

## Environmental Insights

Guest: Joseph Aldy

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Joe Aldy: The question is whether or not we can start to drive more and more aggressive emissions reductions and whether we can get the policy actions domestically that really get individual countries and eventually, globally for our emissions to peak and then start to go down, because otherwise we're going to have to think about quite different approaches to climate change than cutting emissions.

Rob Stavins: Welcome to [Environmental Insights](#), a new 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](#). Today, we're very fortunate to have with us [Joseph Aldy](#), a Professor of the Practice of Public Policy at the Kennedy School, a university fellow at [Resources for the Future](#), and a faculty research fellow at the [National Bureau of Economic Research](#). At Harvard, he's also the faculty chair of the [Regulatory Policy Program](#) in the [Mossavar-Rahmani Center for Business and Government](#). Joe's research focuses on climate change policy, energy policy and regulatory policy. From 2009 to 2010, he served as a special assistant to the president for energy and environment at the White House. Welcome, Joe.

Joe Aldy: Thank you, Rob. It's a real pleasure to be here.

Rob Stavins: It's great to have you with us. Now, before we talk about your current research and thinking about climate change economics and policy, I'd like to go back to how you came to be where you are and where you've been. When I say go back, I mean way back. So let's start. Where did you grow up?

Joe Aldy: I grew up in Lexington, Kentucky on a farm just outside of the town.

Rob Stavins: So what was that like? Tell me about that, growing up on a farm.

Joe Aldy: Well, it was an interesting farm for that part of the country because we had about 20 acres and had black Angus cattle in what is otherwise known as horse country.

Rob Stavins: And then where'd you go to primary school?

Joe Aldy: So being that this is Kentucky, we call it an, Athens-

Rob Stavins: Okay.

Joe Aldy: ... and it was a small public school, a rural school there on the outskirts of Lexington. Then I did my middle school at the Lexington School, which was a

small private day school in town and graduated from Tates Creek High School, a public school in Lexington.

Rob Stavins: Then right after high school, you went directly onto college?

Joe Aldy: I went to Duke for college and that's where I really started to focus on the environment. Although, I will note that I won a competition, a poster competition in first grade for the old America the Beautiful campaign, which was trying to combat littering at the time. So I was into environmental issues at a very young age.

Rob Stavins: Did you study environment, or economics, or neither, or both in college?

Joe Aldy: So in college at Duke, I was the very last student to be able to propose an environmental studies self-designed curriculum. After that, they created an environmental studies major, but I was able to craft something that was for the most part applied sciences. In fact, I called it, Water Resources, and I only had as an undergrad, three economics courses.

Rob Stavins: Then so you graduated from Duke with the undergraduate degree in what year?

Joe Aldy: '93.

Rob Stavins: And then what did you do after that?

Joe Aldy: I did a Master's at the Nicholas School of the Environment.

Rob Stavins: Immediately?

Joe Aldy: Immediately, and that's where I focused on in the Resource Economics and Policy Program, and from there I went into what's now known as the [Presidential Management Fellows Program](#) to work in the federal government.

Rob Stavins: And where did you work in the federal government in that program?

Joe Aldy: I first worked at the USDA Economic Research Service and their environmental resources division and as a part of the PMF program, it's quite common for new hires to rotate somewhere else in government. I went to the Council of Economic Advisors in 1997 for what was supposed to be a six-month rotation that wound up lasting three years.

Rob Stavins: A fortuitous move.

Joe Aldy: I went there at a time in which the Chair and the members of CEA did not have to worry about many of the economic issues future chairs did. The unemployment rate was under 4%. The economy was booming. We actually had a thing called a balanced budget and they spent a lot of time getting ready for

this major UN conference that was going to be held in Kyoto in December of '97 focused on climate change, so it was a great opportunity to work there then.

Rob Stavins: Then you went to Kyoto with the team, is that right?

Joe Aldy: I felt like I had went to Kyoto because I still got jet lag, but I didn't actually go.

Rob Stavins: Oh, you didn't go.

Joe Aldy: So I was up in the middle of the night doing analysis every night in DC-

Rob Stavins: Oh, I see.

