

## TRANSCRIPT

### Environmental Insights

**Guest:** Dan Yergin

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Dan Yergin: At this point, we're in a pretty dire, short term energy situation. In fact, I would say that since last October, we've been in a global energy crisis.

Rob Stavins: Welcome to [Environmental Insights](#), a podcast from the [Harvard Environmental Economics Program](#). I'm your host, Rob Stavins, a professor here at the [Harvard Kennedy School](#) and director of the Harvard Environmental Economics Program. It would be much too easy if there were a *New York Times* crossword puzzle clue that asked for 12 letters for world renowned global energy expert, because immediately everyone would have the obvious answer, which would be [Daniel Yergin](#).

And so today we're very fortunate to have with us Dan Yergin, author historian, educator, energy analyst, and founder of Cambridge Energy Research Associates or CERA, which was acquired by IHS Market in 2004 and which itself recently merged with [S&P Global](#), where Dan Yergin is now Vice Chair. Now to many audiences, Dan is best known for his books, including "[The Prize: The Epic Quest for Oil, Money, and Power](#)" published in 1991 and recipient of the Pulitzer Prize. Then "The Quest: Energy Security and the Remaking of the Modern World," published in 2011. And most recently "[The New Map: Energy, Climate, and the Clash of Nations](#)," published in 2020. But to tell the truth, the book that first brought this remarkably productive gentleman to my attention was "Energy Future" published in 1979 and co-authored with the late professor Robert Stobaugh of Harvard Business School. So, we have a lot to talk about. Welcome, Dan.

Dan Yergin: Thank you, Rob. I'm very glad to be with you.

Rob Stavins: So before we talk about your current thinking on energy environment, climate change policy, and of course the geopolitics of energy, let's go back to how you came to be where you are and where you've been. And when I say go back, I do mean go way back. Where did you grow up?

Dan Yergin: I grew up in Los Angeles.

Rob Stavins: And so that meant primary school and high school?

Dan Yergin: Primary school, high school. Exactly.

Rob Stavins: And then you went off to college at Yale.

Dan Yergin: Exactly.

Rob Stavins: And what did you study there? What was your major?

Dan Yergin: Well, I did English and history is what I mainly did. My official major was English, but it was a total mixture of the two.

Rob Stavins: Now you graduated from Yale. Did you immediately go off to Cambridge University in the United Kingdom?

Dan Yergin: Yes, I had a Marshall Scholarship, which took me to Trinity College Cambridge, which is where I did a, what they called a second BA, which if you paid a few pounds became an MA, which is a very easy way to get an MA. And then they said, "Why don't you stay and do your PhD here?" So it was a very beautiful place. And I said yes, thank you.

Rob Stavins: And was your PhD in history?

Dan Yergin: Well, it was international relations or-

Rob Stavins: International relations.

Dan Yergin: Yeah, it was basically the origins of the Cold War and that became my first book, "Shattered Peace."

Rob Stavins: Right. And who was your key advisor at Cambridge?

Dan Yergin: There was a very wise man named F.H. Hinsley among other things was the great expert on British intelligence during the Second World War of which he had been part. And he was a very judicious advisor, but basically at Cambridge, unlike an American PhD, one of the professors said to me, "Well just go off and write a book and come back." So I went off and wrote a book and came back and they said, "Here's your PhD."

Rob Stavins: So you graduate, you receive the PhD from Cambridge, you convert your dissertation into a book. Was your first job out of graduate school back in the other Cambridge, perhaps?

Dan Yergin: Yes. What happened then is I actually wrote a lot of my book in Cambridge Mass, where I had an affiliation with Harvard, which the most important aspect of which was a library card. And then I became a post-doctoral fellow at the Center for International Affairs and I was going to work on a contemporary sort of political economy subject. I was at a two year postdoc and I had the great virtue that or deficit that no one was supervising me, so I could kind of do what I wanted. And I just became obsessed with energy and started to just kind of like an autodidact, teaching myself. I became involved with the Harvard

International Energy seminar. And that led to me getting a job as a lecturer at the Harvard Business School, which was kind of not what I had expected.

Rob Stavins: Now, if I have this right. In addition to being a lecturer at Harvard Business School, you also taught, or at least had an appointment of some sort at my institution-

Dan Yergin: Absolutely.

Rob Stavins: The Kennedy School.

Dan Yergin: Yes, absolutely. So it was kind of a dual appointment. And then I moved from the business school over to the Kennedy School and was at the Energy and Environmental Center at the Kennedy School. And I loved teaching at the Kennedy School and particularly the kind of the mid-career students. So that was a great experience and a very formative experience.

