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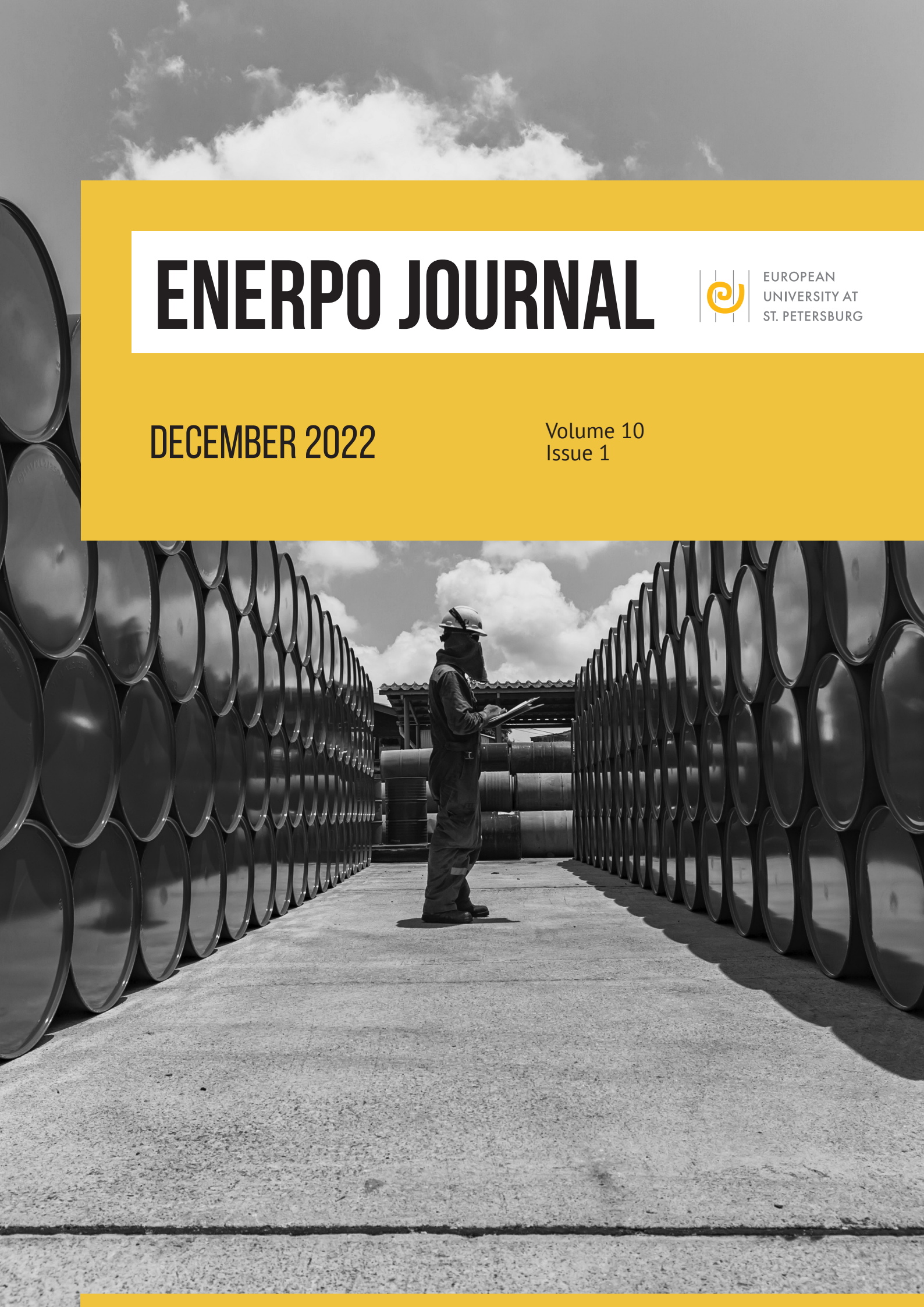

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ENERPO JOURNAL MANAGEMENT

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FOREWORD FROM THE EDITORS

EUROPEAN UNIVERSITY AT ST. PETERSBURG

The year 2022 has proven difficult for those of us at the ENERPO Journal. Due to the continuing challenges of the pandemic and an increasingly unstable security situation across Eurasia, we have experienced a wave of unprecedented constraints in our scientific work, educational exchange, and cultural ties. However, we are adapting to this reality with the mindset that every crisis brings numerous opportunities to change our familiar ways of thinking for the better and to bring existing projects to new levels.

As such, we continue to work on redesigning our journal. The assignment of an ISSN earlier this year has been one more step towards having our journal indexed. We have also updated our website to include more detailed guidelines and expanded our reviewer database as we strive to increase our involvement with both the Russian and international scientific communities.

Outside of the journal, the ENERPO Research Center has remained busy. In April, the Moscow Stock Exchange and the European University at Saint Petersburg held a joint webinar on the social aspects of corporate Environmental, Social, and Governance (ESG) strategies. As the ESG agenda becomes more widespread, the Center aims to promote knowledge on the best ESG practices in the corporate as well as governmental sectors so that Russia can keep up with global trends. The Center also continues its work on a project dedicated to the current and future status of the coal industry in Russia. We at the journal hope to showcase research related to these overall themes of the Center in future issues.

This current issue coincides with the start of the 2022 fall semester and features contributions from several alumni of the European University at Saint Petersburg's 'Energy Politics and Energy Transition in Eurasia' educational program – a one-year program of additional professional education at the Master's degree level. Given the increasing salience of world energy politics, especially in the post-Soviet Eurasian space, we encourage anyone interested in gaining topical knowledge in this field to apply for the upcoming program intake in 2023.

Finally, after three years with the ENERPO Journal, Dana will be retiring from her position as Editor-in-Chief to focus on her academic work at the Australian National University (Canberra, Australia) and KIMEP (Almaty, Kazakhstan). Dana would like to thank everyone who has supported the journal over the past few years, especially Maxim Titov, Irina Mironova, Gevorg Avetikyan, Nikita Lomagin, Joshua Kroeker and Anastasiya Oshchepkova.

Dana Rice and ***Anastasiya Oshchepkova***

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OLGA SKOROKHODOVA, THE ERA OF GREAT UPHEAVAL: THE ENERGY FACTOR DURING THE LAST DECADES OF THE COLD WAR (AST PUBLISHING, 2021)

Irina Mironova

Abstract:

The review discusses context and key messages of the Russian-language monograph titled *The Era of Great Upheaval: Energy Factor during the Last Decades of the Cold War* by Olga Skorokhodova, a Russian energy historian specialising in the history of energy during the Cold War.

Keywords: archive-based research, Cold War, energy geopolitics, energy security, oil price shock of 1973-74

Рецензия. Скороходова О.А. «Эпоха великих потрясений: энергетический фактор в последние десятилетия холодной войны». – Москва: Издательство АСТ, 2021. – 352 с.

Аннотация: В рецензии рассматривается контекст и основные выводы монографии *«Эпоха великих потрясений: энергетический фактор в последние десятилетия холодной войны».* Автор монографии – Ольга Скороходова, российский историк, специализирующийся на развитии энергетических рынков и роли энергетического фактора в период Холодной войны.

Ключевые слова: геополитика энергетики, исследовательская работа в архивах, нефтяной шок 1973-74 гг., Холодная война, энергетическая безопасность

The monograph titled *The Era of Great Upheaval: Energy Factor during the Last Decades of the Cold War* by Olga Skorokhodova was published at the beginning of 2021. The questions raised in this book make it well worth reading given the current energy market reshuffle. Skorokhodova's work studies the role of energy in international relations and geopolitics with a particular focus on the last period of the Cold War. It appears very useful in the study of the role of energy in international relations. Oil has played a massive role in international relations throughout the entire 20th century driving some key solutions during both WWI and WWII and determining the outcomes of separate battles and whole wars. Today, oil remains the core element of our energy system providing about one-third of global energy consumption. What will the energy factor be in the new era of great reshuffling remains to be seen, and there are contesting views on that.

Here are some key messages from the book:

- The way WWII evolved demonstrated the military and geoeconomic importance of secure deliveries of oil and refined products to ensuring the defense of a country.
- The 'energy question' up until the 1970s had been solved through negotiations between oil companies and the governments of the oil producing states.
- The crisis of the 1970s led to the rise of National Oil Companies (NOCs) and a change in the role of International Oil Companies (IOCs) which had previously determined the layout of global oil trade. Today NOCs and IOCs coexist in the energy market.
- High oil prices have impacted both supply and demand of oil. On the supply side, more expensive resources became economical which led to the expansion in oil production geography. Whereas on the demand side, consumers started to pay significant attention to the issues of efficiency and economy of fuel use.
- Energy links that developed between the USSR and Europe throughout the 1970s remained active and developing throughout the 1980s even though there were strong attempts by the US to limit Soviet-European oil and gas trade by means of 'sanctions diplomacy' and return these relations to the classical bipolar structure.
- The energy factor has pushed the dynamic processes of political, economic, and social character which have broken the logic of West/East confrontation and familiar patterns.
- The oil price shock of 1973-74 led to such a regrouping of forces in the global arena that the classic Cold War structure was eroded.

Why is the book relevant today? Because the energy factor today remains essential to the global economy and develop-

ment. It is also at the core of the process of decarbonisation, which in the past few years, has led not only to the changing landscape of energy, but also to changing geopolitics of energy and the rebalancing of relations between states. Additionally, after the Crimea crisis of 2014 and – even more so – after February 2022, we have found ourselves in a new version of the Cold War with some parallels in the attempts to use sanctions to prevent the realisation of fossil fuel supply projects between Russia and Europe. It remains to be seen how this confrontation will evolve.

What I found particularly interesting is the amount of work that went into the research process and particularly the work in various archives. I met with Olga to discuss her archive research experience and the interview is published in this issue of the journal. Here is the list of archives visited during the preparation of the monograph:

- Archive of the Foreign Policy of the Russian Federation (AVP RF)[1];
- The State Archive of the Russian Federation (GARF)[2];
- Russian State Archive of the Economy (RGAE)[3];
- Archive of the Russian Academy of Sciences[4];
- Gorbachev Foundation Archive[5];
- The US National Archives; Library of Congress;
- President Carter and President Reagan libraries;
- Roosevelt Study Center;
- Manuscripts & Archives in Yale University's Sterling Memorial Library;
- Numerous databases and digital archival collection of the US and UK ministries and authorities.

Who knows, maybe one day we will use the same archives in order to study today's sanctions diplomacy and the way decarbonisation changes the ongoing confrontation between West and East.

[1] Архив внешней политики Российской Федерации.
[2] Государственный архив Российской Федерации, https://statearchive.ru/.
[3] Российский государственный архив экономики, http://rgae.ru/.
[4] Архивы Российской академии наук, https://www.arran.ru/?q=ru/aran.
[5] Архив Горбачев-Фонда, https://www.gorby.ru/archival/archive_library/.

Irina Mironova

Irina Mironova is an Associate Director of ENERPO. Since 2018, she has been working as an analyst at the Strategy Department of one of the Russian energy companies with a focus on Russian and global natural gas markets and the dynamics of global liquefied natural gas (LNG) trade. Her fields of scientific interest include energy security and energy geopolitics, sustainable development and the role of energy, energy mix and energy transition, and the role of natural gas in energy transition. Irina holds a MA degree in International Relations from the University of Groningen (Groningen, the Netherlands) and a BA degree in Oriental Studies from the Ural State University (Ekaterinburg, Russia).

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PRACTICAL ASPECTS WORKING IN ARCHIVES IN RUSSIA, EUROPE AND THE US

Olga Skorokhodova, interviewed by ***Irina Mironova***

Abstract:

The purpose of this interview is to let Olga Skorokhodova, the author of the monograph *The Era of Great Upheaval: Energy Factor during the Last Decades of the Cold War*[1], share her experience working in archives and provide practical advice to those who wish to use archives in their own research. We discussed such questions as creating a preliminary list of archives; planning the archive visit schedule depending on the status of a research project; organisation of archive work routine in Russia, Europe and the US; managing the notes. Most attention in the interview is attributed to the Russian archive system organisation.

Keywords: archive-based research, digital resources, institution-based archival system, personality-based archival system, practical tips for archive work

Практические аспекты работы в архивах России, Европы и США

Аннотация: Цель данного интервью – дать возможность Ольге Скороходовой, автору книги «Эпоха великих потрясений: энергетический фактор в последние десятилетия холодной войны», поделиться своим опытом работы в архивах и дать практические советы всем тем, кто хотел бы провести работу в архивах в рамках собственного исследования. Мы обсудили такие вопросы как создание предварительного списка архивов; планирование графика посещения архивов в зависимости от стадии исследовательского проекта; организация работы непосредственно в самом архиве с учетом специфики его расположения – в России, Европе или США; организация записей. Наибольшее внимание в интервью уделено работе в российских архивах.

Ключевые слова: архивы, организованные по принципу институтов; архивы, организованные по принципу персоналий; исследование с использованием архивных данных; практические советы по работе в архивах; цифровые ресурсы

ENERPO Journal: ***Today we're going to discuss several questions focusing on how to organise work in an archive while conducting research in the field of the history of energy. Olga, what are the necessary steps that you need to take in order to create a preliminary list of archives that need to be visited? How do you arrive at a short list?***

Olga Skorokhodova: Firstly, thank you very much for having me. It's great to talk about my book and specifically about the craft of a historian. I believe that working in an archive is something that is really a privilege of historians.

It is worth noting that everything that I will share today is based on a pre-pandemic experience. Right now, I guess it's going to be different. What I know is that in the US, archival reading rooms at the presidential libraries are slowly reopening, but you have to book yourself in advance if you plan to come as there is limited seated capacity – which was not the case pre-pandemic. Nevertheless, I think that the main principles of archive work are still pretty much the same, so let's just talk about it.

To answer your question about a short-list and long-list of archives, I would say that the more archives the better. The limit is the sky… and time, of course! I'd say the length of your list really depends on the topic. If we're talking about Cold War history, I specialise on this topic. You absolutely must have US archives and Soviet/Russian archives on it. It's very challenging to work in the Russian archival system as I will discuss later on. At the same time, the US archives are more available and a lot more materials can be accessed there, including a significant amount of digitized stuff. This makes the Soviet and Russian archives materials much more valuable, so plan accordingly if you want to produce a really cool book or original research.

In the field of international relations and history of international relations, the Russian system is organised around mega-topics.

[1] Скороходова О.А. «Эпоха великих потрясений: энергетический фактор в последние десятилетия холодной войны». – Москва: Издательство АСТ, 2021. – 352 с.

We have the Russian Archive for Economics, the Archive of the Foreign Policy of the Russian Federation, and the State Archive of the Russian Federation. These are must-haves for research dealing with Cold War politics. On top of that, you could add the Russian Academy of Sciences Archive and IMEMO Archive[2]. IMEMO is one of the institutions within the Russian Academy of Sciences (RAS). This particular institution worked a lot for the *Politburo* providing the grounds such as briefing materials and analysis for ultimate decision-making.

The starting point in terms of producing the 'long list' is working with record groups, which are known in Russian as *фонды* (hence in English language scholar literature quoted as just *fondy,* similar to *perestroika* or other Russian language terms that do not have a customary English translation). These record groups/*fondy* contain materials that are published and are open to public. The lists of record groups can be found on websites of Russian archives. They are usually organised around **specific institutions** in Russia and in the Russian/Soviet archival system. To start working with record groups, a researcher needs to know the names of the institutions, committees, and ministries that dealt with the topic under research. It is important to write down the exact name. While the names of these authorities tend to change, without knowing the exact title it could be hard to locate the specific record group/fond. It is also crucial to begin to properly navigate your topic before going to the archive as sometimes the name of the institution will not tell you anything. Let me give you one example: the State Committee for Science and Technology under the Soviet Council of Ministers during the 1950s to 1980s with anything related to Foreign Economic Assistance. The title does not tell us this, right? Basically, all kind of projects in Africa, for example, which the Soviet Union helped build, went through this Committee. The documents from this institution thus can be found in the respective record group at the Russian State Archive of the Economy, and you just need to know that this specific committee dealt with this topic to include it in your list. In Russia, when preparing the list of repositories, you do not usually work with personalities – this is not the way our system is organised[3].

In the US, the system works in a different way. While in the US you can also look at institutions, importantly, you can also look up **personalities.** For example, you could go into the materials of the Secretary of State. There are also presidential libraries which contain documents relevant to the respective presidencies. The short list for the US-based research should be presidential libraries simply because all important documents from all important institutions around your topic are highly likely to end up in the office of the President right in the White House, and the presidential libraries basically keep all the documents of the specific administrations.

If you want to add more archives on top of it, I recommend referring to the National Archives and Records Administration (NARA), where documents of all the governmental institutions are kept, which may not necessarily reach the White House. Working at NARA is useful in tracking the decision-making process before the document went to the White House.

There are also archival collections that are organised around specific individuals. Those personal collections could be located anywhere. For example, there are quite a few individual collections that have been kept in the Library of Congress simply because the family decided to donate those files to the Library of Congress. Another example which tells you to look wider than just the well-known historical figures is the files of Cyrus Vance, the head of the State Department under the Carter administration. It represents great value for the studies of that period, even though all researchers know Brzezinski and would not typically search for Cyrus. Yet, his valuable collection can be helpful. It was donated to Yale university and can be accessed at its library.

One benefit of working with personal collections is that you get a wider narrative around big events, not just the facts. You can access materials such as photos, personal letters, and it's all interesting and enriching. You can get in touch with the spirit of a specific individual because those collections are organised around their life overall.

ENERPO Journal: ***That's exciting! Let's just take a step back and talk a bit about Russian archives because our journal is read by international students as well who might be willing to go to the Russian archives. The first thing is you must be able to communicate and read Russian, right? Have you tried to do it in English?***

Olga: I haven't tried to do it in English, but I would say that you indeed want to be able to at least write in Russian and then also communicate because the archive staff is usually not English-speaking. All documents are also in Russian, with very few exceptions.

At the same time, it should be noted that citizenship per se should not bear any problem. All files that are available for the Russian citizens are already open to public (declassified), so they are also available for foreigners, but there could be some exceptions to it.

The Russian archival system is conservative. When you are planning your research at a Russian archive, you would normally need to have a document (a letter from the university with signatures and stamps) which states that you are a MA/PhD student working on the specific topic. This used to be a strict requirement. Nowadays archives are getting more relaxed about it, and it might be sufficient to submit an application form stating that you would like to conduct research without being affiliated with any institution. Some archives allow it, but some of them do not – for example, the Archives of the Ministry of Foreign Affairs[4]. It is rather hard to get access there even being a PhD student. Only very

[2] Архив Института мировой экономики и международных отношений Российской академии наук, https://www.imemo.ru/publications/periodical/meimo/archive.

[3] There are a few exceptions in the Russian system: e.g, in AVP RF, there is a record group that is dedicated to Molotov, the Soviet Foreign Minister, although researchers have a limited access to it, and there is a repository in GARF that is organised around Anastas Mikoyan.

[4] Архивы МИД России, https://idd.mid.ru/arhivy-mid-rossii1.

experienced historians work there in that very special small reading room. So generally, you do want to have a special letter from your university stating that you are conducting a serious research project.

ENERPO Journal: ***What should the potential archive visitor get ready for? In your experience, is archive work a daily routine, or more like a once-a-month visit?***

Olga: I would say that you should treat archive work as a full-time job at some point of your research. When you are done with literature and with the documents that are already published or digitalized, you need to have a very intensive archival period, when you just go there every day to get the bulk of archival materials. In some archives you cannot make copies of the materials, so instead of copying them for later analysis, you need to process them right there. In other cases, you collect the bulk of materials and process it later. Sometimes while working with those materials, you will identify gaps, and in order to fill them you will schedule additional archive visits. Overall, this period would last between several months and years, depending on your topic. But you know, fortunately or unfortunately, every research project has a time limit!

ENERPO Journal: ***Do you like taking physical notes better than typing, or the reverse? How does it affect your archive work?***

Olga: Laptops are now allowed in Russian archives, and I think it is a positive development. Before, only paper notebooks were allowed. I started my research already in the digital age, so I have always worked with a laptop. For me it's easier and quicker to make notes directly in a Word document.

ENERPO Journal: ***How do you organise your notes? Do you use any referencing system? We use such referencing systems as Mendeley and others at the university. Through these, it's possible to download a copy of the document and insert attributes like title, name of the archive, etc. Later on, the information from the card of each specific document can be used to create automatic references throughout your main text. So, do you use something like that?***

Olga: Referencing and correct attribution is very important for the archive, and it does not really matter which method you use. I did not use any special software for archive document references because the requirements for each archive are very specific. Also, it is hard to talk about any set number of attribution fields because they differ for each archive.

While working at an archive, I already had the structure of my research. So, I have created an index system where each document or a folder of documents was assigned to a specific chapter of my work. Then, when I worked with a specific chapter, I knew that I needed to go through specific materials. Probably creating such an index system even before you start visiting any archives is a good tip. If only I had known about it before, it would have saved me a lot of time.

ENERPO Journal: ***Hopefully, your tip will prevent someone from repeating the same mistake! We have the last set of questions about the Russian part of your archive experience. Which Russian archives have you worked in? How do you schedule/plan a visit to a Russian archive? What are the specifics and hidden reefs of work at Russian archives?***

Olga: My favourite Russian archive is RGAE, or the Russian Archive of the Economy. I think it is underestimated by researchers. It contains a huge number of documents from very different committees, institutions, and governmental bodies that are involved in the decision-making process. You wouldn't expect that the documents from those authorities would be kept there. Yet they are, and I would highly recommend going to this archive if you work in the field of international affairs in various spheres including energy. In terms of specific input to my research, it was absolutely the most useful archive, and all other archives were less useful, I would say.

Then, let's indeed talk about some specifics on how to prepare yourself for a visit to the Russian archives. What you need to do first is to do the list of fondy to understand where exactly you need to go. It is a time-consuming process which you can do at home in your country, or in your city if you don't live in Moscow. Then you have to go through inventories *(onucu, opisi)*. Opisi are essentially guidebooks of specific folders *(∂ела, dela),* luckily many opisi are now available in the digital form. Each record group *(fond)* has one or several inventories *(opisi)* of all folders *(dela)* that it contains. Going through the inventories can be a very tough work because the names of these folders are not super informative and guessing the content from two or three words of the title is often like solving a puzzle. Your key is sticking to the timeline when the folder was collected and created within the specific topic. You need to compile a list of folders *(dela)* which you want to get from this archive. The right approach here would be to make a broader selection and try to get as many relevant folders as possible simply because from the register you can never be certain about the exact content of the folder. **That's the first step: going through the inventory and compiling the list of folders to investigate.**

I have to mention though that for AVP RF, the Russian Foreign Ministry Archive, the system is different. They don't have inventories that are available to researchers, so what you need to do is to go to the archive in person with your letter from the institution or university, which I mentioned before. You will have to share the plan of your research in writing with the archivist, and I would advise to be as specific as you can and mention as many countries, specific embassies, specific consulates that might have dealt with your topic. You have to provide such a description of your research that would provide a guideline for the person in charge to pull out materials for you from the *fondy* that they have. That person pulling out folders is a very important one. Archivists are very professional and skilled but often underestimated. They know their materials very well. You want to be friends with them, both in Russia and in other countries because they are really able to help. Sometimes they will go so far as to allow you to place orders by phone rather than in person or they'll pull out another folder you haven't thought of just because

you ask relevant questions and demonstrate engagement, enthusiasm, and hard work. **Your second step, and sometimes first if there is no register, is thus encountering the Archivist.**

Now, you need to be aware of the logistics of working within the Russian archives. Not all the archives are open five days a week. Some of them, or some specific materials within a specific archive can be available only two or three days a week. So, especially if you travel to Moscow to just work in the archives, you need to plan your visits accordingly. In almost every Russian archive, there is a limit to the number of folders that you can order at once. It's usually up to 10. Most of the time you can't order your folders and get them on the same day; it takes one day to process your request.