Joe Aldy: ... while they were in the day, doing the negotiations. I made the mistake in November of that year when my Chief of Staff said, "Should I go to Kyoto and do some of the analysis to support the team?" And I said, "The way the negotiations are going, I don't think there's going to be a deal. I don't think it's a good use of my time." And after being up six, seven nights in a row throughout the night doing analysis, I regretted not actually being local, doing the analysis during the day, but instead doing it at night in DC.

Rob Stavins: Now, so you left the administration and CEA in what year did you finish in?

Joe Aldy: I left the summer of 2000 to begin my PhD in economics here at Harvard.

Rob Stavins: Okay. So tell us about that, that experience at Harvard. What did you focus in? You had to do a couple of fields.

Joe Aldy: I focused, in part because of my... When I did my master's training at Duke, I had done the PhD environmental economics course. So when I came up here to Harvard, I decided to focus on my fields of public economics and industrial organization. They were most oriented to me on how to think about the design of public policy and how do we think, especially about the way businesses and firms react, how they perform in markets, sometimes in response to public policy. So it was a nice way to draw from these tools, from these two major fields for me to then tackle questions in the energy and environmental space.

Rob Stavins: And it was during that time when you were a graduate student that you began to work with Kip Viscusi who was then at Harvard Law School on this work that's heavily cited. Most of our listeners are familiar with namely in terms of looking at VSL and how it correlates with age.

Joe Aldy: Right. So it's one of those things that from my time working in government how we value reductions in mortality risk is the single biggest ticket item when we look at the benefits of environmental regulations or even regulations among the federal regulatory program. There was a lot of debate in the late 1990s, but not much good empirical work about how the value of statistical life varies over the

life cycle. So that's something where working with Kip, I drew from that policy world experience about what makes, I think, an interesting research question, on where are there holes in the literature to tackle that as part of my dissertation research.

Rob Stavins: Now, the non-economists who are listening are going to wonder about that phrase, "value of a statistical life." Can you explain that?

Joe Aldy: Well, among that audience may include my mom who wondered what I was doing, saying, "Here's the value of life," in my dissertation research.

Rob Stavins: So give us the mom explanation.

Joe Aldy: She was a bit puzzled by that. What we do is we say there are policy contexts where people may get exposed to a little bit less pollution. So there's a small change in the chance they're going to die, but people can't go to the corner drug store to buy a reduction in mortality risk or go to Amazon and buy a reduction in mortality risk. So instead as economists, we try to identify everyday situations where people reveal their preferences between a small reduction in the chance of dying and say, giving up some money. So some examples of that might be someone goes to a car dealership to buy a new car and they pay a little bit more for a safer car, or a lot of the work that I did with Kip. We would look at people's decisions in labor markets and we'd look at how much people are getting compensated more for bearing a higher chance of being injured or a higher chance of dying on the job.

It turns out that the kinds of context, whether it's automobile safety or occupational safety, they're fairly similar magnitudes of risk reduction to what we see, say from an EPA regulation or maybe a Department of Transportation regulation or a Department of Labor regulation on the work environment. So we take those real world examples where people make decisions sort of in their everyday lives and say, "Here's how much I estimate looking at their decisions of how they're trading off some income and the chance of dying," and we can then transfer that into evaluating public policy like reducing people's exposure to air pollution.

Rob Stavins: Now, while you were at Harvard, was that five years?

Joe Aldy: Yes.

Rob Stavins: Five years, which at the time was the norm. Now, the norm has become six years. It keeps on getting longer and longer, but in any event...

Joe Aldy: But grad school can be fun.

Rob Stavins: Yes, of course. Certainly. In any event, while you were here, did you also begin to get into climate change in terms of thinking about it, studying it, anything like that?

Joe Aldy: Certainly, that was from my time working at the Council of Economic Advisors, I learned that climate change was this incredibly rich, fascinating problem from the academic standpoint, from the research standpoint, as well as being a really difficult public policy problem. So I began thinking about some work about how do you design an international climate agreement? And in fact, we started working some with our colleagues, Scott Barrett at Columbia thinking about what might be a more effective way to tackle climate change compared to what had been negotiated in the Kyoto Conference in 1997. What might be a kind of structure that might actually induce the United States to want to participate in international climate policy, which under the Bush Administration they had basically decided not to do under Kyoto.