Rob Stavins: So was that when Bill Hogan was directing that center?

Dan Yergin: Exactly.

Rob Stavins: Okay. Yeah. So you left the Kennedy School in what year was that approximately? Like '82?

Dan Yergin: Yeah, sort of. Well, I think I continued teaching for another year or two, but I kind of faded out from there because-

Rob Stavins: I see.

Dan Yergin: ... we had done this book at the Harvard Business School called "Energy Future" that you mentioned. I was totally obsessed with the subject and wanted to find a way to kind of keep what I really want to do was find a way to keep doing research like that and set up a research company, which you mentioned called of all things, Cambridge Energy Research Associates. And I actually started that. It was kind of actually looking back on it a little insane started that the same year I started writing "The Prize," which was like, what was I thinking?

Rob Stavins: Very impressive. Now tell me something. So have you graduated in, or you left, I mean, the Kennedy School or phased down at HBS and HKS around '82. So I just missed you because I came to Harvard to do my PhD over in the Economics Department in 1983. And then I joined the faculty at the Kennedy School in 1988.

Dan Yergin: Yes.

Rob Stavins: By which time you were very firmly planted in CERA.

Dan Yergin: Exactly.

Rob Stavins: Yes. So now-

Dan Yergin: Basically sort of for several years across street from the Kennedy School on top of a, as I recall, a Spanish restaurant, which we got to know the aromas of its cooking and particularly the garlic very well.

Rob Stavins: Yeah. I can picture actually that location. It's no longer a Spanish restaurant, but I remember the place. So, I've always wondered Cambridge Energy Research Associates. You take a degree at Cambridge University. You do your energy work starting in Cambridge, Massachusetts. Which Cambridge did you name it after?

Dan Yergin: Definitely Cambridge, Massachusetts.

Rob Stavins: Okay.

Dan Yergin: Definitely Cambridge, Massachusetts.

Rob Stavins: So I read somewhere that you have written all of your books in longhand. Now, first of all, is that true?

Dan Yergin: It is true.

Rob Stavins: It is true. Now our younger listeners may not even know what the phrase longhand means, but can you tell us why do you do it?

Dan Yergin: What do they call it, script now?

Rob Stavins: Yeah.

Dan Yergin: Script. The reason I do it, I mean, I guess it's because I mean, when I ... It started off basically in seventh grade when I learned, and I don't know if people learn this anymore, how to outline. And the way I write is I kind of create an outline. It's a combination between an outline and a sketch. And I find the notion, at least for me physically, there are a couple of things. For me physically you don't have to sit at a keyboard. You can be in a more relaxed posture with a pad and sort of stretched out.

And the second reason I do it, when I was growing up, my mother was an artist and I would watch her sketch as she was figured out a painting. And I feel it's like sketching before doing the painting, which are typing it. And the third thing is I think that I feel that it makes it tighter and the flow tighter, that there's more control over the prose. But I have to tell you, not surprisingly that my handwriting is deteriorated over the years and therefore once I've done that, once I've sketched it and gotten into things and know where they flow and how

they fit together, I then need to get to the keyboard pretty quickly and type it while I can still read it.

Rob Stavins: I see. So you type it in after you've written it in longhand and script?

Dan Yergin: Yes. Yeah. It's not like I have a 500 pages of long hand, but it's rather two or three pages.

Rob Stavins: I see.

Dan Yergin: And then I always focus on writing is not ... I always remember you're not trying to write a book. You're not trying to write a chapter. You're just trying to write some paragraphs and get them to sort of fit together so one flows into the other. And the other thing I do after I write is I read it aloud to just say, does this flow?

Rob Stavins: Out loud you read it?

Dan Yergin: Yes.

Rob Stavins: That's interesting. So my late colleague, professor Marty Weitzman from the Economics Department at Harvard, one of the great environmental economics theorists of the last century or this one, he always said that the two things he needed to do his research and write a paper, was a legal pad and a number two pencil. And that was it.

Dan Yergin: I find that I do better. I completely agree with that, except I need an eight and a half by 11 pad rather than a legal pad. And I use these pens called Precise Five pens, V Fives. Once I was interviewed, a magazine for people who collect pens, very fancy pens, heard that I wrote by longhand. So they interviewed me and they were very disappointed to realize that I didn't write with a very fancy fountain pen. I wrote with a box of 12 pens next to me, which I go through pretty quickly because I lose them. So I agree with your late colleague.

Rob Stavins: I suspect that you've gotten quite a few gifts, however, of very fancy fountain pens.

Dan Yergin: I have gotten some, but I don't know what to do with them because it's a different motion with a fountain pen.

