



TRANSCRIPT

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Guest: Vijay Vaitheeswaran

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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 program.

In the past, I've had the pleasure of engaging in conversations in this podcast series with some very knowledgeable journalists from the *New York Times*, the *Wall Street Journal*, and other periodicals. And today I'm really delighted to welcome someone who very much fits this mold and has for decades. I'm referring to my guest today, [Vijay Vaitheeswaran](#), the global energy and climate innovation editor at [The Economist](#), where he covers the energy and utility industries, the clean energy transition, climate innovations, and low carbon technologies. I'm pleased to say I've known and worked with Vijay for 20, perhaps now 30 years, and so I'm delighted he can join me today. Welcome, Vijay.

Vijay: It's such a great pleasure to be with you, Rob. Thank you for having me.

Rob Stavins: So, before we talk about energy markets and current policies, can you tell me what inspired you to focus on energy and environmental issues as a journalist?

Vijay: Sometimes life is serendipitous, and so though I do have a background in technology, I'm an engineer by training from MIT, I initially was given the chance to cover Latin America and be a foreign correspondent at *The Economist*. That was my first job to open our Mexico bureau. So, it really was not specifically to do with environment or energy, but when I returned from a successful stint out in Latin America, I was asked to take on energy and environment at a time when everyone told me, "Oh boy, that's the most boring job at the publication." You're being sort of punished to make sure you can work in the boiler room before you're given another interesting job. I thought, well, that's a terrible way to look at it. But they didn't know though was at that time oil price was

about to collapse to ten dollars a barrel and then surge to a hundred for the first time that George W. Bush was just around the corner, and he would invade Iraq that would pull America out of what was then the Kyoto Treaty on Climate Change.

In other words, and climate would leap to the front as an early warning sign for energy systems and transitions. And so, it was an extraordinary time to be introduced to energy and climate topics and to look at them together, which sometimes they had not always been in journalism. There might've been environment reporters even at *The Economist* and energy reporters, but the two together were not that common and that was the job that I did together. And that came a little bit with my interest in taking things with a systems approach, perhaps with my background as an engineer, maybe my training as an economist journalist to think about things and how the pieces connect together. So, that's always fanned the flames of looking at energy systems and the connection with climate

Rob Stavins: That's parallel, Vijay, to what I went through because when I was in the 1980s in the Harvard Department of Economics doing my PhD degree, I was warned off when I said I wanted to focus on environmental economics. And I was warned off because it wasn't even an area at the time in economics and told that I should focus on one of the more conventional areas, public economics, industrial organization, et cetera. But like you, I have never regretted my choice.

Vijay: Indeed.

Rob Stavins: So, now you've really had the advantage of considerable perspective having covered this area for decades. What do you see as the most significant trends that have been reshaping the global energy sector?

Vijay: So, just a small footnote to that comment. I have kept close to this topic for a long time, but I did other jobs at *The Economist* as one does in the life of a correspondent. I was our bureau chief in China opening the Shanghai Bureau. I was a U.S. business editor for some time as well during the pandemic even. And through that, of course, being in a place like China, energy and environment are extremely important topics that I would follow. But I gained a perspective and appreciation for innovation, for markets, for the interlinkage of policy and the real world. In fact, it was that set of experiences seeing how rapidly that economy transformed on the energy environment front because of how that swirl of top-down and bottom-up worked and how that was different from the way that having covered the rise of companies like Tesla and so on in the early days, how that worked differently in the U.S. ecosystem of innovation. That led me to come back to do studies of business at Harvard Business School. I did the global management program to get a perspective on how global business leaders see the connection. And so, when I come to this, and you asked me what are the main trends, I keep a close eye on international negotiations having been to many COPs. In fact, I think you and I were together again at COP 29 in Baku.

Rob Stavins: Absolutely.

Vijay: Just like in the old days. But I also have a great deal of appreciation for bottom-up forces, understanding that whatever the cycle and rhythm of international negotiations or domestic policy and the vicissitudes of domestic policy, that in fact the momentum often builds from the bottom-up, from markets, from the role of business, from the opportunities that are created from technology innovation advancing. And so that's where I keep my eye on both. What's happening from the top-down. It does matter, of course, the framework matters, but oftentimes the longer-term trends are determined by what comes from the bottom-up.

