

# A war running on fossil fuels

The Russian invasion of Ukraine has brought into stark relief the role that fossil fuels can play in conflict. Leading Ukrainian climate scientist Svitlana Krakovska talks of the terrors of the war in Ukraine and how divesting from fossil fuels will bring humanity onto a safer path towards a sustainable future.

## ■ How are you at the moment and where are you writing from?

Today is the 80th day of the full-scale invasion of Ukraine by the Russian Federation in a war that has been going on for 8 years, starting with the annexation of the Crimea in February 2014. For the first time since the start of the invasion, I am leaving my native city of Kyiv. I am on a bus heading to Prague, following an invitation from the European Climate Foundation to talk on a TV show and to meet journalists, scientists, politicians and civil-society activists.

Afterwards, I will go to Vienna to present my scientific work at the European Geoscience Union (EGU) General Assembly. This will be the first time that I will meet with international colleagues face-to-face since COVID-19 restrictions were first introduced. As part of EGU 2022, I have been invited to give a talk at the townhall meeting 'Exploring the nexus of geoethics and climate change education', where I will have an opportunity to discuss with other experts the rapidly developing discipline of geoethics and share my views on this topic as a Ukrainian climate expert fighting against both the war and climate change. I hope that my messages will be taken up and amplified by the scientific community.

I will then continue my journey to take part in the Arctic Basecamp's high-level panel as well as the 'Science not Spin' event in the Sustainable Development Goals tent, both part of the World Economic Forum's annual meeting in Davos. We want to be very clear that science should not be subject to negotiations, and highlight how the war in the heart of Europe exacerbates current trends and provokes a chain of consequences that includes a global crisis in energy and food security. I hope to be listened to in Davos by journalists, politicians and economists, and especially by young people and activists.

I will then continue my trip to follow an invitation to facilitate a discussion at the Green & Blue Festival in Milan for World Environment Day, where I will answer questions from the general public about the green transition and scientific findings on climate change. And last but not least in my four-week journey, I am



Credit: Svitlana Krakovska

part of the Ukrainian delegation who are meeting delegates of the Council of Europe in Strasbourg. Here, I hope to present arguments for the acceleration of transfer to a low-emission economy — a process that is even more pressing now, in the context of the ongoing war.

## ■ What motivates you to undertake such a long and presumably stressful trip at this time?

I decided to undertake such a long trip because I have a strong feeling that it is time to extend my activities, seeking face-to-face contact with European audiences. This is important because we witness not only an increase in interest and support for Ukrainian people in Europe, but also an intensification of disinformation and propaganda as part of Russia's hybrid war against the democratic world.

Our Ukrainian people are united and brave in this fight. No doubt we will be winners. We will rebuild and make our country better than before with support from other countries. It is only a question of what price we will have to pay as the war drags on. Our people — killed, murdered or forced to flee — are our greatest asset. That is why every day, every hour of the war matters.

That is why I am going to change my status, no longer being a 'soldier' of the

so-called Ukrainian sofa army. I feel that it is time for me to get up from my 'sofa' and go directly to Europe.

## ■ What are the conditions now as you are leaving Kyiv?

During these past 80 days, I have frequently been asked by my friends and colleagues abroad: "How are you? Are you safe?" Wherever you are in Ukraine, the answer is no.

I used to answer these questions as a mathematician, saying that the probability of being killed in Kyiv by weapons is now lower than before, and much lower than in the east and south of Ukraine — but still over zero, and much higher than in Europe and most parts of the world.

I left Kyiv on a bus to the sound of an air raid alarm. These alarms are sounded less often now, but still a few times per day. The last alarm we heard was when we were at passport control at the border to Poland, as the Russian forces hit the Lviv region with missile strikes just a few dozen kilometres away from the border.

Our bus detoured around some parts of the road with the biggest destruction, and slowly drove through smaller villages where some buildings are fully destroyed and burned. By contrast, all of the trees and fields here are bright green, blossoming in stark contrast to all the pain and death they have witnessed.

I do not have words to express all my feelings at looking around the road in the Kyiv region that I have passed hundreds of times, that is now so different — with remnants of tanks near crossroads, buildings completely burnt, and tree tops cut down. I saw the holes blown by missiles into the building of the Adonis maternity hospital, where — before the war — people from many countries became parents.

My heart cries and my mind blows up: why did all of this happen to my homeland? Although I know the answer to the question, it does not help.

