains exposed to global economic shifts that impact consumer demand.

Russia

Russia has faced sanctions from various countries due to geopolitical issues. These sanctions can affect the oil industry by limiting access to technology, financing, and international markets. Geopolitical tensions can also lead to disruptions in oil transportation routes. Due to its large export volume, sanctions or changes in oil prices have the potential to disrupt its economy, as was evidenced by the Russia-Ukraine war. To mitigate these challenges and handle changing oil prices, Russia has worked with Saudi Arabia by making voluntary price cuts¹³.

OPEC Members Involved In Production Agreements

UAE

The UAE has been actively working towards economic diversification through initiatives like

¹¹⁹ Chowdhury, Hasan. "Vision 2030 Is Saudi Arabia's Grand Plan to Future-Proof Its Oil-Based Economy. Experts Say It's a Huge Risk." *Business Insider*, August 27, 2023. <https://www.businessinsider.com/vision-2030-saudi-arabia-plan-future-proof-oil-economy-2023-8>.

"UAE Vision 2021"¹²⁰. The country has invested heavily in infrastructure, real estate, and tourism, transforming itself into a global trade and financial hub. However, the UAE's dependence on imports for a significant portion of its consumption exposes it to supply chain disruptions¹²¹. As a result, the country has taken steps to enhance domestic production capabilities, particularly in sectors that are critical to its food security.

Iraq

Iraq is a pivotal player in the global energy landscape due to its significant oil production. Oil exports constitute a substantial portion of Iraq's government revenue and economic activity. Iraq faces several challenges that impact its vulnerability to global supply chain shortages including economic dependency, lack of infrastructural stability, and geopolitical

¹²⁰ Nashar, Khoder. "UAE's GDP Doubled, Foreign Trade Jumped 5 Times in 17 Years: Sheikh Mohammed." *Zawya*, April 12, 2023. <https://www.zawya.com/en/economy/gcc/uaes-gdp-doubled-foreign-trade-jumped-5-times-in-17-years-sheikh-mohammed-dexf9ddv>.

¹²¹ "Opportunities for U.S. Agricultural Exports to the UAE." *International Agricultural Trade Report*. USDA Foreign Agricultural Service, January 11, 2022. <https://www.fas.usda.gov/data/opportunities-us-agricultural-exports-uae>.

challenges¹²². Iraq's geopolitical challenges, including regional conflicts and tensions, can disrupt trade routes and impact supply chains¹²³. The country's internal stability is closely tied to its ability to manage these geopolitical dynamics effectively.

Kuwait

Economic instability resulting from oil price fluctuations can also hinder Kuwait's capacity to invest in diversification efforts and enhance supply chain resilience. The future outlook for Kuwait's position on supply chain shortages hinges on its success in diversifying the economy, strengthening infrastructure, and fostering regional cooperation¹²⁴. Kuwait's economic diversification efforts and management of geopolitical dynamics are key to its continued economic success.

¹²² Palani, Kamaran, and Khogir W Mohammed. "Windfall Oil Revenue Is Buying Illusory Stability in Iraq." Aljazeera, July 8, 2023. <https://www.aljazeera.com/opinions/2023/7/8/windfall-oil-revenue-is-buying-illusory-stability-in-iraq>.

¹²³ Shan, Lee Ying. "Iraq's 'extraordinarily Toxic' Turmoil Is a Considerable Risk to the Oil Market, Say Analysts." CNBC, August 31, 2022. <https://www.cnbc.com/2022/08/31/iraqs-political-turmoil-poses-risk-to-oil-markets-says-analysts.html>.

¹²⁴ Ghloum, Ghadeer. "Importance of Diversifying Kuwait's Economy, Encouraging Investment." Kuwait Times, August 6, 2023. <https://kuwaittimes.com/importance-of-diversifying-kuwait-s-economy-encouraging-investment/>.

Republic of the Congo

The Republic of the Congo's economy is characterized by its significant dependence on oil exports. Oil accounts for a substantial portion of the country's GDP and government revenue¹²⁵. This economic structure ties the country's position on supply chain shortages closely to fluctuations in global oil demand and prices. Reduced revenue from oil exports can undermine the country's ability to address supply chain challenges effectively.

