

## TRANSCRIPT

### Environmental Insights

**Guest:** James Stock

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**James Stock:** The energy transition has to be inclusive, and we have to make sure that it works for all communities. By having it work for all communities, communities can embrace it, and it's only through community engagement that we're going to be able to tackle the really tough problems ahead of us.

**Robert 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](#). I must say, I've had the pleasure of including in these podcast conversations over the past three years a significant number of truly outstanding academics, mainly economists and legal scholars, but also others, and individuals who have also served in important government positions.

Today, given those criteria, this is no exception, because I'm joined today by [James Stock](#), who is the Harold Hitchings Burbank Professor of Political Economy at Harvard, where he is also Harvard's inaugural Vice Provost for Climate and Sustainability, and the director of the new [Salata Institute for Climate and Sustainability](#). Also, Jim served as a member of President Obama's Council of Economic Advisers, where he focused on macroeconomics, as well as energy and environmental policy. Welcome, Jim.

**James Stock:** Rob, it's really a pleasure to be here.

**Robert Stavins:** So, before we talk about your research and your current thinking about environmental and climate policy and lots of other things, let's go back to how you came to be where you are. So, where did you grow up?

**James Stock:** I grew up in Minneapolis, and I have always spent a lot of time in the north woods, and that really developed from an early age a love of the outdoors and the environment.

**Robert Stavins:** So, does that mean it was primary and high school up there?

**James Stock:** Yeah, yeah.

**Robert Stavins:** Then you go on from the north woods out east to college at Yale. What did you study there?

**James Stock:** Well, I was a physics major at Yale, which was great fun, but I realized my senior year that I didn't want to spend my life working on machines in the basement of physics buildings, as interesting as it was.

**Robert Stavins:** Although, I must say there have been a number of leading economists who I've had conversations with in this podcast series who also did their undergraduate degrees in physics. One of them, of course, our late colleague, Marty Weitzman.

**James Stock:** Yeah, Marty was a wonderful economist.

**Robert Stavins:** You went on to graduate school. Was that right away after graduation from college?

**James Stock:** Something that probably many of my colleagues don't really know about, nor is there any reason they should... I originally really wasn't sure what I wanted to do after deciding that I wasn't going to be a physicist, so I took a job at the last minute at an energy policy consulting firm, and I spent a year doing that, and I just really fell in love with the idea of bringing the tools that I had, the toolkits, and being able to bring them to bear on real world problems.

At the time in the late '70s, energy policy and energy price fluctuations and energy challenges and energy security were really a huge deal, and it was a great opportunity and very interesting, so I decided that I would go to graduate school, because I wanted to be an energy economist.

**Robert Stavins:** So, that took you out to the west coast to University of California Berkeley.

**James Stock:** Yep, I went to the econ department at Berkeley.

**Robert Stavins:** What was your dissertation topic and who was on your committee?

**James Stock:** Well, the committee included my chair, was the great econometrician, Tom Rothenberg. George Akerlof was actually on my committee, which was very exciting also. At graduate school, although I started out thinking I wanted to be an energy economist, I got really interested in econometrics and econometric methods, so I then basically focused on that. Of course, I worked on econometric methods for the greater part of my career. My thesis was on a particular problem in nonlinear time series modeling having to do with timescale changes.

**Robert Stavins:** Then you graduated in 1983 and you joined the faculty at my institution, although I wasn't on the faculty yet, Harvard Kennedy School.

**James Stock:** Absolutely. That was a big shift, and it was exciting to come to Cambridge.

**Robert Stavins:** Now from there, you went back to the west coast to Berkeley to join the faculty. Is that right?

**James Stock:** Yep. I was on the faculty there for a year. Actually then, I'd also visited the Hoover Institution. My wife had a job out in the Bay Area at the time, and she had gone to graduate school, so we were out there for a while, but then I came back to Cambridge.

**Robert Stavins:** That's right. Now, stayed for a while, but in 2002 you moved to a different part of Cambridge from the Harvard Kennedy School professionally.

