

WEBVTT

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00:00:04.620 --> 00:00:13.950

Robert Stavins: Good afternoon. Good morning, good evening, depending upon where you are in the world. I'm delighted to welcome you to this session of conversations

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00:00:14.309 --> 00:00:22.050

Robert Stavins: On climate change and energy policy, a virtual forum from the Harvard project on climate agreements.

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00:00:22.830 --> 00:00:32.070

Robert Stavins: I'm Rob Stavins professor here at the Harvard Kennedy School and Director of the Harvard environmental economics program and our project on climate agreements.

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00:00:32.790 --> 00:00:43.050

Robert Stavins: In this series of webinars, as many of you know we're featuring leading authorities on climate change policy, whether they're from academia as today.

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00:00:43.800 --> 00:00:54.780

Robert Stavins: The private sector NGOs or government. Before I introduce today's speaker. Let me say a few things about logistics in case this is your first time with us.

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00:00:55.560 --> 00:01:06.270

Robert Stavins: As you just heard, we are recording both video and audio of these webinars and there will be a link posted after probably 24 hours or so.

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00:01:06.960 --> 00:01:13.680

Robert Stavins: At the website of the Harvard project on climate agreements, importantly, if you wish to ask a question.

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00:01:14.040 --> 00:01:25.440

Robert Stavins: Use the Q AMP a function that's at the bottom of your zoom screen just type in your question into the Q AMP a function in zoom and then after our speaker has

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00:01:26.130 --> 00:01:42.780

Robert Stavins: Made a presentation which will be about 2530 minutes or so. Then I'm going to go to the questions and we will adjourn promptly at 10am Boston time in the US because many of you have other engagements.

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00:01:43.530 --> 00:01:51.030

Robert Stavins: Immediately after that. So with that, I'm very pleased to turn to today's speaker, we're privileged to have with us.

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00:01:51.630 --> 00:01:58.920

Robert Stavins: Joseph Aldi Joe Aldi who's a professor of the practice of public policy at the Harvard Kennedy School

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Robert Stavins: A university fellow and resources for the future and faculty research fellow of the National Bureau of Economic Research

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Robert Stavins: Also from 2009 to 2010 he served as special assistant to the President for energy and environment at the White House Joe's research focuses on climate change policy.

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Robert Stavins: Energy policy and regulatory policy. I'm delighted to say that he and I have been co authors and work together closely over the years and I'm thrilled that he's now with us, as Professor of the practice.

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Robert Stavins: Of course we're remote for this session today because of the covert 19 pandemic and the consequent economic downturns that have taken place have made many countries.

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Robert Stavins: Begin to think about if not already implemented respective economic recovery packages, including the possibility of greening those economic recovery.

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Robert Stavins: Policies, largely because of concerns about global climate change. So Joe's presentation today and our discussion will be highly relevant his presentation is greening economic stimulus lessons from the 2009 Recovery Act. And with that, I'm pleased to turn it over to you, Joe. It's all yours.

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Joseph Aldy: Right, thank you, Rob. It's a real pleasure to be here, as Rob noted there is considerable interest in thinking about how to address the current economic situation, given the Copa

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Joseph Aldy: Recession, there has been a lot of discussion and policy communities about ways in which

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Joseph Aldy: We can both create economic activity and address other major risk that we are going to be confronting in the years to come, such as through climate change.

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Joseph Aldy: Whether it's the leaders of the International Monetary Fund or the International Energy Agency.

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Joseph Aldy: Leading environmental advocates. We can even look at say presidential candidate Joe Biden's platform, we just

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Joseph Aldy: discussed a lot recently about how to spend resources to try to address climate change, there's clearly a growing interest in thinking about ways in which we can both tackle the coda 19 recession.

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Joseph Aldy: Re establish and economic recovery and rebuild the economy and do so in a way that addresses climate change.

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Joseph Aldy: So, given some of the work that I did back on the presidential transition team in early in the Obama administration on

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Joseph Aldy: The design and implementation of the Recovery Act of 2009 and especially to clean energy package of that piece of legislation, I would share with you today, some of the experiences and lessons from 2009 and discuss how they can apply to our current situation.

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Joseph Aldy: We pull up some slides now here for our discussion, I first want to talk about some of the top line design considerations that we counted for more than a decade ago, and I think it also informed, how we look forward in the potential design of a climate oriented economic recovery program.