I find something symbolic in the fact that to go to Europe from Kyiv, travelling westwards, we pass through these sacrificed villages, with innocent victims as Ukraine's price to be recognized as a member of the European family.

■ **You previously called the Russian war on Ukraine a “fossil fuel war” — what does this mean?**

After 80 days of the war, while an embargo on Russian oil and gas is, unfortunately, still only a matter of discussion, I hope it is more clear why I said this. I made this comment in the very first days of the war when most of the world was in shock and I was heading the Ukrainian delegation to the Intergovernmental Panel on Climate Change (IPCC). This is when I started to draw parallels and make connections between the war and the area in which I am an expert, climate change. And I have found many crosscutting issues.

In brief, I call this Russian war on Ukraine a fossil fuel war because this war literally became possible as a result of Russia's wealth of fossil fuels: over half of Russia's GDP comes from selling coal, oil, gas and associated products. As I see it, the Russian government did not invest the profits to develop their country and make the lives of Russian people easier and more comfortable, as other developed countries have done. Instead, the money was spent on military purposes and propaganda to justify aggression against neighbours. And Russia still receives money from fossil fuels during the war, mainly from selling gas. The greatest disappointment — not only for Ukrainian individuals, but also citizens of other countries who pay Russia for this gas — is that these payments are tenfold more than the financial support received by Ukraine. Thus, it is indeed crucial to stop funding the Russian regime and its aggression towards Ukraine and other countries. This is what will bring real independence to many countries in the energy sector, at least.

There is also a pragmatic link between fossil fuels and the war, because no military vehicle can be used without fuel. This makes it crucial to have fuel supplies, and this is why many strikes in the very first days were on oil bases and refineries in Ukraine and why the Ukrainian army tried to destroy the supply of the enemy's army. Thus, huge additional emissions have been caused by the war. Together with other impacts on the environment such as forest and steppe fires, military waste and water contamination (which in turn have a negative effect on the climate system), the war will exacerbate climate change and deepen the climate crisis.

The war has other devastating consequences on food security, global safety, migration, economics and poverty, not only in Ukraine but also globally. For example, at the moment in Ukraine, we have a huge deficit of gasoline and other fuels, even though consumption has

dropped by over 70% since February. As a climatologist I should be glad about this development, but I understand that it is a result of much higher prices for fossil fuels, making them unaffordable to many people, and a reduction in demand because about a quarter of the population has been forced to flee the country.

■ **Given the political leverage that fossil fuels provide, how should the international community respond?**

I am a physicist, not a politician. But from my point of view, as an expert on the physical basis of climate change who thinks globally, and as a person who is in a country in which a war is funded by our dependency on fossil fuels, I should say that all political leverage from fossil fuels should be resigned to the past.

We are in the 21st century; science and modern technologies could provide access to energy literally to everyone. The question should be how to move the international community away from thinking that we cannot live without fossil fuels towards embracing a new, more decentralized supply of energy demands, in which local communities with proper access to technologies can obtain enough energy from other sources without harm to our environment.

Overall, as a person who values my freedom, I should say that it should be pretty obvious to everybody that the more you depend on something and the more you need it, the less free you are. So, to me, the question about fossil fuels is about true independence. The Russian war against Ukraine highlights the problem of dependency on oil and gas for many countries, similar to other dependencies on food and on water. What is absolutely clear to me is that this war exacerbates those dependencies for most people. A very small recompense is that the situation could accelerate the transformation to greener sources of energy that will mitigate not only climate change but also our dependency on other countries or companies, and will make policymakers understand that the decentralization and diversification of critical sources of life are essential for sustainable development.

■ **How did the war affect your work in the context of the IPCC sixth assessment report?**

I started to represent Ukraine in IPCC meetings in 2013 when the fifth IPCC assessment reports were approved. During the sixth cycle, I was involved in a few roles: first, I served as a review editor for chapter 5 ([‘Sustainable Development, Poverty](#)

[Eradication and Reducing Inequalities’](#)) in the special report *Global Warming of 1.5 °C*. Afterwards I was selected as a leading author of the ‘Atlas’ chapter of the Working Group I Sixth Assessment Report (WGI AR6) *Climate Change 2021: The Physical Science Basis*. I was the first review editor and author from Ukraine in the 30-year history of the IPCC. Another one of my roles was as head of the Ukrainian delegations on approval sessions of summaries for policymakers of the sixth assessment reports of Working Groups II (*Climate Change 2022: Impact, Adaptation and Vulnerability*) and III (*Climate Change 2022: Mitigation of Climate Change*).