**James Stock:** Yeah, I moved over to the economics department. Although in classic Harvard tradition, I have a 100 percent appointment at FAS and a zero percent appointment at the Kennedy School, and zero percent is more than not having an appointment.

**Robert Stavins:** Yes. No, that's certainly true. You actually spend a great deal of time around the Kennedy School buildings. Now along the way, while you're at the economics department in 2013 to 2014 you went off to the Council of Economics as a member of the Council. That must have been a very significant change from what you'd experienced up until then.

**James Stock:** It was. It was really an exciting opportunity. So, I was invited to go down and be a member of the Council of Economic Advisors, and so I was really excited to have that opportunity. They were interested in having some help in economic forecasting and macro, and of course that was one of the things that I did.

I was interested in doing that, but then when I went down there, it became clear that one of the areas of real need that I was then able to get in my portfolio was energy and climate issues. Although, I guess I should say most of my academic career had been spent doing econometrics and econometric methods, I had maintained ongoing interest in energy and environment topics and one of my very earliest papers was on valuation of Superfund cleanup sites.

Then starting in the 1990s, I'd spent some time with Robert Kaufmann and some other co-authors looking at time series econometric methods as they're applied to climate data. So, I'd actually kind of gotten into the climate world in maybe a science and statistics way. So, I'd been paying attention to that world, so I felt I at least had some entry point for thinking about the energy climate issues when I was at the Council.

**Robert Stavins:** In your time at the council, could you just pick one maybe really high point and maybe also a low point if you could mention one [during] your service there?

**James Stock:** Well, I might duck the question on the low points.

**Robert Stavins:** Okay.

**James Stock:** I spent a lot of time working on a variety of different problems in the environmental area. One of them was the Clean Power Plan, one of them was

renewable fuels. Probably I would say maybe not a high point, but a pivotal point in my career was I realized one morning, I was walking into work and I was thinking about the day ahead of me, and I suddenly realized that what I was thinking about all the time was how we could use the tools of economics and policy to reduce tons of emissions.

It just hit me that that was so much more gratifying and so much more important than doing all of the work that I'd done, doing the work I'd done on econometric methods. Now while I'm really proud of that work and I think it's done important things, I really realized that focusing on real world emission deductions and really doing the best we can to tackle the climate crisis was something that I found super gratifying and really motivating and something I wanted to do for the rest of my career.

**Robert Stavins:** Indeed. I mean, I certainly thought of you before you went off to Washington as an econometrician and someone who focused on econometric methodologies, particularly time series work, applying it with some of your co-authors to macroeconomic phenomenon, but you have come back since then as an out-and-out energy and environmental economist.

**James Stock:** Yeah. Well, when I got back, certainly I wanted to continue working on a number of the challenges or a number of the issues, and maybe we'll talk about some of them, because it developed some of the academic work in the area. But what I pretty much decided to do was, well, if I'm going to really get into this field and switch fields in a serious way, I need to be an assistant professor.

So, I kind of did the assistant professor thing for three years, three or four years, and just wrote a whole bunch of papers on different challenges, different issues in mainly econometrics, but not solely econometrics, focusing on environmental economics and especially climate issues.

**Robert Stavins:** Now, what certainly validates your move into environmental and climate issues is that recently Harvard has established a new leadership position, Vice Provost for Climate and Sustainability, and then even more recently has established the [Salata Institute for Climate and Sustainability](#). You're the inaugural vice provost in this position, and you're also the first director of the Salata Institute. Can you say a word about why Harvard established this new position and also what's the mission of this Salata Institute?

**James Stock:** Sure, I'd be really happy to. Maybe it's useful just to step back a bit. So, of course universities have been making massive contributions in the area of climate change. You and I might think about energy economics and policy, but before that there's all the climate science. There's the health impacts, all of the other parts that span across universities where scientists and researchers and scholars have been making really important contributions.

But as important as that was, it's not as though that work has solved the climate problem. It's clarified it and it's clarified our challenges, but we have so much more work to do, and universities really need to step up. All institutions need to step up, but universities in particular need to step up.