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Joseph Aldy: First is to recognize that when we're trying to address a recession, there's clearly an interest in stimulating the economy increasing aggregate economic demand in a way that can help create jobs.

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Joseph Aldy: The sort of principles that motivated economic stimulus, a decade ago that we wanted this stimulus to be timely.

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Joseph Aldy: So you want to be able to direct additional resources into the economy when the output gap is large, that is when your current

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Joseph Aldy: Economic activity is well below what it would be if we were fully utilizing all of our labor and all of our capital. Second, you want it to be targeted.

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Joseph Aldy: So that as you use resources you're maximizing the effectiveness, especially how how many dollars you're spending to create a new job.

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Joseph Aldy: And then we talked about the importance of it being temporary so that you wouldn't have run the risk that

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Joseph Aldy: A significant increase in public spending may charge credit private spending and must reduce some of the effectiveness

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Joseph Aldy: Of a stimulus a concern that I might actually increase interest rates over the long run and increase the cost to the government of borrowing.

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Joseph Aldy: I have a question mark about this now because one is we learned I think from the Recovery Act.

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Joseph Aldy: That we didn't really see even with increasing interest rates respond meaningfully and if anything, there was a concern that the economic stimulus, a decade ago was too short. It was in a sense, not long enough, given the breadth and the depth of

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00:06:24.930 --> 00:06:31.500

Joseph Aldy: The Great Recession. Now, I sort of look at the current situation, the Congressional Budget Office forecasts and output gap.

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00:06:32.400 --> 00:06:46.260

Joseph Aldy: That's quite sizable in excess of 6% this year was going to continue to persist throughout the entire decade, suggesting that there's value in having an economic spending program that stimulus program that might actually have a pretty long tail, if you will, in terms of its duration.

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Joseph Aldy: Now, when we think about the other policy objective, though, especially when we think about the strategic investment in clean energy

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Joseph Aldy: That then President Elect Obama challenged his transition team to address what we worked with with our counterparts in Congress and crafting the Recovery Act.

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Joseph Aldy: There's a lot of interest in trying to make that investment in clean energy to address climate change and really in the 2009 package focus almost exclusively

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Joseph Aldy: On those investments that can reduce greenhouse gas emissions and part of that is because of the daunting challenge when we think about another gap.

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Joseph Aldy: The carbon emissions gap when we think about sort of where carbon emissions have been increasing.

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Joseph Aldy: Over the past decades, how absent new policies. They're projected to continue to increase, and how we need to dramatically ramp down and missions.

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Joseph Aldy: If we're going to be able to deliver on the goals of limiting warming to do two degrees centigrade, that our world leaders have agreed to

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Joseph Aldy: So we're really trying to do that in the context of climate or economic stimulus is to try to find that intersection of where there are policies that can stimulate economic activity.

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Joseph Aldy: But also address climate change and it's that kind of sweet spot, are those that might be best suited for economic recovery package.

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Joseph Aldy: And we're thinking about some of the design. There's other policy objectives that come into play.

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Joseph Aldy: As we saw in 2009 there's an interest that a lot of the spending needed to be oriented towards American manufactured goods.

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Joseph Aldy: Buying only American source goods was a key component of a number of visions here that does have an impact on how quickly a program can move

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Joseph Aldy: Because in some cases as we found a decade ago, some of the materials, some of the equipment. There were very few American manufacturers for something that you wanted to ramp up quickly through new subsidies for investment.

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Joseph Aldy: There's a Davis bacon act to ensure that work has received a fair wage that also requires process by which the Department of Labor assesses that

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Joseph Aldy: A given recovery I project is paying its workers consistent with what is its going wage for that occupation in that region.

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Joseph Aldy: There's certainly growing concerns about environmental justice and ensuring that not only do we stimulate the economy, not only do we dress.

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Joseph Aldy: environmental risk posed by climate change, but we do so in a way that's shared across the economy.

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Joseph Aldy: And then we have because a lot of these in the clean energy space or infrastructure projects, the national, regional policy that comes into play and brings into considerations in equities from other environmental considerations beyond climate change.

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00:09:05.850 --> 00:09:19.740

Joseph Aldy: And of course, at the end of the day, you also need something as politically viable you need something that is a bill that can then become a law. And so all these are going to play into how we think about the design crafting and subsequent implementation of recovery program.