Rob Stavins: So, when were you in Shanghai?

Vijay: So, I opened our bureau in 2012, and I was there through much of that decade covering what were frankly the good years when private sector was encouraged, when innovation was on the rise. Alibaba, I put them on our cover two years before they did their IPO predicting this will be one of the most valuable companies in the world because when you spend a couple of days with them as I did in Hangzhou and see the way that they reimagined the world, I got the feeling of being back in the Googleplex with Larry and Sergei back in the early days or with Elon before things took a turn, a weird turn of late. And so, you have the sense with some of these world-class entrepreneurs who can imagine a world very different than the world we're in now, but also have some of the hubris to think that they will make it happen and sometimes it actually happens.

Rob Stavins: Yeah, it is amazing how things have changed. I just returned days ago from Shanghai where I was chairing a Harvard workshop on trade and climate change. And the reason I mentioned that to you is the dramatic difference from when I was in Shanghai last, which was probably during the Obama presidential years and the drastic change in the trade relationships among the United States, Europe, and China, and geopolitical tensions for that matter.

Vijay: Well, that's another one of the important drivers of change. Of course, you're quite right. You're asking about how has the world evolved, and that is from an era of the golden age of globalization, one could say, that extended for decades, we've really gone into what, again, supply chains is one of those things that I've written special reports for *The Economist*, and we've argued and spotted almost a decade ago, an era of slowbalization as we called it. It wasn't the end of globalization. It's not, but it's certainly changing in the patterns of becoming more regional. And of course, with the tariffs that the first Trump administration introduced that were continued and built upon by the Biden administration, we saw the world turn in a very different direction, of course, from that of easy flows and long supply chains extending deep into China to western economies. And now we've gone well into an era of industrial policy, of attempted domestication of supply chains and that has its inefficiencies. And in particular, if one is concerned about climate action, I've argued that this will have some deleterious consequences as well.

Rob Stavins: No, I absolutely agree with you. And it's very sad, partly due to just the general rise of populism and for that matter, right wing governments often together with it in some important countries, both in Europe, now of course in the United States, we're seeing

much more protectionism. It's just such a dramatic difference from those, what was it, 40 or 50 years following, actually 70 years following World War II in which there was gradually opening up a free trade and then of course this period of globalism that you're referring to.

Vijay: Right? From the perspective of emissions, I do worry. Making very expensive solar panels at home in America or very unattractive and expensive electric cars that nobody wants to buy because you're reliant on domestic technology or energy storage. Another example where we have at scale with quite a lot of innovation embedded cutting edge technologies that are available quite inexpensively because China invested and got them to scale and is making them available, but very high tariffs will keep them out of markets like the U.S. and what will happen? My prediction is that a number of those technologies will be redirected to the emerging world. If that happens, that would be a good thing. You might even help with a green leapfrog in India if it allows, certainly in Africa, Latin America, and it doesn't matter to the planet where the emissions cuts are made right in the long term.

So, I hope the good news from this is that if we instead see the Chinese low cost and reasonably good quality products involved in solar and batteries and wind, in energy storage, and other related areas, electric vehicles, directed at affordable prices to emerging economies, we might well see a green leapfrog that's already beginning to be evident in countries like India with their enthusiasm for electrolyzer innovation or battery swapping, for example, for two wheelers and three wheelers. We're seeing that kind of frugal engineering being applied to climate technologies in developing countries. I think that's a nice counterpoint to some of the gold-plated attempts at innovation in the rich world that, as in the case of the Northvolt company in Europe, is a disaster. It doesn't necessarily work. So, we need to have much more rapid action on climate, and I'm happy to see multiple countries having the opportunity to lead that fight.

Rob Stavins: So, with the rise of electric vehicles and battery technology, how do you view the future of the oil and gas sector globally?

