

## THE EZRA KLEIN SHOW

# Transcript: Ezra Klein Interviews Daniel Yergin

March 22, 2022

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EZRA KLEIN: I'm Ezra Klein, and this is "The Ezra Klein Show."

Energy policy is foreign policy. It always has been. But it particularly is right now. It's widely believed that Vladimir Putin timed both his 2014 invasion of Crimea and his 2022 invasion of Ukraine around tight energy markets. It's thought that he thought, maybe rightly, that he'd have the most leverage to act when Europe was most dependent on Russian oil and gas and when leaders everywhere feared the domestic turmoil that higher energy prices could bring.

The reverse theory was an operation, too. In a decision that now looks naïve, Germany's Angela Merkel thought that integrating Russia into Europe through the energy trade might smooth the road to peace, giving Russia too much to lose if it considered doing something like, well, what it's doing right now. All that is to say, to understand this war, to understand this moment, to understand this world, you need to understand global energy production and global energy markets.

You need to understand why a war in Ukraine raises gasoline prices in California. You need to know why the fact that America produces more energy than it needs, the fact that we got to that much vaunted, much desired energy independence, doesn't actually make us energy independent. It doesn't actually protect us from disruptions half a world away. And in the bigger, broader sense, we need to think hard about what all of this domestic sensitivity and turmoil around the price of the pump means for the always looming threat of climate change. How do you decarbonize in a world where people care more about the price of fossil fuels today than about the devastating consequences their use will bring tomorrow?

So I wanted to bring someone on the show who really does understand global energy markets. Daniel Yergin is an economic historian and writer who The New York Times once called America's most influential energy pundit. Time magazine said, quote, "if there's one man whose opinion matters more than any other on global energy markets, it is Daniel Yergin. He's the author of a bunch of books on the intersection of energy and geopolitics, including the Pulitzer winner "The Prize: The Epic Quest for Oil, Money, and Power" and most recently, "The New Map: Energy, Climate and the Clash of Nations."

And "The New Map," for a book written a few years ago, ooh, it's scarily prescient, that the lengthy sections on Ukraine and Russia now read like they were written by someone telling the future. But Yergin doesn't tell the future. He just watches the energy markets.

He's also vice chairman at the energy, analysis, and consulting firm IHS Markit. So if you want to go deep on how energy markets work and what they mean for world politics, he is the guy to talk to. And so I talked to him. As always, my email — [ezrakleinshow@nytimes.com](mailto:ezrakleinshow@nytimes.com).

Daniel Yergin, welcome to the show.

DANIEL YERGIN: Thank you. Glad to join you.

EZRA KLEIN: So the average price of regular grade gasoline in the U.S. shot up about 22 percent over the past two weeks, from when we're talking. And that's after the Russian invasion of Ukraine. But tell me mechanically or operationally, what's happening behind that? How does a war halfway across the world result in me paying higher gas prices in California?

DANIEL YERGIN: Ezra, the answer is that it's really a global system that moves about 100 million barrels a day of oil around the world. And it's fairly finely balanced. And if you start to have disruptions in one place, it shows up quickly in another.

The spot prices go up. People have to scramble to get other oil to replace oil that they can't ship. So it starts with what's on the tankers or coming from one part of the world to another.

And then you get to the refineries. And once it's in the refineries, then the prices move up as the whole market moves up. Because the prices for products, which gasoline is the number one product, really are defined by the price of what happens to crude oil.

EZRA KLEIN: And tell me a bit about why the invasion of Ukraine has done so much to change the oil price. Because I mentioned it's shot up in the U.S. about 22 percent. But Russia only accounts for 11 percent of the world's oil output, and their oil output is still flowing. It's even making them more money, as we'll talk about, than it did before. So why is this changing prices so much?

DANIEL YERGIN: We'll come back to it, but it's not flowing the way it did before. It's really changing. And we'll come back to this self-sanctioning that's going on. It's because there's not much spare supply in the world.

But also, the oil market, look at what's happened to the stock market. All the markets that register prices of one kind or another are registering, not only in terms of oil, the disruption, but also, the fear factor, that twice Vladimir Putin has threatened — at least twice, he's threatened to use nuclear weapons, that this is going to escalate. So you could, in a sense, say, why is the stock market going down? Because what does that have to do with Russia?

But it's all caught up in terms of this sense of greater risk and in terms of oil supplies and other commodities, by the way. Wheat prices are shooting up, which is a real problem for Middle East and North African countries, that depend on Russian wheat. So this is part of actually, a larger disruption.

It turns out that the goal of the sanctions has been to unplug Russia from the global economy. It turns out there are lots of cords that connect Russia to the global economy. And of course, oil and natural gas are among the most important.

EZRA KLEIN: I want you to expand on what you said about Russian oil and gas not flowing as it was before. Because I've been surprised. But I've seen estimates from, among others, Bloomberg's, Javier Bloss, saying that we're paying more to Vladimir Putin's Russia today, or the West, at least, is, than prior to the invasion for oil and gas, that if you actually watch the pipelines, a lot of it is flowing.

But that was a couple— a week or two ago, that he made that calculation. So has that changed? How has the actual flow of energy from Russia shifted?

DANIEL YERGIN: So just to lay out the numbers, Russia exports 7 and a half million barrels a day of oil. But as you say, it's 11 percent of the production. But some of that stays in Russia, of course. About half of that goes to Europe.

And what's happening, we see now, is that one or two million barrels a day of Russian oil that would normally be loaded into tankers is not being loaded. Because the tankers aren't there, because people won't take the oil. Then there's the additional thing that there's Russian oil that's on the seas in tankers, but can't find a port, because it's being rejected.

When the U.S. and Europe set out to do this, they said, OK, we're not going to sanction oil and gas. We're not going to prevent that from flowing because we want to keep Europe supplied, we want to keep NATO supplied. We want to keep, ironically, Ukraine supplied, because Ukraine uses Russian diesel.