Sometimes it happens that your document which you know is in a specific folder is still classified. It happened in my research because I was dealing with the 1970s, and 50 years have not yet passed so some of the materials did not get declassified. If you encounter such a situation, do not get frustrated. I would encourage you to be creative about the institutions which might have been involved in the decision-making process or in discussions. Most of the time the document that was created, let's say, by the Minister of Foreign Affairs was actually distributed to some other institutions. Soviet bureaucracy in its nature was very similar to the bureaucracy we have in Russia today, so it's easy to grasp how it worked. In today's corporations, the document which was created in one department and sent to another department is then distributed 'downwards' with a resolution/action order, including 'for information' (something like CC) within that other department. Naturally, today this happens via digital documentation systems or emails. Essentially, this is the same principle that worked back in Soviet times. Once I knew that the document may have been distributed to another ministry, I simply checked the materials of that other ministry. That's why I worked extensively with the materials of the Soviet Ministry of Foreign Trade. This Ministry does not exist any longer in Russia, but it did exist back in the Soviet Union and in the Files of the Ministry of Foreign Trade, there are lots and lots of materials that were actually written by the Ministry of Foreign Affairs and then just distributed to this ministry via CC. My take-away from this experience is that **you don't need to be discouraged by the fact that you haven't received something in one archive. Think about some other potential stakeholders that were involved in the decision-making process.** Then find where those archives could be and try to access the document through them.

ENERPO Journal: ***How does that compare with the experience in the US? Which archives did you work at there, and what were the peculiarities of that work?***

Olga: In the US, the most convenient institution is presidential libraries. Also, I would recommend spending time at the Library of Congress, the National Archives in Maryland and university libraries. The depositories in these institutions are huge, but the problem is that lots and lots of materials contained there are classified. I should mention here that the biggest difference is that instead of folders, in the US you get boxes.

But boxes are not the only difference from the Russian system. It's organised in a different way overall. It's all very decentralised – this is why it offers more opportunities. You will have to invest time in understanding how it works. I will give you one example. Donald Regan was the Secretary of the Treasury, or the minister of finance in more familiar terms, in the Ronald Reagan administration, and then the Chief of Staff who was rather involved in dealing with the Middle East. Because of this latter fact, I wanted to look at his files, which are at the Library of Congress. To do that, I needed to obtain permission from his family, who authorized me to work with this material. This is just one example, but it tells us that access requirements may be very different.

I would like to draw your readers' attention to the fact that they can apply for research grants to work at presidential libraries. These grants are also available for foreign students. We're not talking about huge funds, but nevertheless can be helpful in covering tickets and maybe some basic expenses.

Another important point is the so-called Freedom of Information Act which specifies declassification period, after which documents should be declassified, but it also enables researchers to actually request declassification of additional materials. Once someone has requested those materials to be declassified, they're also available for other researchers as well.

ENERPO Journal: ***You mentioned in the book intro one particular archive in Europe – the Roosevelt Academy's Archive in Middleburg, Netherlands. What was special about getting there and getting materials you needed for your research?***

Olga: This archive is actually very special to me because it was the first foreign archive I worked in. It's a very nice location in the Netherlands. The reason for the Roosevelt Academy to be in this country is the Dutch origin of his family. The type of materials that can be found there are copies of documents *(слайды, диафильм)* from US presidential libraries with focus on the topic of human rights and Dutch-US relations. They also have grants for students, including foreign students, which cover travel expenses and stay in the Netherlands while working with those materials. This archive provides an easy access and there is no requirement to be a PhD-level student.

ENERPO Journal: ***Can online databases substitute for a physical visit to an archive? How much has digitalization changed the typical working routine of a historian?***

Olga: Digitalization has changed the routine of a historian quite significantly. I don't want to say you can substitute archival research, but it is possible to write an article based on digital resources. There is so much material available online right now that you can build your research on what is available online. Particularly that's true for the US and the UK while not at all for Soviet materials, which makes them more valuable for your research. With the publication of dozens of volumes of the Foreign Relations of the United States[5] (FRUS), a massive number of documents, particularly

[5] U.S. Department of State (U.S. Department of State), https://history.state.gov/historicaldocuments.

from the 1970s and 1980s, became available. Importantly, there are volumes devoted to specific questions such as energy. Digital databases such as the Declassified Documents Reference System (DDRS) are a great starting point for research, especially in the situation when it is a challenge to spend a year abroad while working in an archive. There could be one limitation in accessing these materials though: paid access. This can be overcome through university libraries which have subscriptions to these databases.

But in the end, for good research you need to work both with digital and paper materials. If you cover Russia or the Soviet Union in your research, you absolutely need to go to Moscow.

ENERPO Journal: ***What are the common rules and 'lifehacks' about archive work specific to the field of history of energy/oil markets? What is your advice to those who wish to follow your steps in organizing their research with using these important sources of information?***

Olga: Firstly, talk to people. It is useful because the universe of bureaucracy is never ending, and you do not expect sometimes where a certain question is going to end up. Other researchers, archivists can give you useful tips.

Secondly, try to find the decision-makers. In the case of the Soviet Union, there were, of course, ministries of oil and gas, but they were busy with exploration, production, infrastructure and those kinds of questions. They were not political decision makers. Energy in international relations was more of a *Politburo* issue. This is special about energy stuff: once it becomes political, then it's not necessarily the Ministry of Foreign Affairs (or the State Department) that would be dealing with it. The way I worked with it is referring to the G7 meetings at which the questions I researched were discussed at length. The bureaucratic process was organised around preparing the agendas. So, I looked at those summits to track what was going on. You can pick your own international meeting and set of countries, but the principle would be the same.

Thirdly, look for new sources. I guess the corporate archives are something that needs to be discovered. Also, think of institutions such as OPEC, the IEA, and ways to reach their materials. It is important to see the process of how certain decisions have unfolded, the board meetings, etc. Declassified detailed minutes of OPEC meetings could be interesting for researchers.

But my general advice is that if you decide to go into the energy field as a researcher, you just need to accept that it's going to be much harder for you than for other people who are doing less exclusive stuff.

Olga Skorokhodova

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WAITING FOR 'PROMETHEUS III': A VIEWPOINT ON NUCLEAR FUSION

Simone Amato Cameli

Abstract:

Nicholas Georgescu-Roegen predicted the arrival of 'Prometheus III', a revolutionary technology able to solve the energy problems of humanity for centuries to come. Fusion energy is the natural candidate for 'Prometheus III', and this piece is an attempt at critically reflecting on its current state of development as well as its difficult complementarity with renewables. Renewables indeed face huge unresolved problems, such as high land-use intensity, intermittency and instability of supply chains. While not here yet, after decades of announcements, viable fusion technology is getting closer and closer. I maintain that due to structural economic and technological issues, there will be a trade-off between fusion and renewables in the near future. This potentially raises a strategic issue related to the timing and opportunity of infrastructural upgrading.

Keywords: green transition, nuclear fusion, renewables, strategy, tokamak

В ожидании «Прометея III»: взгляд на ядерный синтез

Аннотация: Николас Джорджеску-Роген предсказал появление «Прометея III», революционной технологии, способной решить энергетические проблемы человечества на века вперед. Энергия ядерного синтеза является естественным кандидатом на роль «Прометея III», и данная статья представляет собой попытку критически осмыслить ее развитие на текущем этапе, а также ее сложную взаимодополняемость с возобновляемыми источниками энергии. Действительно, использование возобновляемых источников энергии сегодня сопряжено с рядом серьезных нерешенных проблем, таких как высокая интенсивность землепользования, прерывистость ВИЭ и нестабильность цепочек поставок. После десятилетий соответствующих заявлений жизнеспособная технология термоядерного синтеза становится все ближе и ближе, хотя этот этап еще не наступил. Автор статьи придерживается точки зрения о том, что в ближайшем будущем из-за структурно-экономических и технологических проблем будет достигнут компромисс между ядерным синтезом и возобновляемыми источниками энергии, в связи с чем возникает стратегический вопрос о сроках и возможности модернизации инфраструктуры.

Ключевые слова: возобновляемые источники энергии, зеленый переход, стратегия, токамак, ядерный синтез

Introduction

Nicholas Georgescu-Roegen (1906-1994) is universally known as the father of modern sustainability thought in economics.[1] His ambitious attempt to found economic dynamics on thermodynamic entropy flows produced a heterodox economic paradigm he called bio-economics. According to Georgescu-Roegen, there have been only two energetic evolutionary leaps in the entire history of humanity. The first one was the discovery of fire – a discovery so powerful to be considered a treasure stolen from gods by some benevolent entity, such as Prometheus in Greek mythology. Accordingly, Georgescu-Roegen called it 'Prometheus I'. Many centuries later, Thomas Newcomen and Thomas Savery invented the heat engine – 'Prometheus II'. If 'Prometheus I' may be regarded as the first spark of human civilization, 'Prometheus II' caused its biggest transformation ever – industrial revolution. However, Georgescu-Roegen argued that this paradigm is ultimately entering into crisis due to the depletion of the energy sources it is based on, i.e., fossil fuels.

Roegen stated that, "what we need now therefore is a 'Prometheus III' who may come any time, only we do not know when.[2]" In this context, the advocated reduction of pressure on natural resources can be reinterpreted merely as a means for buying as much time as possible for 'Prometheus III' to arrive before the situation becomes irremediably damaged.

[1] Nicholas Georgescu-Roegen, *The Entropy Law and the Economic Process* (Cambridge: Harvard University Press, 1971).

[2] Nicholas Georgescu-Roegen, *"Thermodynamics and We, the Humans", Entropy and Bioeconomics: First International Conference of the EABS,* p.196.

What does 'Prometheus III' look like? Among the candidates, Georgescu-Roegen himself explicitly mentioned nuclear fusion but dismissed its effective feasibility.[3] Nevertheless, fusion technology has made significant progress in the last two decades, and I believe fusion is still the best candidate for 'Prometheus III'. This contribution aims at reflecting critically on the limitations of renewables, the state of the art of fusion technologies and the problematic relationship between these two energy sources. In doing so, I explicate potential complementarities and conflicts as well as long-term strategic questions.

Renewables: Just a Short-term Solution?

The current effort toward a zero-emission economy rests mainly on boosting energy production from renewables. After decades of heavy subsidization, generally speaking, renewables are now economically profitable vis-à-vis other sources, having already reached in many countries grid parity and market parity. Accordingly, investment in renewables is soaring all over the world. At the same time, however, there is growing awareness of the intrinsic limitations renewables face.

First, one of the most important issues limiting penetration of renewables is linked to their low power density. Wind median power density, for instance, is about 5 W/m2; solar ranges between 2 and 12. For comparison, it is more than 100 W/m^2 for coal, about 400 W/m^2 for conventional nuclear and between 800 and 1200 for natural gas.[4] As a consequence, renewables are tremendously land-intensive. For providing the same energy output, a conventional nuclear plant requires roughly 430 acres, while solar farms would occupy 130,000 acres and onshore wind farms even 250,000. This generates conflicts over land use (especially vis-à-vis agriculture) and landscape impact, lowering the social acceptability of renewables.

Second, there is the issue of intermittency. Depending on wind and sun, renewables are by nature heavily exposed to changes in weather conditions.[6] Furthermore, for obvious reasons, the output of photovoltaic plants disappears from twilight until dawn, resulting in a production curve being structurally low at night. This indeed may pose a great problem to the electrification of transport. While studies demonstrated that the demand of energy will grow only marginally due to EVs, instead the structure of the demand curve will be dramatically altered – with peaks concentrated by night, when a great number of vehicles will be plugged to the grid.[7] So, with renewables, the stability of supply is at high risk.

For this reason, renewables need to be complemented with some more reliable energy source: when energy output from renewables collapse or goes beyond their current capacity. For instance, during peaks in demand, so-called 'peakers' step in and start producing. Hydroelectric or, more often, gas-fired combined-cycle power plants (CCPP) are normally used as peakers, but here there is another problem as gas-fired power plants emit CO^2. The solution is updating the grid with ancillary services such as storage facilities in order to stabilise energy supply without using peakers, but storage technologies are not fully mature yet. They are still expensive and inefficient, and their massive deployment would further increase the land-intensity of renewables.[8]

Finally, renewables actually have a marked social and environmental impact. 'Green conflict minerals' refers to a broad range of mineral required by the green transition. Wind, solar, EVs and storage technologies are based on a limited number of materials such as rare earths, lithium, cobalt, nickel, molybdenum and being both rare and highly concentrated in politically unstable countries.[9] The green transition is already provoking a spike in their prices, increasing risks of exploitation and political turmoil in resource-rich, fragile countries and reshaping the geopolitics of energy.

Countdown to Nuclear Fusion?

To put it briefly, nuclear fusion is the kind of reaction powering stars such as our Sun. The reaction works as follows. Under normal conditions, two fundamental forces shape atomic nuclei: electromagnetic force and strong nuclear force. The first one works on long distances and makes same-charged particles (such as protons) repel each other. The second one works on very short distances and makes protons attract each other, keeping together nuclei. In a state of matter characterized by very high temperatures (plasma) attractive nuclear force overcomes repulsive electromagnetic force and glues nuclei together, a process known as nucleosynthesis. This process releases a tremendous amount of energy.[10]

Replicating this process on Earth poses formidable technical challenges. The most important ones are related to producing and controlling plasma: the temperatures required are very difficult to reach and controlling the complex plasma dynamics in order to stabilise the reaction is no easy business. After decades of experiments, two technologies appeared viable: inertial confinement fusion (ICF) and magnetic confinement fusion (MCF). The first one triggers fusion by physically compressing and heating a target, using, for instance, lasers. The second one uses magnetic fields to produce and control the reaction. Developments in MCF focused on obtaining the ideal topological architecture for the fields to optimally contain fusion reaction, resulting in tokamak, which is the Russian

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[3] *Ibid.*

[4] John van Zalk and Paul Behrens, "The Spatial Extent of Renewable and Non-Renewable Power Generation: a Review and Meta-Analysis of Power Densities and their Application in the U.S." Energy Policy 123, no. 2 (April 2018): 83-91.

[5] UK Department of the Environment and Climate Change, 2018.

[6] For instance, consider what happened in the United Kingdom when, at the beginning of September 2021, wind currents from the North Sea stopped blowing: energy output from wind plants went to zero and energy prices skyrocketed to all-time high levels.

[7] McKinsey & Company, *The Potential Impact of Electric Vehicles on Global Energy Systems*. Available at: https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/the-potential-impact-of-electric-vehicles-on-global-energy-systems).

[8] à propos landscape impact, see for instance this proposal: https://www.pv-magazine.com/2021/08/26/gravity-based-renewable-energy-storage-tower-for-grid-scale-operations/.

[9] Claire Church and Alec Crawford, *Green Conflict Minerals: The fuels of conflict in the transition to a low-carbon economy,* (Washington: International Institute for Sustainable Development, 2018).

[10] IRENA, *A New World: the Geopolitics of Energy Transition*, 2019.

acronym for 'toroidal chamber with magnets'. Donut-shaped tokamaks are the most promising fusion technology.[11]

Tokamak technology is the basis of the most important international fusion project, the International Thermonuclear Experimental Reactor (ITER), uniting China, Russia, European Union, Japan, South Korea and the US in a common effort to build the first fully operational fusion reactor. According to the ITER schedule, the first reactor will be completed by 2025. ITER is a powerful tool to concentrate investments in order to boost technological know-how. The technical knowledge acquired thanks to the ITER project will be eventually disseminated throughout the world by its successor, the DEMOnstration power plant (DEMO). DEMO fusion reactors will be bigger and economically more efficient, producing as much as 25 times the amount of energy used as input to trigger the reaction. The post-ITER world will be more fragmented, as each nation state or regional block builds up its own program. Here are some of the current initiatives:

- EuroFusion leads a coordinated EU-wide effort to build a DEMO plant before 2030.
- India will begin to develop components for DEMO around 2027.
- South Korea plans to build its K-DEMO by 2037.
- Russia chose a hybrid approach integrating fusion and fission in a facility known as DEMO-FNS (DEMO Fusion Neutron Source) to be built by 2023.
- The United States is focusing instead on an intermediate step, Fusion Nuclear Science Facility (FNSF), which will allow eventually to develop a DEMO-type reactor after 2050.[12]

Additionally, in 2019, the UK announced its own path to fusion: Spherical Tokamak for Energy Production (STEP). As the name suggests, it is based on a different technology than ITER: a spherical tokamak (or 'spheromak'). STEP is part of a fast-track strategy to outperform ITER, producing a complete demonstrative reactor as early as 2024.[13]

In the last few years, private sector-led fusion has gained momentum. General Fusion announced that it will build its first compact demonstration fusion spheromak by 2025 in the UK. TAE Technologies, an American company adopting an original confinement technology, will release its prototype by 2030. In September of 2021, Italian energy giant Eni together with Commonwealth Fusion Systems, a spin-off from Massachusetts Institute of Technology, reached a historical milestone by succeeding in confining plasma using new-generation superconductor magnets, paving the way to the realisation of the experimental device SPARC (2025) followed by ARC, a complete fusion reactor.[14]

In conclusion, the technology is becoming more and more mature with a series of novel demonstration reactors emerging from here to 2025. Actual reactors are scheduled to be released later with the most optimistic outlook starting from the 2030s. Nuclear fusion, is no longer that far away and, in our opinion, its development will accelerate exponentially in the next few years due in particular to AI and machine learning.[15]

Perspectives and Implications

Therefore, the main question is whether we should consider fusion and renewables as opponents or as complements. On one hand, there may be a complementarity: as previously stated, being structurally intermittent, renewables call for a more stable source of energy to guarantee supply when they produce less. In this scenario, fusion plants could replace CCPP gas plants as peakers. Unfortunately, there are reasons to be highly skeptical about this 'pacific coexistence'. The problem has to do with the assumed structure cost of a fusion plant. In fact, a good candidate for a peaker should have high variable costs and low fixed costs, as well as the possibility to scale up or down production in real time. The reason is that peakers are to be continuously switched on and off. The cost structure of fusion plants, in all likelihood, will be exactly the opposite: high fixed cost and low variable costs (and providing an unvarying power output). This makes them more adapt to work as baseload providers and in direct competition with renewables.[16]

So, at least to a certain extent, we should consider renewables and fusion as competitors. Undoubtedly, renewables benefit from a first mover advantage vis-à-vis fusion. Their costs are decreasing more and more, and it is quite unlikely fusion technology will be able to obtain lower LCOE than renewables in the short run.[17] As a consequence, this reduces the incentive to develop fusion technology.[18] Another argument supports the idea renewables and fusion should be viewed as opponents because both technologies rely on lithium, a rare element – fusion in a direct way since it is instrumental in controlling plasma, and renewables in an indirect way since it is the basis of state-of-the-art storage systems.[19]

However, let us suppose fusion finally becomes economically competitive. Once this happens, it is likely it will make solar and wind power plants 'stranded assets'. The general reasoning is: *ceteris paribus*. If we have a reliable and clean source of energy, why should we keep using an unreliable one? This

[11] For an in-depth introduction to nuclear fusion reaction and state-of-the-arte technologies, see David John Campbell, "Nuclear Fusion – Introduction and Overview", *Encyclopedia of Nuclear Energy* (Oxford: Elsevier, 2021: 358-368).

[12] IAEA, *Charting the International Roadmap to a Demonstration Fusion Power Plant,* 2018.

[13] UK Atomic Energy Authority: https://step.ukaea.uk/.

[14] Eni Next: https://www.eni.com/eninext/en-US/portfolio/commonwealth-fusion-system.html.

[15] Rebecca Sohn, "Can AI Make a Better Fusion Reactor?", IEEE Spectrum, Aug 13th, 2021. Available at: https://spectrum.ieee.org/can-ai-make-a-better-fusion-reactor.

[16] Actually, there are other factors that could relax these assumptions and enable a complementarity between renewables and fusion. For instance, it is true that conventional nuclear plants in some countries are used as baseload to stabilise the grid, but that is the exception, not the rule. The issue is of course too complex to be treated in-depth here, nevertheless we believe these solutions would play a marginal role.

[17] LCOE stands for levelized cost of electricity, the main indicator of the economic competitiveness of an energy technology

[18] Nicholas, T.E.G., T.P. Davis, F. Federici, J. Leland, B.S. Patel, C. Vincent, and S.H. Ward. "Re-Examining the Role of Nuclear Fusion in a Renewables-Based Energy Mix." Energy Policy 149 (2021): 112043. https://doi.org/10.1016/j.enpol.2020.112043.

[19] *Ibid*.

would be quite paradoxical, since the energy transition is now converting assets worth billions and billions of fixed capital into stranded assets such as coal mines or oil rigs, potentially threatening financial stability with a possible 'carbon bubble'.[20] Furthermore, besides the economic value disruption, there would also be a huge environmental problem, since due to the materials they use, decommissioned solar panels and wind turbines produce an enormous amount of toxic waste.[21]

The issue is more general. Infrastructural upgrading is a complicated business because technological evolution plays a fundamental role, so the timing is definitely crucial. This has to do with what Gerschenkron famously called 'the advantages of backwardness', and, more recently, Krugman defined 'leapfrogging': State A invests billions in infrastructure X before State B, who is left behind. However, when a novel and more advanced infrastructure Y is available, State A is locked into the old technological investment, while State B can freely invest on this, thus 'leapfrogging' State A.[22] Take, for instance, railways where nowadays more efficient systems are available (e.g. Hyperloop) but the very existence of a well-established railway system largely prevents them from being installed. On the other hand, those countries that did not realise a railway system now can directly jump to the new paradigm of transportation without being hindered by the pre-existing infrastructure. Could we imagine that sometime in the future countries that did not invest in renewables will be able to leapfrog those who did when fusion will finally be available?

The open, and provocative, questions with which we conclude the present contribution, hoping it will ignite an intriguing debate, is: given the strategic, intertemporal issue above, should we keep investing billions of euros in a renewables-based energy transition? Or should we divert these investments to research on fusion energy?

[20] Carbon Tracker Initiative, Unburnable Carbon – Are the World's Financial Markets Carrying a Carbon Bubble? Technical report, 2011.

[21] Herbert Inhaber, "Is Solar Power More Dangerous Than Nuclear?", IAEA Bulletin 21(1979); Chowdhury, Md. Shahariar, Kazi Sajedur Rahman, Tanjia Chowdhury, Narissara Nuthammachot, Kuaanan Techato, Md. Akhtaruzzaman, Sieh Kiong Tiong, Kamaruzzaman Sopian, and Nowshad Amin. "An Overview of Solar Photovoltaic Panels' End-of-Life Material Recycling." *Energy Strategy Reviews* 27 (2020): 100431. https://doi.org/10.1016/j.esr.2019.100431.