Nigeria

Nigeria, a prominent African oil exporter, faces challenges related to economic diversification and political stability¹²⁶. Its oil-dependent economy is vulnerable to supply chain disruptions, which can impact government revenue and social programs. Nigeria's efforts to diversify its economy and address corruption are essential to reducing its exposure to supply chain shortages.

¹²⁵ World Bank. "For the Republic of Congo, Economic Diversification Offers a Path to Prosperity," March 15, 2023. <https://www.worldbank.org/en/country/congo/publication/for-the-republic-of-congo-economic-diversification-offers-a-path-to-prosperity>.

¹²⁶ Banji, Oyelaran-Oyeyinka. "How Oil-Dependence Truncated Nigeria's Development." *The Guardian Nigeria*, January 17, 2022. <https://guardian.ng/opinion/how-oil-dependence-truncated-nigerias-development/>.

Angola

Angola, like Nigeria, relies heavily on oil exports. The country's economic transformation efforts aim to reduce its vulnerability to fluctuations in oil prices and supply chain shortages¹²⁷. By investing in agriculture, manufacturing, and infrastructure, Angola seeks to build a more resilient economy and enhance its ability to withstand supply chain disruptions¹²⁸.

Algeria

Algeria's economy is heavily reliant on energy exports, making it susceptible to global energy market fluctuations. Economic challenges and political stability concerns further compound its position on supply chain shortages. Algeria's economic diversification initiatives, coupled with improvements in governance and infrastructure, are critical for mitigating its supply chain vulnerabilities.

¹²⁷ Besugo, Pedro, and Pedro Castro e Silva. "Oil Is a Volatile Commodity... Diversification Is Key for Angola." *African Business*, March 27, 2023. <https://african.business/2023/03/african-banker/oil-is-a-volatile-commodity-diversification-is-key-for-angola>.

¹²⁸ Tall, Arame, and Frederico Gil Sander. "What Happens When a Climate Scientist and an Economist Trade Insights in Angola?" *World Bank Blogs* (blog), March 2, 2023. <https://blogs.worldbank.org/african/what-happens-when-climate-scientist-and-economist-trade-insights-angola>.

Gabon

Gabon's position on supply chain shortages is influenced by its efforts to diversify its economy beyond oil and its commitment to environmental sustainability. The country's investments in ecotourism and renewable energy underscore its strategy to reduce vulnerabilities stemming from supply chain disruptions.

Equatorial Guinea

Equatorial Guinea's efforts to diversify its economy beyond oil production are influenced by its pursuit of sustainable development. The country's investments in agriculture, infrastructure, and human capital aim to reduce its dependency on oil and enhance its resilience to supply chain challenges.

OPEC Members Exempt From Most Production Agreements

Venezuela

Venezuela serves as a unique case within OPEC. The country possesses vast oil reserves but has faced significant economic and political turmoil in recent years¹²⁹. Hyperinflation, mismanagement, and sanctions have severely impacted its economy, leading to shortages of basic necessities. Venezuela's supply chain

¹²⁹ Cheatham, Amelia, Diana Roy, and Rocío Cara Labrador. "Venezuela: The Rise and Fall of a Petrostate." *Council on Foreign Relations*, March 10, 2023. <https://www.cfr.org/background/venezuela-crisis>.

challenges are primarily the result of domestic issues rather than global disruptions, demonstrating how internal factors can exacerbate supply chain vulnerabilities.

Iran

Iran, another OPEC member, has faced its share of challenges due to international sanctions¹³⁰. These sanctions have restricted the country's ability to engage in global trade and participate in international supply chains. While Iran has diversified its economy to some extent, its position on supply chain shortages is closely tied to the evolving geopolitical landscape and its ability to navigate the sanctions regime.

Libya

Libya's post-conflict recovery and economic rebuilding efforts have been hampered by political instability and security concerns. The country's oil-dependent economy and fragile infrastructure leave it vulnerable to supply chain disruptions. Achieving stability and diversifying the economy are essential for Libya to address supply chain challenges effectively.