And also, we want to maintain the unity. We don't want people saying, why am I paying so much at the pump? But what's happened is that you put sanctions on ships or on insurance. Or banks say, I don't want to finance — short-term finance is what you use to pick up a load of oil. I don't want to provide you a letter of credit, because I don't trust the Russians. I don't know what's going to happen. I don't want to take the risk.

And you have people, companies, even refiners in Europe, saying, we're not going to take any more Russian oil, even though we don't know where we're going to get the alternative barrel. And people have now come to see it as an ethical thing. We don't want Russian oil.

So there's what's kind of a process of self-sanctioning going on. So on the one hand, on every barrel he sells, he makes more money. But he's selling fewer barrels. And I think this self-sanctioning, the rejection of Russian oil, is going to increase.

Gas is flowing, it seems, and hasn't been disrupted. Gas prices have been very high. U.S. liquefied natural gas now competes with Russian gas in Europe. But there's expectations that that will be cut back, too. And the Europeans are saying, we are going to cut the cord to Russia. We don't know how fast we're going to do it, but we're going to do it.

EZRA KLEIN: Tell me about the relationship between domestic prices and the global market. And let's focus here on the U.S. A story you tell in your book is that the U.S. has had an energy production revolution in recent decades. And we achieved, in some theoretical way, that longtime political goal of energy independence. We are a net energy exporter. We produce more than we need.

And I think a straightforward read of that would say, well, if we're a net exporter, then, of course, when a time of global turbulence, we can just turn more of our energy to domestic usage and keep prices low. And presumably, politicians would do that if they could. And it seems like they can't. So why, despite our tremendous amount of energy production now, can we not protect ourselves more from global market fluctuation?

DANIEL YERGIN: Well, we are certainly protected more on natural gas. People are noticing their natural gas bills are going up. But they're going up maybe 20 percent, 30 percent. But they're not going up like in Europe, where they're four or five times higher than normal. On oil, a lot of the shale oil we produce is not suitable, particularly for making gasoline, because of the quality of it. So that gets exported.

And we import other oil that is more conducive to our refineries, which have been set up to process what are called heavier oils. And then, in addition, the Northeast, particularly, is connected to world markets, and it imports product into the United States to make gasoline and things like that. So in the numbers, it looks like, oh, well, we're even. But it's the quality of the oil.

And so we export the kind of oil that — a lot of the oil it doesn't work in our refineries, but import other oil. And that's how you get us to being a net zero importer. But you have to net it out. So we are still — and particularly, gasoline markets are very connected worldwide.

EZRA KLEIN: I want to back up to the energy picture before Russia's latest invasion of Ukraine. Because obviously, there have been other invasions of Ukraine in recent years. But backing up a couple of years, a story you tell in your book "The New Map" is that there's been a real dramatic shift in the energy production markets from it being OPEC, the oil production cartel, basically, and non-OPEC, to what you now call the big three. Tell me about the big three and the shift there.

DANIEL YERGIN: Well, the number one big three is the United States. And that is the huge turnaround. In 2008, the U.S. imported on a net basis 60 percent of its oil. Today, we're basically self-sufficient, if you look on a net basis. And we're the world's largest oil producer. And this was unthinkable a decade and a half ago.

The other two big three are Russia and Saudi Arabia, who trail the United States a little bit. And they're roughly tied in terms of their production. And so the arrival of the United States has really changed the global market.

And one of the stories I have in "The New Map" is in 2019, Iranian Houthi from Yemen and Iranian missiles and drones hit the largest oil processing facility in the world in Saudi Arabia. And if that had happened three or four years earlier, there would have been panic in the market. What changed it was that suddenly, you have the U.S. is a really big player, and it gives a new sense of energy security.

But what's happened in the last couple of years is this thing called spare capacity, which is the oil that's not being produced, which is like a safety reserve. That has really shrunk. During the pandemic, when things were shut down, oil demand plummeted. Prices went to something that was sort of unimaginable, the negative prices, which meant some oil people were paying people to take their oil away, because they couldn't get it to market.

The oil business is always cyclical. But this has been a really big — the sharpest cycle I know of. And what happened is that coming out of the pandemic, oil demand was much higher than many people had anticipated, with the recovery, with people going out. The world — suddenly, you went from having a lot of extra oil around the world, that you could put into production if you needed it, to a very tight balance.

And so even before the crisis, oil prices were getting high. Because the world didn't have enough supply or seemed to be headed to a place of not having enough supply. And the same thing happened with natural gas, particularly in Asia and Europe, where again, the demand was much stronger than people thought. And so supply was struggling to keep up.

So that's why I say, that even before this began, you basically had an energy crisis in Europe, which has really been hit hard by rising natural gas prices, much more so in the United States, where we are more separated. And then on top of it, you have one of the big three in oil production and one of the big three in natural gas production, the same country, Putin's Russia, going to war on a whole series of miscalculations. And that's what's further disrupted the market.

EZRA KLEIN: What was behind the U.S.'s big energy turnaround over the past couple of decades?

DANIEL YERGIN: If you go back to 2003, it was thought that the U.S. was going to become the world's largest importer of natural gas. But there was this thing called the shale revolution, driven basically by one man named George Mitchell, who just had a conviction that somehow, could get gas out of these dense shale rock, which the textbooks said was not possible.

And he plugged away at it for over 20 years. And then after about year 25, it was really proved that you could do it using what is called directional drilling and hydraulic fracturing, otherwise known as fracking. And it turned out to be much bigger than anybody knew. So first, we went to become a big L.N.G. exporter, because we have so much gas in this country.

EZRA KLEIN: LNG being Liquid Natural Gas.

DANIEL YERGIN: Liquefied natural gas, which is an expensive process. It costs \$10 billion perhaps to build an L.N.G. processing plant. And then they said, well, it won't work for oil, because oil molecules are too big to go through the rocks. Well, it turned out it worked for oil, too, and it was transformative.

And a lot of people thought it wouldn't work. And I have this story in the book about a personal episode I had with Vladimir Putin. I was attending this thing called the St. Petersburg International Economic Forum, and he was up there with Chancellor Merkel. And you could see the ice between the two of them.