[22] Alexander Gerschenkron, *Economic Backwardness in Historical Perspective,* (Cambridge: The Belknap Press, 1951); Elise S. Brezis, Paul R. Krugman, and Daniel Tsiddon, 'Leapfrogging in International Competition: A Theory of Cycles in National Technological Leadership', *The American Economic Review* 83 (1993), 1211–1219.

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POWER FROM PIPELINES: EUROPEAN ENERGY POLITICS AND THE REVITALISATION OF RUSSIA

Evan Park

Abstract:

This paper analyses changes in Russian energy policy in the 1990s and 2000s following a major expansion of energy ties with Europe. It attempts to gauge whether American or Western European security calculations about energy relations with Russia proved accurate in each of these decades. It finds that Western European expectations of mutual dependence and peaceful co-existence were confirmed during the 1990s, while American concerns over renewed military build-up and coercive behaviour were largely justified beginning in the 2000s and continuing until the present. The paper concludes with a discussion of the modern challenges faced by Europe regarding this issue.

Keywords: cooperation, dependence, energy, Europe, gas, oil, politics, Russia, security, trade

Нефте- и газопроводы как политический инструмент: европейская энергетическая политика и возрождение России

Аннотация: В статье анализируются изменения в российской энергетической политике в 1990-х и 2000-х годах после значительного расширения энергетических связей с Европой. Автор делает попытку оценить, насколько точными были расчеты в сфере американской или западноевропейской безопасности в контексте энергетических отношений с Россией в каждое из этих десятилетий. В статье демонстрируется, что ожидания Западной Европы касательно взаимной зависимости и мирного сосуществования с Россией подтвердились в 1990-х годах, в то время как опасения американцев по поводу возобновления наращивания военной мощи и принудительного поведения России были в значительной степени оправданы, начиная с 2000-х годов и вплоть до настоящего времени. Статья завершается обсуждением современных вызовов, стоящих перед Европой в контексте этого вопроса.

Ключевые слова: безопасность, газ, Европа, зависимость, нефть, политика, Россия, сотрудничество, торговля, энергетика

Introduction

When assessing Russia's position in global affairs, a primary consideration is its role in energy politics and security. As an 'energy superpower', Russia was the top global exporter of natural gas, the number two crude oil exporter, and the number three coal exporter in 2021.[1] This dominance evolved over decades, as Russia established a complex network of pipelines and global trading partners.

The primary recipient of Russian energy is Europe, as 49 percent of its crude oil exports and 74 percent of its natural gas exports went to European countries in 2021.[2] Although energy ties have existed since the 1960s, a major inflection point occurred in the 1982 Urengoy-Pomary-Uzhhorod pipeline debate between Western Europe and the Soviet Union. This event pitted Great Britain, France, West Germany and Italy against the United States regarding a proposed energy agreement between these countries and the Soviet Union. The Americans voiced three concerns: that the Soviets would shut off allied gas supplies to ensure cooperation with Moscow's foreign policy, the Soviets would use the financial and technological gains to build up their military, and after recent Soviet interference in Poland, a lucrative trade deal would encourage further aggressive behaviour.[3] European observers countered that economic vulnerability was mutual, increasing interdependence and reducing tensions. The American position, under this viewpoint, was 'alarmist and exaggerated'.[4] Eventually, Washington accepted a compromise. NATO would convene studies gauging the impact of further East-West technological and energy trade

[1] Hilary Hooper, Justine Barden, and Tejashvi Raghuveer, *Europe Is a Key Destination for Russia's Energy Exports* (U.S. Energy Information Administration, 2022).

[2] Hooper, Barden, and Raghuveer, *Europe Is a Key Destination for Russia's Energy Exports.*

[3] John P. Schutte Jr., "Pipeline Politics," SAIS Review 2, no. 4 (1982): 137-147. doi:10.1353/sais.1982.0009.

[4] Herbert Wulf, "East-West Trade as a Source of Tension," Journal of Peace Research 19, no. 4 (December 1982): 301–22, https://doi.org/10.1177/002234338201900402.

in exchange for lifting American sanctions on the pipeline, while the agreement stood.

Reflecting on this debate decades later, a salient question exists regarding which assessment was correct. Has the Kremlin acted as the Americans or the Europeans expected? This paper considers broad trends in Russian energy politics in the 1990s and 2000s, examining how Russia's energy strategy evolved during that time. The paper does not address the 2010s, as this decade largely served as an expansion of Russian policies from the late 2000s. Employing primarily Russian, German and American sources, the analysis addresses American concerns regarding Europe's energy dependence and whether they were justified in each decade. Through statistics, statements from politicians, and scholarship from various academics and analysts, it contends that Russia has been both accommodating and aggressive in energy politics as its domestic and international political landscape has evolved. However, the Americans have proven more correct than their European counterparts over time.

Notably, the relationship between Russia and Europe also exhibited the potential for peaceful economic interdependence in the 1990s, an era where the European position on trade appeared justified. This period of opportunity and the reasons behind its devolution will be discussed in the following section. In a later section, the paper will discuss the developments of the 2000s and how Russian energy policy proceeded in a direction that confirmed American misgivings. Finally, it concludes with a brief discussion of current developments in Russian energy politics and how Europe may respond to these challenges.

The 1990s: Attempting Peaceful Interdependence

Predictably, the Soviet collapse in 1991 coincided with a disruption and downturn of energy exports. Russian oil production cratered from 569.5 million tonnes in 1987 to a nearly 25-year low of 284.3 million tonnes in 1995. The catalysts for this decline were the contraction of state financing for oil and gas over time and the depletion of easily accessible oil fields.[5] Auspiciously, Soviet analysis suggested that only 3.5 percent of the USSR's natural gas had been exploited before 1991, with several potential gas sources located in Russia.[6] This energy abundance ushered in extensive interest from Western businesses to pursue joint ventures in post-Soviet Russia. In 1994, for instance, a 'senior US administration official' stated that of the $40-50 billion American companies were prepared to invest in Russia that decade, half of these funds were in oil and gas. Along with other Western countries, the total potential investment was estimated at $60-70 billion.[7] While American companies maintained limited relationships with the Soviet energy industry during the Cold War, this vast potential investment marked a major shift in governmental thinking regarding Russian energy.

During the early 1990s, American analysts were already formulating strategies to optimise oil and gas exploitation in the Soviet Union and foster economic cooperation.[8] Likewise, the Soviets remained eager to trade with the West, with a few important caveats. After the collapse of the USSR, there were hints of a lingering imperial approach to energy that would crystalize in the 2000s. One such instance occurred in April 1994, when the Russian Foreign Ministry sent a note of protest to the British government following BP investments in Azeri oil, arguing Russia should be the rightful director of energy projects in the Caspian Sea basin. However, the United States, another investor in Azerbaijan, was not subjected to Moscow's diplomatic ire.[9] This reluctance to confront the United States was likely due to Russia's diminished position in the early 1990s and a prevailing interest in securing American aid and investment. Post-Soviet involvement in Central Asian energy production reflected a realist foreign policy approach, as Russia strove to gain leverage over potential competitors in the European market.

As the 1990s progressed, Russian governmental factions took a selectively assertive role in domestic energy as well. Towards the end of the decade, state stakes in ONAKO and Tyumen Oil Co. were set to be privatised and sold off. State and regional authorities, however, blocked the sales and extended federal ownership until 1998. This development dovetailed on a government resolution passed in November 1996 extending state control of important oil and gas assets until 1998.[10] These behaviours would be greatly expanded in the 2000s under Vladimir Putin.

Ultimately, American and Western European companies were dissuaded from several energy investments in Russia during the 1990s for a few reasons. In the late 1990s, several deals failed to materialise due to the 1998 financial crisis and unstable oil prices of the early 1990s, which carried risks for investors.[11] Additionally, legislation and bureaucratic red tape obstructed foreign investment. The Natural Resources Law of 1992, for instance, declared that all mineral resources on Russian territory were state property but was intentionally vague over which government body owned them to ensure state and local government cooperation. This obfuscation greatly impeded contract and licensing processes for foreign oil and gas companies.[12] While Yeltsin's government

[5] James Watson, "Foreign Investment in Russia: The Case of the Oil Industry," *Europe-Asia Studies* 48, no. 3 (1996): 429–55, http://www.jstor.org/stable/152735.

[6] Andrei A. Konoplyanik, "The Optimization of Soviet Energy – New Implications for Export and International Cooperation in Oil & Gas," *Energy Exploration & Exploitation* 9, no. 4 (August 1991): 157–74, https://doi.org/10.1177/014459879100900402.

[7] Watson, "Foreign Investment in Russia: The Case of the Oil Industry," 432.

[8] See, for example, Michael R. Smith, "Exploration for Oil in the Soviet Union: Special Problems Facing Western Companies," *Energy Exploration & Exploitation* 9, no. 1–2 (March 1991): 4–16, https://doi.org/10.1177/014459879100900102.

[9] Robert V. Barylski, "Russia, the West, and the Caspian Energy Hub," Middle East Journal 49, no. 2 (1995): 217–32, http://www.jstor.org/stable/4328801.

[10] Eugene M. Khartukov, "The Control of Russia's Oil," Energy Exploration & Exploitation 15, no. 2 (1997): 117–25, http://www.jstor.org/stable/43865142.

[11] Eugene M. Khartukov, "The Potential for a Russian State Oil Company: A Critical Analysis of the Russian Oil Business," Energy Exploration & Exploitation 18, no. 2–3 (April 2000): 207–24, https://doi.org/10.1260/0144598001492085.

[12] Watson, "Foreign Investment in Russia: The Case of the Oil Industry," 434-436.

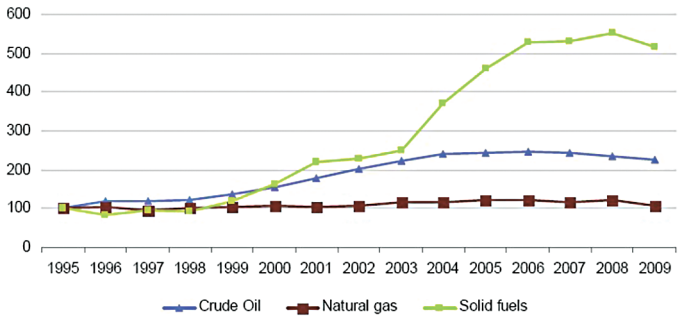
sought to court Western investment through the 1995 Law on Oil and Gas, the Federation Council voted against the bill, expressing distaste towards 'selling off' Russian resources and prompting executive action from Yeltsin.[13]

Despite these hurdles, Russian investors rapidly acquired stakes in state oil enterprises, particularly through the loans-for-shares scheme in 1995. This precipitated a fall in state ownership of oil production to 10 percent, though privatisation was not nearly as widespread in the natural gas market.[14] These liberalising trends, coinciding with an influx of joint ventures in Russia, largely reinforced the European view of energy trade as a vehicle for interdependence and peaceful cooperation. Even American security analysts such as Ian Bremmer and former Secretary of State Zbigniew Brzezinski accepted this assessment, asserting that energy cooperation between Europe and Russia should be encouraged. Bremmer argued that increasing ties to Russia 'should not be taken as a defeat for Europe but as a victory for market imperatives that extend the de facto scope of integration even into regions that do not consciously seek it….'[15] [16]

While the 1990s ushered in a promising era of positive-sum East-West relations, there remained signs of Russian energy recalcitrance outside of assertive actions in Central Asia. These actions, however, were confined to the early part of the decade and solely concerned post-Soviet states. The main victims were the Baltic states and Ukraine. In the case of the Baltic states, the USSR cut off supplies to discourage them from pursuing independence in 1990-1991 and again when they demanded that Yeltsin remove Russian troops from their territory. In terms of Ukraine, negotiations on control of the Black Sea Fleet and Ukrainian debts accompanied a reduction of supplies in 1993. Finally, Lithuania faced nine additional oil cut-offs as they prepared to sell a refinery and port facility to an American company.[17] However, these efforts (apart from Lithuania) could reasonably be justified as a resolution of lingering Soviet disputes, rather than an expansion of Russia's sphere of influence. This position applied particularly to Ukraine, which claimed ownership of Russian military facilities and owed money to Russia.

Though the Lithuanian case foreshadowed further assertive actions against Western competition, increasing economic ties and the internal focus of Russia's government assuaged American fears regarding Moscow's energy strategy. Perhaps most strikingly, Russian military spending generally fell relative to GDP in the 1990s and never rose in consecutive years until 2000.[18]

Figure 1.
Russian Energy Exports to Europe 1995-2009 (100 = 1995 export level)



Source: *Eurostat & ROSSTAT https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Archive:Russia-EU_-_basic_statistical_indicators*

In this regard, the American misgivings towards energy cooperation with Russia from the 1980s could be viewed as paranoia, though it must be noted that gas exports to Europe remained mostly constant in the mid to late 1990s, while coal training expanded around 1999 and crude oil exports experienced moderate growth (see Figure 1). Unfortunately, in the 2000s, many American concerns materialised as Russia experienced rapid economic growth from energy exports, followed by an increase in both energy nationalisation and military spending.

The 2000s: Putin and Russia's Repositioning

Early indications of an energy policy shift were espoused by the first Minister of Fuel and Energy under Putin, Viktor Kalyuzhny. Complaining about private energy company developments, Kalyuzhny stated: 'Why should you suffer because they're private companies? My job is to see to it that consumers don't suffer. The legal status of the companies doesn't matter to me. They live and work in Russia.'[19] While this statement likely appeared considerate to a post-Soviet audience, it underscored a decidedly anti-market position percolating among state officials.

This shift coincided with rapid economic gains from the oil and gas industry. In 1999-2000, 90 percent of Russia's GDP growth resulted from energy exports.[20] Initially, Putin promoted liberalisation. Regulatory clarifications and tax code reforms accelerated foreign interest in Russian energy, attracting a $4 billion investment from ExxonMobil in 2001.[21] Over the next few years, the situation rapidly changed.

[13] *Ibid.*

[14] S. Mohsin Hashim, "Power-Loss or Power-Transition? Assessing the Limits of Using the Energy Sector in Reviving Russia's Geopolitical Stature," *Communist and Post-Communist Studies* 43, no. 3 (2010): 263–74, https://www.jstor.org/stable/48609721.

[15] Ian Bremmer, "Russia's Total Security," World Policy Journal 16, no. 2 (1999): 31–39, http://www.jstor.org/stable/40209625.

[16] Zbigniew Brzezinski, "A Plan for Europe," Foreign Affairs 74, no. 1 (1995): 26–42, https://doi.org/10.2307/20047017.

[17] Hashim, "Power-Loss or Power-Transition? Assessing the Limits of Using the Energy Sector in Reviving Russia's Geopolitical Stature," 268.

[18] World Bank, *Military Expenditure* (% of GDP) – Russian Federation (World Bank Data, 2022).

[19] Quoted in Eugene Khartukov, "The Potential for a Russian State Oil Company: A Critical Analysis of the Russian Oil Business," 215.

[20] Fiona Hill, "Russia: The 21st Century's Energy Superpower?" The Brookings Review 20, no. 2 (2002): 28–31, https://doi.org/10.2307/20081034.

[21] Hill, "Russia: The 21st Century's Energy Superpower?" 28-29.

In an August 2003 decree on energy policy, Putin noted oil and gas as the country's 'basis of economic development and the instrument of carrying the internal and external policy'.[22] This declaration accompanied two additional major energy developments in 2003. First was the announcement of a $6.15 billion investment from BP into the Russian company Tyumen, which Pravda denounced as an attempt to 'sell off the motherland', echoing the Federation Council's position in 1995 regarding foreign investment.[23] [24] This disdain towards liberalisation culminated in the Yukos Affair later that year, pitting an oligarch with extensive Western connections against the state. While the Yukos Affair has received extensive scholastic attention, suffice it to say that Khodorkovsky's prosecution and Yukos's expropriation indicated a major victory for Russian statists over the oligarchs and forces of privatisation. The statists cemented their position in 2006, granting Gazprom (a state-owned company) sole permission to export Russian gas.[25]

Following this consolidation, analysts such as R.G. Gidadhubli observed that Russia was not only focused on maximising energy gains, but on using said gains to obtain 'larger political objectives to regain the country's power position in the world'.[26] This shift's impact on European security materialised that same year.

Many of these concerns dominated the November 2006 EU summit in Helsinki, which Putin was invited to attend. During the summit, Central and Eastern European countries clashed with members such as Germany and France over a proposed economic partnership agreement with Russia. Eastern members were adamant that Russia sign an agreement allowing free access to Russian pipelines and legal guarantees to members. This agreement was drafted in response to politically motivated gas shut offs to Ukraine, Georgia, and Belarus that same year. While German Chancellor Angela Merkel declared these actions 'not acceptable', Russia continued their EU partnership without signing the agreement.[27]

The United States, observing these developments, attempted to push Europe towards a more assertive response. Prior to NATO's 2006 summit in Riga, Senator Richard Lugar exhorted members to adopt a resolution promoting energy diversification, noting Europe's troubling dependence on external suppliers.[28] Judging by developments later that year in Helsinki, these concerns appeared to fall upon deaf ears. Ultimately, individual members opted to promote their national interests rather than alliance-wide concerns, allowing Putin to employ a 'divide and rule' strategy.[29] [30] Confirming American concerns, Russia leveraged this lucrative trade relationship with Europe and the GDP growth it brought to increase military spending by 40 percent in 2005, 22 percent in 2006, and again by 29 percent in 2007.[31] According to one scholar of EU relations, Russia's 'belligerent' policies towards new and prospective members in the 2000s led to European 'scepticism' regarding continued reliance on Russian energy, though he conceded that agreement over how to respond to these issues remained elusive by the end of the decade.[32] It would be over a decade before major steps were taken by the EU to respond to this challenge.

Conclusion

As discussed throughout the paper, Russia's energy strategy has evolved from one of peaceful coexistence in the 1990s to a confrontational and increasingly aggressive approach in the 2000s. This assertion is rooted in the re-nationalisation of Russia's energy industry in the 2000s, as subsequent profits allowed for military revitalisation and increasingly destabilising actions in Eastern Europe continuing to the present.

Nevertheless, several caveats exist. Contrary to American expectations, Russia has largely limited shut offs to former Soviet republics and satellite states, while Western and Central Europe have avoided similar treatment. Conversely, American concerns regarding Russian military rearmament from energy revenues have proven prescient, particularly under Putin's presidency. The final concern, that cooperation would encourage further aggression is – unfortunately, an unfalsifiable position. As such, the paper does not take a position on this prediction's accuracy or lack thereof. While Russia has pursued an assertive defence policy in Georgia in 2008 and in Ukraine since 2014, the reasons for these interventions are myriad and subject to widespread debate beyond this paper's scope. While secure energy relations with Europe could have emboldened these actions, establishing causality is precarious at best, since Russia has maintained a historical sphere of influence in the region for centuries.

Though the EU refrained from comprehensive energy penalties towards Russia in the 2000s and 2010s (notably excluding energy from 2014 sanctions), the current intervention in Ukraine has accelerated high level discussions on source diversification. On 8 March 2022, the European Commission presented the proposed REPowerEU plan, which aims to end EU dependence on Russian energy by 2030.[33] After previously downplaying

[22] Putin, quoted in Hashim, "Power-Loss or Power-Transition? Assessing the Limits of Using the Energy Sector in Reviving Russia's Geopolitical Stature," 268.

[23] R.G. Gidadhubli, "Russia: Oil and Politics," *Economic and Political Weekly* 38, no. 21 (2003): 2025–30, http://www.jstor.org/stable/4413593.

[24] Heather Timmons, "BP Signs Deal with Russians for Venture in Oil and Gas," The New York Times, 27 June, 2003.

[25] Andrew C. Hess, "Eurasia and the Geopolitics of Gas," *The Fletcher Forum of World Affairs* 32, no. 1 (2008): 83–109, http://www.jstor.org/stable/45289424.

[26] R.G. Gidadhubli, "Oil and Politics in Russia: Tightening Grip on Pipelines," *Economic and Political Weekly* 41, no. 31 (2006): 3358–60, http://www.jstor.org/stable/4418517.

[27] Martin Walker, "Russia v. Europe: The Energy Wars," *World Policy Journal* 24, no. 1 (2007): 1–8, http://www.jstor.org/stable/40210064.

[28] Ida Garibaldi, "NATO and European Energy Security," *American Enterprise Institute,* no. 1 (2008): 1-6, https://www.aei.org/wp-content/uploads/2011/10/20080402_EuONo1_g.pdf?x91208.

[29] Garibaldi, "NATO and European Energy Security," 4.

[30] Walker, "Russia v. Europe: The Energy Wars," 4.

[31] Hashim, "Power-Loss or Power-Transition? Assessing the Limits of Using the Energy Sector in Reviving Russia's Geopolitical Stature," 265.

[32] Filippos Proedrou, "Sensitivity and Vulnerability Shifts and the New Energy Pattern in the EU-Russia Gas Trade: Prospects for the Near Future," *Studia Diplomatica* 63, no. 1 (2010): 85–104, http://www.jstor.org/stable/44838606.

[33] John Roberts and Julian Bowden, "The EU's Plans to Replace Russian Gas: Aspiration and Reality," *Atlantic Council,* 26 May, 2022.

American concerns, Western Europe changed course, with the German finance minister admitting that dependence on Russian energy 'was a mistake'.[34] Crucially, many obstacles remain for Europe to end this dependency, while Russian companies are planning around these developments. In the 2010s, Putin began openly discussing shifting exports towards Asia as a response to energy security challenges with Europe.[35] Simultaneously, the EU is negotiating with Qatar, Algeria, the United States, Norway, and the Netherlands among others to act as potential substitutes to Russian energy. These adjustments will take time and extensive resources for each side to complete.[36]

As noted in this analysis, Russian usage of energy for political purposes has developed over decades, peaking after the nationalisation of the oil and gas industry under Vladimir Putin. Crucially, this militarisation and geopolitical energy posturing was largely absent during the middle and late 1990s, indicating a policy shift in the 2000s. This understanding should guide future interactions between the two trade partners. While EU energy diversification remains a prudent objective, members must remember that Russian behaviour is malleable and may shift in the long term. Reciprocating escalatory or de-escalatory behaviour sends a message that the EU is willing to cooperate if Russia promotes a mutually beneficial partnership and respects its members' security interests. This approach harbours no illusions about current events but provides an exit ramp for a return to peaceful coexistence if de-escalatory actions occur.

[34] Linder, quoted in Melissa Eddy, "Why Germany Can't Just Pull the Plug on Russian Energy," *The New York Times,* 5 April, 2022.

[35] Ralf Dickel et al., *Reducing European Dependence on Russian Gas* (The Oxford Institute for Energy Studies, 2014), 87, https://doi.org/10.26889/9781784670146.

[36] Roberts and Bowden, "The EU's Plans to Replace Russian Gas: Aspiration and Reality".