Vijay: So, I took a deep look at this on the 50th anniversary of the Arab oil embargo, which was roughly a year ago that we ran a special report on this. And so having talked to the great and the good and reflected on this, I think the long game for oil is already in sight that in the long term we know how to electrify transport. That's a problem that we have a pathway for, certainly in passenger transport. With freight we have to see which technology wins out, whether it is indeed electrification, which is making gains even with freight, even though batteries are heavy and cannot go as far. There is an argument for hydrogen or some other kinds of synthetic fuels as well. So, there's an open competition, but we have pathways to alternatives there. We're seeing shipping as well moving quite rapidly, in fact, towards some alternative fuels to petroleum-based fuels.

Therefore, I think the end game is already clear to the Saudi Aramcos, to the Emirati ADNOC company, the places where most of the world's remaining stocks of inexpensive low carbon content, oil, which is the Gulf, the Persian Gulf, the leading national oil companies there are investing quite heavily to hedge their bets, you can say, in low carbon technologies, whether it's hydrogen, synthetic fuels, or e-fuels, whether it's in

their carbon capture or through their investment funds. And sovereign funds are putting a lot of money into climate technologies, AI, areas that can help them develop alternative lines of revenue as we reach global peak oil and diminish. Now, this is not to say that we're going to end oil tomorrow. Let's be grownups about this. This is what I've advocated on our pages. It's to keep our eyes wide open to understand that change is coming, but to recognize still 80 percent of world primary energy comes from fossil fuels today.

So, it is ridiculous to say, just stop oil today and to throw red paint on Stonehenge and imagine the world is going to stop. That's not really a systems thinking involved. That might be an understandable emotion of someone who wants to see change come faster. But the way we should work for change faster is to develop these alternatives, make them attractive, make them affordable, keeping in mind energy poverty is still a significant problem for 800 million to a billion people around the world with little or no access to modern energy and to accommodate a world that's going to use much more energy in future, and rightly so, in developing countries. And in developed countries, of course with the AI surge, we will certainly use more energy for that purpose – to make it clean, make it clean and firm. So, I think those are the kinds of outlines of, I think the direction of the future that probably calls for fossil fuels to be with us for some time and for more thought in how we think about the emissions from those fuels. And emissions are what matters to the atmosphere, ultimately not the source of the fuel.

Rob Stavins: So, speaking of fossil fuels being with us for some time on the supply side, surely part of that is natural gas coming from the United States where now I guess the world's largest exporter having exceeded the exports, or at least the world's largest producer having exceeded what comes from Qatar. And you've written about the Biden administration's policy regarding new LNG export projects and you've noticed that dropping the pause in allowing more export facilities as the Trump administration will surely intend to do, will not seriously affect global prices, will not greatly affect China, but could contribute to climate change in interesting ways. Can you explain that last part of it?

Vijay: Sure. To focus on the climate change dimension of this, just by way of a brief context, the pause was never going to affect projects that were already approved, right? So, this was always going to be about distant future projects that may come a decade hence that were in the pipeline for approvals. Just the projects that had already been approved and not affected by either the pause or any removal of the pause would've put America on a trajectory to a dramatic increase in LNG exports in the coming decade, far surpassing even that of Qatar, the global gas superpower. And that tidal wave of gas is coming, starting a few years from now, and the world is going to be awash in a lot of gas. So, the volumes are going up. The question of price, I leave it to other prognosticators to talk about price, but there'll be plenty of gas and there's plenty more where that came from. There's no shortage or scarcity of the resource base. And so, with that being said, the extra projects that may come on as and when a pause is lifted will only contribute to this availability of gas. Now, whether we use it has to do with policies and alternatives.

And so that's why I say just as with oil, the focus on the alternatives and on emissions. In the case of gas, to get to your question about emissions, of course at the point of use,

natural gas is clean burning and especially if it replaces coal as it will often do so in developing countries, that is an environmental win. Coal, of course, is much more carbon intensive, but it also has dozens of other nasty local pollutants that are contributing to becoming really one of the biggest killers from outdoor pollution in the world.

Several million people a year die in places like India and China, but Indonesia, other countries, South Africa, from the burning of coal, which still represents a substantial share of the total power sector. So, if that is switched to imported natural gas or domestic, that would be a good thing at the point of burning since it's clean burning.