So Harvard realized that, Harvard decided, okay, we're going to go and really do the best we can to really make a difference in the real world of climate. That means reducing emissions, that means preparing for the inevitable worsening of climate crises and climate disasters, adaptation, and taking the steps that we need to take now.

So, that gets to the mission of the Institute. The mission of the Institute is to harness the strengths and abilities and powers of Harvard University and its scholars and students to press forward viable solutions and practical solutions in an impactful way in the real world.

**Robert Stavins:**

So, is it fair to say then that the Salata Institute is both sponsoring research, but also doing its best to make sure that that research then gets communicated to the policy world and/or is informed by the policy world?

**James Stock:**

Yes, that's absolutely right. So, we're doing several things. So one of the things is research and climate, fundamentally once you get to an impactful enough area, it does span all different areas. It spans economics. It spans the science. It spans health and spans business, and so you need to have expertise drawing from across the different parts of the university and different fields to really be able to make progress.

So, one of the things we're doing is pulling together those faculty members who are interested in these areas in a way that they can then communicate, but a second thing we're doing is really focusing on that work being impactful. So that means the work itself shouldn't be implied. It should have a real-world end in sight.

The third thing we're doing is we're then through the Institute providing the resources necessary to actually do the convenings, to have the impact and to get in connection with real world stakeholders in such a way that we really are achieving this mission of driving forward progress on both mitigation and adaptation.

**Robert Stavins:**

In the process of that, both in terms of the research and in terms of being impactful in the policy world and the outside world, something that's really struck me about the Salata Institute is the degree to which you have already successfully bridged what sometimes at Harvard have been seen as barriers within the university between the Faculty of Arts and Sciences and the professional schools, or even between departments within the Faculty of Arts and Sciences.

**James Stock:** In a way, Harvard is a microcosm of academia. We have our own schools. We have our own departments. We have so many silos, but at the same time, at least in our field, Rob, in the field of climate and energy transition, people really feel like the reason they're working on this is not just to get another publication, but because it's a problem that really matters in the real world.

Everybody is really passionate about wanting to make a difference. They realize that they're going to make more of a difference if they work together across fields once you open up the space and the span of the topic at hand. So yes, there's been a lot of pushing against standard silos, but people have been remarkably open to that and remarkably recognizing that these are steps that we really need to take if we're going to make progress.

**Robert Stavins:** Something we've seen at Harvard, but that I would suspect, as you just suggested, that it's typical of other universities and colleges for that matter, is increased attention from the student body, particularly I'm thinking of undergraduates in this case, to environmental and climate issues.

I mean, I know of several situations at Harvard in which someone decided they wanted to launch a small seminar with eight students around a table, and then 35 or 40 students wanted to participate. You've probably seen this a lot.

**James Stock:** Oh gosh, yeah, I mean, I teach a freshman seminar on climate policy, and like all freshman seminars, we have 12 seats, but I have well over 100 applicants for that too.

**Robert Stavins:** Oh my gosh, exactly. So let's go from Harvard to the other place where you've spent a lot of time, and that's Washington, D.C., and think about environmental and energy policies. What are some of your greatest concerns today about environmental and energy policy?

**James Stock:** Yeah, that's a really important question. I think any starting point has to say that we made huge progress over the past year. The nation has made huge progress over 2022 with the passage of the Inflation Reduction Act, or often typically referred to as the IRA. So, this is a huge piece of legislation. It's really going to set the stage for driving substantial emission reductions, especially in the power sector. So that's fantastic, so we all have to applaud that passage. There's also the bipartisan infrastructure legislation that has money for charging stations in it.

So, as we applaud that, at the same time we have to realize that where we are right now has taken a huge amount of work by many, many, many people, [inaudible 00:16:51] a culmination of a decade's worth of policy engagement. Yet, the best projections for emission reductions in 2040 relative to 2005 really are only about 40%, so, it's not even a glass half-full situation.