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THE REAL THREAT TO RUSSIA'S ENERGY STRATEGY

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Abstract:

Energy revenues underpin the Russian state budget, and oil and gas are its most important export commodities. Russia rightly sees energy as a strategic resource to be managed – as set out in several public policy documents. Europe has been Russia's most important energy market over the past two decades, facilitated by pipeline deliveries of natural gas. Given that its relations with the West were adversarial even before the Ukraine conflict, Russia has been seeking to increase its access to the Asian energy market. Gulf energy producers are its competitors in that market. However, at the same time, Russia needs to cooperate with them, Saudi Arabia in particular, to determine production and pricing levels that provide both with maximum benefit – hence Russia's membership of OPEC+. Russia also wants to encourage Gulf sovereign wealth funds to invest in major gas projects in its Arctic north. Western sanctions on Russia over the conflict in Ukraine and Russia's restriction of natural gas supply to Europe in retaliation complicate that strategy. For now, high prices compensate Russia for reduced energy exports. However, as Europe adjusts to alternative sources of energy supply, Russia risks losing a valuable gas market in Europe within three to four years with no easy means of sending the stranded gas to other markets when that happens.

Keywords: energy, Gulf Cooperation Council (GCC), Iran, Joe Biden, liquified natural gas (LNG), natural gas, oil, Russia, sanctions, Saudi Arabia, United Arab Emirates (UAE), United States (US), Vladimir Putin

Реальная угроза энергетической стратегии России

Аннотация: Доходы от энергетики составляют основу российского государственного бюджета, а нефть и газ являются ее важнейшими экспортными товарами. Россия справедливо рассматривает энергетику как стратегический ресурс, которым необходимо управлять – об этом говорится в нескольких документах, посвященных государственной политике. В последние два десятилетия Европа была важнейшим энергетическим рынком для России, чему способствовали поставки природного газа по газопроводам. Учитывая, что ее отношения с Западом еще до конфликта на Украине были конфронтационными, Россия стремилась расширить свой доступ к азиатскому энергетическому рынку. Энергетические компании стран Персидского залива являются ее конкурентами на этом рынке. Но в то же время России необходимо сотрудничать с ними, в частности с Саудовской Аравией, чтобы определять такие уровни добычи и ценообразование, которые принесут максимальную выгоду обеим странам. Этим и обуславливается членство России в ОПЕК+. Россия также хочет побудить суверенные фонды стран Персидского залива инвестировать в крупные газовые проекты на севере Арктики. Западные санкции в отношении России в связи с конфликтом на Украине и ограничение Россией поставок природного газа в Европу в качестве ответной реакции усложняют данную стратегию. Пока высокие цены на энергоносители компенсируют России сокращение экспорта энергоресурсов. Но по мере того, как Европа приспосабливается к альтернативным источникам энергии, Россия рискует потерять ценный газовый рынок в Европе в течение трех-четырех лет, при этом не имея простых способов направить высвободившийся газ на другие рынки, когда это произойдет.

Ключевые слова: Владимир Путин, Джо Байден, Иран, нефть, Объединенные Арабские Эмираты (ОАЭ), природный газ, Россия, санкции, Саудовская Аравия, сжиженный природный газ (СПГ), Совет сотрудничества стран Персидского залива (ССАГПЗ), США, энергетика

Introduction: Russia's Economic Dependence on Energy

Russia has been called a house built on hydrocarbons. Less kindly, the late US Senator John McCain once described it as a gas station masquerading as a country.[1]

Obviously, neither comment is strictly fair. As a resource rich country, Russia exports other raw materials, including wheat. With its arable land expanding with global warming, Russia is the world's largest wheat exporter.[2] It is also the world's second largest exporter of arms, with only the US

[1] Burgess Everett, "McCain: Russia is a 'gas station'", *Politico,* 26 March 2014.

[2] See for example: Jeremy Deaton, "Putin is Turning Russia into an Agricultural Powerhouse. Climate Change Could Help", *Nexus Media News,* 10 June 2016. This report quotes a 2011 study reported in *ScienceDaily* (www.sciencedaily.com) that climate change would add more than 400,000 square miles of potential farmland to Russia – an area more than twice the size of California.

surpassing it.[3] Nevertheless, oil and gas are its economic mainstay.

Following the 1991 dissolution of the Soviet Union and its centrally planned and inefficient economy, Russia lurched from crisis to crisis for a decade. Hyperinflation was rampant during the years of Boris Yeltsin's erratic presidency (1991-99), which involved an abrupt shift to a market economy that most Russians were ill-prepared for. Vladimir Putin's accession to the presidency in 2000 saw a degree of stabilisation of the economy due partly to his superior administrative skills but, more importantly, to a fortuitous rise in the global oil price, which dramatically boosted state coffers. Even so, it wasn't until 2007 that Russia's GDP regained its 1990 level.[4]

Energy revenues including oil, petroleum products and gas underpin the Russian state budget, amounting to almost 40% of overall revenue depending on market fluctuations.[5] When energy prices have declined, as they did in 2015-17 following Saudi Arabian oil production increases aimed at hurting Iran, the impact on Russia's budget has been felt immediately in reduced export earnings.[6] Moreover, energy revenues have provided an important economic cushion that enabled Russia to deal with initial Western sanctions imposed in 2014 when Russia annexed Crimea and started supporting pro-Russian separatists in eastern Ukraine.

Oil and gas are also Russia's most important export commodities, representing over 60% of the total value of Russian exports.[7] That makes energy a strategic resource for Russia, which correspondingly requires a clear strategy to manage it.

Russia's Energy Strategy

Russia's energy policies are anchored within its overall strategic focus. A RAND study in 2017[8] found that the Russian government's strategic goals comprised:

- Defence of the nation and the government
- Increasing Russian influence in its near abroad comprised mainly of former Soviet states on Russia's periphery
- Creating conditions that would limit other states' ability to interfere in Russia's domestic affairs
- Strengthening the perception, both globally and domestically, that Russia is a great power
- Political and economic cooperation with other great powers as an equal partner when that serves Russia's interests.

In this context, the Russian administration's formal energy, security and foreign policy statements or doctrines published since 2000 show its growing focus on Russia's resources as a key strategic asset. These documents include:

- The 2003 Energy Strategy of Russia through 2020
- The 2012 Energy Security Doctrine
- The 2015 National Security Concept
- The 2016 Foreign Policy Concept

In May 2019, President Putin issued an Update to Russia's Energy Security Doctrine,[9] replacing the 2012 Doctrine. This reflected the reality that Russia faced significant headwinds in maintaining and expanding its position as a major player in the global energy market as a result of Western sanctions against Russia and growing US pressure on Germany and other European states to abandon the Nord Stream II offshore natural gas pipeline announced in 2015 and planned to run parallel to Nord Stream I from Vyborg, Russia, to Greifswald, Germany.

Germany has now suspended the start of operations of the second pipeline as a consequence of what Russia calls its 'special military operation' in Ukraine begun in February this year.

The subtext of the updated doctrine was that the era of low-hanging fruit in the Russian resources sector such as easily and cheaply extractable energy in relatively warm parts of Russia was over. Exploiting new fields would require greater investment in new technologies in particular the development of indigenous LNG capacity in Russia's harsh northern climate.

The latest planning document is Energy Strategy 2035 (ES-2035),[10] issued in April 2020. It was approved by Prime Minister Mikhail Mishustin, rather than President Putin, suggesting the document is subordinate to the 2019 Update and should be read as explanatory to it. It sets out several largely aspirational objectives to be achieved in this period. These include:

- Modernising Russia's fuel and energy complex (FEC)
- Completion of two LNG clusters in the Yamal and Gyda peninsulas on Russia's northern coastline
- Developing in-country production of hydrogen and helium in order to become a global leader in the hydrogen economy
- Opening up the northern sea route to Asia for year-round export of LNG
- Digital transformation of the FEC including increasing the role of artificial intelligence technology (AI).

[3] Stockholm International Peace Research Institute (SIPRI) Arms Transfer Database. www.sipri.org

[4] "Russia's Economy under Vladimir Putin, Achievements and Failures", RIA Novosti, 1 March 2008.

[5] Russian Finance Ministry, quoted in *RussiaMatters,* Belfer Center for Science and International Affairs, Harvard Kennedy School, www.russiamatters.org . See also OECD, "Inventory of Support Measures for Fossil Fuels: Country Note. Russian Federation", 13 January 2022 www.oecd.org/fossil-fuels/.

[6] Paul Roderick Gregory, "A Russian Crisis with no End in Sight, Thanks to Low Oil Prices and Sanctions", *Forbes,* 14 May 2015.

[7] OECD, "Fossil Fuel Support. Country Note. Russian Federation", www.oecd.org/fossil-fuels/.

[8] Andrew Radin, Clint Reach, "Russian Views of the International Order", RAND *Research Report* RR-1826-0SD, 2017.

[9] Government of the Russian Federation, Update to Energy Security Doctrine of the Russian Federation, adopted by Executive Order of the President of the Russian Federation, 13 May 2019.

[10] Ministry of Energy of the Russian Federation, https://minenergo.gov.ru/node/1026.

The document has been criticised by many including by a leading energy expert within Russia for its vagueness and lack of solutions to the challenges identified.[11]

Russia's Tilt to the Asian Energy Market

What is evident in the documents published in the past decade is the Putin administration's realisation that Russian energy exports to China and the rest of Asia are significantly underdeveloped. The BP Statistical Review of World Energy, published in June 2019[12] starkly set out the problem Russia needed to address in its 2019 Update. These statistics are drawn on those published that year because those from the two subsequent years were distorted by the impact of Covid-19:

In 2018, 34 percent of Russian oil exports went to Asia. These were mainly to China, but this amounted to only 8 percent of total Asian oil imports.

- In 2018, 16.2 percent of Russia's export of petroleum products went to Asia, but this was only 6 percent of the region's total imports of these products.
- The role of Russian natural gas in Asia was minor, despite the fact that Russia has nearly 20 percent of global reserves of natural gas. Asian gas consumption at 825 billion cubic metres (bcm) per year is huge – almost twice as high as Russia's domestic consumption. However, in 2018 Russia supplied only 2 percent of this demand (17.2 bcm) through LNG from a relatively small production facility in Sakhalin off Russia's Pacific coast.

Increased Russian access to the Asian market would serve several strategic goals:

- Reduce Russian dependence on the European energy market, which, apart from sanctioning Russia, is looking to decrease its fossil fuel use and increase reliance on green energy solutions
- Reduce Russia's exposure to EU regulatory, market and economic power
- Encourage Asian energy partners to become involved in investment and risk-sharing in developing Russia's energy resources
- That in turn would reduce Russian need for funding and technology transfer from the US and other Western states, which is a shift now even more important to Russia as a result of sanctions.

Another important element in the Asian energy equation is that Asian energy markets are expected to grow faster than their European counterparts in coming years. A bonus from Russia's perspective is that Asian policymakers are expected to be less prone to influence from climate concerns in designing and implementing their energy policies.

Such energy planning should be seen in the context of Russia's broader strategy in the Asian setting and in relation to its wider foreign policy goals. As Russia scholar Bobo Lo has convincingly argued, this is to build strategic partnerships with a number of countries in Asia, which in turn will strengthen multipolarity of the global system, thus diluting US influence in global affairs.[13]

In that context, South Korea in the past decade has been an important economic partner and supplier of some technological solutions that are important for Russian access to the Asian market. It has been building for Russia a fleet of ice-class LNG tankers to serve Russian Arctic LNG terminals in the Yamal Peninsula region, thus facilitating year-long export of Russian LNG along the northern sea route to Asia. That sale is likely now blocked by Western sanctions imposed on Russia this year, which South Korea has undertaken to observe. This development could seriously delay the Yamal project.[14]

Japan is another important market for Russian oil and gas. It imports 7% of its oil and 10% of its LNG from Russia, which is the bulk of gas from the LNG facility in Sakhalin.[15] For now, Japan will follow the Europeans in continuing its energy arrangement with Russia, but Russian-Japanese relations are limited by the still-unresolved Kuril Islands dispute. A further issue is that the Tokyo government is a staunch supporter of the US presence in Asia because Japan is dependent on the US for protection against North Korea and China. Japan will thus be vulnerable to additional US pressure to limit economic ties with Russia.

China is undoubtedly Russia's most important strategic Asian partner in terms of President Putin's geostrategic aims, with China given additional prominence by their 'no limits' partnership agreement in February this year. China is also the most promising market for Russian energy exports and a potential partner in developing Russian hydrocarbon resources.

China, as the world's largest gas importer, had LNG imports of 93 bcm and pipeline gas imports of 48 bcm in 2020 – totalling 141 bcm, according to a Forbes analysis.[16] That's about a fifth of overall Asian gas demand. Moreover, China's gas demand is expected to grow by 5.5% per annum until 2030 and could reach 660 bcm by 2050, particularly as gas fits into China's strategies to diversify its coal-dominated energy mix and pursuit of lower-carbon development.[17]

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[11] "Interview with Dr Mikhail Krutikhin", ENERPO *Journal,* Vol 9 / Issue 1 / July 2021; see also Sergey Sukhankin, "Russia's Energy Strategy 2035: A Breakthrough or Another Impasse?", *Eurasia Daily Monitor,* The Jamestown Foundation, 2 June 2020.

[12] BP, Statistical Review of World Energy, June 2019.

[13] Bobo Lo, Russia and the *New World Disorder,* (London, Chatham House, 2015), p. 135.

[14] Heiner Kubny, "Is it Getting Dark Around Russia's Gas Ambitions?", *Polar Journal,* 8 April 2022; see also Jung Min-hee, "South Korean Shipbuilders Exposed to Russia-related Risks", *Business Korea,* 26 July 2022.

[15] Minami, Ryo (2016), "Energy Relationship between Japan and Russia", Paper presented to 7th Japan-Russia Energy and Environment Dialogue in Niigata. Minami at the time was Director, Petroleum and Natural Gas Division, Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry, Japan.

[16] "The future of China's gas demand", *Forbes,* 22 September 2021.

[17] *Ibid.*

Russia covets a major share of this market. Its natural gas exports potentially received a significant boost when the 'Power of Siberia' pipeline supplying gas from central Russia to China came on stream in late 2019. The capacity of the pipeline is 38 bcm per year, which is planned to be boosted by a further 50 bcm when a second pipeline, 'Power of Siberia 2', is completed by 2031.[18] However, flow through the 'Power of Siberia 1' pipeline is growing slowly and was only 3.84 bcm in 2020, according to Gazprom figures.[19] Gazprom has said this flow increased in 2021 but at time of writing had not announced a figure for that year.

A Moscow-based energy analyst, Mikhail Krutikhin, has cast doubt on the viability of the 'Power of Siberia' pipeline projects. He claims the gas is being sold to China at below cost, reducing Gazprom's commercial incentive to supply gas to China through it. Rather, the purpose of the project is political in order to support Russia's ambition in boosting political and economic ties with China. An additional purpose, according to the analyst, is to benefit Russian oligarch interests associated with construction of the project. He quotes Chinese sources as doubting that the 38 bcm pipeline capacity will be reached by 2025, which would lead China to charge Gazprom penalties for failure to fulfil contractual obligations.[20]

These may be temporary setbacks. The bottom line is that full exploitation of the Asian gas market potential will require significant expansion of Russia's LNG capacity and opening up its Arctic gas fields.

Arctic LNG

Russia's Energy Ministry estimates total gas in Russia's Arctic region at about 210 trillion cubic metres, which is over 70% of Russia's total natural gas reserves.[21] Russia's problem is that these resources, mainly off the Yamal Peninsula, are more than 5,000 km away from key markets in Asia. Constructing a pipeline would be hugely expensive[22] and would obviously take time, given the harsh terrain. So, Russia's optimal solution is to convert the gas to LNG and invest in extensive LNG shipping capacity to convey the gas eastwards along its northern coast to the Pacific and then to Asian importers. As a consequence of warming global temperatures, Russia was planning in 2021 to begin year-round shipping via its northern sea route within the following two years.[23] A nuclear-powered ice breaker was reported this year to have led the passage of a non-ice breaker LNG vessel though the northern sea route in the early northern summer.[24] That's a start, but the overall project has been planned with the South Korean ice-class tankers, now unavailable because of sanctions.

The freezing Yamal environment, with gas needing to be extracted in temperatures as low as minus 56 degrees Celsius, requires special techniques for infrastructure construction in permafrost areas. The other side of this coin is that the location has a competitive advantage compared with less frozen environments: the lower temperatures make LNG conversion costs cheaper because less energy is needed to chill the gas.

The Russian energy company Novatek, the main shareholder in the Yamal LNG project, claims Russia can be the world's fourth largest LNG exporter – after the US, Qatar and Australia – by 2030.[25] However, Russia can't finance this development by itself. It needs external partners. With Western investors barred by sanctions, this is where the Gulf Arab states come in.

Russia and the Gulf

Russian-Gulf relations have developed gradually over the past 30 years. In the 1990s, with the Soviet intervention in Afghanistan, which had spurred Gulf Arab states to finance the anti-Soviet mujahidin, ended and the Soviet Union with its doctrinal atheism consigned to history, Moscow sought to reach out to Gulf Arab oil states. Russian hopes they would invest in Russia were initially disappointed. Unsurprisingly, Gulf Arab states were deterred by Russia's political instability and lack of a clear legal framework.

There was consequently little cooperation between Russia and OPEC. Saudi Arabia, the dominant OPEC member, had different priorities to Russia's. The Saudi aim was to maintain oil prices, and it could afford to reduce production and exports to achieve this. Russia's economic difficulties after the Soviet collapse meant it could not afford to restrict production. So, Russia and OPEC often competed for markets, and their production and pricing policies did not always align.

Differences in economic priorities were periodically exacerbated by political tensions. Saudi Arabia and other Gulf Arab states, along with private Gulf sponsors, were reported to have funded Islamist groups in Russia's volatile north Caucasus. According to a US State Department estimate, between 1997 and 1999 'charitable' organisations based in the Gulf Arab states allocated more than $100 million to support Chechen separatists.[26]

As the 2000s progressed, these tensions moderated at the governmental level. In particular, the Saudi monarchy showed restraint on the Chechen issue and declared it would not interfere in Russia's internal affairs. This was later reciprocated by Russian actions such as its refusal to join international criticism of Saudi Crown Prince Mohammad bin Salman (MBS) over the murder of Saudi journalist Jamal Khashoggi in 2018.

[18] "New Route, New Strategic Opportunities", www.ihsmarkit.com, 16 July 2020.

[19] "Power of Siberia's First Year: Reliable Operation, Increased Supplies, Above-target Amounts", Gazprom media release, 2 December 2020.

[20] "Interview with Dr Mikhail Krutikhin", *ENERPO Journal,* Vol 9 / Issue 1 / July 2021.

[21] "Russia Eyes Greater Energy Dominance with Arctic LNG Push", *Moscow Times,* 8 April 2019.

[22] Dr Mikhail Krutikhin estimates the cost at $100 billion: "Interview with Dr Mikhail Krutikhin", op cit.

[23] "Russia is Planning for Year-round Shipping on the Northern Sea Route by 2022 or 2023", *High North News,* 12 October 2021 www.highnorthnews.com.

[24] Atle Staalesen, "As Russia Turns Towards Asia, this Year's First Vessel Heads East on Northern Sea Route", *The Barents Observer,* 17 June 2022.

[25] "Russia Eyes Greater Energy Dominance with Arctic LNG Push", *Moscow Times,* 8 April 2019.

[26] Alexey Vasiliev, *Russia's Middle East Policy – From Lenin to Putin,* (New York, Routledge, 2018) – accessed via Kindle.

A further potential source of friction has been that Russia's Middle East strategy under President Putin has involved cultivating relations with all parties in the Middle East, rather than taking sides. That does not mean Russia has a grand strategy in the Middle East, but rather it has a developing, and frankly opportunistic, one.[27]

The Russian President has good personal relations with leaders of all major states in the Middle East: Israeli, Turkish and Iranian, as well as Arab. That's a significant achievement, but the corollary is that Russia has difficulty in being a best friend of any of them apart from Syria and Iran, which the rest of Middle East regard in pariah terms. Even the Russian-Iranian relationship has its frictions despite their common interest in ensuring Syrian President Bashar al-Assad's survival. I argue in a separate analysis that the Moscow-Tehran relationship is tactical on Russia's part, despite Iranian interest in making it a strategic one.[28]

For the most part, the Gulf Arab states have remained loyal to the US as their major external partner, but there have been periods of coolness:

- In the aftermath of the 9/11 attacks, in which Saudi nationals were involved
- As a result of the US's poor handling of the Iraq war
- During the presidency of Barak Obama from 2009 to 2017, whom the Saudis and other Arab states found carping and intrusive in relation to human rights
- Following the Iranian nuclear deal (Joint Comprehensive Plan of Action) in 2015, which Riyadh in particular feared might presage US accommodation with Tehran at Saudi expense.

All this gave Saudi Arabia and other Gulf Arab states reason to be receptive to President Putin's outreach to them during Obama's presidency although the Russian leader seemed to understand that their friendliness towards him was at least in part a tactic to prod Washington to pay greater attention to their concerns.[29] Riyadh has accepted Russia's attempts to get closer to the global Muslim community, even agreeing to Russia being granted observer status at the Organisation of Islamic Cooperation (OIC), which is comprised of 57 states and regarded as the primary collective voice of the Islamic world.

Saudi irritation over closer Russia-Israel ties has eased in recent years because Saudi Arabia and Israel have a similar interest in opposing Iran. Russia's closeness to Iran is potentially a plus for GCC states, as that provides opportunities for Russia to mediate between Tehran and its regional opponents – something the US cannot do. One known example of Russian activity in this regard has been to soothe frictions between Israel and Iran in Syria.[30] Additionally, President Putin sensibly avoided taking sides in the dispute between Saudi Arabia, the UAE, Bahrain and Egypt on the one hand and Qatar on the other from 2017 to 2021.

These developing ties have been boosted by regular reciprocal visits between senior Gulf Arab and Russian government figures. That included a 2017 visit to Moscow by Saudi King Salman (who rarely travels abroad), with President Putin visiting Riyadh and Abu Dhabi in October 2019. In July this year, Putin made a rare visit to Tehran to meet Iran's President Raisi and Turkish President Erdogan. Both are being helpful to Russia in different ways over the Ukraine conflict with Iran promising to supply drones to Russia, and Turkey, though a NATO member, refusing to join Western sanctions on Russia.

Cooperation on Oil and Gas Beyond OPEC+

Russian-Gulf energy relations are driven by a common interest in monetising the value of their oil and gas resources in a world that increasingly privileges low-carbon energy.[31] Importantly, hydrocarbon revenues sustain prosperity and social peace in Russia and the Gulf states and, in theory, underwrite economic diversification programs in these countries for a post-hydrocarbon era.

Obviously, Russia and the Gulf states are competitors in the global resources market. In particular, both sides recognise the huge and growing importance of Asian energy needs. At the same time, they understand that growth in global energy sources, including from renewables and US fracking, potentially reduces international demand for Russian and Gulf hydrocarbon exports.[32] They accordingly risk being played off against each other, and against the US, by China and other major energy importers. Russia and Gulf energy producers therefore have an obvious interest in cooperation in order to manage production and pricing levels to their mutual advantage. Can they do it?