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Joseph Aldy: The question sort of what kind of instruments or policies, can you choose from.

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Joseph Aldy: Summer automatic such as tax credits and then the recovery actors will show it a minute there is a significant investment through various tax programs.

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Joseph Aldy: You can have formula based grant programs that give money to the state say as a function of their population and be a function population energy demand.

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Joseph Aldy: These can move quite fast. We're using existing authorities were using programs that the consumer and that businesses already understand and operate under

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Joseph Aldy: The challenges that sometimes the targeting may be uncertain and that may raise questions about how effective, we can be in terms of maximizing the bang for our buck and stimulating job creation or investing in emission reductions.

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Joseph Aldy: Their discretionary policy tools. So we added the Recovery Act loan guarantees and other grant programs where this

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Joseph Aldy: Government had discretion on who would win would often hold in some cases competitions others just request proposals as they would come in and evaluate them one by one.

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Joseph Aldy: These tended to move slower, but they hold the potential to tailor those programs to really be more effective to really tailor them to making

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Joseph Aldy: To supporting marginal investments in new energy infrastructure, there's a challenge here that where the role of politics comes into play.

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Joseph Aldy: That was true for a number of programs such as the Department of Energy's loan guarantee program where there was considerable I think political oversight and political scrutiny about the kinds of projects that were being supported through that program.

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Joseph Aldy: Now, the other thing that's important when crafting a piece of legislation is thinking through what are your existing statutory authorities.

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Joseph Aldy: Part of this is because as Congress is writing a spending package, such as the Recovery Act of 2009

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Joseph Aldy: They like to use a lot of the existing authorities for government programs. They've already designed in previous legislation.

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Joseph Aldy: In the past, that means they've already deliberated on the design of those programs. Some of those programs that have already been in effect have been evaluated and have been subject to oversight by Congress.

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Joseph Aldy: And so they're sort of known quantities that Congress typically feels more comfortable supporting with additional resources.

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Joseph Aldy: That's because important as a recovery act tends to need to move very fast in 2009 President Obama signed the Recovery Act, less than a month after his inauguration.

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Joseph Aldy: And so if you're trying to move quickly. It's important to use existing authorities and just increase appropriations for those

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Joseph Aldy: Now the challenge though is that you may want to in order to address some of the new emerging challenges in the energy economy, create new authorities.

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Joseph Aldy: Now in 2009 there was the benefit. There were two major energy bills in 2005 and 2007 that had provided a number of new authorities for energy program, some of which have not been appropriated any monies yet.

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Joseph Aldy: So, for example, ARPA E. The Advanced Research Projects Agency for energy, a major energy R and D program had been authorized previously received this first appropriation in the Recovery Act of 2009

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Joseph Aldy: The challenge we face today though is that we really haven't seen any major energy legislation passed Congress and signed into law since 2000 and

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Joseph Aldy: Now there have been a number of bills that I think we can identify as laying up markers of ideas of new programs that have passed the House of Representatives has been subject to

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Joseph Aldy: Markup and debate in congressional committees in the house. I think some of those may be brought into a future Kobe 19 recovery package if there is an effort to try to green that recovery package.

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Joseph Aldy: But we don't have nearly they kind of added recently developed statutory authorities have programs like we had back in 2009

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Joseph Aldy: So let me turn now to some of the design of the clean energy package and the American Recovery and Reinvestment. It was the largest energy bill or history appropriating

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Joseph Aldy: Either monies to be spent or scoring expansions and enhancements of tax provisions and tax expenditures more than 90 billion.

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Joseph Aldy: In practice, one up spending a little bit more than 100 billion in part because some of the tax programs were taking up more aggressively than one had been anticipated when this legislation was crafted

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Joseph Aldy: We had more than \$25 billion targeting renewables and that actually want to being probably closer to 4045 billion.

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Joseph Aldy: By the end of the program supporting primarily wind and solar power significant investments for energy efficiency.

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Joseph Aldy: Investments in transit and advanced vehicles such as electric vehicles and better investments in the grid, both to try to increase transmission, but a lot to focus on a smarter grid.

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Joseph Aldy: That can enable more use of real time pricing and electricity sector to enable more effective policies for promoting efficiency and conservation in the electricity sector.

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Joseph Aldy: As well as additional support for innovation and carbon capture and storage.