They said, oh, you could ask the first question. So I asked the normal question. What are you going to do, Mr. Putin, to diversify your economy so you're not so dependent on oil and gas? And they're really dependent on oil and gas. And I mentioned the word shale, and he started shouting at me before I finished my question about how barbaric and terrible shale is.

And as I reflected on it, and it's become even clearer today, he didn't like shale for two reasons. One, because he knew that the U.S. natural gas in that form of that liquefied natural gas would be competing with his gas in Europe. And he didn't like that. And he realized that this change the position of the U.S., that we would have more flexibility in what we do, in our

foreign policy, in our relationships with the world, that it would give us a whole new set of relationships with countries like India, that we didn't have before, and it would strengthen the U.S. position. So he hated shale.

**EZRA KLEIN:** You write in the book that Putin talks about energy more like an energy company C.E.O. than your typical president or prime minister. Tell me about that.

**DANIEL YERGIN:** I guess it's because he regards the energy business in Russia as his business. And so he does act more like a C.E.O., a rational C.E.O. until a couple of years ago, it would seem. And people who have dealt with him and negotiate it with him say that he shows a surprising mastery and interest in the details of the energy business, very knowledgeable.

And I think that one of his calculations — miscalculations — was he looked and said, "boy, it's a tight oil market. It's a tight gas market. It's a tight coal market. So that gives me a high card. And then I have another energy card to play. Europe is so dependent on oil and gas, that they'll do what they did after I took Crimea," he says to himself, "which is they'll say, protest and say oh, no, this is bad. And then they'll say, well, we have to look after our energy supplies, and well, we'll just stand aside."

And he got completely the opposite reaction. One of the other things he wanted to do was undermine NATO. He strengthened NATO. And he's done this remarkable thing. He's changed the policy of Germany.

Chancellor Scholz, a couple of weeks ago, basically said, we're going to back away from Russian energy. We're going to build terminals to receive U.S. L.N.G., and this relationship with Russia is over. And for Putin, whatever happens in Ukraine, this is a major defeat for him that he's brought on himself and shows a series of terrible miscalculations that, of course, are having a huge human cost in Ukraine.

**EZRA KLEIN:** Let's talk a bit about the German-Russian energy relationship. Because this is a story — and the American part of the story, I think, isn't well known. Germany has had this very commercial relationship under Merkel, who's understood as a sharp critic of Putin, where she doesn't just accept, but supports the building of the second big pipeline.

And Donald Trump, for whatever his flaws, is this constant angry critic of Europe being so reliant on Russian natural gas. And he harangues Merkel at a meeting, and she sharply snaps back at him. Can you tell a bit about that story?

**DANIEL YERGIN:** Certainly. Merkel grew up in East Germany. And I think no one needs to tell her about domination from Moscow. I mean, she lived it. But he did attack her and against Nord Stream 2.

Nord Stream 1, the first pipeline, there's a picture in "The New Map of Western" leaders and E.U. leaders and Russians and all sort of turning the pipe to turn it on. But that was 2008, roughly. And this is a very different era. And so this new pipeline became very controversial.

If there had not been a war, it would not necessarily have changed the amount of gas that Russia sent to Europe, but it would change the way it got there. Because most of Russian gas used to flow through Ukraine. Because Ukraine was part of the Soviet Union, and that's how they built the pipelines.

In this century, Russia has been building pipelines so it can send gas and not depend upon Ukraine. But I think Merkel still regarded it as primarily a commercial deal that wasn't going to change the overall gas balance. And Germany had, decades ago, pursued peace through trade. That is, they thought if you built up the economic relations with the Soviet Union, that would weaken the Iron Curtain and that it would give a positive side to the relationship, that otherwise was dominated by animosity and nuclear weapons.

Detente came out of that. And you can say that that scraped away the Iron Curtain. Because Russians, Soviet people, actually learned about the rest of the world. So Nord Stream 2 was part of that.

But obviously, the politics have been changing. Particularly once the Russian invasion of Ukraine, that pipeline is not going ahead. The Germans how to figure out how to get out of it. And they are going to do a new national security evaluation.

Because now not just Germany, but Europe is saying, we're going to use a lot less natural gas from Russia than we've used in the past. And we're going to find a way to use less oil from Russia. Russia is going to pay a price. It's not a price that they'll pay tomorrow, but it's a price over the next few years. And Nord Stream 2 now is going to be in suspended animation, lying at the bottom of the Baltic Sea, that's never going to be filled.

EZRA KLEIN: I think something that is lurking in there is two different ideas of how energy relationships might create power. So one, which is this broader, neoliberal globalization idea, is that trade ties create peace. They create relationships. They create stability.

Another argument is that having the energy yourself is what creates power. Trade ties on you create dependence, which is great for your power. And that's very much been Putin's view.

But it's also, to some degree, something you argue on America's behalf, that as we've become a more dominant energy producer, it's given us a level of geostrategic flexibility that we wouldn't have had if we weren't this big of an energy producer. Can you talk a bit about



that and particularly, in terms of the Russian case? What do you think we've been able to do or push for here that we wouldn't have been able to do or push for in the energy equilibrium of 2001?

DANIEL YERGIN: Ezra, let me give you a very vivid example. When the U.S. suddenly had this surplus of gas— I'm talking about this thing called L.N.G., liquefied natural gas, which is you basically freeze the gas to a very low temperature and turn a gas into a liquid. You ship it to another country, and they put it into another facility and turn it back into gas and put it into their pipeline system. So we started building these export facilities. They take time.

But what they've shown is that this turned out to be a geopolitical asset for the United States. There was some time in January, for instance, when the U.S. L.N.G. going to Europe was actually greater than the volumes of gas that Europe was getting from Russia. If we didn't have L.N.G. exports from the United States, Europe would be in a much worse state and would have a much more difficulty withstanding the pressure from Russia.

So this is the classic example where this has turned into a geopolitical asset for the United States beyond its economic, its energy value. I mean, we just had our conference in Houston. And these officials were coming over from Europe, going up to anybody they thought had any potential for L.N.G.— can you get us some more U.S. L.N.G.?