Saudi Arabia is reported to have asked Russia several times to join OPEC. Russia has always declined, though it has accepted observer status. Igor Sechin, CEO of Russia's primary oil conglomerate, Rosneft, said in 2015 that Moscow's reason for not joining the cartel was that Russia's oil industry was largely privatised. That meant that its oil companies were not strictly under Russian government control. Accordingly, the government could not ratchet oil production up and down as OPEC might direct.[33]

[27] This argument is set out in detail by Dmitri Trenin, *What is Russia up to in the Middle East?* (Cambridge, Polity Press, 2018) 134.

[28] I set this out in detail in a presentation to the Biennial Conference of the Australasian Association for Communist and Post-Communist Studies, at Griffith University, Brisbane, in January 2019. See Ian Parmeter, "Russia's Growing Relationship with Iran: Strategic or Tactical?", in *30 Years After the Fall of the Berlin Wall: Trends and the Current State of Communism and Post-Communism in Europe and Asia,* ed. Alexandr Akimov and Gennadi Kazakevitch, (Singapore, Springer, 2020), 139-150.

[29] This was a comment made to the author by several Russian academics and journalists at meetings with the author in Moscow in September-October 2015.

[30] "Russia Reassures Israel over Iranian Presence in Syria – Report", *Times of Israel,* 12 September 2017.

[31] This common interest is set out in detail by Li-Chen Sim, "Moscow's New Strategy in the Gulf", www.AboutEnergy.com, 27 August 2019.

[32] As set out in the 2019 Update to Energy Security Doctrine of the Russian Federation, noted above.

[33] Rich Smith, "Why isn't Russia Part of OPEC?", The Motley Fool, 29 March 2017.

That argument seems specious, as the Russian administration has not hesitated to intervene in the affairs of Russian oil companies when that has suited it such as when it directed that the Yukos oil company be sold in 2004 to pay for an alleged tax debt, enabling Yukos to be eventually taken over by Rosneft. The real reason for Russia's not joining OPEC is probably that Russia sees itself as a superpower comparable to the US and will stay out of the cartel while the US does. This is in line with a comment by President Putin in 2007 that Russia is a great power and has always been 'privileged to carry out an independent foreign policy'.[34] Moreover, given the importance of petroleum-related revenues to the Russian state budget making oil and gas earnings critical to funding the Russian military, Moscow would not want to put national security in the hands of an external committee.

That said, in the past decade, Russia has increasingly coordinated oil policy with OPEC. The trigger for Moscow's more hands-on approach to oil price management appears to have been Saudi Arabia's production boost in 2014, noted above. The global oil price plummeted from $93 per barrel that year to $48 in 2015. Russia's economy suffered substantial collateral damage, with GDP growth falling by 3.7 percent in 2015, according to World Bank data.[35]

In October 2016, Russia played a key role in brokering a joint agreement by OPEC and non-OPEC producers to reduce oil production by 1.8 mbd – the OPEC+ arrangement. That agreement boosted the global oil price to $71 in January 2020, just before Covid-19 struck.[36] An indication of how important this agreement is to Russia is that Putin phoned MBS after drone attacks on Saudi oil facilities in September 2019, generally attributed to Iran, to assure him that Russia would not take advantage of the temporary reduction in Saudi oil processing capacity to boost Russia's exports.[37]

In relation to gas, Russia helped establish and has promoted cooperation within the Gas Exporting Countries Forum (GECF), which is comprised of 11 of the world's leading natural gas producers: Algeria, Bolivia, Egypt, Equatorial Guinea, Iran, Libya, Nigeria, Qatar, Russia, Trinidad and Tobago, and Venezuela. Established in 2001, the GECF has its Executive Office and a Secretariat in Doha. The aim of the GECF is to foster the concept of mutuality of interests by favouring dialogue among producers, between producers and consumers, and between governments and energy-related industries, thereby ensuring a stable gas market. Russia seems to have hoped that this would become a 'gas OPEC',[38] but the GECF has remained a consultative forum and does not seek to regulate production and prices.

On broad energy issues, Russia and Saudi Arabia compete vigorously for the China oil import market. In 2016, Russia replaced Saudi Arabia as China's top oil supplier, thanks to construction of an oil pipeline to China and an oil-for-loans arrangement.[39] To regain its former supremacy, Saudi Arabia started a program of acquiring stakes in China's privately owned refineries that had been purchasing Russian crude. Riyadh's obvious aim was to switch them to Saudi oil. By 2020, Saudi Arabia was marginally ahead of Russia in the China oil import market, supplying 15.9% of China's demand compared with 15.5% provided by Russia. That changed this year as Western states sanctioned Russia.[40] China helpfully ramped up its crude oil imports from Russia to 8.42 million tons in May, a 55% rise from a year ago, putting its Russian imports well ahead of Saudi Arabia's. China's motive was not entirely altruistic, as it was also taking advantage of Russian discounts aimed at boosting oil sales to compensate for Western sanctions.[41]

Attracting Investment

In terms of financial cooperation, Saudi Arabia has been reported to be considering purchasing a stake in Russia's Arctic LNG-2 plant in Yamal.[42] This reflects Saudi analysis that gas-fired power plants will increasingly become the preferred baseload source of power globally because they are able to quickly balance out variable output from renewable energy sources – solar and wind.[43] But at time of writing nothing definite about a Saudi stake has been announced.

Moscow has had some success in attracting other Gulf Arab investment into Russian energy projects. In 2018, Abu Dhabi's sovereign wealth fund purchased a 44 percent stake in Russia's Gazpromneft-Vostok, Gazprom's eastern Russia subsidiary.[44] For Abu Dhabi, the attractiveness of the investment is that some of the fields owned by Gazpromneft-Vostok feed into the east Siberian pipeline that delivers oil to China.

In 2017, the Qatar Investment Authority, Qatar's sovereign wealth fund, bought 19 percent of Rosneft's privatisation portfolio – a major investment of $11.3 billion. The purchase is for upstream projects such as the development of new underground and underwater energy sources, logistics and global trading in the energy sector.[45]

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[34] Vasiliev, Russia's *Middle East Policy.*

[35] "Russia Economic Report 35: The Long Road to Recovery", *World Bank* www.worldbank.org.

[36] Crude Oil Prices – 70 Year Historical Chart, www.MacroTrends.net.

[37] Alexey Khlebnikov, "What Does the Saudi Oil Facility Attack Mean for Russia?", *Middle East International,* 24 September 2019, www.mei.edu.

[38] "Gas-OPEC: a Distraction from Important Issues of Russian Gas Supply to Europe", *Oxford Energy Comment,* Oxford Institute for Energy Studies, February 2007.

[39] "Russia Now Biggest Crude Supplier to China", *The Maritime Executive,* 14 November 2017.

[40] "Top 15 Crude Oil Suppliers to China", World's Top Exports, July 2021, www.worldstopexports.com; "Saudi Arabia Shifts Strategy in China to Boost Oil Sales", *Reuters,* 14 March 2019.

[41] "Sanctioned Russia Becomes China's Main Source of Oil, Customs Data Show", *Agence France-Presse,* 23 June 2022.

[42] "Saudi Arabia is the Dark Horse in Race for Arctic Natural Gas Riches", *Radio Canada International,* quoted in *Eye on the Arctic,* 13 May 2019.

[43] Saudi Aramco CEO Amin Nasser, quoted in "Middle East Gas Outlook Could be Lift for US LNG Developers", *S&P Global Market Intelligence,* 2 March 2021.

[44] "Mubadala, RDIF Acquire Stake in Gazpromneft-Vostok to Develop Siberian Oil Fields", *NS Energy,* 6 September 2018.

[45] Theodore Karasik, "Why is Qatar Investing So Much in Russia?", *Middle East International,* 8 March 2017.

Russia's Energy Strategy under Sanctions

The impact of sanctions on Russia's economy is difficult to gauge with accuracy. Published Russian statistics including those relating to exports and imports, capital inflows and outflows, and financial statements of major companies appear to be selective.[46] Also, under the guidance of Elvira Nabiullina, the astute head of Russia's Central Bank, the rouble has remained firm. She has done this through stratagems that have included requiring European importers of Russian energy products to pay in roubles and capital controls that make it effectively impossible for Russians to purchase dollars legally.

With oil and gas prices inflated by reduced supply as a result of sanctions, Russia has been able to sell oil at a discount to willing buyers such as China and India while still apparently making significant profits on production costs. Moreover, in reaction to sanctions, Russia has restricted supply of gas to Europe, with gas prices soaring in consequence and again with apparent benefit to Russia's economic bottom line. Overall, in the six months since the start of the Ukraine conflict in February this year, about $1 billion per day has reportedly been flowing into Russia from its energy sales according to various estimates.[47]

The July World Economic Outlook Update published by the IMF provides an independent account of the state of Russia's economy. It notes that Russia's performance has not been as dire as the IMF[48] forecast in April – a GDP contraction of 8.5% in 2022 – but assesses that growth will still decline by 6% this year and by 3.5% in 2023. The Economist Intelligence Unit (EIU) is more pessimistic.[49] It acknowledges that the Russian economy held up 'surprisingly well' at first against Western sanctions, but estimates that by the end of 2022 it will have suffered a 10% contraction. By comparison, the EIU notes that Ukraine's economy is expected to perform far worse with a decline of 45% this year, unsurprisingly given the devastation there according to World Bank estimates.

This pain is obviously shared across all the major economies and not only because of the Ukraine conflict but also the downturn in China, reflecting Covid-19 outbreaks and lockdowns, and higher than expected inflation worldwide, especially in the US and Europe. The IMF expects world output to slow from 6.1% in 2021 to 3.2% this year.[50] However, Russia will be the only G20 country experiencing negative growth, with all other advanced economies, though suffering in varying degrees, still in positive growth territory, according to the IMF.

However, the geopolitics of energy are complex. Whether or not the IMF forecasts prove accurate, Russia clearly has a strong hand in the short term. That said, its position appears likely to worsen dramatically over the next three years, according to separate analyses by Gideon Rachman, chief foreign affairs commentator of the Financial Times newspaper (London), and US-based energy analyst Andrian Prokip.[51]

The EU has the biggest short- and medium-term problems. The Europeans are seeking to reduce their current dependence on Russian oil and gas, but they are still a long way from finding a viable alternative energy strategy.

The US by contrast is in a much more comfortable position. Higher energy prices cause pain for American consumers, but they suit the US shale gas industry. With global natural gas prices rising, US shale projects have increased in 2022[52] – putting more energy supplies on the domestic and international market if shale producers assess higher returns will be maintained.

However, US production alone cannot protect US consumers from rising energy prices. They get angry when petrol prices rise, so US governments of whatever persuasion have strong reasons to take action to get more and cheaper energy on the domestic market. Washington also seeks to get more oil on the global market to maintain Western unity against Russia.

That has produced some unusual twists in US foreign policy. Washington wants to isolate not only Russia but other oil suppliers such as Iran and Venezuela. Hence, US President Biden's humiliating fist bump with Saudi Arabia's previously ostracised Crown Prince Mohammed bin Salman during Biden's visit in July to try to persuade Riyadh to raise its oil production beyond the quota agreed with Russia in the OPEC+ forum. Indications so far are that Riyadh is likely to prioritise agreement within the OPEC+ forum over US interests, which means accepting Russia's preference to hold back supply. The OPEC+ meeting in August this year agreed to raise its overall oil output goal by only 100,000 barrels per day.[53]

Hard Choices

Russia and the EU are thus in a race against time.

For the Europeans, replacing Russian oil is relatively easy as oil is readily traded internationally. The EU has already announced plans to refuse by the end of this year 90% of the oil it imported from Russia before sanctions were imposed at the start of the Ukraine crisis.[54]

Replacing Russian gas is far more complex. In 2021, Russia earned $246 billion from supplying energy to Europe,

[46] See claims by Yale University academics Jeffrey Sonnenfeld and Steven Tian, "Actually, the Russian Economy is Imploding", *Foreign Policy,* 22 July 2022; and their detailed analysis "Business Retreats and Sanctions are Crippling the Russian Economy", *Social Science Research Network,* 20 July 2022, www.ssrn.com (SSRN is an online repository for uploading preprint articles and working papers.).

[47] See for example "G7 Resists Going after $1bn a Day Russian Energy Revenue", NikkeiAsia, 8 April 2022.

[48] International Monetary Fund, "World Economic Outlook Update: Gloomy and More Uncertain", July 2022.

[49] See "By How Much Will the War in Ukraine Reduce Global Growth?: Economists Have Slashed this Year's Forecasts", *The Economist,* 4 August 2022.

[50] IMF, "World Economic Outlook".

[51] Gideon Rachman, "Why the US Could be the Real Winner in the Energy Wars", *Financial Times,* 27 June 2022; Andrian Prokip, "Russia's Energy Future", *Wilson Quarterly,* Summer 2022.

[52] "US Natgas Output, Demand to Hit Record Highs in 2022 – EIA", *Reuters,* 12 July 2022.

[53] "OPEC+ Agrees Tiny Output Rise in Setback for Biden", *Reuters,* 4 August 2022.

[54] "EU to Ban Almost 90% of Russian Oil Imports by 2023 – Ursula von der Leyen", *BBC News,* 31 May 2022.

accounting for about half of total Russian export earnings of $492 billion. Over the period 2018-2021 Russia accounted for 40% to 54% of Europe's gas imports, making it the biggest gas exporter to the continent.[55] For Europe's governments, finding alternative sources of gas is not a quick or simple task given this massive dependence. TurkStream, the pipeline for Russian gas under the Black Sea, is unaffected by EU sanctions, which as noted above Turkey does not observe. However, it pumps gas exclusively to Turkey, Serbia and Hungary, which are friendly towards Russia and regard Russian gas as vital to their economies.[56]

The Russian goal is clearly to engineer an energy crisis in Europe over the 2022-23 northern winter, which well could weaken Europeans' support for Ukraine. In particular, Russia wants to prevent the Europeans building up sufficient reserves of gas to cover their expected winter demand as demonstrated by Moscow's tactic of halting or reducing supply through Nord Stream at little or no notice. The IMF's July Update estimates that Russian gas flow to Europe has declined sharply this year to about 40% of the level a year ago.[57] With more recent halts in Russian gas supply, that percentage could be even lower now.

European states dependent on Russian gas through the Nord Stream 1 pipeline are looking to import liquified natural gas (LNG) from non-Russian sources to make up the shortfall, but they will need time – probably into or beyond winter – to develop or get in place via floating platforms facilities to regasify LNG. Other major LNG exporters, such as Qatar and Australia, have supply commitments to existing customers and are not capable of increasing production and exports quickly enough to be able to replace volumes supplied by Russia.[58]

European governments also hope to ease the energy crunch by resorting to previously downgraded fuel sources. Germany is reopening closed coal plants and considering reneging on its plans to abandon nuclear energy. Pro-environmental groups in Europe can be expected to lobby hard against these measures if they mean promises by most Europeans at last year's Glasgow climate summit to reach net zero carbon emissions by 2050 are put back. However, the German and broader European public can be expected to prioritise getting through the coming northern winter with minimal discomfort.

Whatever happens this winter, Europeans have already learnt a hard lesson about the danger of energy dependence on Russia and are determined never to be as vulnerable again. Rachman quotes a senior German official as saying that before the Ukraine conflict, Russia could have expected 30 more years of oil and gas revenues from European consumers. Now, according to the official, Russia is looking at three years. Prokip estimates this period at two to four years.[59]

Russia's alternative is to redirect its gas exports to Asia, but that is not a short-term project. Russia is the largest global natural gas exporter, and the second largest exporter of crude and oil products after Saudi Arabia.[60] Russia can find alternative markets for its oil relatively easily as shown by India's and China's eagerness to increase their imports of discounted Russian oil. Conversely, Russia's gas exports are overwhelmingly by pipeline and pipeline exports amounted to 199.7 bcm compared with 40 bcm of liquified natural gas (LNG) in 2021.[61]

Russia's problem is that its major pipelines head towards Europe. Constructing new pipelines to eastern markets and developing increased LNG capacity will take years. The latter difficulty is exacerbated by the need for technology previously provided by Western energy companies that now barred by sanctions to develop LNG facilities in Russia's major sources of gas in its Arctic north. Once Europe develops alternative gas supplies, Russia could face several years without the means to send its gas to other markets. That would be a huge setback to Russia's economy given the major role of gas exports.

The stakes are high. The Europeans and Russia face difficult choices.

Ian Parmeter

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[55] Prokip, "Russia's Energy Future".

[56] "Russian Gas Supplies to EU Drop via All Routes, Except TurkStream", *EURACTIV News,* 18 July 2022 www.euractiv.com; see also "Serbia Ignores EU Sanctions, Secures Gas Deal with Putin", *Voice of America,* 29 May 2022, www.voanews.com and "Hungary's Orban Says EU Sanctions on Russia Have Failed", Al Jazeera, 23 July 2022, www.aljazeera.com.

[57] International Monetary Fund, "World Economic Outlook".

[58] "Qatar Says 'Amost Impossible' to Quickly Replace Russian Supplies to Europe", *Reuters,* 22 February 2022; "Australian LNG won't Fix Europe's Gas Crisis", *The Strategist,* Australian Strategic Policy Institute, 24 March 2022.

[59] Rachman, *op cit.;* Prokip, op cit.

[60] See "Global Gas Exporting Countries 2021", www.statista.com; and "Crude Oil Exports by Country", www.worldstopexports.com.

[61] Prokip, "Russia's Energy Future".

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DANISH CLIMATE ACT: A FAR-FETCHED DREAM OR A REAL POSSIBILITY?

Maria V. Osipenkova and Olga S. Shchiliaeva

Abstract:

The issue of energy transition has become pressing in the modern world. The Danish government decided to take a drastic step by passing their ambitious Climate Act in 2020. Although the contents of the act may seem rather unrealistic at first glance, there are several features indicating that Denmark has the potential to succeed at this enterprise.

Keywords: CO_2 emission, decarbonisation, Denmark, power engineering

Датский закон о климате: недостижимая мечта или реальная возможность?

Аннотация: Вопрос энергетического перехода стоит особенно остро в современном мире. Правительство Дании не побоялось сделать решительный шаг и в 2020 утвердило амбициозный Закон о климате. Хотя конечная цель может показаться несколько нереалистичной, существует ряд факторов, указывающих на потенциальный успех этого датского проекта.

Ключевые слова: выбросы CO_2, Дания, декарбонизация, энергетика

The Danish Climate Act, passed in 2020, commits current and future governments to reach the enshrined level of economic decarbonisation. In the first of the Act's five chapters, the main goal is stated as follows: Denmark must reduce greenhouse gas emissions by 70% by 2030 compared to 1990 levels and become a climate-neutral society by 2050. Compared to the EU-wide target of at least 40% cuts in greenhouse gas emissions, the Danish figure is very ambitious.

The Act establishes the following principles:

- Denmark has a leading role in the global energy transition.
- Denmark must show that a 'green transition' is possible without compromising the well-being of society.
- The measures used to reduce greenhouse gas emissions should lead to real reductions in emissions within the country and it must not be allowed to simply move all greenhouse gas emissions outside Denmark.

The Act gives the authority to a special Climate Council *(Klimarådet)* to take responsibility for approving national climate goals, putting forward annual proposals for adjusting the current climate situation and evaluating how government actions contribute to the achievement of the main goal.[1] The Council has been operating since 2015, although with the Climate Act having been passed, the Council plays an essential role in reaching the stated number of reductions.

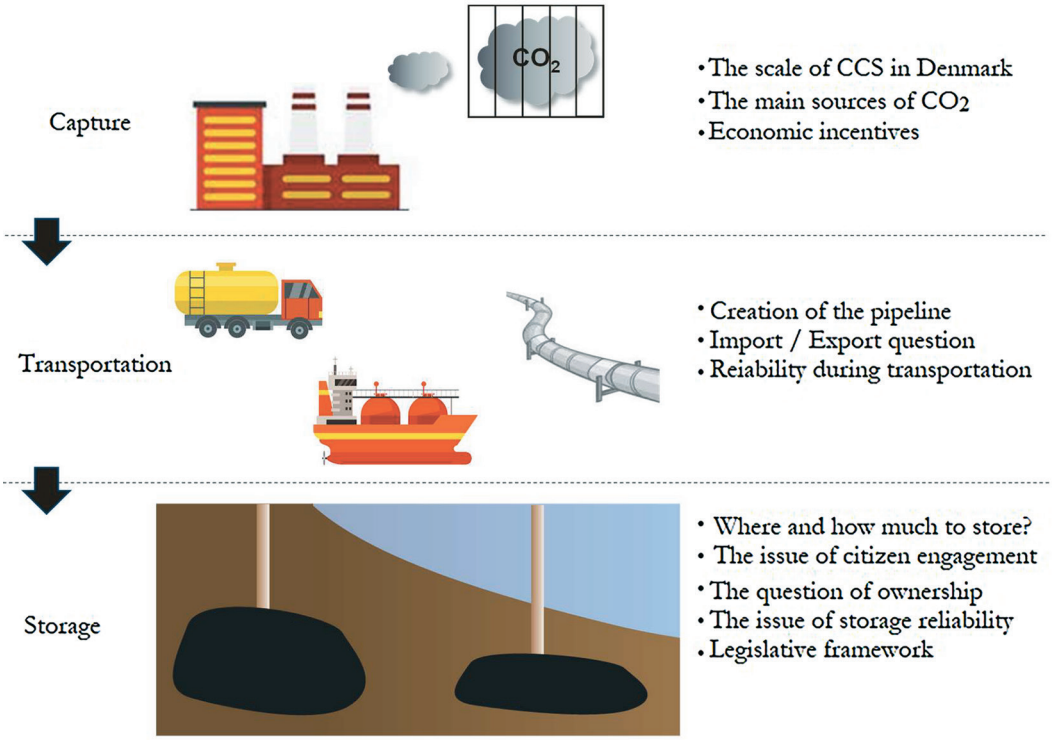
According to the act, a *handlepligt* (Danish 'duty to act') is set for the government if it is less likely to comply with the requirements. This means that the Climate Council has the right to urge the government to take more active steps so that the goal can be achieved. Thus, by passing the Act, Denmark has made it legally binding for the government to achieve the unprecedented percentage of emission reductions,[2] although the vague term *handlepligt* and the absence of clarity on the consequences of not achieving the goal could be considered the weakest spot of the Act.

The government proposes a 2025 reduction target of 46-50%, which is set as an indicative interval, not as a fixed goal. This is the first link in the five-year mechanism established by the Climate Act. In this scenario, 46% indicates the level of reduction currently considered realistic to achieve in 2025, while 50% is proposed to encourage striving for better results.

[1] Retsinformation, arkiv. [online, in Danish] Available at: https://www.retsinformation.dk/eli/lta/2020/965.

[2] Information, 2020. Ét enkelt ord i klimaloven kan skabe politisk storkonflikt: »Handlepligt«. [online, in Danish] Available at: https://www.information.dk/indland/2020/09/enkelt-ord-klimaloven-kan-skabe-politisk-storkonflikt-handlepligt.