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Joseph Aldy: Now there's an array of policy tools, whether they were car shared grants with the government say to support the investment smart meters would bear. Bear, some of the costs utilities would bear the other

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00:14:19.740 --> 00:14:26.880

Joseph Aldy: There were state block grants went out as formulas to states and in some cases even local governments for them to invest in energy efficiency and conservation.

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00:14:27.660 --> 00:14:38.700

Joseph Aldy: We had an array of tax credits, both for large scale projects like when barns and solar facilities, but also for households to install energy efficient furnaces, or windows or installation.

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Joseph Aldy: We had for probably run utilities subsidized bonds so that they can invest in renewable energy as well. We had loan guarantees, such as to the Department of Energy's section 1705 program. So the government can help effectively guarantee or subsidize the borrowing for large energy projects.

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Joseph Aldy: We already have, as I noted, research and development, support for the first time, we also have the government funding.

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Joseph Aldy: retrofits and energy efficiency improvements in the government's building stock through GSA.

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Joseph Aldy: All these policy tools were actually leveraging programs that had been authorized reauthorized in the 2005 or 2007 years he builds

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Joseph Aldy: Now let's look a little bit at some of the successes from this program, the counts of Economic Advisers estimates that about 900,000 jobs years were created through spending on clean energy investments.

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Joseph Aldy: This program, the set of programs leverage significant private sector spending.

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Joseph Aldy: In a way, you can see where you can actually get more bang for your buck because you're bringing in. And since crowding in private sector resources for a number of these energy projects.

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Joseph Aldy: That sentence, aside from other kinds of public spending. So just say road building where almost all the monies tend to be public sector.

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Joseph Aldy: We saw tremendous growth and renewable power when power since 2008 has quadrupled solar power in the United States is 100 times its level of 2008

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Joseph Aldy: And we can see here the top bigger showing for when the bottom figure showing for solar

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Joseph Aldy: How we've seen such a significant increase in ramping up have installed capacity relative to what had been forecast right before the passage of the recovery.

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Joseph Aldy: So we expected to have very slow growth and wind and solar without some of the key policies supporting renewables here, but really incredible growth here. And I think what's important is not just to think about

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Joseph Aldy: What was the impact of having subsidies for two or three years during the recovery act period for wind and solar

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Joseph Aldy: For recognizing that and pushing out those technologies in those early years. They help drive down the cost over time to enable even more significant expansion in our capacity of wind and solar in the past half dozen years

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00:16:47.340 --> 00:16:55.440

Joseph Aldy: Now there were some shortcomings, with the Recovery Act that are important to recognize when we think about some of the key lessons designing future climate or any economic recovery package.

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Joseph Aldy: Some policies not target very well cash for appliances, which provided a rebate for people to buy energy efficient refrigerators or clothes washer. So dishwashers.

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Joseph Aldy: Tended to pay people for doing what they were going to do anyway and someone else's that I did with Sebastian hood. We found that about 90% of the people who claimed a rebate for buying an Energy Star rated refrigerator would have bought an Energy Star rated refrigerator anyway.

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Joseph Aldy: In some cases, we found where the non federal partners with grew from projects.

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Joseph Aldy: It shows that kind of trying to leverage other resources is kind of a two edged sword. It's really valuable, valuable to crowd in additional resources from the private sector.

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Joseph Aldy: Or in some cases crowd in cost sharing from state and local governments.

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Joseph Aldy: But it may be that your partners decide not to go forward to the project and then you don't go forward with those investments. This is true for carbon capture and storage where number the utilities.

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Joseph Aldy: Necessary. Their role is necessary to pay for half of the major commercial scale carbon capture and storage power plant.

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Joseph Aldy: Decided to withdraw from their project in the end we did several smaller kind of pilot projects.

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Joseph Aldy: Was also true for high speed rail were a number of state governments governors withdrew their cost sharing for high speed rail and we didn't see nearly as much investment in this context.

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Joseph Aldy: Some of the money's in the energy component of the Recovery Act spent slowly. So the divine energy loan guarantee program. In the end, spent about \$2 billion guaranteeing the debt on major energy projects.