Rob Stavins: Another highly cited paper actually as I read it all.

Joe Aldy: Thirteen Plus One, yes.

Rob Stavins: Great title.

Joe Aldy: So that was our effort to try to look at the different proposals out there made by academics and evaluate them. We identified that that time, 13 different proposals, as alternatives to the one that had been used so far in practice, the Kyoto Protocol. As I recall that on many of the dimensions academics focus on, their proposal dominated Kyoto, but the one thing that we did acknowledge in our paper is that there was a kind of political reveal preference in that Kyoto had been adopted at a major UN negotiation and had eventually been ratified sufficiently to enter into force, which the proposal I'd co-authored, the proposal you'd co-authored had not in its form, at least back then agreed to the international negotiations.

Rob Stavins: Right. Right. Now, you graduated from Harvard with a PhD in economics in what year?

Joe Aldy: 2005.

Rob Stavins: 2005, then you went off to [Resources for the Future](#), the think tank in Washington. Again, most of our listeners are probably familiar with it, but not everyone. Could you just say a couple of words about what a think tank like Resources for the Future does?

Joe Aldy: So I think there's a couple of distinctive characteristics about RFF, Resources for the Future. First, is that it is almost completely comprised of PhD scholars doing research that is trying to achieve two purposes, push the academic frontier and inform ongoing policy debates. In fact, I think about RFF as being like an

academic department, but instead of teaching students, you're teaching policymakers in Washington or in Brussels or at state capitals. That is the audience for your research in a way that we think about how our research may translate into informing our teaching of students. It's a key thing about RFF is that they do not, as an institution, take policy positions.

They're trying to inform the debate. They don't know what the right political and policy answer is, but they do believe strongly that rigorous evidence can inform the quality of the policy debate.

Rob Stavins: Then you remained at RFF as a fellow for how long? How long was that?

Joe Aldy: I stayed there until I took a leave beginning at the end of 2008 when I joined the presidential transition team for President-elect Obama.

Rob Stavins: So you were working in the presidential transition team after Obama was elected and then there's sort of an unusual set of circumstances. My recollection is that you had an offer to join the faculty to become my colleague here at the Harvard Kennedy School. You said, "Yes," and then you immediately took a leave of absence. Do I have the timing right on that?

Joe Aldy: So in the same week, [David Ellwood](#), then our Dean here at the Kennedy School, offered me an assistant professor position and then [Larry Summers](#), who had already been selected to be the Director of the National Economic Council had offered me a position to work for both him at NEC in the White House and for Carol Browner at the Office of Energy and Climate Change. Fortunately, David Ellwood who had worked in the 1992-93 transition and worked as a political appointee the first couple of years of the Clinton administration, recognized the opportunity I had before me and was quite a generous in allowing me to take a public service leave before my first day on campus as an assistant professor.

Rob Stavins: And then you returned here and joined the faculty full time?

Joe Aldy: I worked the first, exactly first 23 months of the Obama administration and joined the faculty here in January of 2011.

Rob Stavins: So of those 23 months, I'm sure there were a lot of challenges and also a lot of rewards. Let's start with the challenges. Thinking back now, what's probably the most challenging aspect of that job as you recall it?

Joe Aldy: The most challenging aspect of that job is recognizing that your to-do list at 7:30 or 8 in the morning may get wiped out by something unexpected that happens that day.

Rob Stavins: Can you think of an example of when that happened?

Joe Aldy:

By far, the most consequential example that is the oil spill, the BP Deepwater Horizon oil spill. So I remember the morning the rig caught on fire and exploded on that, I believe it was a Tuesday night. It was before 8 AM on that Wednesday morning, I had a call on my, we're dating ourselves, on my Blackberry and it was from someone who I knew fairly well from the Washington office of BP and he wanted to inform me that they had a major accident the night before, that they still had some missing rig workers and noted that this would be coming through the White House and the NSC, but he wanted me to communicate this to my bosses and other individuals in the White House. I recognized then that this was a really big deal and it was something where it affected everything from what we would do on regulatory policy – we had some things where we wanted to improve the way we regulate offshore drilling with existing authorities – we worked on two different pieces of legislation with Congress at summer focus on this.