The challenge is upstream methane. We now understand, although scientists have known this for a very long time, but much more in the political consciousness, that methane is a much more potent greenhouse gas in the short term in the 10-to-20-year timeframe because it does have a shorter life than CO₂. And global accords were reached at Dubai, at the COP Summit, and reaffirmed in Baku, to try to dramatically reduce the methane footprint of oil and gas companies during their production process because oftentimes it was recklessly vented or flared. A lot of the pipelines or fittings or compressors leaked without much attention paid to them.

The leading companies in the world, be that the big oil companies that are familiar, Exxon, Chevron, et cetera, or the national oil companies as well, the leading ones have agreed to dramatically reduce their footprint of that methane. And to keep them honest, we now have a couple of environmental satellites including one run by an environmental group, EDF, that are eyes in the sky watching and monitoring methane specifically. As one oil boss said above this situation, there's nowhere left to hide. And so, that's actually a very good dynamic of transparency and accountability if we are able to produce natural gas in this way with very low emissions. There's a case in point – the Norwegians have done this for quite some time, well-documented extremely low methane emissions because they take care, it's well-regulated, it's monitored, there are penalties if you violate the rules. If we can do this, then it is an environmental win to substitute for coal. If you don't do it, if you make it in a reckless way without capping your wells or with terrible venting and flaring, then it really becomes a climate change nightmare.

Rob Stavins: Yeah. What's really striking, Vijay, as you well know, is that leaks of methane from wellheads, pipelines, transmission facilities of various kinds, that the cost of reducing those in terms of the actual equipment and patching them or replacement are not the major cost. In many cases, the major cost is just locating, finding the leaks in the first place. And the new satellite systems, including the one you mentioned, Methane SAT essentially will reduce those costs tremendously for the private sector because they're making the information publicly available. And I think as you also suggested, the big challenge, at least in the United States, is not going to be so much from the major oil and gas companies. It's from the small operations. In a very substantial amount of the natural gas are coming from extremely small operations where the family or the small company owns one or two wells.

Vijay: Right? As well as perhaps private equity owned or private companies that don't face shareholder or branding concerns. You're quite right. That's a tougher challenge. That's actually where the fact that we have a carrot and a stick can help. The carrot is in the form of the potential of exporting to markets like Europe and increasingly, perhaps Japan and Korea, that are introducing rules saying that you cannot sell to us if you don't meet certain requirements on upstream methane. That is, if you don't have relatively clean and verifiable emissions upstream, you won't be able to sell to Europe certainly, and every reason to think Japan and Korea will follow suit. The stick has been the regulation that's been introduced by the EPA on methane regulation and emissions, as well as a methane fee, which is, I would suggest might even be the first time in America, and you'll correct me on this if I'm wrong, Rob, but the national level greenhouse gas price signal.

And if that's the case, I'm very sad to say that it has very little chance of surviving a Republican Congress. It's on the target list of things to go for the new Congress. However, that EPA regulation may have a chance of staying in place because the big companies with their powerful lobbying actually wanted to stay, some form of it, because they are getting tarnished with the same brush as the small fry. The big companies want to export. It's very important to have those export markets and to get credit for the good work they're doing in investing in reducing their emissions but they will surely be tarnished with the same brush if the regulations are weakened or the smaller players continue to be as dirty as they are. So, there's an interesting split in how the lobbying is working on this one.

Rob Stavins: So, I want to draw our listeners' attention to the fact that on the platform of which they're listening to this podcast, they can take a look at some previous episodes in which I have had conversations with people from the natural science community, atmospheric chemists, and physicists working on satellite detection and ground estimation of methane emissions as part of this [Harvard-wide initiative on reducing global methane emissions](#) that I'm delighted to be chairing. But what I want to really ask you about, Vijay, as we begin to approach the end of our conversation, is to return to your personal perspective, because I would love to know what you think the general public misunderstands most about the energy sector.