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Joseph Aldy: And most of those monies were spent in the last month or so of that authorization at sunset. At the end of September of 2011 and it was only in September 2011 that you spent more than a billion dollars of

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Joseph Aldy: The Recovery Act authorization for these loan guarantees and that was really just sort of the beginning of when it was when he

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Joseph Aldy: Started to affect economic activity because I never those projects didn't complete until 2013 or 2014 so he had a very long tail associated with the department energies loan guarantee program.

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Joseph Aldy: Now let's look through a couple of the key characteristics that people are interested in. First is sort of think about job creation.

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Joseph Aldy: The Weatherization Assistance Program ramped up significantly under the Recovery Act was one of these where there's the opportunity to both create a lot of jobs.

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Joseph Aldy: But also think about jobs that can effectively target those who recently unemployed, when we look back at the Great Recession.

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00:19:16.860 --> 00:19:23.160

Joseph Aldy: A lot of the unemployed and underemployed were in the building trades because of the collapse in the housing market.

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Joseph Aldy: And so part of our crafting of the clean energy package was trying to think through, where might there be jobs.

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Joseph Aldy: Where might there be programs that would actually design demand for building trade jobs and so weatherization where you go in and retrofit a low income.

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00:19:38.700 --> 00:19:45.540

Joseph Aldy: Households home to previous energy efficiency was one where you could create new demand for some of those under employed workers.

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Joseph Aldy: And what we can see is that in the blue line there on the first figure showing the significant ramp up and the number of units each year under the Recovery Act.

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00:19:54.690 --> 00:20:02.700

Joseph Aldy: That were supported through the weatherization program you can see an estimated estimates of the sort of the big ramp up in the jobs that were supported by the weatherization program.

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Joseph Aldy: Now it's important, what they did for a few years, but there is this this concern.

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Joseph Aldy: That once you ramp down some of the money for the weatherization program, given that we didn't have New Energy and Climate programs. After the Recovery Act appoint a return to in a moment.

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00:20:17.370 --> 00:20:24.420

Joseph Aldy: Then we started to see jobs decline and and that is a concern. I think that many having a space of whether it's just going to be a short term surge.

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00:20:24.630 --> 00:20:35.010

Joseph Aldy: And economic activity and job creation and then the jobs disappear or whether or not we can have lasting careers and some of these occupations that start out from an initial investment in a recovery program.

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00:20:36.210 --> 00:20:47.190

Joseph Aldy: Second, there's a lot of concern. I think justifiably so about the distributional impact. So it's not just how many jobs are we creating how we actually investing in clean energy. But who's enjoying the benefits associated with that.

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00:20:47.790 --> 00:20:56.580

Joseph Aldy: And we had several subsidies for electric vehicles and allows us to sort of think through both the geographic heterogeneity, as well as the income heterogeneity in those benefits.

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00:20:57.060 --> 00:21:02.220

Joseph Aldy: So the speaker here on the left on the geographic region eight, looks at a paper that Stephen Holland and colleagues.

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Joseph Aldy: published last year where they're able to look at what are the monetized environmental benefits they see monetizing the

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00:21:08.910 --> 00:21:17.430

Joseph Aldy: local public health benefits, reducing exposure to fine particulate matter and ozone, as well as what are the benefits of reducing carbon dioxide or climate change.

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00:21:17.970 --> 00:21:22.560

Joseph Aldy: And show that when we started to invest in subsidizing electric vehicles within a decade ago.

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Joseph Aldy: The problem was that in some cases we got people out of gasoline, but then they were consuming more electricity from a grid that was actually quite cold intensive intense light pollution intensive

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Joseph Aldy: So there's some parts of the country, like in California where the grid was already fairly clean. Well, we got sizable benefits, represented by the blue shading.

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00:21:39.870 --> 00:21:51.300

Joseph Aldy: But in a number of places in the country. And you can see in the southeast and Atlanta, Georgia. Georgia had an aggressive state subsidy that complemented the federal subsidy get a lot of Ev purchases. More than a decade ago in the state of Georgia.

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Joseph Aldy: But the grid back then was actually fairly carbon intensive

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Joseph Aldy: So what we saw there is actually you guys people move out of gasoline vehicles electric vehicles, the emissions of fine particulate matter and a carbon dioxide actually increased

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00:22:03.870 --> 00:22:11.520

Joseph Aldy: Now the good news is that the electricity grid has improved significantly in reducing both its carbon intensity and it's locally air pollution intensity

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00:22:12.060 --> 00:22:15.600

Joseph Aldy: So we're do the same analysis today would actually see a lot more blue cross that out.