At the same time, still trying to juggle working with the Senate on cap-and-trade to deal with climate change, working with countries around the world on international climate policy, that was in my portfolio as we were trying to build on what leaders had agreed to in Copenhagen in December 2009 in the run up to the Cancun climate talks at the end of 2010, still doing work where I'm trying to figure out how we get the agencies to move out more of the Recovery Act dollars focused on clean energy. So the thing is something big like that can happen and you still have to do all the other stuff.

I think that's the biggest challenge is that something like that can come up or there's other sort of smaller examples that a regulatory agency may decide to do something that was unexpected or a court may make a decision that was unexpected. It's the kind of surprises that cause you to have to sort of juggle your work, but still the bosses expect all the work to get done.

Rob Stavins:

Now, you mentioned something about the Senate climate legislation. So I assume you're referring to as the Waxman-Markey legislation that was voted through in the House and a largely partisan vote and then never really got to vote in the Senate. As you look back on it now, is there anything that you would've done differently or more to the point, if you had had the authority to get the administration to do it differently so that there might have been a positive outcome in the Senate rather than the lack of an outcome?

Joe Aldy:

There's a fundamental challenge when we look back at all the legislation that moved in 2009 to 2010. The history of the Senate is kind of awkward because we had the number of Democrats in the Caucus changed several times over the course of that time. So you had Senator Franken actually wasn't elected Senator until a good four or five months into the year. There was a recount and all this going on in his home state. You had Senator Kennedy passing away that effected the count in the Caucus. We had one Republican change over parties in 2009 as well. But the challenge was recognizing, how do you get to at least 60 votes on a piece of legislation when the Republicans are not voting on any of our major pieces of legislation? They didn't vote on the Recovery Act.

There was certainly a bipartisan recognition. We needed a major economic stimulus package. They didn't like the way we crafted the package, so they weren't going to vote on that. They weren't going to vote on healthcare; they weren't going to vote on financial regulation under Dodd-Frank. The task is when you see about how to move climate legislation, it really feels partisan, but there's still some regional issues that matter as well, that you had Democratic senators from Midwestern manufacturing states that are very concerned about what this would do to energy prices for their big manufacturing industries. You had Senator Manchin from West Virginia who had recently been elected and was quite concerned about the potential that this policy would have for his state. There's this challenge of how do you get to 60 votes in the Senate? I think that is one of the lessons that when we hear presidential candidates running on the Democratic side today, they're talking about getting rid of the filibuster. They know that 60 votes is a really high hurdle right now to reach.

So it's difficult to go back and say in a world in which Senator McConnell was keeping his Caucus quite tied to not voting on anything that seemed like a priority for President Obama to say, what would we have done differently? Maybe it's you craft a piece of legislation that you either get your side to say we're not going to do the filibuster anymore in the Senate or something that you work through, some of the very special vehicles in the Senate like budget reconciliation, which was the mechanism by which recently the Republicans moved tax reform in 2017 where you don't have to get 60 votes, you just need 51 in the Senate.

Rob Stavins: So it sounds like there really wasn't anything that could have happened short of fundamental changes in terms of the makeup of the Senate. Is that fair to say?

Joe Aldy: Yeah. We had Republican senators who in the past, had proposed cap and trade legislation-

Rob Stavins: Right.

Joe Aldy: ... but they weren't there in 2009 and 2010. We had Senator McCain who'd been pushing legislation going back to 2003. He ran on it in his presidential campaign-

Rob Stavins: Right, but that he was primaried and...

Joe Aldy: That he was primaried. Or you look at someone like Senator Murkowski was actually quite thoughtful on these issues who lost her primary in 2010 and amazingly won as a write-in candidate in the general election in 2010 to keep her Senate seat. So when you think about the potential partners on the other side of the aisle, there's a story for each one of them about why they weren't there. But in the end, we never had in the work whether it was in the Environment of Public Works Committee or when Senators Kerry and Lieberman, they tried to do some work. They try to work some with Senator



Graham, but in the end, he wasn't there to help support any kind of energy and climate legislation.