Vijay: Well, it's a big question to ask what people generally misunderstand, but I would say one thing that comes to mind is the idea of the energy transition. I think that phrase is very unhelpful, and it's when I try to fight, even though it creeps in even onto the pages of *The Economist* because it's a useful shorthand. In fact, energy has always been an addition, and I think that that's the thing that's missed. Vaclav Smil has made this point, of course, over the many decades, but we... Energy system is not about reducing. The world will consume more energy, significantly more energy in the future, in part in developing countries. It should, right? Energy is the fundamental gateway to development. And so, I think seeing this as a reduction rather than as an addition is a fallacy. And the transition suggested there's a specific endpoint and a lot of net zero scenarios suggest, here's where we'll be in 2050. We're increasingly finding out that's not a helpful heuristic, just as the 1.5 target may not have been as helpful as people had hoped in the Paris Agreements.

So, I think if we see this instead as what are the outcomes we want? We want to move as quickly as possible on climate action. We want to focus on emissions. I think that's the most important thing. In particular, net emissions, that's what the IPCC has called for, really looking at net emissions to be negative in the second half of the century. And then you suddenly open up the frame to saying, we need to probably have more energy, particularly for development and perhaps for AI as it's harnessed for good uses, and how do we make sure the emissions from those are minimized, and how do we ultimately move towards negative emissions, which the science demands in the latter half of the century, and keep an open mind on the different kinds of technology market and policy pathways to get there. There's often ideology that stops debate on some of these things because people don't like one or the other, or they favor one technology or another. So, I would say if you see this as from an abundance mindset of a growth mindset rather than the negative one that suggests we have to shut things down and have less, I think it creates more opportunities than the alternative of the energy transition frame in my mind.

Rob Stavins: So, your comment about the phrase, the energy transition, I find very, very interesting, at least partly because of the fact it seems that there are certain words and phrases that are used a lot more than they're really understood by those who use them. And actually, I would add to that the words sustainability. It is a word which it's very hard to avoid reading it or using it in all sorts of contexts but if you begin to ask someone, well, what does mean to be sustainable then you get a whole set of different concepts ranging from well reducing pollutant emissions to something that is very, very different that may have to do with vegetarianism. It's quite remarkable.

Finally, what I'd love to also find out from you just briefly as we could at the end here, is what do you think the energy landscape is going to look like 10 or 20 years from now? I know there's a lot of uncertainty, and I know that you're someone who wants to be and always is very pragmatic, not being driven by either catchphrases or idealism on either side. But what's your best guess of 10 to 20 years from now, how things will be within the energy sector broadly? It doesn't have to be on climate change.

Vijay: Yeah, thank you. And for this, I'm going to draw some inspiration from one of my heroes back from my undergraduate days at MIT, Robert Solow.

You had talked about sustainability being this slippery concept that kind of means nothing in everything. I agree with you. I think it's one of those words like the word innovation that is often mischievously abused by people. But Solow, of course, famously gave a definition of sustainable development and sustainability, which was a challenge at that time as the Brundtland Commission, for example, was grappling with what is the meaning of this? And there were different constituencies, some arguing people, some arguing planet, others saying profit. And he argued that sustainability is a set of arrangements that allows future generations to be as well off, at least as well off as people are today.

And that concept of thinking about the future, about change, that is not every rock has to be in exactly the same place as today. So, we're allowed to grow, to innovate, but leave our children and grandchildren with the capacity to be better off tomorrow. And I

think that dynamic and interpretation and the connection between the past, the present, and the future is the most important thing to remember. Those who in some ways sort of glamorize or fetishize the past or the present, I think do a disservice to the future. And so, when I think about the future, I try to think about the idea that dynamism and change has to be part of this. And for that, we really need to have that growth mindset, the opportunity mindset, so that our children and grandchildren can be leading better lives. And that's really a better way to think about sustainability than restoring to some imagined past.

Rob Stavins: I think it's wonderful that you brought up Bob Solow. I remember the article in which he had written that view up, and in a book that I edit that comes out about every five years called *Economics of the Environment*, its selected readings, I've included that article of his on sustainability from the very beginning.

Vijay: Wonderful.

Rob Stavins: So, I want to thank you very much, Vijay, for having taken time to join us today. I know your schedule is busy, and I really appreciate it.

Vijay: It's been a great pleasure, Rob.

Rob Stavins: So, my guest today has been [Vijay Vaitheeswaran](#), the Global Energy and Climate Innovation editor at [The Economist](#). Please join me 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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