My work on WGI AR6 was an invaluable experience for me as it allowed me to collaborate with world-leading experts in climate science, to learn about related topics and to provide my knowledge, particularly relating to regions for which I know climate better: Central and Eastern Europe, Southwest and North Asia, and the polar regions. Our team proposed and realized the [IPCC Interactive Atlas](#) — an innovative tool to help users to explore different climatic parameters in different time horizons with projections to the future under different illustrative scenarios or to see how, in different parts of the world, global warming reaching 1.5 °C, 2 °C, 3 °C or 4 °C over preindustrial levels will affect main climatic characteristics and indices.

The work of experts in the IPCC is voluntary, not for profit. Nonetheless, I and many others continue to create additional products to help people to better understand the very important conclusions reached in the sixth assessment report. We feel it is our responsibility to inform society about climate change, especially under different scenarios. So, we have prepared regional fact sheets, in which the most essential information is summarized on two pages. And we are about to finish additional two-page fact sheets on climate change from WGI AR6 for different sectors.

My involvement in Working Groups II and III was different. As the head of our delegation, I coordinated the work between experts from Ukraine to ensure that the text in the summaries for policymakers is clear and reflects the findings of the main report. But these two sessions were different for our Ukrainian delegation because of the Russian invasion. During the Working Group II session on 24 February 2022, I was forced to inform the other delegations about the fact that we were under attack. I assured them at the time that we would continue to work as long as we had internet access and shelling did not present a threat to our lives. But soon it became clear that we could

not continue and needed to take action to save our lives. At the Working Group III approval session at the end of March, our delegation resumed our work because at that stage some of our delegation had fled either abroad or to the western part of Ukraine, and we understood that sooner or later we will win the war and we will need to rebuild our country. We want this to happen in a climate-resilient and environmentally friendly way.

■ **What would you say is the key message of the different working groups?**

The message from all three working groups is very clear: the situation is urgent, climate change is accelerating and it requires adequate measures and actions.

Every tenth of a degree Celsius in global warming matters. Every day of inaction matters. Every action of every person matters. These actions are region- and sector-specific and should be implemented thoughtfully, as we do not have many chances to try. And there are solutions in technologies to mitigate and to adapt to climate change when needed. The question is now one of political will and of civil societies to demand those changes.

What I want to share is that science should be listened to. I joined climate research when the human impact on climate

systems had already been proven by a long time series of measurements. It was clear for experts where we were going in terms of the changing composition of the atmosphere as a result of the use of fossil fuels and of emissions of greenhouse gases. But society did not believe us and people did not want to change their way of living. Economic growth, accelerated consumption and a mistaken belief in unlimited natural resources were the main drivers of inaction. We lost time, the most valuable resource in our life. Now, we need much more effort to stop or at least to slow down these accelerated processes in climate systems, because these systems are so inertial that we will see the results of our actions only after a few decades.

And we need to be united in these actions — literally everyone should understand why they happen and why we need to change our way of living. Ukraine's solidarity can be a role model for the world on how to unite against the enemy and win. This, too, is a similarity I found in comparing our fight globally against human-caused climate change and our fight in Ukraine for sovereignty.

■ **Do you think we still can reach a safe path and stop global warming?**

The war in Ukraine presents us with an opportunity to think about the fragility of

life, its value and what makes it valuable. Mothers forced to flee their homes took only what they value most: their children and a small backpack. Do we need all of the other things that we keep on purchasing?

And about the feasibility of a safe pathway and avoiding catastrophic global warming: as a climate scientist, I should be clear that we are not on a safe path now. The window of opportunity to change direction is closing fast, and even faster with the war. There may be more innocent victims in some parts of the world dying than those who are dying as an immediate result of the war. As a Ukrainian scientist I can say that not many people in the world believed we would withstand Russian aggression for more than three days. Ukrainians have surprised the world with our courage and our united actions on many fronts. This gives me, personally, hope that — with the concerted efforts of all — humanity will avoid catastrophic scenarios and find a way to live in harmony on our amazing, unique planet.

Interviewed by Marike Schiffer

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**Competing interests**

The author declares no competing interests.