Rob Stavins: So we'll come back to policy and to climate change policy, but I want to turn to your research. You've carried out a wide range of research beyond climate change policy. We are already talking about your work on VSL with Kip Viscusi. If you had, I know this is like asking which is your favorite child, but nevertheless, I'll ask the question, if you had to choose one bit of research, either that you've done or you're currently engaged in for that matter, that you're most proud of, just the one, what would it be?

Joe Aldy: I like that paper that Kip and I did, the first one that estimated how the value of statistical life varies over the life cycle from workers' decisions. Part of that I think is because we'd previously reviewed the literature for a 2003 paper. One thing we've found is that it was kind of an afterthought in a number of papers. There are probably seven or eight papers that it said, well, let's just sort of do a little bit of this, and what you found was that you really needed to think about this lot more critically, that had the previous papers had done it, they had put way too much structure on the problem, if you will. Then as a result, you get these sort of bizarre results which suggest that by the time you're 55 or 60, your willingness to pay to reduce mortality risk is negative, which is counterintuitive.

It's not just that it's counterintuitive, it just suggests that the statistical models weren't doing justice to the decisions being made and weren't doing justice to what's really the key factors driving those decisions. I think we were able to do something that was sort of a nice application of a couple of econometric methods, one of which I learned from Gary Chamberlain in the economics department, in an econometrics elective I took. So it was fun applying a new tool, but it also did something that, to be honest we had not seen in the revealed preference literature on value of statistical life. There's a survey-based literature, and we've certainly seen this in some of the applied theory literature, but we really did something that we hadn't seen before and it was sort of nice going from evaluating literature, crafting a question, bringing in some new tools to be able to say something that we hadn't been able to say before in the literature. That's also really important when we think about the potential policy implications. I guess I would say that that's at least one of my favorite kids.

Rob Stavins: I'm going to get back to policy. You've worked both in domestic climate change policy and in the international dimensions of climate change policy. I'm interested in talking with you just for a moment about the current administration's climate change policy or lack thereof, however one views it. The Republicans who I know best, partly by historical coincidence when I worked with the George H. W. Bush administration, but partly by selection, they tend to be the moderate Republicans, which some people would say nowadays is almost an oxymoron. Do you see that there's a future for climate change policy at the congressional level in the US? Is the only route forward given what you said before, getting 60 plus votes or changing the voting rules in the Senate? Or is there the possibility going forward of moving back to what we had

even in 1990 Clean Air Act amendments and that's a bipartisan coalition? Do you see that as a possibility or are you thinking more in terms of Democrats doing it on their own, either by changing the rules or by getting a super majority?

Joe Aldy: I think a couple of things need to change in order for us to try to return to something which I think the Clean Air Act amendments of 1990 had about 90 or so senators vote for it.

Rob Stavins: As I recall, 92% of Democrats, and about 87% Republicans.

Joe Aldy: I don't even think you can get that many to vote for a post office naming bill today in the US Senate. I think to date, Republicans have not, for the most part, faced any costs for their indifference or opposition to climate change policy. Until there are members of Congress or Senators who fear that by being silent on the issue or actively opposing taking action to combat climate change, until they see real political cost at the polls, I think it's hard to imagine there being a bipartisan future. It's possible when we look at stratified by age, it's possible that some of them see a future where if they're not at least trying to do something affirmative in dealing with the climate change problem, that they're going to lose so much of the younger generation or younger generation or two when they go to the polls, that they may start to change their tune.

But I think that's the challenge is, is I don't think they see the political cost. I think from a fundraising standpoint, which matters a lot for politicians, they can see some benefit from being either indifferent or opposing climate change policy. To be honest, part of this is also going to depend on where the Democratic party goes on this. Right? So the question is, is the future Democratic party, whether it's controlling, if there's a control of the Senate in the future or in the White House, are they going tact to the middle to try to get a broad coalition or do we see a really progressive left wing move on Green New Deal that makes it that much harder, I think, to attract what few moderate Republicans are left? So I think part of it also depends on the strategy of Democrats.