Strategies And Mitigation Measures

Domestic Production Enhancement

¹³⁰ Laub, Zachary. "International Sanctions on Iran." Council on Foreign Relations, July 15, 2015. <https://www.cfr.org/background/international-sanctions-iran>.

Many OPEC member countries have recognized the importance of enhancing domestic production capabilities to mitigate supply chain vulnerabilities. This strategy includes investments in manufacturing, agriculture, and technology sectors. By producing more goods domestically, countries can reduce their reliance on global supply chains.

Trade Diversification

Some OPEC countries have sought to diversify their trading partners to reduce dependency on specific regions for imports and exports. This strategy helps to spread risks associated with supply chain disruptions. For example, UAE and Qatar have developed economic ties with countries in Asia, Europe, and Africa, creating alternative trade routes and markets.

Investment in Technology and Innovation

Technological advancements and innovation can play a pivotal role in mitigating supply chain disruptions. OPEC member countries are investing in research and development to develop cutting-edge solutions for various sectors. These investments can enhance production efficiency, reduce dependency on specific inputs, and create more resilient supply chains.

Regional Cooperation

Regional cooperation among OPEC member countries can contribute to addressing supply chain vulnerabilities. By sharing best practices, resources, and expertise, countries can collectively

enhance their resilience to disruptions. Initiatives such as joint infrastructure projects and information sharing can lead to more stable supply chains.

Conclusion

OPEC member countries' positions on global supply chain shortages are shaped by their diverse challenges. While some countries have made significant strides in reducing their vulnerability to supply chain disruptions, others remain exposed due to their reliance on specific imports

or economic sectors. The strategies implemented by OPEC nations to mitigate these vulnerabilities reflect a recognition of the interconnected nature of the global economy and the need for adaptive measures. As the world continues to grapple with supply chain challenges, the positions and actions of OPEC member countries will continue to evolve, influencing not only their own economies but also global energy markets and economic stability.



Glossary

OPEC (Organization of the Petroleum Exporting Countries): A coalition of oil-producing countries that collaborate to stabilize oil prices and ensure a steady supply of petroleum to the global market.

Global Supply Chain Disruption: A situation where various elements of the supply chain, including production, distribution, and transportation, are significantly disrupted, leading to delays or shortages in the delivery of goods and services.

Crude Oil: Unrefined petroleum that serves as the primary raw material for the production of various oil-based products, including gasoline, diesel, and petrochemicals.

Energy Security: The assurance of a consistent and reliable energy supply, including crude oil, to meet the needs of a nation or region, even in the face of supply disruptions.

Strategic Petroleum Reserve (SPR): Government-controlled stockpiles of crude oil and petroleum products, maintained to mitigate supply disruptions and stabilize energy prices during emergencies.

Export Quotas: Limits imposed by OPEC member countries on the quantity of crude oil they can export, designed to control global oil supply and stabilize prices.

Demand-Supply Imbalance: A situation where there is a significant disparity between the global demand for oil and the available supply, often leading to price volatility.

Price Volatility: Frequent and significant fluctuations in the price of crude oil, which can result from supply disruptions, geopolitical events, or changes in market sentiment.

Spare Production Capacity: The surplus production capacity that OPEC member countries maintain to respond quickly to supply disruptions and stabilize the oil market.

Emergency Response Mechanism: OPEC's established procedures and strategies for responding to sudden and severe disruptions in global oil supply, which may include releasing additional oil from spare production capacity.

Price Stabilization: OPEC's goal of maintaining stable and predictable oil prices to benefit both producers and consumers, achieved through supply management and market interventions.

Geopolitical Risk: The potential impact on the oil supply chain due to political tensions, conflicts, or sanctions in oil-producing regions.