Rob Stavins: Right, right. Now, before we turn to current developments in energy markets and policy, I want to ask you for a moment to reflect on your entire body of research and writing. And I hope it's not an unfair question, like the cliché about asking you to choose your favorite child, but what's the one publication or for that matter, the one accomplishment that you're most proud of?

Dan Yergin: That is a really tough question. Obviously, when I look back at “The Prize,” I look at it and my main question is how did I do this? And where did I get the confidence to do this? And what did I think I was doing? Because there's enough distance on it now. I read it and say, "Wow, that's pretty good. How did I know to do that?" But that was a project that was supposed to take two years, according to the contract. It took seven years. So, the publisher was beginning to despair of me, but what strikes me, and I didn't think about it this way, somebody described “The Prize,” “The Quest,” and now “The New Map” as a trilogy about energy security in society. And I guess in a way I think of them as one body of work, I suppose, but I think of the three, “The Prize” is the great adventure story. I mean, people will write me and literally say, "It's my favorite book, the best book I've read." And even though it's a bit on the long side, I have to admit.

Rob Stavins: Now, it's striking speaking about these three books culminating in “The New Map,” which indeed I think that it is sensible to think of them as a trilogy. I can picture the boxed set for the Christmas holidays being on offer.

Dan Yergin: That's a good idea.

Rob Stavins: There you go. Okay. It's striking to me that in “The New Map,” which was published in 2020, when you write about Russia and Ukraine, you do it in ways and with some text that's almost prophetic of the current crisis. First of all, do you agree with that observation? And if so, how were you able to do that?

Dan Yergin: Well, yeah, and I should say I also revised the book in 2021 but revised mainly means adding in an epilogue. I'm amazed. I mean, I looked at it and realized at the bottom of page 78, I say that Ukraine is the issue that's going to blow up between Russia and the West.

Rob Stavins: Right.

Dan Yergin: And I remember some reviewers said, "Well, why is he spending so much time on this geopolitical stuff? Why is it important?" And I guess when you write a book like this, you're trying to say what's coming down the road and you could see, I could see that Putin did not accept the outcome of the end of the Cold War and he said Ukraine's not a country. And it tied together geopolitics and energy in a very vivid way. And it just seemed to me that a collision was going to come.

I wouldn't have imagined a war that would go on more than a hundred days specifically, but I just could see that this was going to happen. And so what I tried to do and as you say, used the word prophetic, but what is the context, how did this thing that has just changed the world? And it has changed the world, how did this come about? And I guess I could just see that it was going to ... I was saying, well, where the next conflict's going to be. And it was one of two that I really pointed to.

Rob Stavins: So is it reasonable to assume that you're already thinking about, or perhaps have even started working on what will be your next book?

Dan Yergin: No, I think what's happened is I feel right now that I'm living "The New Map," that it's what's happening in the world because the other big geo ... There's several big themes there, including we'll get to them [inaudible 00:15:22] energy transition. But the other big theme is this dramatic change in the relationship between the United States and China. What I call the WTO Consensus, World Trade Organization that we're all in it together. We're all going to benefit from a globalized society, and about 2015, it started to change into this era of great power competition, strategic rivalry. And that's the other issue that you can see coming, just like you can see this coming down the road, you can see that coming down the road as well.

Rob Stavins: Right. Right. We seem to have gone from what was America first in the Trump Administration to American manufacturing first in the Biden Administration.

Dan Yergin: That's right. And it's in a way it's a continuation of this trend of this polarization and what's so ironic about it is of course the United States and China are so economically interdependent even at the same time as this polarization, this division is continuing to grow. And so, I think about it in the paperback, I've added a chapter called "The Four Ghosts who Haunt the South China Sea." I see it has qualities that reminds one, if you're looking for historical analogies, as imperfect as they are of the pre-First World War situation.

Rob Stavins: Now, another way in which the US and China were cooperating greatly was back during the Obama years and that was on climate change policy. And that's fallen by the wayside. Not because I don't think there's tremendous disagreement, but rather it's collateral damage on all these other issues between China and the US now. But that all relates then to the fact that global climate change is linked obviously with energy generation and use, and global climate change policies are linked with the so-called energy transition. How is that feeding into the geopolitics of energy?

Dan Yergin: Well, I think it's still profoundly important. I mean virtually all the nations in the world have signed on to the Paris Climate Accord, and there's no question that you see wind growing, solar growing, call that the energy transition. But it's interesting, even when the Biden Administration says, why should the US step up electric cars? You read the documents. It says because China has half the world's electric cars. So all of this, that competition is certainly, as you're suggesting, Rob, is flowing into the climate discussion.