We have [the] Biden Administration's target is 50% emission reductions. It doesn't look like we're on track to hit that. So, we've done this huge amount of work and we've passed this really important legislation, but we're only at 40 percent reduction. There is so much more work that needs to be done, and I think a big part of that work is actually figuring out what the right agenda is.

What are the actions that we need to be taking at all levels, at the levels of corporations, at the levels of the state and local government, at the federal government level, if we can get some progress there, and at the individual level? What are the things that we need to be doing to really continue this progress and to drive emissions reductions onto the path that they need to get to?

**Robert Stavins:** Now for years, economists, whenever you ask them about an environmental problem, including climate change, they would talk about pricing instruments immediately. Carbon pricing in the case of climate change, either carbon taxes or a CO<sub>2</sub> cap and trade system. The Obama Administration, of course, tried that in the form of the Waxman-Markey legislation. A cap and trade system was part of it, but that never got a vote in the Senate.

You brought up the Inflation Reduction Act, which is very important. The magnitude of it exceeds any previous climate legislation passed and signed by a president in US history, but it doesn't rely on sticks. It doesn't rely on pricing mechanisms except for that methane fee. It relies on carrots or subsidies. I'd like to know what your reaction is to that, both in terms of policy, but also in terms of the thinking of economists and their own research?

**James Stock:** This could make for a very long podcast.

**Robert Stavins:** That's okay.

**James Stock:** Let me try to say just a few things. So, one of them has to do with historically why is a carbon price important. Historically, we really haven't had good alternatives. If you think back to 2005, at scale what were the alternatives to coal and natural gas? There really weren't good alternatives to coal and natural gas in the power sector, and electric vehicles were ridiculously expensive and we just didn't have the technology.

So the best you could really hope for is developing the technologies that would be way down the road, and then getting people to use less. Well, having a higher price is going to get people to use less. Carbon price makes a ton of sense. That's an efficient way to get people to use less.

Today everything is totally different, where we are looking at technologies, whether they're light duty vehicles or solar or wind, and now increasingly batteries, even grid storage batteries are really becoming at a much better cost point and are actually beating out their fossil fuel alternatives. So now the

question is, what can we do to spur that? At this point, subsidies can be very effective.

So, point one is historically a subsidy approach wasn't very effective. A carbon tax would've been effective. Now, a subsidy approach is very effective. I guess point two, there's been some really important work I found very influential in my thinking by Severin Borenstein and colleagues, Jim Bushnell and others. Meredith Fowlie's been involved in this work too. So, I associate this mainly with Berkeley, that has been pointing out that electricity prices are actually too high.

What they mean by too high is that the price that consumers are paying for electricity is well above the marginal social cost of electricity, even if you include the social cost of carbon and the externality values. Well, what that means is that we really should be doing things that ... driving up electricity prices even further, they're already above the marginal social cost, so there's no particular reason to drive them up further. If anything, we should be pulling them down.

Then once you take into account the fact that we need to electrify the light duty vehicle fleet, we need to electrify home heating, so we really need to expand electricity use. Having cheaper electricity is going to help facilitate that. So, I think there's pretty good evidence suggesting that it really makes sense to be focusing on a subsidy approach now. Of course, subsidies aren't enough. You have to do other things too, deal with micro regulations and citing concerns and so forth, but a subsidy approach, I think, is one that makes a lot of sense economically at this point.

**Robert Stavins:** So, that's interesting. So because of technological changes that have taken place, as well as certainly some politics, the fact that economists are now actually spending more time looking at alternatives to carbon pricing, what used to be called I guess certainly a second-best approach makes a lot of sense.

**James Stock:** Yeah, I mean, you could think of it as it's a second-best approach in a very stylized model, but then once you get into real world complications, even a carbon price is not going to be necessarily first best unless it entails fixing other aspects of the tax system and so forth.

So I mean, I'm not a public finance theorist, but my reading of that literature is that the welfare costs of moving from a carbon price to say a subsidy program are really very small, and are in some dimensions actually desirable.