Now, there's also L.N.G. that comes from Qatar, comes from Australia, from Nigeria, from other countries. But the U.S. this year, having not produced any significant L.N.G. until 2016, is going to end up the world's largest exporter of L.N.G. And that's something that Putin really saw coming and did not like. That is a very important element now in the balance of power or what the Soviets used to call the correlation of forces in this new struggle that has developed this year.

EZRA KLEIN: Something hiding in this conversation is that we're talking about energy markets, but we're talking about different markets. And very confusingly, in America, we call oil gas, which is a very good way of conflating different markets. But can you talk a bit about the differences between the oil and gas markets and how they work?

DANIEL YERGIN: Sure. It's simpler in Europe. And in England, they call it petrol, so you don't get this confusion. So the oil market is a truly global market. Supplies move around. There are differences in the qualities of oil. There's differences in the refineries. But this has been a global market for many decades.

Natural gas was much more regional markets. Europe was supplied with gas from a huge Dutch gas field, then from Norwegian gas. And the U.S. was quite separated from it. But this L.N.G. business began decades ago, initially to provide natural gas to Japan for electricity

generation and South Korea for electricity generation.

But it's become more of a global market in recent weeks. L.N.G. tankers that were leaving the United States destined for Europe have changed direction and gone and delivered needed gas to Europe. So it's become more of a global market, but not as connected in the way that the European market is. The U.S. domestic natural gas market is separated from the global market, and prices in the U.S.— although homeowners, when they look at their bills, will see higher— are much lower than they are in other parts of the world. So I guess you could say the oil business is a globalized business and that the natural gas business is becoming more globalized.

EZRA KLEIN: I want to talk about one specific example of where the U.S.'s rise in gas production gave us maybe foreign policy leverage we wouldn't have otherwise had. I'm typically, relatively skeptical of sanctions and how will they work. But whenever I talk to people who work on sanctions, the example they give me of them working is Iran.

And I think that's correct, that the sanctions did push Iran towards the nuclear deal that later, Donald Trump shredded. But it was an achievement when it was done. But one thing you argue is that it's the shale revolution that made the Iran nuclear deal possible. Tell me why.

DANIEL YERGIN: We decided to put sanctions on Iran, step them up, to force them to the negotiating table in 2012. It only been two or three years earlier that people had figured out that you could produce shale oil, as well as shale gas. I know I have a quote in "The New Map" from one of the Iranians saying, the sanctions will never work. The world will need our oil. We'll be selling the oil. People will be beating on our doors.

And they just dismissed the fact that the U.S. production was going to increase so fast, that in a year or two, we were producing more oil than — had added more oil than Iran was exporting. And so that was a time when there was more supply in the world market and unlike where we are now. And so you could go get oil from somewhere else or someone else, because there was a lot of oil around. And it was the shale revolution that made those sanctions work.

[MUSIC PLAYING]

EZRA KLEIN: So we've been talking here about the transformation of the producer side of the energy market. But there's also been a pretty big transformation on the buyer side, particularly around China emerging as the world's largest energy importer. Tell me about their emergence and how that has changed the global dynamic here.

DANIEL YERGIN: What a change. Until the early '90s, China was actually an exporter of oil. And then in the early '90s, it started becoming an importer of oil. And for the Chinese, they have memories going back to the Korean War, when we cut off oil supplies to them. And so for them, oil became a strategic issue, and they built up their oil industry, and they took a ministry of petroleum and turned it into a series of energy companies and went around the world and developed oil.

And so they've become a major player in world oil in different countries. But their consumption, their growth, outrun supply. So today, China is in the position of importing 75 percent of its oil. And they see that as a huge security problem.

And they have gone around the world to try and diversify their sources. And that's one of the bases of the relationship that Putin and Xi and China and Russia have. Because Russia is one of China's major suppliers, along with the Middle East and along with other Asian countries and Africa. But they regard that as a strategic vulnerability. In fact, despite the fact that U.S.-Chinese relations are in a pretty rocky state, China is signing up long-term contracts to buy U.S. L.N.G. as part of their diversification strategy.

EZRA KLEIN: And one geopolitical consequence of that shift, which you gestured at there, is a stronger Russia-China alliance. One of your quotes in the book is, "a relationship that was once based on Marx and Lenin is now grounded in oil and gas." Tell me about that.

DANIEL YERGIN: It is so true. And when Putin annexed Crimea, and we put sanctions on him back then — obviously, they didn't do much good — he high-tailed it to Beijing and signs a huge natural gas deal with China. So China Power of Siberia pipeline, these other pipelines, oil and gas has become a very important trade for China, Russia. It's basically a source of raw materials, and oil and gas are at the top of it.

But it's not only China and Russia. I think it's really Xi and Putin. And I remember being at another St. Petersburg Economic Forum, where Putin's main guest was none other than Xi Jinping, president of China. And Putin begins by saying, Mr. President, or whatever he calls him, I apologize I kept you up so late talking. It was 4 o'clock Beijing time when we finished. And Xi said, we never have enough time to talk.

And I think we can be sure that one of the things they talk about is the U.S. and Europe and that they want to overturn what they see as an international order that's led by the U.S. and Europe. And they keep saying that each other's their very best friends. But I think now we're really at a hinge point.

And we'll see over the next few weeks, does China align itself firmly with Russia — two countries, by the way, where the leaders are, more or less, president for life — or does China step back from what they may see as Putin's reckless disaster that he's launched in

Ukraine? So people are looking for which ways the Chinese are going to go. Or are they going to try and play both sides of the street?

But they don't want to see the impact on the world economy. I mean, they pay high prices for oil, too, by the way. But the general disarray that this brings to the world economy and disruption, particularly when Xi is planning to get his third term as president — apparently, no one is running in the primaries against him.

EZRA KLEIN: When you look at the trade flows between Russia and China and the energy flows, they're big, and they're important. So in 2005, 5 percent of Russian oil exports went to China. Now it's about 30 percent of Russian oil exports before the war here. Russia passed the Saudis as China's top oil supplier.

The two countries signed this big 30-year \$400 billion gas deal in 2014. But a point you make is, that as important a trading partner and a resources partner as Russia is to China, Russia pales before the U.S. as a trading partner to China. Can you talk a bit about that?