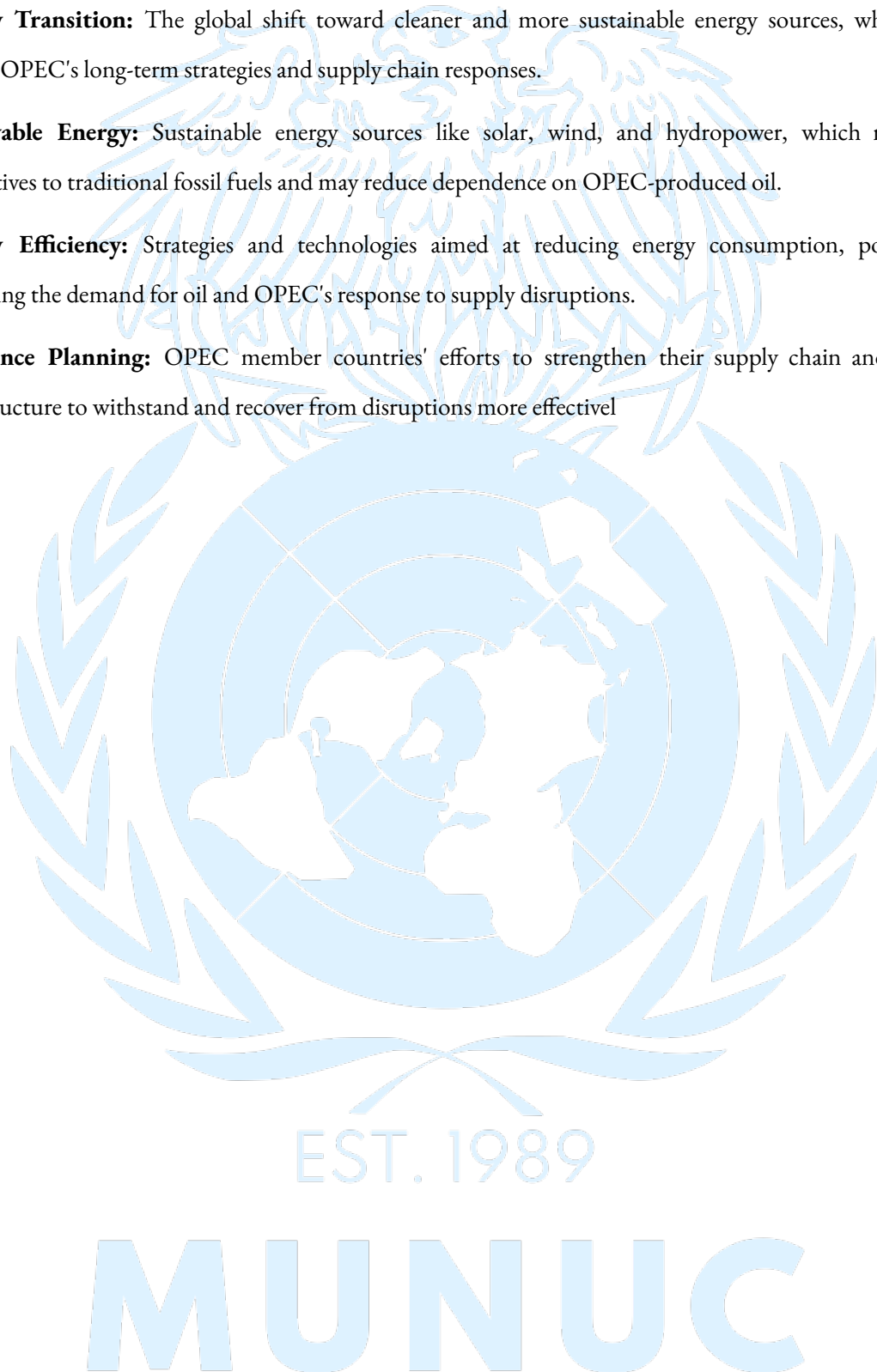
Energy Diplomacy: The use of diplomatic efforts and negotiations to ensure stable energy supplies and manage disputes among OPEC member countries and other global stakeholders.

Energy Transition: The global shift toward cleaner and more sustainable energy sources, which may impact OPEC's long-term strategies and supply chain responses.

Renewable Energy: Sustainable energy sources like solar, wind, and hydropower, which represent alternatives to traditional fossil fuels and may reduce dependence on OPEC-produced oil.

Energy Efficiency: Strategies and technologies aimed at reducing energy consumption, potentially impacting the demand for oil and OPEC's response to supply disruptions.

Resilience Planning: OPEC member countries' efforts to strengthen their supply chain and energy infrastructure to withstand and recover from disruptions more effectively.



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