Figure 1.
Important Aspects that the CSS Strategy Should Involve [Translated from Danish by the Authors]
Danmarks nationale og globale klimaindsats, 2021



Source: *Klimarådet. Statusrapport.*

The scheme introduced by the Act appears to be viable and quite effective. The strategy of annual planning and evaluation has already proved its utility by having outlined some substantial weaknesses of the government's plan of 2021, such as relying too much on untested new technologies while lacking coordination with respect to more realistic ways of reduction.[3]

Achieving the 70% target and considering the basic principles of the Act requires more funds ready to be implemented than what is available today. According to the Climate Committee, measures available and tested could only lead Denmark to a reduction of up to 60% by 2030. The remaining 10% must be achieved through new and developing technologies. For this reason, the government, along with a wide range of parliamentary parties, has decided to invest in the development of technologies that can provide a larger reduction in the long term. This includes allocating approximately 16 billion Danish krones (more than 2 billion EUR) to reduce CO_2 emissions through carbon capture, use and storage (CCS), and approximately 1 billion krones (more than 134 million EUR) for the development of Power-to-X (PtX) technology.[4] According to the Climate Committee, the development and implementation of these novelties must be a priority due to their great potential and understudied state. As expensive as these technologies may be, a wealthy country with a stable economy such as Denmark appears to be able to pioneer in the area.

CCS in particular is a technology that appears to be one of the most promising solutions in Denmark's strategy to reduce emissions. The abbreviation denotes a process that includes the separation of CO_2 from industrial and energy sources, transportation to a storage site and long-term isolation from the atmosphere. Typically, CO_2 is captured at a large source of gas emissions, such as a cement plant or a biomass power plant and trapped in a suitable geological formation.

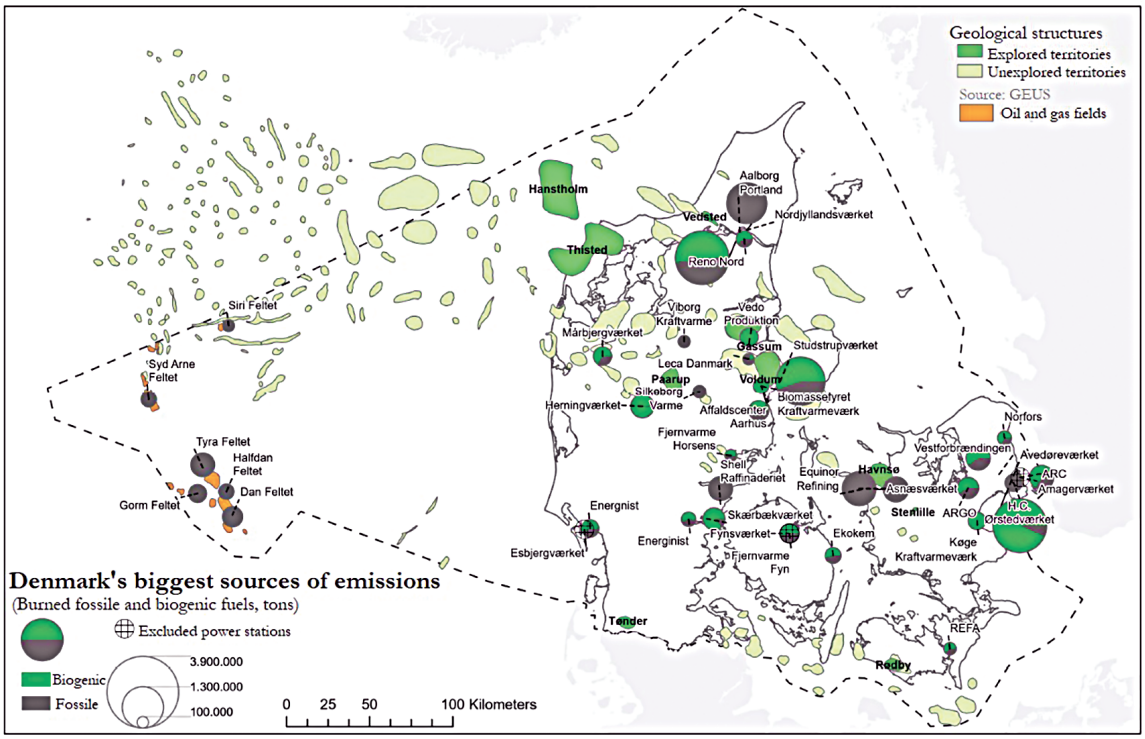
According to the estimates of the National Geological Survey in Denmark and Greenland (GEUS), the total storage potential of the Danish subsoil ranges from 12 to 22 billion tons of CO_2, which roughly equals the number of emissions over 1000 years, which is large enough to store approximately 500 times more than Denmark's total CO_2 emissions at the current level.[5] Before the first storage facilities were established in the Danish portion of the North Sea, exploration and study of areas suitable for storage was carried out (Figure 2).

[3] Information, 2021. Klimarådet om regeringens klimaindsats: Dumpet! [online, in Danish] Available at: https://www.information.dk/indland/2021/02/klimaraadet-regeringens-klimaindsats-dumpet.

[4] Power-to-X (stands for power to liquid, power to gas or power to ammonia) is a transformation technology that converts electricity into carbon-neutral synthetic fuels, which can then be used in other sectors or be stored until needed.

[5] Lotte Malene Ruby, 2020. Dansk undergrund har plads til 1.000 års CO2-udledning. [online, in Danish] Available at: https://www.danskindustri.dk/di-business/arkiv/nyheder/2020/10/dansk-undergrund-har-plads-til-1.000-ars-co2-udledning/.

Figure 2.
Denmark's Biggest Sources of Gas Emissions, 2018
[Translated from Danish by the Authors]



Source: *GEUS*

Denmark's first CCS project, Project Greensand, is a collaboration between Mærsk Drilling, INEOS, GEUS and Wintershall Dea. Located in the Nini field (Danish Ninifeltet), Greensand is designed for safe, long-term storage of 0.5-1.0 million tons of CO_2 per year. Launched in early 2020, the project is currently in pilot mode, the second of four phases. The goal in the current strategy is scaling up the project to storage facilities other than the Nini field for a total capacity of up to 3.5-4 million tons CO2 per year by 2030.[6]

The newest project is also located in the Danish North Sea. This is a project of the French oil and gas giant Total Energies called Project Bifrost (Danish Projekt Bifrost) in the Harald Field (Danish Harald-feltet). In the long term, Total Energies hopes to store up to 16 million tons of CO_2 in Denmark (3 million per year).[7] Both these projects have just begun and have not yielded any results yet, making it hard to evaluate them by anything other than their significant potential.

It is also worth noting another promising project. The Net Zero Carbon Capture project is to be implemented at the Amager Resource Center (ARC), Copenhagen's waste-to-energy facility. The project is designed to introduce the technology of processing emissions into energy using the existing waste-to-energy plant of Amager island (Copenhagen, Denmark). The project has already been approved by the government and is under implementation. In 2021, a study conducted and completed by ARC showed that the use of CCS/CCU technology in this plant is technically and economically feasible.[8] This means that the 480,000 tons of CO_2 emitted annually by ARC can be captured by the facility itself at minimal cost and thus reduce CO_2 emissions at a low cost for citizens. The end result of the project will be the basis for ARC's decision to invest in a full-scale carbon capture facility that will capture all of ARC's 480,000 tons of CO_2 annually.[9]

Since the Climate Committee's evaluation of the government plan in 2021 has underlined the necessity to combine implementing the described innovations with green transformations in other areas, Danish companies and corporations are also pursuing global goals to minimise their carbon footprint and switch to green energy. One can follow their journey through the annual reports on achievements in the field of sustainable development. The dynamics can be traced to the example of such companies as PensionDanmark, Vestas Wind Systems and Grundfos. All these enterprises are included in the list of the 90 largest multinational

[6] Project Greensand. [online, in Danish] Available at: https://projectgreensand.com/.

[7] Energiwatch, 2021. Total Energies planlægger enormt CO2-lager i den danske Nordsø. [online, in Danish] Available at: https://energiwatch.dk/Energinyt/Olie___Gas/article13215723.ece.

[8] Valentina Bisinella, Jonas Nedenskov, Christian Riber, Tore Hulgaard, Thomas H. Christensen, 2021. Environmental Assessment of Amending the Amager Bakke Incineration Plant in Copenhagen with Carbon Capture and Storage. [online, in English] Available at: https://www.researchgate.net/publication/354930725_Environmental_assessment_of_amending_the_Amager_Bakke_incineration_plant_in_Copenhagen_with_carbon_capture_and_storage.

[9] Amager Bakke (ARC) Project. [online, in Danish] Available at: https://1stmile.dk/portfolio/amager-ressource-center-arc/.

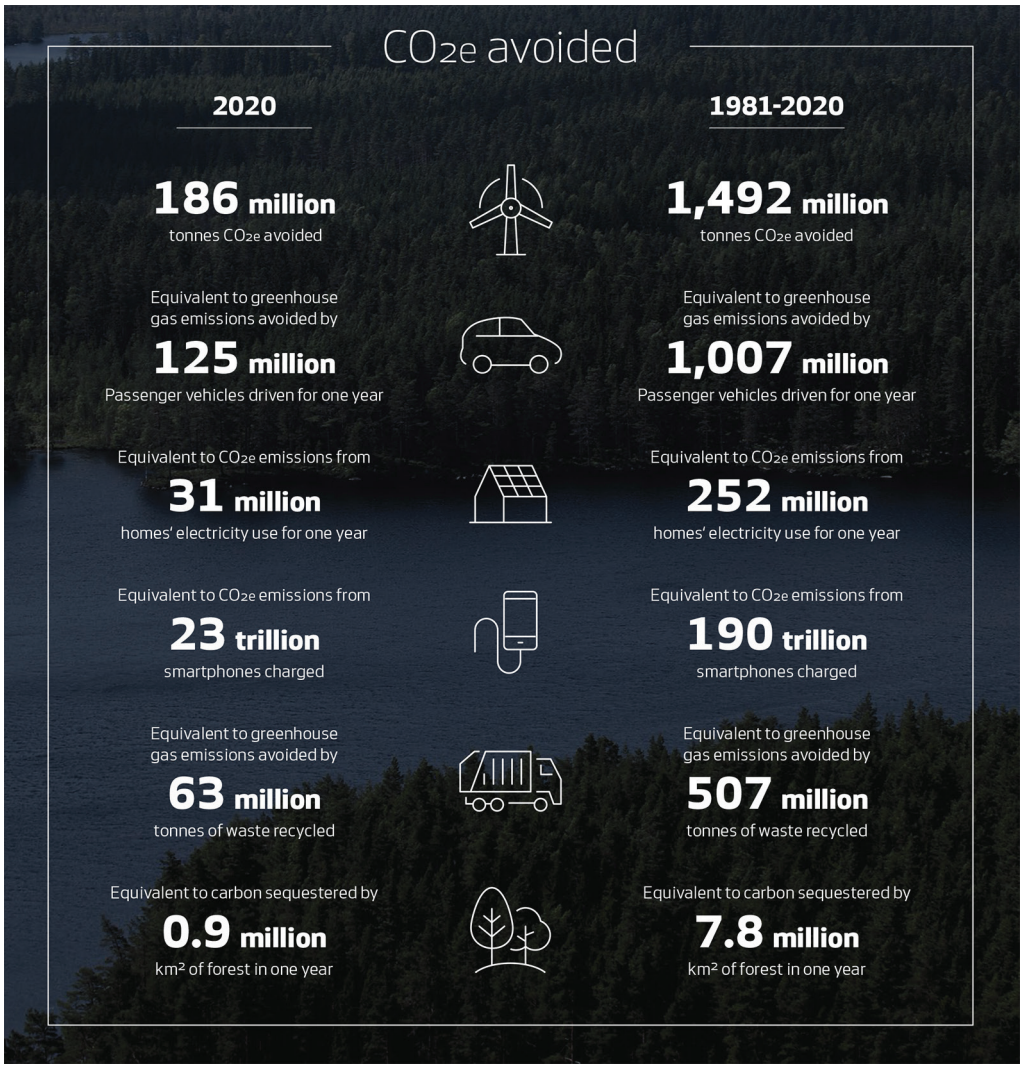


Figure 3.
Vestas Wind Systems CO_2 emissions infographics

Source:
Vestas Sustainability Report 2020

organizations, the CEOs of which are all members of the Alliance of CEO Climate Leaders.

For example, PensionDanmark, a Danish non-profit labor market pension fund, was one of the first innovators to invest in renewable energy. The company has already made an environmental investment of 3.4 billion euros, which has contributed to a reduction in CO_2 emissions of 3.4 million tons per year.[10] [11]

Another example of the implementation of the energy transition policy, which can be considered successful, can be found in Vestas Sustainability Report 2020. Vestas Wind Systems, a Danish wind turbine manufacturer headquartered in Aarhus, is one of the world's largest and oldest modern wind turbine manufacturers. According to the report, the venture achieved the goal of switching to 100% renewable energy in 2020 around the world. In addition, in 2020, emissions from the company's own production facilities decreased by 33% compared to 2019 and amounted to 73,000 tons of CO_2. Vestas Wind Systems managed to achieve such high results mainly using renewable energy sources.[12]

It is important to note that positive dynamics on the way to achieving carbon neutrality is not observed everywhere. For example, Grundfos, a Danish pumping company headquartered in Bjørringbo, stated in a 2020 report that the goals laid out in its 2020 renewable energy transition plan had been postponed to 2021. According to the report, this was primarily due to the lack of resources in 2020. However, even in 2020, Grundfos took several steps towards fulfilling the plan. The greatest attention at Grundfos has been directed at solving the problem of excessive energy consumption, which is the main source of CO_2 emissions. The company's current global goal is to halve its own CO_2 emissions by 2025 compared to the 2008 baseline. According to the Sustainability Report 2020, achieving this goal will require a review of investment policies affecting energy efficiency as well as renewable energy sources. Starting in 2020, Grundfos has expanded its coverage to include CO_2 emissions from its own company's vehicles. In 2020, the total electricity consumption, including

[10] PensionDanmark, 2020. Årsrapport. [online, in Danish] Available at: https://www.pensiondanmark.com/globalassets/dokumenter/rapporter/arsrapport/2020/arsrapport-2020---pensiondanmark.pdf.

[11] PensionDanmark, 2020. Rapport om samfundsansvar 2020. [online, in Danish] Available at: https://www.pensiondanmark.com/globalassets/dokumenter/rapporter/csr/2020/csr-2020----pensiondanmark---dk.pdf.

[12] Vestas Wind Systems, 2020. Vestas Sustainability Report 2020. [online] Available at: https://www.vestas.com/content/dam/vestas-com/global/en/sustainability/reports-and-ratings/sustainability-reports/2020_Sustainability_Report_2020.pdf.coredownload.inline.pdf

from own vehicles, amounted to 310.6 GWh. The total CO_2 emissions amounted to 84,814 tons of CO_2. Since the statistics have been expanded to include data on CO_2 emissions from own vehicles, this data is not comparable to 2019 data. The decline compared to the same period in 2019 was about 10%, mainly due to reduction initiatives.[13]

These examples demonstrate that Danish companies are striving to achieve their ambitious goals to reduce their carbon footprint, even if the intended trajectory is not always possible to follow. Corporations are daring to change strategies and tactics and openly discuss the difficulties they face on the path to carbon-neutral manufacturing.

All things considered, Denmark has significant potential to achieve their highly ambitious goal. There are several arguments to support this viewpoint. First, Denmark is the only EU country to have set emission reduction requirements in law, and Danish climate activists and ordinary Danish citizens played a significant role in its early adoption by calling on the government to take more vigorous actions. This effort was detailed in the documentary '70/30'. The ecological consciousness of Danish society is extremely high, which gives Denmark an advantage in achieving its goal, and the willingness of society to take part in saving the planet is directly related to the implementation of government plans.

Secondly, a very strict evaluation policy established by the Act has already shown itself as a viable reality check. In 2021. the Climate Committee urged the government to address more pressing issues rather than put too much hope into novelty projects.

Last, Danish companies are showing significant initiative in contributing to the reductions as well. Many are open to upfront discussion, which is crucial for any plan to succeed.

In general, the situation in Denmark looks promising due to the combination of several factors. It is a small country in terms of area and number of inhabitants with a developed economy, which has both natural and financial resources to fulfill its obligations. Among other things, one of the key roles is played by the rate of civic consciousness demonstrated on every level – from the government employee to the average citizen.

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[13] Grundfos, 2020. Grundfos Sustainability Report 2020. [online] Available at: https://www.grundfos.com/sustainability/reports/sustainability-report-2020.

ASSESSMENT OF THE IMPACT OF THE EU DECARBONISATION POLICY ON THE NIGERIAN ECONOMY

Ekaterina Oshchepkova

Abstract:

The Nigerian oil and gas industry has always been an important part of the resource base of the Nigerian economy. Therefore, it is necessary to understand how the EU decarbonisation policy will affect the country's economic development. This article critically assesses Nigeria's position on the EU low-carbon emission policy, taking into account the country's involvement in the international agenda aimed at combating climate change. The article also examines the risks to the Nigerian economy associated with the EU policy aimed at reducing the consumption of fossil fuels. The Netherlands, Spain and France were selected for the analysis. The author substantiates the importance of increasing energy and resource efficiency, competent state regulation and stimulation of investment in the development of new technologies.

Keywords: Africa, climate change, conventional energy sources, decarbonisation, EU, export dependency, fossil fuels, France, Netherlands, Nigeria, regional economic development, renewable energy, Spain

Оценка влияния политики декарбонизации ЕС на экономику Нигерии

Аннотация: Нефтегазовая промышленность Нигерии всегда была важной частью ресурсной базы экономики страны. В этой связи необходимо выявить, как политика декарбонизации ЕС повлияет на экономическое развитие страны. В данной статье критически оценивается позиция Нигерии в отношении политики низкоуглеродных выбросов ЕС с учетом вовлеченности страны в международную повестку, направленную на борьбу с изменением климата. В статье также рассматриваются риски для экономики Нигерии, связанные с политикой ЕС, направленной на сокращение потребления ископаемых видов топлива. Для анализа были выбраны три европейские страны – Нидерланды, Испания и Франция. Автор обосновывает важность повышения уровня энергоэффективности и ресурсоэффективности, грамотности государственного регулирования и стимулирования инвестиций в развитие новых технологий.

Ключевые слова: Африка, возобновляемые источники энергии, декарбонизация, ЕС, изменение климата, ископаемые виды топлива, Испания, Нигерия, Нидерланды, региональное экономическое развитие, традиционные источники энергии, Франция, экспортная зависимость

Introduction

According to the World Bank Group Diagnostic Report, Nigeria is one of the largest economies in Africa and ranks 25th in the world.[1] The recent research published in the Lancet medical journal said that Nigeria is expected to overtake China and the United States in terms of population by 2100.[2] At the same time, in 2019, according to the World Data Atlas, Nigeria ranked 38th in the world in terms of greenhouse gas emissions.[3] Climate change is having a big impact on Nigeria. The process of global warming leads to an increase in already extreme temperature indicators, which affects the quality of life of those people who do not have constant access to electricity and air conditioning devices. Droughts have become more frequent averaging every 12.5 years between 1982 and 2006, and every 2.5 years between 2007 and 2016. Moreover, droughts become more severe and prolonged, reducing the productive potential of the land. Farmers face other climate change risks, which include a lower and uneven amount of precipitation, a shorter duration of rainy seasons and a wider spread of pests and plant diseases.[4]

The government of Nigeria has feebly attempted to achieve environmental sustainability through the 'Vision 20:20:20' strategy. It was planned that by 2020 Nigeria would have become one of the twenty most efficient economies in the

[1] "The World Bank in Nigeria," The World Bank, 2021. https://www.worldbank.org/en/country/nigeria/overview#1.

[2] *The Guardian,* "Nigeria's Population to Overtake China, US by 2100 – Study," July 15, 2020. https://guardian.ng/news/nigeria-to-overtake-china-u-s-by-2100-study/.

[3] "Выбросы CO2, 1000 т", *World Data Atlas Rankings,* n.d. https://knoema.com/atlas/ranks/CO2-emissions.

[4] Simeon Ehui, Holger Kray and Elliot W. Mghenyi, "Policy Priorities for Achieving Food and Nutrition Security in Africa by 2030," *WorldBank Blogs,* January 22, 2020. https://blogs.worldbank.org/voices/policy-priorities-achieving-food-and-nutrition-security-africa-2030.

world by reducing the share of the population without access to electricity[5] to 25% and by reducing the country's dependence on oil prices. However, these efforts did not lead to the expected results. As of 2018, only 56.5% of the Nigeria's residents had access to electricity. To date, Nigeria's economy remains heavily dependent on natural resource exports. These challenges are further compounded by the lack of institutional, legislative and financial capacity for ensuring effective natural resource management and ecosystem stability.

There are three key problems with the current regulatory framework:

- Multiplicity of regulatory institutions whose roles are oftentimes uncoordinated.
- The commingling of the policy institutions, the regulatory institutions and the commercial institutions.
- The oil and gas licensing process.

Unlike the UK and the US, where one law governs nationally funded projects, in Nigeria, there are three distinct national Environmental Impact Assessment (EIA) systems which govern nationally funded projects. Moreover, the state oil company – the Nigerian National Petroleum Corporation (NNPC) – was conceived to serve as both regulator and commercial operator. For much of its history, however, its terms of reference and performance have been respectively described as 'incoherent' and 'uneven'. This is because it has undertaken commercial, regulatory and sometimes even policy-making responsibilities.

With regard to the licensing regulation process, the Petroleum Act 1969 does not prescribe how licences are to be awarded, leaving it to the discretion of the Petroleum Minister to decide. The method chosen by the Minister was discretionary allocation, which remained the official licensing policy until around mid-2000 when the government introduced open competitive bidding. However, competitive bidding has been used as well from time to time. Competitive bid rounds are conducted in accordance with guidelines published by the Department of Petroleum Resources (DPR). It has been the practice of the DPR to publish new guidelines each time a bid round is to be conducted, a practice that reflects a lack of policy lucidity on the part of government. Additionally, the integrity of the bid rounds has been marred by allegations of political interference, abuse of discretion, awards to unqualified companies, 'behind-the-scenes' allocations, frequent postponement and sometimes total cancellation of proposed bid rounds as well as a general lack of transparency.[6]

Currently, the global increase in renewable energy sources and the transition to the decarbonisation paradigm are seen in Nigeria as a serious threat to the revenue from hydrocarbon exports and, consequently, to the economic security of the country. The national economy is still heavily dependent on the production of fossil fuels.

International Approach to Climate Changes: Perspectives for Nigeria

As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, Nigeria has made international commitments to promote low-carbon development. The Kyoto Protocol sets out certain quantitative commitments to limit and reduce emissions for developed countries. In accordance with the Protocol, developed countries should minimise the adverse effects of climate change, effects on international trade, and social, environmental and economic impacts on other parties to the agreement, especially developing country parties (Article 2, paragraph 3). Developing countries are eligible for financial assistance, insurance and the transfer of environmentally sound technologies to support national actions in order to mitigate and adapt to climate change.[7] In addition, on October 2, 2020, Nigeria submitted to the UN formal adoption of the Doha Amendment to the Kyoto Protocol, becoming the 144th country and ensuring its entry into force.[8] This document extends the validity period of the Kyoto Protocol for 2013-2020 ('Kyoto-2') and contains a number of amendments to the Kyoto regime, including updated quantitative indicators for reducing greenhouse gas emissions for a group of developed countries.