The one thing I recall from working for President Obama first he said, "I'm going to do cap-and-trade," and couldn't get Republicans onboard. In 2011, he came out for a national clean energy standard that was actually patterned on a bill, so-called, diverse energy standard, that three Republican senators had supported in 2010, but they didn't support it once president Obama supported in 2011. Then in the 2012 election, there were people asking, "Would President Obama support a carbon tax?" In fact, I was working on the reelect and I was asked several times as a representative the campaign about that. I said, "Let's be honest, the president's out there wanting to do something about climate change." Republicans first said cap and trade. He said, "I'll do that," and they weren't there. He then said, "I understand Republicans like the clean energy standard. I'll do that," and then they disappeared. So to say, would have Democrats supported carbon tax? Maybe, but at some point we need to see

what the Republicans are willing to support. I just don't see many of them stepping forward given how they do their political calculus today.

Rob Stavins: Now, we don't have a lot of time left. So let me try to draw us to the international domain where you've also done a lot of work. Early on, you mentioned the Kyoto Protocol and looking at alternatives to the Kyoto Protocol. What's your assessment of the Paris Climate Agreement? Some people are very enthusiastic about it. Others I know are very skeptical about the Paris Climate Agreement. What's your view?

Joe Aldy: I think Paris has a lot of potential. I think it's challenging though when you see the United States that had been a, I think a real leader, getting countries to step up in the run up to the Paris talks to basically step away during the Trump administration from these issues. It says something that we have every country in the world or virtually every country in the world pledging to do something to reduce their emissions. I think that is a great first step. The structure of Paris is what we, in the research circles call, pledge and review. I think the review is going to be very important to be able to assess our countries delivering on what they pledged to do, and are they really implementing meaningful domestic programs to reduce their emissions? We don't want countries meeting their goals just by accident just because their economy doesn't do well or, for example the United States, we had some innovation in natural gas that help drive down our emissions a lot.

We want to see really thoughtful domestic policy programs and we want to learn from those, replicate the policies that I think work well, so that can then serve as the foundation for countries taking on much more ambitious action as we go through each round of this pledging. I think there's certainly potential in the Paris framework. I think it is by far the most inclusive approach. I'm going to go back. In 1992 in the Framework Convention, industrialized countries said, "We're going to cut our emissions to 1990 levels by the year 2000." If we look at the aggregate among all those countries, they met that goal. Kyoto had an aggregate goal for industrialized countries to reduce their emissions 5% below 1990 levels, over 2008 to 2012, despite the US not ratifying, despite Canada pulling out. In aggregate across all the countries they met the goals.

Joe Aldy: Yet by 2012, global CO2 emissions are almost 60% higher than they were in 1990. So we know we needed a system that would really bring in all the emerging and developing countries and Paris does that. The question is whether or not we can start to drive more and more aggressive emissions reductions and whether we can get the policy actions domestically that really get individual countries and eventually globally for our emissions to peak and then start to go down because otherwise, we're going to have to think about quite different approaches to climate change than cutting emissions.

Rob Stavins: So thinking about different approaches. Last question I want to ask you is, what do you make of these youth movements of real climate activism? We see it both in Europe. We see it in the United States. What's your reaction to that?

Joe Aldy: I think it's fantastic.

Rob Stavins: Why?

Joe Aldy: It's elevated the debate. I don't think we have climate change as a, what I think is truly a first-tier policy debate, whether it's in Congress, whether it's in the presidential campaign, without discussion of the Green New Deal. Without the sunrise movement, I don't know how they did it, but getting CNN to say, "We're going to devote seven hours of programming to listen to the presidential candidates talk about climate change." I could not have imagined that in 2016 or 2012 or any election year previously. I think they have elevated the debate so that families around the country are actually talking about this in a way that they hadn't before and that politicians who used to be able to ignore it, I think it's making harder and harder for them to ignore it. I think it's opening up this debate in a really important way. The question is whether or not we can sort of galvanize on that energy and craft both a political coalition and I think thoughtful policies to really change the direction we're going in terms of our emissions.

Rob Stavins: Joe Aldy, thank you very much for taking time to be with us today. Our guest has been [Joseph Aldy](#), Professor of the Practice of Public Policy at the Harvard Kennedy School. 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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