**Robert Stavins:** Yeah, and we've seen that actually in the seminar series that you and I co-host at Harvard. We've seen that in papers in this academic year.

**James Stock:** Yeah. I do want to stress one thing, which is we're talking about pricing, but pricing is only dealing with one externality and there's lots and lots of other market failures that need to pay attention to. A good example of that is in the charging stations market where there's this real chicken and egg problem,

multiple equilibrium problem where you can have not many EVs and not many chargers or lots of EVs and lots of chargers. Which comes first, the charger or the EV?

So, that's a perfect example of where a different type of policy altogether is needed, which is a big push on chargers. I would say that's a place where I would actually give our current federal policy not very high marks. There's five dollars in the IJA. There's a tax credit in the IRA. I think it's a medium push or maybe a modest push.

My personal view and from all the modeling we've done is that we actually really need a big push on charging stations to really implement that, so that people have the comfort level to buy an EV and know that they'll be able to charge it.

**Robert Stavins:**

So, let's turn from what we might think of as the efficiency and the cost-effectiveness concerns about climate policy to at least what economists would typically refer to as the distributional implications. There's increasing attention in the policy world, and I note also in the scholarly world, to two phrases, environmental justice and just transition, frequently, but not necessarily in the context of climate change and climate change policy. What's your reaction to that increased attention?

**James Stock:**

Well, I think it's entirely appropriate. The environmental justice community has pointed out something that is eminently true, which is that much of the economic development associated with fossil fuels, and much of the worst impacts of fossil fuels have been on communities of color and disadvantaged communities and disenfranchised communities.

That's something that not only morally is not a way to go in the future, not something we can countenance, but just as a practical matter, it's not an effective way to make the energy transition. The energy transition has to be inclusive, and we have to make sure that it works for all communities. By having it work for all communities, communities can embrace it.

It's only through community engagement that we're going to be able to tackle the really tough problems ahead of us, like siting of photovoltaics and siting of wind and siting of offshore wind, and especially siting of transmission lines. So, I think we have to have a much more inclusive process going forward than we've had in the past.

**Robert Stavins:**

Earlier we were talking about students, college students, and something that we've certainly seen in the last several years is quite striking, at least to me, and I'd like to finish up with this, and that is I'm referring to these youth movements of climate activism.

It's sometimes described as being Greta Thunberg, but it's a lot more than one person. It's students around the world, young people around the world. We saw it in 2019 at the annual conference of the parties with the protests, subsided with the pandemic to some degree, but it came back again and we're seeing it again. I'd like to know what your reaction is to these youth movements of climate activism?

**James Stock:**

They've been absolutely critical to the progress that we've seen in policy and in general recognition of the need to do something. The climate activists, the youth climate activists have been uncompromising. They've been evidence-based. They've been morally on the right side, and that has forced people of our generation to really step up their game.

So there are many of us who didn't need convincing, but we needed to be pushed, and there's others who needed to be convinced and it's been incredibly powerful. I mean, they've played such an important role in the passage of the IRA and in the development of the Green New Deal here in terms of US politics, and they've played a really critical role internationally, so I think we really owe them all a real debt of gratitude. I know they've made huge personal sacrifices.

One of the things that we all know is that this is something where everybody has to make a commitment for the long run, and they really have to give everything that they can to be making progress. The youth activists have been making tremendous personal sacrifices to drive forward progress, and we really owe [them] a lot.

**Robert Stavins:**

Well, that's an inspiring and a very good place to bring our conversation to a close. So, thank you very much, Jim, for having taken time to engage with me today.

**James Stock:**

Well, thanks so much, Rob, for having me. I enjoy listening to these podcasts very much.

**Robert Stavins:**

Our guest today has been [Jim Stock](#), the Harold Hitchings Burbank Professor of Political Economy at Harvard, where he is also the inaugural Vice Provost for Climate and Sustainability, and the director of the new [Salata Institute for Climate and Sustainability](#).

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.

**Announcer:**

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