Rob Stavins: So what's your assessment of the current US administration's energy policy, whether it's domestic energy policy or it's in terms of international relations?

Dan Yergin: Well, I think that it's quite different from where it came in. I think it is that I think the energy secretary said it's having to walk and chew gum at the same

time. It's absolutely committed to its climate objectives. And it's moving in that direction in many ways at the same time, it has to recognize the reality of where we are today and that's expensive gasoline. Basically, what's turning into an energy war with Russia, shortages around the world, and concern that it's going to derail the economy.

So we have our, we still call it our [CERAWeek Conference](#) in Houston, in March and the Secretary of Energy Jennifer Granholm, while continuing to emphasize green jobs and climate, also implore the energy industry to increase production, oil and gas production, because they're looking at where gas prices are and we have kind of moved into a period of basically of shortage. I mean, I think that right now at this point, we're in a pretty dire, short term energy situation. In fact, I would say that since last October, we've been in a global energy crisis. So it does mean still continuing the administration, it's focused on its climate objectives, but at the same time it can't allow or to try and prevent energy problems from derailing our economy or indeed the global economy and right now that's what's happening.

Rob Stavins: So the global energy crisis did not begin with the invasion by the Russians of Ukraine, but last fall.

Dan Yergin: Yeah. What happened, I think if you look back on it, basically during the pandemic and the lockdowns there was the assumption that we've reached the peak of conventional energy consumption and it's going down. And then we came out of the lockdown and low and behold demand really started to increase again. And simply supplies became very tight, very tight indeed. And so not in the United States, but in Europe and Asia, you were looking at natural gas prices and coal prices that went very high. I don't think it was much attention was paid into the United States until around November when gasoline prices started to go up and that's when the administration asked the Saudis to increase oil production and then started to talk to the domestic industry and say, "Can you increase production as well?" So it's a two track process.

Rob Stavins: And how do you see it going forward? I know you don't have a perfect crystal ball, although having gone back and taken a look at your three books, indeed four books, I went back to "Energy Future" as well to prepare for this. I think you probably do have quite a crystal ball. So where do you see all this going?

Dan Yergin: Well, first, of course, one of the things you learn when you're forecasting is always be prepared to be wrong. And I truly hope that I'm wrong, but it seems to me that the situation's going to get worse over the next several months. That's because it's not only the question of markets now and investment, but it's also this clash with Russia and Putin is doing what Russia hasn't and the Soviet Union did not do for half a century. He is manipulating energy supplies to make the situation in Europe, more difficult by cutting back on gas. And his strategy is pretty clear – which is to create shortages in Europe, which will cause fissures in the Western unity on Ukraine so that the kind of Alliance falls apart and to get into the politics, President Macron was reelected in France and the



sort of, kind of pro-Putin populous party only got 41% of the vote, but that's 41%.

That's a lot. And so, I mean, Putin has made clear that he thinks that the Alliance is going to crack because of energy prices. And by cutting back on gas supplies, he's trying to prevent the Europeans from getting enough natural gas in storage for this winter. So that eventually you'll have a political reaction and people will say, "I'm more concerned about energy prices than I am about Ukraine or Russia" and governments will change. And that's on top of the kind of shortages that we're seeing and everything is in short supply.

Oil is in short supply. Natural gas is in short supply globally, and coal is in short supply, and you can't build enough wind turbines and solar quickly to accommodate for that. And politicians react to voters and voters react to their pocketbooks when these prices get as high as they are. And we'll see how it goes over the summer. But if you start to have disruptions of energy supplies or rationing... In effect, Europe is moving towards starting to ration, natural gas supplies. It started up cold plants that it was going to shut down. And now this is also taking in the context of what most economists now expect to be an economic downturn or recession. And of course, recessions are the one thing that can modify energy prices in due course.

Rob Stavins: So that raises the question of the net effect of what's happening in Ukraine and Russia and Europe with natural gas in terms of climate change and carbon dioxide emissions. Because as you said on the one hand that has had the effect of, for example, Germany just announcing about restarting some coal-fired power plants for electricity generation... Greece had months, at least a month ago had indicated that, but on the other hand, perhaps the optimist, the climate optimist would say that these pressures with regards to natural gas or fossil fuel will push countries to move more quickly to renewables. So, there might be some tradeoffs. What do you think the net effect is going to be?

Dan Yergin: Well, I think the answer is both. They're doing both. The Germans are saying we're going to build LNG receiving terminals. And indeed, they now look on US LNG exports as part of their energy security, and they're depending upon it, that how important US gas is to them. So, they're absolutely looking for more conventional energy and you describe what Germany's done. And please note that it's not the conservative CDU party that did this. It's the Greens. The environmentalists who said, "We need to turn on our coal plants because we know what Putin is trying to do, and we can't allow that to happen."