DANIEL YERGIN: Yes. First, Putin has said that the future is in Asia, and we — Russia, that is — has to reorient towards Asia. He regards Europe and the United States as — he calls them decadent countries, that they're on a downward slide and that the future is Asia. And that really means China.

But for China, Russia is important strategically. They share a long border. Russia is important as a source of raw materials and as somebody— as a country that sees the world the same way. But economically, China's trade with the U.S. is so much more important.

And the U.S. and China are so much more integrated than most people recognize, that many of the prescription drugs or over-the-counter drugs that you buy come from China. And China has a similar dependence on the United States. In this era of globalization, production spread out, efficiency was the goal, and China became the workshop of the world.

For General Motors, China's a bigger auto market for them than the United States. So it's been a two-way street. And China and the United States, I think, in the era of post-Cold War globalization, it was a time of what I call the W.T.O. consensus, that China and the United States were part of the same trading system, and that we would all benefit from being part of the global economy — although, obviously, there would be job loss in the United States, and production would shift and so forth — and that it would be an underpinning of peace.

But that's gone now. We're in a different era with China, for sure. For “The New Map,” I went back and looked at the National Security statement, the last one from the Obama administration. And it talked about engagement with China, working with them on global issues.

And then I looked at the First National security documents from the Biden administration. Didn't have any of that language. It was strategic competitors, great power rivalry, very different language. And by the way, it's written by, more or less, the same people.

That shows you as or how much it changed in five years. And the Chinese language has changed under President Xi. They talk about unilateralism. And that means the United States, and that's bad. And they, too, talk about great power competition.

And if you look at what the U.S. and Chinese militaries, they're really, in where they're spending and where they're going to be focused, they're focused on each other. So that's a different era. And I think when the Biden administration came in, they thought there might be some hope of peeling Russia away from China. Because it would be better off for Russia economically and so it doesn't end up an economic colony of China.

But clearly, that hasn't worked. So China and Russia are very close strategically. But we still have this very complex economic relationship with China that is more significant for both countries than people recognize.

EZRA KLEIN: But let's talk about the possibility of Russia becoming an economic colony of China. Because for all of Putin's concern about Russian power and Russian land and Russia's role in the global order of the future, one of the very likely, it seems to me, long-term outcomes of this is Russia becomes, as people have said, a functional vassal state of China's for two reasons. I mean, one, because he needs them, and they can buy a bunch of his energy.

But two, back up a year or two. And for everything we spoke about with Germany and the pipelines that they were building, Europe was willing to be very dependent on Russian oil, which meant they were willing to pay Russia a lot of money. And whether they can get off of it quickly — and we'll talk about that— there's no doubt that one of the primary realizations that Europe has come to in this is they do not want to be dependent on Russian oil and gas.

They do not want to be in a position where Vladimir Putin or whoever succeeds him controls Europe's energy future. So has Putin made a pretty big miscalculation here in terms of Russia's long-term power. Really only having China and India to sell to just seems like a much weaker economic position.

DANIEL YERGIN: That's a very key point. I think so often, history is writing about people's miscalculations and shutting out information, not understanding what they're doing. And if we look at, beginning with Putin's assumption that in five days, Ukraine would collapse — it would be like Crimea part two and just take over the country — Russia supplies 29 percent of Russia's gas and 35 percent of its oil, a high degree of dependence. And he thought that was locked in, and it wasn't going to change.

But the Europeans have said, we're done. We're out of here. Now, they're not going to get out of it as fast as they think. But we do not want to depend upon Russian gas to the degree we have. We're going to bring it way down, and we're going to try and do the same on oil.

It's not going to be easy to do that. But there are a lot of things that they're going to do right away to do that. So I think what Russia has done is he's — Russia was, although he didn't like this term, an energy superpower, what it's now going to do is it's going to be a reduced energy power. And it's going to have trouble selling its products.

The oil, they'll be able to sell at a discount to India, to Asian countries, presumably. Natural gas is going to be a bigger problem. Because you can't just pick up the pipelines that go from Russia to Europe and have them point in some other direction. So they're going to have a shrinking gas market.

So he's taken steps to impoverish Russia from here on by what he's done. Russian oil and gas was sometimes as high as 46 percent of his budget, and he's just not going to have those earnings in the future. It's going to be rocky. It's not going to be smooth.

And I think consumers are beginning to see that right now. But Russia's role as — days as an energy superpower, I think, are over. And he's really signed a death warrant for that.

EZRA KLEIN: There's been a lot of frustration that Europe and to some degree, the United States — although we more recently banned Russian oil imports — but that Europe has maintained this big carve-out in the sanctions for Russian energy. And as you said, maybe the amount of energy getting out of Russia is now going down. But because prices are spiking, Putin and Russia are still making a ton of money on selling energy to Europe every single day. Tell me about the reality beneath that. What would happen to Europe if it just said tomorrow, no more Russian energy, we're shutting off the flows?

DANIEL YERGIN: It depends how quickly you can get additional oil from the Middle East. The U.S. sent a delegation to Caracas to talk to Maduro to see if, can we make a deal? Maybe we can get some more oil. Canada, which is actually our largest supplier of oil, can produce some more oil, too.

So people will scramble for barrels. It's easier to scramble for barrels when there's a lot of extra supply around. There's not a lot of extra supply. And Iran, on which sanctions are raised because of a new nuclear deal or restoration of the nuclear deal, could put more oil into the market. But it would be tight and disruptive.

We're already seeing the effects of that in Europe in terms of prices. And part of the problem is you have pipes that are in place. And Eastern European refineries, I understand, really can only be supplied with Russian oil, because they depend upon the Russian pipeline, that they can't easily get other oil.

So if you just stopped it all tomorrow, it might even be hard for the Ukrainian military to fight. Because they wouldn't be able to get any diesel fuel that they need for their equipment. Now, the flows to China are going to continue. So half of his exports go to Europe. The rest go to Asia, basically. And those sales will continue.