In 2017, Nigeria ratified the Paris Agreement, thereby committing to a 20% reduction in greenhouse gas emissions by 2030 from current levels. Subject to the availability of international assistance and support, this figure may be increased to 45%. On August 19, 2020, the EU spearheaded a funding project to support Nigeria with achieving the goal of 45% reduction in CO_2 emissions.[9] This ambitious goal could be achieved by elimination of gas flares, improving energy efficiency, increasing solar energy production and developing clean technologies.

Nigeria became the first African country to issue 'green bonds'. After a successful debut in 2017, it managed to raise $30 million. During the second issue in 2019, the amount reached $42 million. In 2020, the government announced its intention to issue a third series of 'green bonds', this time it was expected to raise more than $68 million. In particular, 'green bonds' are loans issued on the market by investors to finance projects that contribute to the environmental transition. With the help of investments in environmental projects, the country intends to increase energy efficiency by 2% per year for a total of 30% by 2030. Furthermore, the

[5] "Access to Electricity (% of Population) – Nigeria," The World Bank, 2020. https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=NG.

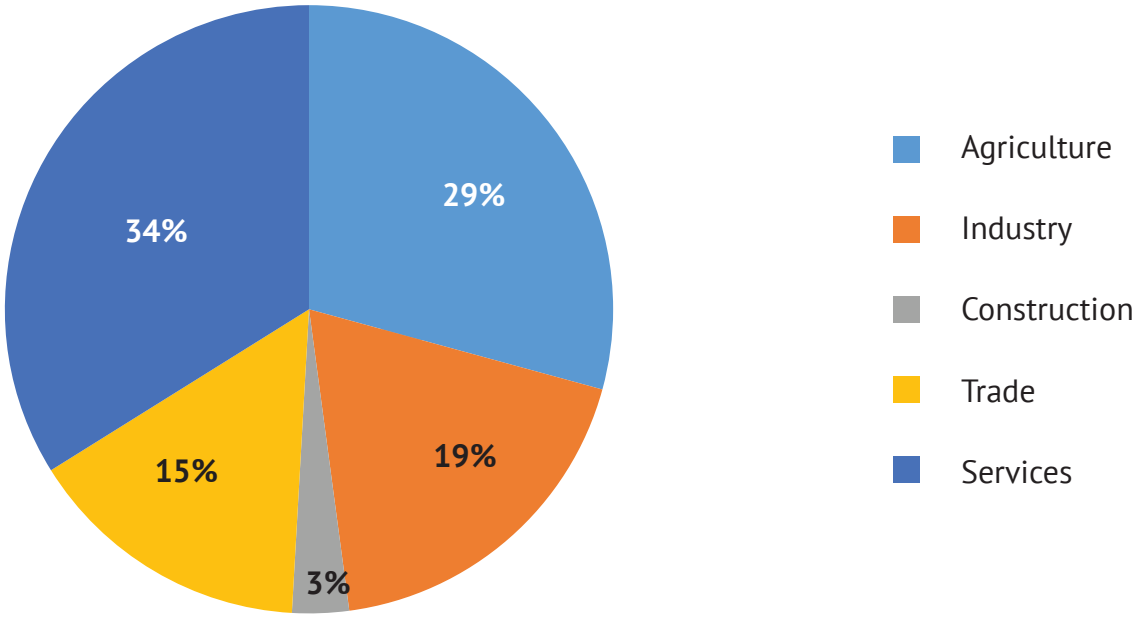
[6] Chilenye Nwapi, "The Achievement of Regulatory Excellence in the Oil and Gas Industry in Nigeria: the 2017 National Oil and Gas Policy," *Journal of Energy & Natural Resources Law,* no. 38(July 2019):1-27, DOI:10.1080/02646811.2019.1620995.

[7] The United Nations, *Kyoto Protocol to the United Nations Framework Convention on Climate Change,* December 11, 1997. https://www.un.org/ru/documents/decl_conv/conventions/kyoto.shtml.

[8] The United Nations, *Doha Amendment to the Kyoto Protocol,* Doha, September 8, 2012. https://unfccc.int/files/kyoto_protocol/application/pdf/kp_doha_amendment_russian.pdf.

[9] *Einpresswire,* "Flagship EU Initiative for Nigeria to Mitigate Climate Change," August 19, 2020. https://www.einpresswire.com/article/524327320/flagship-eu-initiative-for-nigeria-to-mitigate-climate-change.

Figure 1.
Structure of Nigeria's Real GDP in 2019, %



Source: *Calculated on the data taken from the Central Bank of Nigeria*

green investments allow Nigeria to continue its work aimed at stopping the burning of gas flares by 2030, improve the quality of the electricity grid, provide off-grid solar panels with a total capacity of 13 GW as well as create climate-optimised agriculture and carry out reforestation work.

To date, in order to stop the burning of associated gas by 2030, the government has established a Flaring Gas Commercialisation Program to encourage investment in technologies that reduce flaring. According to satellite data from the US National Oceanic and Atmospheric Administration (NOAA), from 2000 to 2019 the amount of flaring gas fell by 70%, but it has not been completely stopped. There is also a little progress in the development of solar energy in Nigeria. Currently, Nigeria is completely dependent on experts from developed countries who construct solar power plants. It is reflected in the final cost of projects. The country does not have enough funding for the development of solar energy. The main barriers to the development also include problems related to the lack of an institutional framework. In accordance with the local legislation, the Nigerian Energy Regulatory Commission is authorized to monitor and license power plants that generate at least 1 MW. Accordingly, renewable energy sources that produce less than 1 MW are not included in the scope of obligations and they are not properly regulated.

The Significance of the EU Decarbonisation Policy for the Nigerian Economy

The European Commission has set itself the goal of finding a balance between reducing oil demand, maintaining jobs, supporting economic growth and ensuring energy security. The EU has pledged to reduce its greenhouse gas emissions by 40% from 1990 levels by 2030. The two main pillars this objective are energy efficiency and renewable energy. By 2030, half of the EU's electricity supply is to be generated from renewables, and by 2050 it is to be fully decarbonised. The EU imports more oil and gas than any country in the world. The countries that export the most fossil fuels to the EU are Algeria, Colombia, Kazakhstan, Nigeria, Norway, Russia, Saudi Arabia and the USA. For these countries, any changes in the EU energy demand mix should be of concern. The EU's external suppliers are rule-takers, not rule-makers and no matter how the EU energy mix evolves, they will have to adapt. How decarbonisation will affect demand for different types of fossil fuel is hard to predict because external suppliers may attempt to redirect oil and gas export to other markets.[10]

Looking at the structure of real GDP in Nigeria, the agricultural sector is one with high development potential with crop production accounting for 95%. The service sector including information and communication services with 33% and real estate sales at 18%. The industrial sector including the oil and gas industry accounts for 52%. Although the oil and gas sector accounts for approximately 10% of the country's GDP, it amounted to about 65% of government revenue and 88% of Nigeria's foreign exchange earnings.[11] At the same time, the country's income from oil exports is about 5 times higher than the income from gas exports.

According to WITS and the Central Bank of Nigeria, more than 75% of Nigerian exports go to the EU, the United States,

[10] Indra Overland, "EU Climate and Energy Policy: New Challenges for Old Energy Suppliers," in *New Political Economy of Energy in Europe. Power to Project, Power to Adapt*, ed. Jakub Godzimirski (Cham: Palgrave Macmillan, 2019), 73-102.

[11] "Nigerian Oil and Gas Update," KPMG, April 23, 2019. https://home.kpmg/ng/en/home/insights/2019/04/Nigerian-Oil-and-Gas-Update.html.

India, Indonesia, Brazil and South Africa. Nigeria's main exports are crude oil, natural gas, gold, cocoa beans and rubber.

According to data provided on the Statista global energy business platform, in 2019 Nigeria was the eleventh largest oil producer and exporter in the world with 18 active pipelines and an average daily oil production of more than 2 million barrels. Table 1 shows the leading oil-producing countries in 2019 by share. Oil production includes crude oil, shale oil, oil sands and a broad fraction of light hydrocarbons. Overall, Nigeria accounts for 2.2% of global oil production.

Table 1. ***Crude Oil Production Share of Leading Oil-producing Countries in 2019 by %***

Country	Share of global crude oil production
USA	17.9%
Saudi Arabia	12.4%
Russia	12.1%
Canada	5.9%
Iraq	5%
United Arab Emirates	4.2%
China	4%
Iran	3.7%
Kuwait	3.1%
Brazil	3%
Nigeria	2.2%
Mexico	2%

Source: *Statista, based on the data from national statistical offices*

The value of Nigeria's total exports in 2019 was $65 billion. Oil and gas exports account for $54.5 billion. According to the International Monetary Fund, the value of exports is expected to increase by $4.8 billion by 2025, while the value of oil and gas exports will decrease by $3 billion.[12]

According to the latest Global Trade Tracker estimates, Nigeria exported at average 2.08 million barrels of crude oil and condensate per day (b/d) in 2019. That year, India was the largest importer of Nigerian oil, purchasing about 420,000 b/d. Spain and the Netherlands were the next largest importers of crude oil and condensate from Nigeria, importing about 238,000 and 208,000 b/d, respectively. The United States was the fourth largest crude oil importer. Thus, Europe is still the largest Nigerian oil consumer, importing an average 1 million b/d (Figure 2). In terms of gas imports, Spain was the largest importer of Nigerian LNG in 2018 with about 146 billion cubic feet, followed by India (143 billion cubic feet) and France (126 billion cubic feet) (Figure 3). Based on this data, it can be concluded that the European market is important for the development of the Nigerian economy, since much of the country's crude oil and gas is imported by the European countries.[13]

In particular, the high demand for Nigerian oil could be explained by its high quality. The country's crude oil consists of light and medium heavy density, has very low sulphur content and thus usually commands a good premium over North Sea Dated or Dated Brent. A key Nigerian grade is Bonny Light, which has high gravity (32.1) and low sulphur content (0.16%). Another key grade is Qua Iboe with gravity of 37.6 and sulphur content of 0.10%. Historically, these grades yield high amounts of gasoline, light naphtha, jet fuel and diesel and usually trade at a premium to their Brent benchmarks.

Because of the variety of density among the grades, which is roughly between 24 API and 48 API, and a lack of destination restrictions, Nigerian crudes are extremely popular. Many players have access to Nigerian crude for sale in international markets and, although the process in which Nigerian crudes are marketed is highly complex, it does make the country's crude easily tradable. Another key feature that adds to the attractiveness of the Nigerian barrels is the pricing options that NNPC offers to its buyers. From a buyers' perspective, pricing options offer flexibility which can be an attractive feature of the crude, especially in volatile markets.[14]

Moreover, Nigeria presently ranks as the third highest host economy for FDI in Africa. In 2019, the total FDI inflow to the country was $3.3 billion, which is lower than 2018 by 48.5%. It was estimated that Nigeria's total FDI stock by 2019 was $98.6 billion. The major countries investing in the country include the US, China, the UK, the Netherlands and France. Many of these countries are strongly pursuing the elimination of fossil-fueled vehicles and integration of RE in their energy mix. For example, the UK and France stated that by 2040 fossil-fueled cars will have been banned. The loss of export and resource-seeking FDI will critically dislocate the Nigerian economy with attendant micro and macroeconomic implications. These will include foreign exchange earnings, GDP, per capita GDP, employment, FDI, and other important sectors such as power, manufacturing, etc.

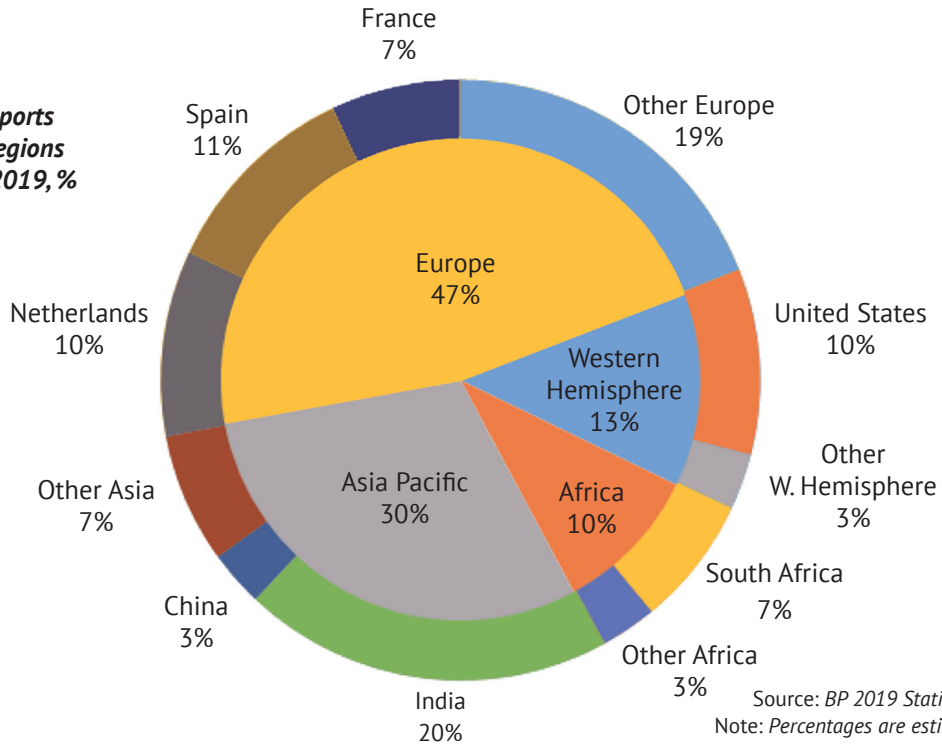
Since the Netherlands is the main importer of Nigerian oil, it is important to analyse how much the demand for oil will decrease in the context of decarbonisation policies. The Netherlands plays an important role as a hub for the global energy trade. A lot of Nigerian oil arriving in the port of Rotterdam is either directly re-exported to neighboring countries or is processed in enormous refineries for future exports. At the European level, the Netherlands follows energy sector targets based on EU directives such as the Dutch National Energy and Climate Plan and is committed to the use of environmentally friendly biofuels, which can reduce energy imports from developing countries.

[12] "Nigeria: 2020 Article IV Consultation-Press Release; Staff Report; and Statement by the Alternate Executive Director for Nigeria," IMF, 2021, 91 p. https://www.imf.org/en/Publications/CR/Issues/2021/02/05/Nigeria-2020-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-50064.

[13] "Nigeria," US Energy Information Administration, June 2020. https://www.eia.gov/international/analysis/country/NGA.

[14] "Nigerian Barrels and the Demand Shock: Differentials and Changing Oil Trade Flows," The Oxford Institute for energy studies, 2020, 11 p. https://www.oxfordenergy.org/wpcms/wp-content/uploads/2020/06/Nigerian-Barrels-and-the-Demand-Shock.pdf.

Figure 2.
Total Crude Oil Exports from Nigeria by Regions and Countries in 2019, %



Source: *BP 2019 Statistical Review of World Energy*
Note: *Percentages are estimated as a result of rounding*

Despite the commitments to reduce greenhouse gas emissions and efforts to improve the sustainability of the energy mix, oil products are expected to remain important components of the energy supply and feedstock mix for the foreseeable future. For this reason, the Netherlands, as a member State of the EU and the IEA, takes the security of oil supplies and stability of the oil market very seriously.

In terms of energy consumption, crude oil will retain its position as a fuel for road transport and a key component of the petrochemical industry. It is expected that crude oil consumption will remain approximately at the level of 2005. In the Netherlands, crude oil is expected to surpass natural gas as the main energy source in the energy consumption structure in the coming years.[15]

As for Spain, this country is highly dependent on foreign energy sources that accounted for 73% in 2017 due to the predominance in its energy consumption structure of fossil fuels that have to be imported in their entirety since national production is almost zero. Therefore, the import of hydrocarbons is very important in the field of energy security, which requires the reliability of supplies. According to the Spanish Ministry of the Environment and the Integrated National Energy and Climate Plan 2021-2030, oil consumption is expected to decrease by 11% by 2025 and by 28% by 2030, while gas consumption will also decrease by 8% by 2030, compared to the current level of consumption for 2020. Oil and gas imports from third countries will decrease by 5% by 2030. In addition to Nigeria, the main oil exporting countries for Spain include Mexico and Saudi Arabia. Thus, the 5% decline will be equally redistributed among the major oil exporters. Today it is difficult to predict the exact value of the reduction in the import of Nigerian oil by Spain; however, based on the figures indicated above, we can conclude that the reduction will not be significant.[16]

The same can be said about France. According to data provided by the French Ministry of Energy Transition, the country consumes about 77 million tonnes of oil per year. At the same time, France's oil production only amounts to 1% of its oil consumption. In 2018, it produced only 0.8 million tonnes of oil.[17] In the context in which domestic hydrocarbon only marginally contributes to national needs, France is almost totally dependent on petrol imports for domestic consumption. However, it is difficult to say how much the import of oil and gas will decrease considering that imports of fossil fuels are broadly diversified. According to the French Climate Plan, there is no clear figure responsible for reducing oil and gas imports from third countries to date.[18]

Therefore, despite the decarbonisation policy, oil remains the number one fuel for the world economy. Its share in the structure of global energy consumption is about 31% and that exceeds the same indicator of gas, coal and renewable energy sources. The oil market is an unregulated global market, which is very diversified in terms of sources. As long as the market functions, security of supply is guaranteed, and the market will determine the price and distribution channels of available oil around the world. At the moment, there is still a dependence of the European countries on non-renewable energy sources.

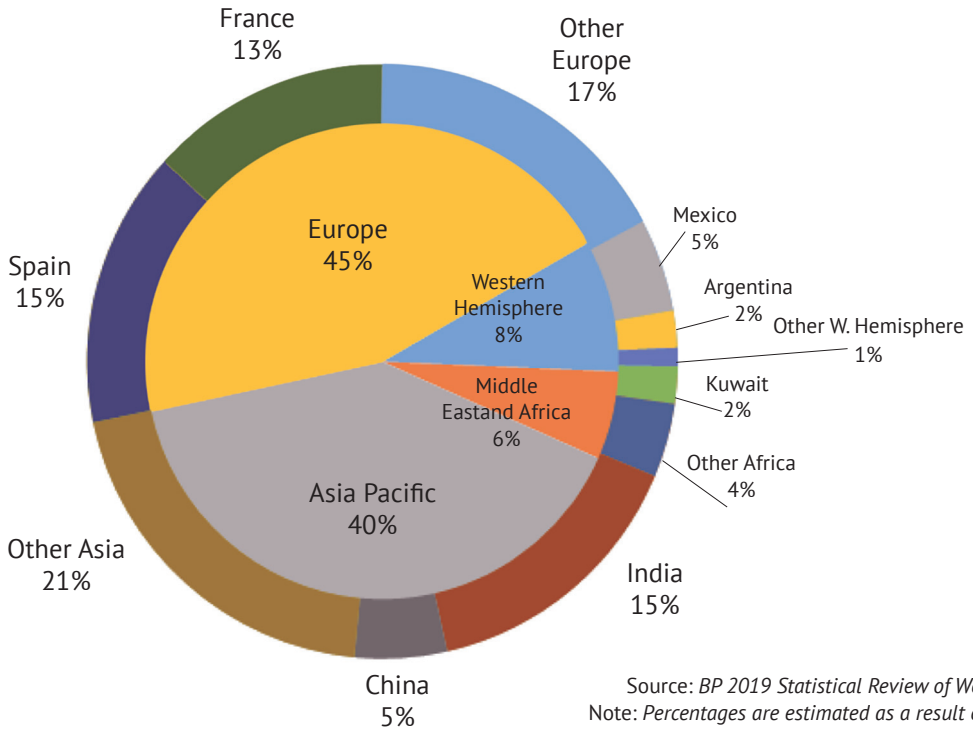
[15] "Draft Integrated National Energy and Climate Plan 2021-2030. The Netherlands," The European Commission, November 2019, 170 p. https://ec.europa.eu/energy/sites/ener/files/documents/nl_final_necp_main_en.pdf.

[16] "Integrated National Energy and Climate Plan 2021-2030. Spain," The European Commission, January 2020, p. 24-89. https://ec.europa.eu/energy/sites/default/files/documents/es_final_necp_main_en.pdf.

[17] Michel Guénaire, Timothée Dufour, Emma George and Sarah Assayag, "Oil and Gas Regulation in France: Overview," Thomson Reuters Practical Law, November 1, 2020. https://uk.practicallaw.thomsonreuters.com/4-629-7328?transitionType=Default&contextData=(sc.Default)&-firstPage=true.

[18] "French Climate Plan," The European Commission, November 2009, 24 p. https://ec.europa.eu/environment/archives/networks/greenspider/doc/climate_change_campaigns/ccc_france.pdf.

Figure 3.
Total LNG Exports from Nigeria by Regions and Countries in 2018, %



Source: *BP 2019 Statistical Review of World Energy*
Note: *Percentages are estimated as a result of rounding*

As mentioned above, the high demand for Nigerian oil is due to many factors including significant volume, high quality, the lack of destination restrictions, global acceptability through equity production, 'Direct Sale, Direct Purchase' (DSDP) agreements, the nature of term contracts, its relatively cheap price and its popularity among oil refineries across the globe. At the same time, the growing global energy transition may affect oil-exporting countries like Nigeria in three major ways:

1) capital losses, as hydrocarbon reserves are abandoned beneath the ground
2) secondary economic losses, as the treasury may no longer be able to fund the public sector from oil revenues
3) loss of competitive geopolitical advantage, as hydrocarbons are replaced by global or regional energy access to Variable Renewable Energy (VRE) sources – solar, wind, hydro, etc.[19]

To date, as shown by the analysis of the examples of France, the Netherlands and Spain, the European market is still dependent on imports of oil and gas from third countries including Nigeria.

Problems of Transition to Low-Carbon Development: Position of the Government, Expert Community and Private Sector

The main problem in Nigeria is that there are only five oil refineries in the country with a population of 210 million inhabitants, and they are poorly operated.[20] According to the EIA, the refineries 'persistently operate at far lower than full capacity because of operational failures, fires and sabotage, which mainly occur on the crude oil pipelines feeding the refineries'.[21] As a result, most of the value that could be obtained from Nigeria's crude oil through petrochemicals, petroleum products and other derivatives is lost. This does not stimulate economic growth of the country as additional jobs are not created, extra taxes are not collected, etc. At the same time, even though jobs in the oil and gas industry account for less than 1% of total employment in Nigeria, the country found itself in an 'oil trap'. The presence of large hydrocarbon reserves reduces the interest of the Nigerian leadership in diversifying the structure of the country's economy, exports and developing other industries. In addition, Nigeria has not realised its potential in oil refining. International oil companies import crude oil from Nigeria for processing in the EU and US refineries, reducing the positive effect on the African country.

To date, the Nigerian National Petroleum Corporation (NNPC), being a fully state-owned enterprise, does not have a strategy to address the risks of transition and reduce the carbon intensity of its production. Overall, the response from the Federal Government of Nigeria to the risks associated with decarbonisation policies has been weak so far.