Rob Stavins: Right. No, the energy minister is from the Green Party.

Dan Yergin: Yeah, exactly. And he's the one who's really at the forefront of this and has been working with the energy industry saying, "okay, how do we get off Russian oil? Tell me how the flows actually work so we can do this." So there's a very close collaboration because they realize they have a big problem to solve. But on the other hand, Europe has come out with even a stronger commitment to

renewables. And so, I think that the longer-term outcome of this is an acceleration of renewables, renewable electricity as the longer-term alternative. So that's why you've got to deal both with the short-term crisis and at the same time lay the basis for a different kind of future.

Rob Stavins: And indeed, if that's the pattern, then that's probably a wise pattern – short term, cutting back on focus on climate change because of the immediacy of the energy crisis and the politics, the geopolitics, but in the long term, accelerating the move to renewables.

Dan Yergin: Yeah, absolutely. And I think that will happen now. It does raise one other question about renewables and it's something that in “The New Map” I have this whole section trying to look historically at energy transitions, what lessons there are. And to realize that this is an energy transition like none that's ever happened before and that there is the supposition that the wind is free, the sun is free, but you need a lot of materials to make this transition. And so I have the line in the book where I say we're going to move from an era from big oil, that phrase, we always hear to big shovels because you're going to need so much mining. And I've been doing following up on just looking at it in terms of copper. And there are two countries in the world that produce 38% of the world's copper, which is Chile and Peru.

And then you look at the supply chains for kind of call it the materials for net zero carbon, and they tend to run through China. So, this is what we were talking about before Rob, this geopolitics over here, this rising tension between the US and China kind of collides with this move with energy transition in a way, if you sort of say, what else do I see coming down the road? I guess I would say, that's something else I see that it's going to be a little more complicated than it might appear right now.

Rob Stavins: So let me close this wonderful discussion, wonderful least from my perspective, to get your reactions to something we've seen starting in 2019, which were these youth movements of climate activism. I mean most prominently Greta Thunberg, but it certainly goes beyond that. I can tell you at Harvard, among the students, we see it tremendously. It started really in 2019, a bit of a hiatus in 2020 because of the pandemic, and then back again in force at the climate negotiations in Glasgow, Scotland in late fall 2021. I'm interested to know what's your reaction to these youth movements?

Dan Yergin: Well, first of course, Rob, you see it up front from many dimensions. I almost want to ask you what you think. I think I will, but first I'll try and answer, but then I'm going to ask you what you think. I think there's clearly a, this is a generational issue. It's one that is ... it's a global theme that runs through and it's very motivating for the people. And it's a social movement, I guess I'd call it. I'm sorry. I have to ask you, Rob, what do you think?

Rob Stavins: I don't want to take the last word, but I'll tell you. I would give you my thinking in the form of a bit of a question, and that is whether this is a cohort effect or an

age effect as people get older, it is true that they become more conservative or is it not about age? Is it really about this cohort and that 10 years from now, instead of demonstrating outside the gates at the annual climate negotiations, they'll be inside the room doing the negotiations. I think it's probably a bit of both. And my hope is that the cohort part remains. And I think the reason I say this, Dan, I think you'll resonate with this is that back in an earlier era when I was younger, the big issue was the war in Vietnam, at least for Americans.

And I remember talking with older people who were much more conservative about it and I couldn't understand their conservatism. And so when I look at young people today, whenever I have the temptation to be conservative and say, and thinking that demonstrating doesn't have any effect, you've got to just study more, learn more, and then get a job where you can have an effect. I also am reminded of the fact that as you just said, that the passion that's associated with what is really a movement is itself very important and I think to be admired.

Dan Yergin: Right. Well, I think to use your language, I think it's a cohort effect, which is, I think; in other words, this is now this is part of their worldview. This fundamental element in their worldview, and they've grown up with it and they don't have patience, the notion energy crises, that's something else. So I think it's of lasting political and social significance.

Rob Stavins: Well, that's a really good place for us to end, which is actually I think an optimistic note. So thank you very much, Dan, for taking time to join us today.

Dan Yergin: Well, thank you, Rob. This is a great discussion and I have to tell you, I'm very glad to be back at the Kennedy School, so thank you for the invitation.

Rob Stavins: You bet. Our guest today has been [Daniel Yergin](#), historian, educator, energy analyst, and author. Please join us again for the next episode of [Environmental Insights: Conversations on Policy and Practice](#) from the [Harvard Environmental Economics Program](#). I'm your host, [Rob Stavins](#). Thanks for listening.

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