But over time, that market's going to decline. And the Europeans are going to do a lot of other things, including be more energy-efficient, build more wind turbines, in order to generate additional electricity with wind rather than natural gas. And I think we're going to see them burning more coal, at least for the next couple of years.

EZRA KLEIN: But I want to pull this out a little bit of the pure, rational economic analysis. Because the frustration is it's steeped in the blood of this moment. Ukrainians are dying now. Russia is invading Ukraine now. So why doesn't Europe stop the flows of oil and gas now? I'm not saying they don't have a good reason, but I want to hear what would happen. What it would mean for Europeans if they just said, tomorrow, no more?

DANIEL YERGIN: It's very odious to people to see dollars going back to Russia right now. But on the other hand, Russian oil is 35 percent of European consumption. If you can't replace it, the economy is not going to work.

We already saw, before this began, because of the shortage of natural gas in Europe, factories were actually shutting down, like fertilizer plants, that make fertilizer for the spring planting season, shutting down. So I think you would have that on a larger scale, and you would have somewhat of immobilization. If I go back to think about other oil crises, you would create a kind of panic situation, panic buying, and so forth. So it may, well, come not as formal sanctions, but just self-sanctioning that's going on.

I was talking to a lady in England yesterday, who says on ethical grounds, I don't want to buy any product that has oil in it — Russian oil in it. These products all get blended together, so sometimes, it's hard to know what it is. But I would suspect that we're going to see further degradation of Russia's exports to Europe, not necessarily because it's mandated by government, but by companies standing back and saying, we're not going to handle Russian oil, or we're not going to pick up Russian oil.

So there's going to be economic disruptions that are flowing from this. I mentioned before what's happening with wheat prices. Boeing depends upon Russia for titanium. Ukraine produces neon that's used for making computer chips. So there are going to be a lot of disruptions. But the biggest are going to be involving oil and gas, and that, of course, goes right to Putin's pocketbook.

[MUSIC PLAYING]

**EZRA KLEIN:** You back up a year, and Germany is shutting down nuclear plants and building a new natural gas pipeline with Russia. And now as the situation has changed, as their estimation of Russia has changed, what you're hearing from Europe is that the future is not just to be less dependent on Russian energy, but decarbonization.

On March 8, the European Commission outlined this plan to make Europe independent from Russian fossil fuels well before 2030. That required tripling renewable energy capacity. Germany's finance minister recently called renewable energy "freedom energy." What's your read of how this has changed the European decarbonization and renewables pathway in reality? Is this all rhetoric, or is this accelerating them down a track they're actually going to take?

**DANIEL YERGIN:** I think it's accelerating down a track that they'll put additional resources into it. Now we get into the nitty gritty of, are the supply chains there? How fast can you build big offshore wind turbines permitting? I was told, last week, by one of the top manufacturers of wind turbines in the world, at least in the Western world, that it takes seven years to get a permit for an onshore wind turbine in Europe, onshore not offshore.

Permitting is a real problem everywhere for building everything. But I think no question, that will speed up. So now, by the way, renewables is not only about climate, but it's also about energy security. And that's a different imperative that had been an amnesia about energy security in the Western world, including in the United States. Because we just assumed it's all OK.

So I think that will happen. They're going to scour the world for more L.N.G. They will burn more coal for a couple of years so they can reduce gas imports from Russia. They'll accelerate energy efficiency. They'll accelerate the rollout of electric cars.

And I think that they'll also focus on yet to be developed natural gas reserves in the North Sea and around Cyprus, which is part of the E.U., that I think that will step up as well. So they're going to move on a lot of fronts. But I think your focus on renewables will be at the very front of what they're going to do so they don't have to use as much gas for electric generation.

**EZRA KLEIN:** Has there been a big divergence between the U.S. and Europe on this? I've seen some argue, working, I think, more off rhetoric, that Europe is taking this as an opportunity to accelerate decarbonization. And in America, the pressure and the policies have been towards more global oil supply, in particular. Is the U.S. more fossil fuel-oriented in this moment, or is that just a visual difference?



DANIEL YERGIN: Most countries in Europe don't produce oil and gas. The United States does. And so one of the changes we've seen, and we've heard it from the U.S. administration, is that we are committed to our decarbonization goals.

But at the same time, we're in an emergency right now. This is an emergency. Can we increase our production to take barrels away from Russia and asking other countries to do that, too? Pretty intense negotiations going on with the Middle East to try and get them to step up production as well.

But Europe has this track anyway that it was going. And so now it's going to accelerate it. And I think, for Europeans, living on the European continent, seeing what's happened in Ukraine in the year 2022, happening in Europe, is just shocking and unbelievable to them that this would happen in this century.

They have a historic memory of World War II in a way that we don't in the United States. And so they just want to unhook from Russia, and renewable generation is a very important way to do it. So they'll step on the gas in terms of solar and wind.

EZRA KLEIN: There's a case being made right now that decarbonization isn't just a climate change protection policy, but also, a national security policy, that you have consumers in countries less vulnerable to wild swings in the oil and gas markets. Governments would be less beholden to foreign countries who dominate these markets. Do you think that argument is right? Do you think there is a national security case for decarbonization?

DANIEL YERGIN: It's interesting. In my previous book "The Quest," I went back and said, where did the modern wind and solar industry come from anyway? And they only emerged in the 1970s. And for the first 30 years, renewables were more about energy security than about climate. Climate Really wasn't an issue.

And so the big impetus was energy security. And so maybe it's a sort of a full circle to come back and see this as the energy security now picture is back in the game. And that, in a way, takes you back to the forces that launched the wind and solar in the United States. They weren't launched because of climate. They were launched to find an alternative to imported oil.

EZRA KLEIN: I think one of the observations one can make in the other direction, though, is you've really seen over the past — I mean, you've seen it repeatedly. But you saw it over the past year, you've seen it over the past weeks, how sensitive the domestic politics of all these countries are to rising energy prices. And on the one hand, you can make an idealized argument that we can have this massive energy transition at the speed we need to have it, if everything goes well without big increases in energy prices.