Experts in the oil and gas industry of the Efikos expert community, during a discussion on the decarbonisation of energy in Nigeria, noted that decarbonisation is inextricably linked to an increase in the level of electrification. Nigeria faces the need to increase the supply of electricity and improve the reliability and security of the grid.

Private sector involvement in low-carbon energy development in Nigeria, due to the unfavorable political situation, has so far been minimal. The lack of political will to fully implement energy sector reforms is hampering efforts to

[19] Chukwuebuka Okafor, Christian Madu, Charles Ajaero, Juliet Ibekwe, Happy Bebenimibo and Chinelo Nzekwe, "Moving Beyond Fossil Fuel in an Oil-exporting and Emerging Economy: Paradigm Shift," AIMS Energy, vol. 9, no. 2(March 2021):379-413, DOI: 10.3934/energy.2021020.

[20] Petroleum Regulatory Agency of Nigeria, n.d. https://www.dpr.gov.ng/downstream/refinery/.

[21] "Country Analysis Executive Summary: Nigeria," US Energy Information Administration, June 2020, 10 p. https://www.eia.gov/international/content/analysis/countries_long/Nigeria/NigeriaCAXS_2020.pdf.

expand private investment. Due to the lack of clear guarantees of a good return on invested capital, very few companies and financial institutions are beginning to implement adaptation to low-carbon development.

Conclusion

Today, as climate change already inevitably affects the economic development of Nigeria, the country is making the first attempts to show its involvement in this global process. The reason for this behavior is the country's significant dependence on hydrocarbon exports to the countries of the European Union, which have been lately taking increasingly active steps to decarbonise their economies. Consequently, oil and gas dependent Nigeria faces the dilemma of ensuring economic prosperity while complying with the EU's energy policy.

Under these circumstances, the Nigerian leadership needs to consider alternative options for the country's development in the future. Although the current structure of world demand for hydrocarbons does not imply a sharp rejection of Nigerian oil and gas export, it creates incentives for diversifying the country's economy and designing a new strategy for further development, while taking into consideration the EU's recent legislation on climate and energy topics.

Such a transformation should be considered by Nigeria as a structural path, to be pursued without deviation, in order to ensure both political stability and socio-economic prosperity within the global decarbonising economy.

The author of the article believes that Nigeria should see the EU decarbonisation policy and low-carbon technology advancements not only as a threat but also as an opportunity to develop a forward-looking strategy to transform its economy. If the EU countries do follow the path of complete decarbonisation as agreed in Paris, and Nigeria is not prepared for it, the socio-economic consequences for the African country will be dramatic.

However, the analysis showed that Nigeria is not yet ready to abandon non-renewable sources as the main exporting countries (on the example of three European countries – the Netherlands, Spain and France) pose no significant risks of reducing oil and gas exports from Nigeria. Europe still needs substantial volumes of hydrocarbons and is increasing its consumption of oil from Nigeria, since it has high quality and relatively cheap price, thereby increasingly driving the country into an 'oil trap' from which Nigeria will have to get out of in the future.

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NEW NAME AND AMBITIONS, BUT SAME GAS PROBLEMS FOR TÜRKIYE

Kaan Kalafat

Abstract:

The recent completion of the Trans-Anatolian Natural Gas Pipeline (TANAP) that links the gas-rich Caspian region with the European Union is a crucial milestone for Turkey. Indeed, the project has the potential to change the role of the country from being one of just an importer to that of a regional trade centre or energy hub. However, this viewpoint suggests that Turkey's goal of becoming an energy hub, as advocated by many, is overshadowed by the security dimension. The author believes that to achieve energy hub status in the case of natural gas, Turkey's critical concerns on the security side need to be addressed first.

Keywords: energy hub, pipeline, security of supply, TANAP, Turkey

Турция: новая инициатива и амбиции, но те же газовые проблемы

Аннотация: Недавнее завершение строительства Трансанатолийского газопровода, связывающего богатый газом Каспийский регион с Европейским Союзом, является важной вехой для Турции. Действительно, проект может изменить статус страны, сделав Турцию, являющуюся страной-импортером, региональным центром торговли энергоресурсами (энергетическим хабом). Автор данной статьи делает предположение о том, что цель Турции – стать энергетическим хабом – за достижение которой выступают многие, отодвигается на второй план проблемами безопасности. Автор считает, что для достижения статуса энергетического хаба в случае с природным газом Турции необходимо в первую очередь решить критические проблемы в области безопасности.

Ключевые слова: газопровод, надежность поставок, Трансанатолийский газопровод (TANAP), Турция, энергетический хаб

Turkey is getting ever closer to the centenary of its establishment and is located between Europe and Asia, linking the two continents like a bridge. The country is also home to more than 80 million people. Yet, this human and geostrategic potential is not consistent with Turkey's lack of power in the energy field, which can be deemed lacklustre. Turkey's proven oil and gas reserves are low, and extraction of these resources cannot sustain the gross inland consumption in both instances.

In recent years, various branches of the government have declared their ambitions to make the country an energy hub in the region. Indeed, the President of Turkey even shared these ambitions by saying '…We aim to make Turkey a global energy hub' during the inauguration of the Turkstream pipeline in 2020.[1] The Ministry of Foreign Affairs of Turkey includes the goal of becoming a regional energy trade centre in its international energy strategies list. Furthermore, the Ministry of Energy and Natural Resources' Strategic Energy Plan of 2015-2019 indicated the possibility of such a venture.[2] BOTAŞ, a wholly state-owned company dealing with crude oil and natural gas pipelines, also referred to Turkey as a 'central country instead of a transit one' in their Annual Report of 2020.[3] This allegory hints that the country is still pursuing the vision shared by the former minister of Foreign Affairs, Ahmet Davutoğlu.[4] According to Davutoğlu, the usage of 'bridge' for Turkey may evoke the image of passivity and lack of importance whereas the usage of 'central country' may indicate a more active and a forward stance and a worthy position for Turkey. Nevertheless, this viewpoint argues that, although ambitions and actions of becoming an energy hub in the field of natural gas exist, the security of supply for gas remains the major hurdle for Turkey to become one.

[1] "We Aim to Make Turkey a Global Energy Hub," Presidency of the Republic of Türkiye, 2020, https://www.tccb.gov.tr/en/news/542/115220/-we-aim-to-make-turkey-a-global-energy-hub-.

[2] Ministry of Energy and Natural Resources, *Strategic Energy Plan 2015-2019,* (Ankara, 2014), 73, https://policy.asiapacificenergy.org/sites/default/files/Ministry%20of%20Energy%20and%20Natural%20Resources%20%28MENR%29%20Strategic%20Energy%20Plan%202015-2019%20%28EN%29.pdf.

[3] BOTAS, *Annual Report 2020,* (Ankara, 2021), 33, https://www.botas.gov.tr/uploads/galeri/74884-2020-faaliyet-raporubotas.pdf.

[4] Ahmet Davutoğlu, "Turkey's Foreign Policy Vision: an Assessment of 2007," *Insight Turkey* 10, no. 1 (Winter 2008): 77-96.

Figure 1.
Major Oil and Natural Gas Import Pipelines in Turkey

Source: *TRT World*

This viewpoint is split into three sections to address its point. The first part provides a brief history of Turkey within the framework of natural gas developments. The second part covers the security challenges facing the country. The last part evaluates Turkey's prospect of becoming an energy hub by taking a deeper look at the details of the TANAP project and briefly on Turkey's natural gas storage capability.

Examining 'the Bridge' Itself

The Energy Market Regulatory Authority (EMRA) in Turkey points to the 70s as the beginning of Turkey's natural gas journey. According to EMRA, the low levels of domestic production and reserves, when compared to the existing and the possible domestic demand, necessitated future imports if natural gas was going to be used in the economy.[5] The concrete developments, on the other hand, coincided with Turkey's transition back to democracy with the military government slowly returning the reins of power to the public. Following the general election of 1983, a new government under Turgut Özal made significant changes in the economic domain where protectionism gave way to an outward-focused attitude towards the international community.[6] This change in ethos is further apparent when we consider the natural gas cooperation between the Soviet Union and Turkey that occurred during his presidency. Despite standing on the opposing side for the duration of the Cold War, the outward approach gave way to an increased dialogue between Turkey and the Soviet Union with the latter agreeing to provide a substantial amount of natural gas in 1984. The culmination of this agreement, the Trans-Balkan Pipeline extension, which starts in Russia and transits Romania and Bulgaria, was finished in 1987 and made it possible for Turkey to receive its first gas deliveries from Russia. Also known as the West Line, this pipeline marked the beginning of infrastructure projects with an international flavour for Turkey.[7] The second import pipeline (Tabriz–Ankara) was commissioned in 2001 and added Iran to the list of Turkey's natural gas suppliers. Furthermore, in 2005, Russia and Turkey established a direct line via Blue Stream. A year later, Azerbaijan also started to provide its gas to Turkey via its South Caucasus Pipeline (SCP).

While the pipelines are effective in acquiring supply, their rigid character does not give leeway for flexibility for the short-term conditions. One of the possible ways to further enhance the reach to other suppliers is the utilisation of liquefied natural gas (LNG) to supplement the imports from the pipelines. Even though the process of importing LNG is costlier than the pipelines, because it requires the creation and operation of necessary infrastructure for reheating gas back to its regular state for consumption from its cryogenic condition. Turkey also took some steps during the previous decades to achieve this diversification option. Three LNG terminals became operational between 1994 and 2001. These were later accompanied by floating storage and regasification units (FSRUs) as well.[8] Branching off towards the LNG domain has effectively created a safety net for the nation as the usage of LNG enabled more flexibility in turbulent conditions. Nevertheless, compared to the volumes imported by pipelines, LNG imports remains somewhere between 20-25% of the total imports since their addition.

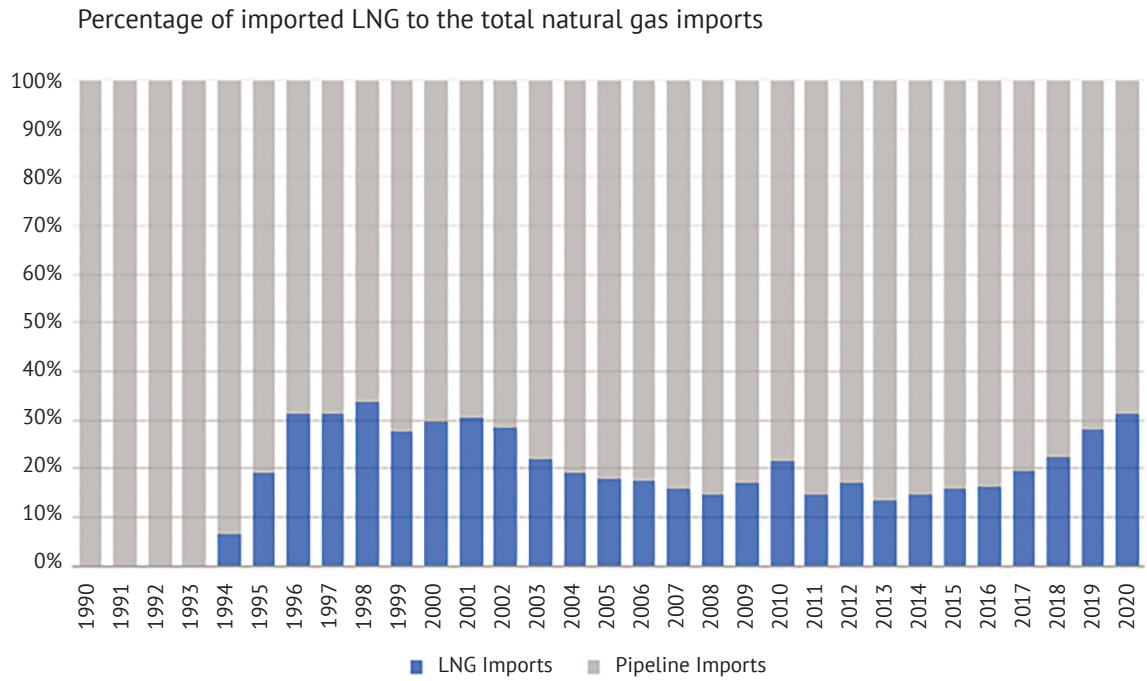
[5] Energy Market Regulatory Authority, Turkish Natural Gas Market Report 2019, (Ankara, 2020), 8, https://www.epdk.gov.tr/Detay/DownloadDocument?id=LGxe24+8qew=.

[6] Ziya Öniş, "Turgut Özal and His Economic Legacy: Turkish Neo-Liberalism in Critical Perspective," Middle Eastern Studies 40, no. 4 (2004): 113–34, http://www.jstor.org/stable/4289930.

[7] "Natural Gas Pipelines," Republic of Turkey Ministry of Energy and Natural Resources, n.d., https://enerji.gov.tr/bilgi-merkezi-dogal-gaz-boru-hatkari-en.

[8] Turkish Natural Gas Market Report 2019, 8.

Figure 2.
Turkey's Percentage of LNG Imports to the Total Natural Gas Imports



Source: *Eurostat*

Security of Supply

Energy security, according to the International Energy Agency, is defined as the continuous availability of energy sources at a reasonable price. Therefore, it is not surprising to see that the goal of achieving diversification to maintain the security of supply is at the top of the international energy strategies of the Turkish MFA.[9]

As the region is susceptible to adverse political conditions, concrete and long-term understanding between the countries is crucial for Turkey to sustain its energy needs. Any political dispute arising in third countries inadvertently affects fragile security in a negative way. Imports from the West Line suffered such disruption during the 2006 Gas Crisis that occurred between Russia and Ukraine.[10] Similarly, the gas coming from Iran frequently experiences interruptions, especially during winter periods, as the country could not meet its domestic demand.[11] Knowing that Turkey only has three countries to conduct pipeline trade with, any potential future interruptions will have crucial repercussions as Turkey does not have many alternative options.

On the issue of security of supply, Russia, the most resource-rich among the post-Soviet republics, especially merits a mention for Turkey. Even with the inclusion of Iran and Azerbaijan with their respective pipelines alongside the additions of Turkey's domestic LNG regasification availability, Russia maintained its lion's share as the primary supplier of natural gas. As seen in Figure 3, Turkey has developed a significant dependency on Russian gas over the years with direct lines such as Blue Stream and TurkStream playing an indispensable role in domestic needs. Nevertheless, recent years saw a gradual shift in this balance, with imports starting to decline from the average of 50% of the total.

While the security of supply directly correlates with the ability to have access, it is the economic power that regulates this ability. Coming closer to today, with the COVID-19 crisis affecting the world, Turkey has been experiencing significant inflation. This inflationary trend ultimately affects the currency and, observing the power of the Turkish lira losing ground against foreign currencies, makes the consumers as well as the country vulnerable to energy needs in the long run.

Prospect of Becoming a Hub versus Reality

The Trans-Anatolian Natural Gas Pipeline (TANAP) marks the beginning of the role transformation phase in Turkey. With the agreement signed on 26 June 2012 by the presidents of Turkey and Azerbaijan, the project envisaged a pipeline network to bring Azerbaijani natural gas to Turkey.[12] The key difference that separates TANAP from the other pipelines is the destination. While Turkey has different pipelines that bring natural gas inside its borders, TANAP's final destination extends further towards Greece to supply EU member states. The project, which is an additional diversification from Russia's dominance over both Turkey and the EU, gained suffi-

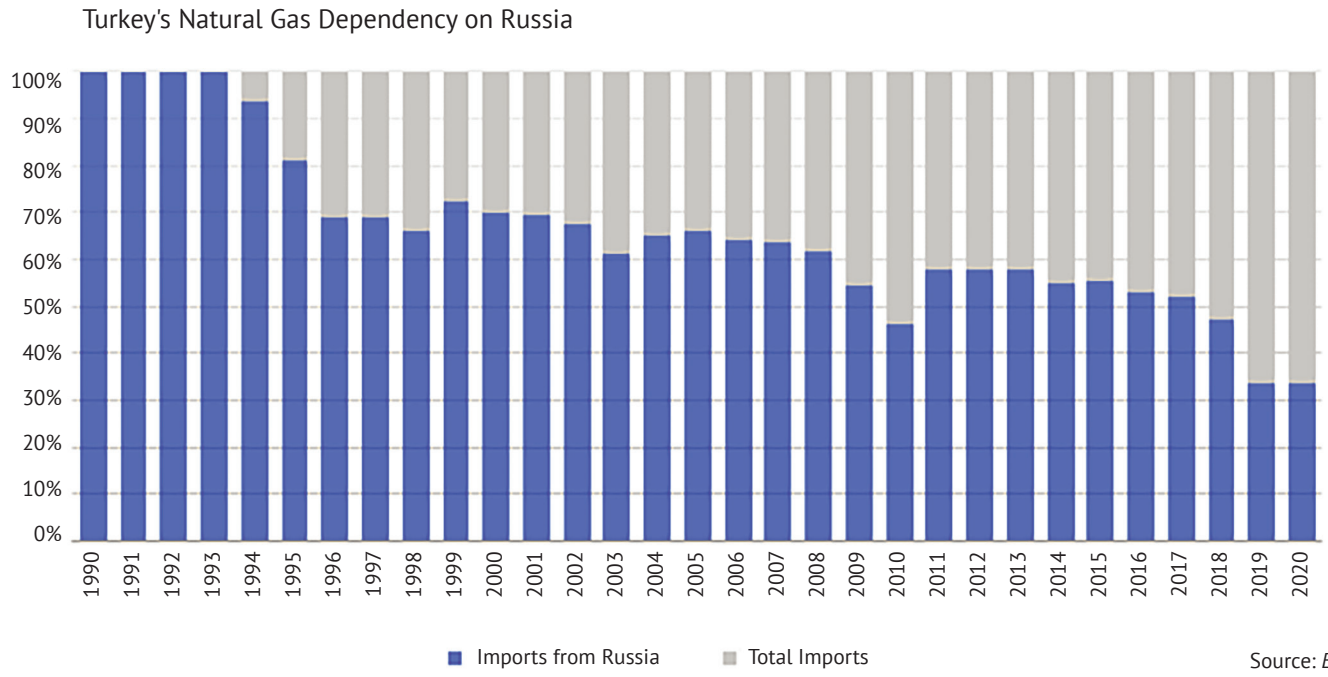
[9] "Turkey's International Energy Strategy," Rep. Of Turkey Ministry of Foreign Affairs, n.d., https://www.mfa.gov.tr/turkeys-energy-strategy.en.mfa.

[10] *Turkish Natural Gas Market Report* 2019, 8.

[11] *Ibid.*

[12] TANAP, *Intergovernmental Agreement concerning the Trans-Anatolian Natural Gas Pipeline System between the Government of the Republic of Turkey and the Government of the Republic of Azerbaijan,* (Ankara, 2013), 2, https://www.tanap.com/store/file/TANAP_Hukumetlerarasi_Anlasma.pdf. (In Turkish).

Figure 3.
Percentage of Imports from Russia to the Total Natural Gas Imports



Source: *Eurostat*

cient traction to be included in the EU's Projects of Common Interest under the 'Southern Gas Corridor'.[13]

While TANAP may be the first step in the right direction for Turkey towards becoming more interconnected to the grander energy infrastructure of the region, its effectiveness in the early years will be minimal. According to Eurostat data, the supply capacity of the pipeline, which is around 16 bcm at its initial stage, can only cover 4% of the gross inland consumption of the European Union's 2020 rate. Although the possibility of doubling and a further expansion of this capacity exists to provide more gas towards the west, the legal framework of TANAP provides one other element to consider. Article 7.8 in the TANAP Intergovernmental Agreement gives Turkey a priority for any excess above the initial volume. Therefore, anything above the 16 bcm is reserved to be used by Turkey initially. This further brings the question of whether Turkey will use this line to export gas to the EU or use it domestically.

One other thing to note is that in order to become a significant energy hub, especially for natural gas, Turkey also needs to improve its underground storage capacity.[14] The track record of Turkey in this area has been disappointing. The current Minister of Energy and Natural Resources, during a visit to one of the underground facilities in Turkey, has expressed their goal of reaching 10 bcm of storage capacity by 2023.[15] However, the capacities of comparable countries like the Netherlands and Germany, which are better suited for hub classification, are already above this rate with their storage of 13 bcm and 23 bcm respectively.[16] [17]

Conclusion

The natural gas story of Turkey is similar to many other countries that suffer from energy dependence. Access to natural gas, a critical element for sustaining the economy, pushes the issue of energy security to remain on the top of the Turkish agenda. Turkey faces many challenges. Interruptions from unreliable partners, such as Iran, can lead to severe shortages during critical months of the year. Political turbulences, also abundant in the region, can adversely affect the economy in the long run while hurting the prospect of finding and retaining a new reliable partner. Although the energy relationship with Russia saw a gradual stabilisation in recent years thanks to the SCP and TANAP projects, Russia continues to provide a significant volume of gas to the country, causing further security questions. Mitigation of these questions remains an issue mainly because any significant diversion from course necessitates a strong political and economic will to succeed. Furthermore, this process is not only limited to Turkey but rather extends beyond its borders, and while attempts made by the current government

[13] European Commission, *Gas Pipeline to the EU from Turkmenistan and Azerbaijan, via Georgia and Turkey, [Currently Known as the Combination of "Trans-Caspian Gas Pipeline" (TCP), "South-Caucasus Pipeline Future Expansion" (SCPFX) and "Trans Anatolian Natural Gas Pipeline" (TANAP)] Southern Gas Corridor.* (n.d.), 1, https://ec.europa.eu/energy/maps/pci_fiches/PciFiche_7.1.1.pdf.

[14] Nurettin Altundeğer, "A Dream Coming True? Turkey Becoming an Energy Hub," *West East Institute International Academic Conference Proceedings,* (2015): 72-81.

[15] "Minister Dönmez Visited the Tuz Gölü Underground Natural Gas Storage Site," BOTAS, 2020, https://www.botas.gov.tr/Icerik/minister-donmez-visited-the-tu/305.

[16] Joaquim Juez-Larré et al., "Assessment of Underground Energy Storage Potential to Support the Energy Transition in the Netherlands," First Break 37, (July, 2019): 58, DOI:10.3997/1365-2397.n0039.

[17] "Gas Storage Capacities," Association of German Gas and Hydrogen Storage System Operators (INES), n.d., https://erdgasspeicher.de/en/gas-storage/gas-storage-capacities/.

are commendable, the issue of becoming a hub is getting increasingly more difficult to solve since the need for gas is also increasing with time.

With this knowledge, the concept of Turkey becoming the regional hub portrayed by the government still seems to reside behind the security dimension. The effectiveness of the TANAP project, the first major step in this direction, is more likely to be felt in domestic consumption rather than in the West. The priority clause of the TANAP agreement mentioned above provides a piece of supporting evidence for this claim. Similarly, to become a hub, the underground natural gas storage infrastructure of the country needs to grow further from its current state to moderate the potential shocks and provide long-term availability. With the economic hardships acquired from the effects of the global pandemic already curtailing the security of supply, any prospect of becoming a hub remains a question for later.

Kaan Kalafat

The author is currently pursuing a postgraduate degree at the Middle East Technical University in Ankara, Turkey, where he is writing a thesis on the natural gas challenges of the European Union in the turbulent environment of 2020. The author also completed an internship at the Foreign Policy Institute located in Turkey.

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