On the other hand, I think that might be a little more optimistic than is fully warranted by the facts, that if you want to do full decarbonization at the speed many climate advocates say we need to do it, that you're going to see prices go up on fossil fuels, even before you see some of the renewable capacity come online. Because it is, in part, the increase in prices on fossil fuels that will get you to the renewable capacity that you need.

I'm curious how you read the politics of energy prices in this. Do you think that decarbonization is possible without higher energy prices? And do you think higher energy prices are a significant obstacle for decarbonization?

DANIEL YERGIN: So you're really saying, Ezra, does it cut both ways? Last year, the Tesla — I forgot — Model Y, I think, was the 17th best-selling car in the United States. As prices that go up at the pump, and if you're driving 30 miles a day to work, and you're seeing what the prices are, you'll tend to switch to an electric car. Now, a electric car, of course, is 20 percent plastic —

EZRA KLEIN: Which means they still need oil for production.

DANIEL YERGIN: Yes, still need oil. And people don't realize that Tylenol — you take Tylenol. Tylenol is an oil product. The body of a 787 jet is basically, an oil product. So it's more pervasive in the economy than people recognize.

That said, I believe prices are very important pieces of information. And they do affect behavior. And they affect decisions that people make. A lot of the 2050 goals have been shifted to 2030. And I think we were starting to see in that energy crisis in Europe, before the invasion of Ukraine, that it could be disruptive of trying to do it really fast and that you get reactions against it.

Prices go up, and you get what in France were called the yellow vest protest against it. And I think that one of the unsaid worries about completely shutting Russian oil out, when you don't have replacement, is that it would be such a shock to the economy, that you might get a backlash in Europe, saying, well, why are we standing so strong against Russia? Let's think about ourselves.

And I think nobody's saying that publicly, but I think that's a private fear. And of course, it also comes at a time when what used to be called transitory inflation has now just become inflation. And this is feeding into it. So you get a shock. And by the way, you take money out of consumers' pockets that they might be spending on other things.

So there are a lot of ramifications of it. But I think higher prices, basically, will drive in that towards decarbonization. But it's not a smooth road. It's not only a smooth road economically and for consumers. It's also not a smooth role for politicians.

EZRA KLEIN: Right. And that's what's on my mind here. So in California, we have very aggressive decarbonization goals. And the rise in gas prices, even so, has led to a lot of politicians trying to blunt the rise in gas prices, not using them as a big moment to get people to use less gasoline and burn less fossil fuels. Republicans in the California legislature tried and failed to get a gas tax holiday passed. Governor Gavin Newsom is thinking about a gas tax rebate, which doesn't so much change the prices you see at — people see at the pump, but is an effort to ease the frustration here.

Nationally, we're releasing oil from the Strategic Petroleum Reserve. And so something you're not seeing here is, if you were making the national security case on decarbonization, you might say that moments like this, when global instability sends prices rocketing, that's the point the price is a signal that we should take to get off of these fuels. But in fact, the reaction I most often see among politicians is that the high gas prices themselves become the immediate problem, rather than the broader vulnerabilities of being reliant on a fossil fuel, like gasoline, that is maybe lurking underneath all this.

DANIEL YERGIN: I think that's right. Gasoline prices are sensitive everywhere in the world. When there was this upheaval recently in Kazakhstan, it started because the price of fuel went up. And so in all different societies, but we certainly know, in the United States, that it is an incredibly sensitive politically, understandably so, because people drive a lot. And it's very painful for a nurse or schoolteacher driving to work to suddenly see how much they're paying — how much of their income is suddenly going into gasoline.

And the reaction of politicians, then, is to, what can we do to lower gasoline prices? To me, what I think right now needs to happen is that we really do need to regard this as a wartime situation. You need a much closer collaboration between government and industry to understand the things that we've been talking about, as for how do the logistics work?

What can you do to keep the supplies going? Where can you get other supplies? What's happening on a day-to-day basis? And I think that's what really needs to happen. And I we're just starting to see that. Because this is going to have to be managed, and this may not be a matter of weeks. This could be a matter of months.

EZRA KLEIN: One of the other counterarguments I've begun to see floating around is that, even in a decarbonization world, there are supply chains you are dependent on, and there are supply chains we don't control. So this week, Senator Joe Manchin said that, quote, "I'm very reluctant to go down the path of electric vehicles." He continued that, "I'm old enough to remember standing in line in 1974, trying to buy gas. I remember those days. I don't want to have to be standing in line waiting for a battery for my vehicle, because we're now dependent on a foreign supply chain, mostly China," end quote.

And what he's referring to there is that China does dominate the global lithium ion battery supply chain. They control a lot of raw material refining. If you're looking at solar power, they are quite dominant in terms of solar panel production. How do you see the supply chain dependence question around decarbonization?

DANIEL YERGIN: Well, first, let me say, I was there when Senator Manchin made that comment. And it certainly did stand out. And I think he's pointing to something that I talk about in "The New Map." We all know the term big oil.

I think we're going to be moving in — and this is what you're getting at — into an era of big shovels. Because the sun and the wind may be free, but the materials that go into wind turbines or that go into electric cars are very physical things that have to be mined, that have to be processed, that have to be shipped, and have to go through further processing. And so we're going to have new supply chains for net zero carbon, for decarbonization.

It's going to be more mineral intensive, as opposed to oil or gas intensive. And where those supply chains? Well, the Chinese have been out there in front, as you say, 80 percent of the lithium ion batteries.

One of the great things has been the solar revolution. And solar costs have gone down dramatically, dramatically. But the major reason is Chinese manufacturing. Oh, they dominate about 80 percent of the solar panel business as well.

And so suddenly, we're going to wake up, and there's going to be a new geopolitics around these new supply chains that you're describing. And where are they going to be mined, the demand for lithium will be enormous — I mean, maybe a 4,300 percent increase, by one estimate. Now, there's some thought technology will come to bear, and there may be the possibility of producing lithium in North Carolina and Nevada, and so forth.

But other minerals, a substantial part of the world's cobalt comes from the Democratic Republic of the Congo. Copper comes from a limited number of countries. Copper — electric cars really use a lot more copper than your normal internal combustion engine. So I think securing these supplies to support the pace of decarbonization that people want to achieve, that's going to be a new challenge. And there's going to be a big focus on that.

And then it gets back to — we talked about permitting before. It's hard to open a new mine in the United States. It's estimated by one estimate, 16 years to open a new mine from discovery to production. In the United States, the permitting process alone can take 16 or 20 years.

So I think you've got to look down the road, which is you're saying and seeing, where is these supplies going to come from? And note, please, that China has a very strong position in them. When I read President Biden's statement about what we need to do about minerals

and metals, and so forth, for decarbonization, I was just struck by how often China was invoked as a reason to do it.

**EZRA KLEIN:** You did a study recently with the former Energy Secretary Ernest Moniz, looking at potential breakthrough technologies that could accelerate decarbonization. Tell me a bit about what you found. What are what are the possible technologies that you're most excited about right now, that you wish we were investing more in?

**DANIEL YERGIN:** Some of it is actually digital, becoming much more efficient in how we use energy and how we manage buildings which use a lot of energy. I would say that what's big on the agenda now, almost dramatically from nowhere, is hydrogen. And the Europeans are now talking about getting 25 percent of their energy by 2050 from hydrogen. So that's a top one.

The other is batteries and energy storage. If you had a way on large scale to store electricity generated by wind and solar, so that there were no longer intermittent up and down sources, depending upon the wind and the sun, but you could store them, that would change the energy picture. So I think those are some of the areas.

It's very interesting about hydrogen, just because so many people are jumping on it now. It involves a lot of engineering. But hydrogen is used as — now in oil refineries, it's used to make fertilizers, and so forth. So the know how is there.

The question, can you make it large scale? And what do you make it from? Do you make it from natural gas? Then you need carbon storage. You need to be able to capture the CO<sub>2</sub> and store it, called carbon capture. Or can you make from using wind and solar? And you split water, basically.

But that would be very expensive. And again, anything you do on energy that's really going to have an impact, you need to get to scale. And that involves a lot of engineering. It involves a lot of money and involves a lot of execution.

Because that goes back to where we started. The system that supports the global economy today, our \$90 trillion economy, is very big. And so you need things that are very big. But I think I would put those as some of the top things, and a lot of people working on batteries and trying to find different chemistries for batteries that would make them more efficient and store electricity for far longer periods of time.

**EZRA KLEIN:** If you could get us to spend a lot more political capital, and that capital could resolve into money and funding — it could resolve into changing laws, could resolve into changing regulations — if you were to get us to spend a lot more political capital in something that would speed decarbonization, that you think is currently underutilized, what

would it be? You've mentioned R&D here. You've mentioned permitting. What do you think we don't give enough attention to that's a real problem for the execution of a rapid decarbonization pathway?

DANIEL YERGIN: Well, I think permitting is a very important one. And if you look at the International Energy Agency's goal for decarbonization by 2030, a big part of that is removing — replacing coal generation of electricity in Asia with natural gas. We could actually be exporting more natural gas, which is a hydrocarbon, but we could displace a lot of coal. And I think that would be one objective.

The one thing that unites renewable people and oil and gas people is that they're all very frustrated by the permitting process, just how long it takes to get things done in the United States and how long they spend in courts and moving through one regulatory agency after another. But I think the biggest thing — I headed a task force in energy R&D for the Department of Energy a number of years ago. And I just come out thinking the most important thing is the money you spend on research and development and then taking things out of the lab. That's what really pays off.

The problem is it doesn't pay off tomorrow. But even the International Energy Agency said, to achieve the decarbonization goals by 2050, half the technologies you need on a commercial basis don't exist today. So what we really need, if I'm an optimist about anything, it's about technology innovation, to see what we've seen happen with solar, what we've seen happen with shale, and what we need to have happen with new technologies to get to these goals.

EZRA KLEIN: I think that's a good place to come to an end. And so always our final question, what are three books you would recommend to the audience?

DANIEL YERGIN: The number one book I would recommend, by far, as most relevant today is "Putin's World," by Angela Stent. And the subtitle is "Russia Against the West and with the Rest." And it explains why India, Brazil, Indonesia, and many other countries abstained on the vote condemning Russia for the invasion of Ukraine. And it also gives you insight into what his geostrategic and global strategy is. So I think that's the book of the day to read.

EZRA KLEIN: I think I should get you to make a disclosure on this book, which is an amazing book. But I should have you say it.

DANIEL YERGIN: Fair enough. I should mention it is written by my wife Angela Stent.

EZRA KLEIN: I really wish we could just do a podcast of the conversations the two of you must be having around the dinner table right now.

DANIEL YERGIN: Oh, it's very much around these topics, of course. The other book I read was called — it has a title called “The Power Law.” And the subtitle is the “Venture Capital and the Making of The New Future,” by Sebastian Mallaby. And so much of what we have in the world today and we take for granted, the technologies we use every day, came out of venture capital. And understanding how that system works and what it's done for the economy and for innovation, it's very interesting. It's a very colorful story.

The third book is called “The Cloud Revolution,” by a fellow named Mark Mills. And it's about how the convergence of new technologies will create the next economic boom. When we see changes come, things come together. And he's focused on around the cloud and how it will be sort of like what happened with electricity and radio, and things like that, in the 1920s.

EZRA KLEIN: And Daniel Yergin, your book is, or your more recent book is, “The New Map,” which is startling and how relevant it is, how much it has on Russia, Ukraine, how presciently it reads today. People should very much check that out to understand the layer of all of this, that it's energy-based. Thank you very much.

DANIEL YERGIN: Well, thank you, Ezra. I'm really glad to have this conversation.

[MUSIC PLAYING]

ANNOUNCER: “The Ezra Klein Show” is a production of New York Times Opinion. It is produced by Roge Karma, Annie Galvin, and Jeff Geld. This episode was fact-checked by Michelle Harris and Andrea Lopez Rosado; original music by Isaac Jones; mixing by Jeff Geld. Our executive producer is Irene Noguchi. Special thanks to Shannon Busta and Kristina Samulewski.