148

00:22:16.050 --> 00:22:24.420

Joseph Aldy: But it does illustrate ways in which we can use I think both new tools and data to really understand where in the country. We get better environmental protection.

149

00:22:25.080 --> 00:22:29.070

Joseph Aldy: What's the incremental improvement and environmental quality as a result in a sentence.

150

00:22:29.760 --> 00:22:36.330

Joseph Aldy: Now, the other way to think about, though, is we're going to be subsidizing clean energy, who's going to be taking up those subsidies, who's going to enjoy the benefits of those subsidies.

151

00:22:37.050 --> 00:22:47.760

Joseph Aldy: That's I've done some work for someone with some of my students, we were building on work by seven Bornstein and Lucas Davis, looking at in the tax code, who's claiming subsidies for electric vehicles.

152

00:22:48.390 --> 00:23:04.770

Joseph Aldy: What we can see here is that the orange line is showing a very skewed take up by the highest income households in the tax code. So the take of of ease is even more skewed towards the wealthy, then even the skew just regional income, which is represented by the blue line here.

153

00:23:05.940 --> 00:23:12.570

Joseph Aldy: Are these all highlight. I think a number of different ways that people are trying to think about the distributional impacts of a clean energy stimulus.

154

00:23:13.080 --> 00:23:21.240

Joseph Aldy: Are the ways which would reduce disparities or thinking about reducing the variation on various kinds of groups can we be more careful about how we target specific policies.

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00:23:21.840 --> 00:23:27.090

Joseph Aldy: Can we also think about sort of alternative ways in which we might measure what is a shared just economic growth post Kobe.

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00:23:28.170 --> 00:23:35.790

Joseph Aldy: Now finally, I think it's important to think about overlapping policies. We have a lot of policies, especially now with more aggressive state programs in effect.

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00:23:36.030 --> 00:23:45.180

Joseph Aldy: We already have a number of policies at the federal level that all are trying to promote one way or another investment in lower carbon or zero carbon energy technologies.

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00:23:45.750 --> 00:23:53.220

Joseph Aldy: So one thing we did is to look at the section. Some Gino five loan guarantee program and look at all the projects that received loan guarantees to this program.

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00:23:54.540 --> 00:24:02.850

Joseph Aldy: As it turns out, not only did they all receive as reflected in this red area red circle here loan guarantees, but they all receive significant benefits through the tax code.

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00:24:03.330 --> 00:24:12.840

Joseph Aldy: Whether it's through accelerated depreciation through the 48 see manufacturing tax credit for those loan guarantee projects that supported investment new manufacturing capacity.

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00:24:13.500 --> 00:24:20.670

Joseph Aldy: A number of state tax credits were also claimed by loan guarantee program recipients and we had either

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00:24:21.210 --> 00:24:31.800

Joseph Aldy: The production tax credit for when projects investment tax credit for solar or the section 16 or three grant in lieu of tax credit, which effectively converted the 30% investment costs.

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00:24:32.250 --> 00:24:41.580

Joseph Aldy: Subsidy you get through the investment tax credit and and provided that to recipients in the form of a grant all these were available and taken up by many of these projects.

164

00:24:42.210 --> 00:24:49.860

Joseph Aldy: In addition, there are also operating under a variety of policies that create demand for what they're producing, whether it's a state renewable portfolio standard

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00:24:50.190 --> 00:24:56.910

Joseph Aldy: So you have a state requirement at a minimum share of your power must come from renewable source. In addition to it being subsidized through the loan guarantee program.

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00:24:57.390 --> 00:25:05.670

Joseph Aldy: And we had a number of state cap and trade programs that were limiting admissions of carbon dioxide in California and in the Northeast states and also create demand for a number of these projects.

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00:25:06.210 --> 00:25:13.500

Joseph Aldy: And all this raises questions about what's the incremental impact of subsidizing a project by guaranteeing its debt through a loan guarantee

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00:25:13.770 --> 00:25:21.090

Joseph Aldy: When you're already doing a number of things, both to subsidize the project through subsidies in the tax code as well as creating demand through state.

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00:25:21.510 --> 00:25:28.170

Joseph Aldy: Or local regulatory requirements is important when we move forward and think about the future of an economic recovery program as well.

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00:25:29.010 --> 00:25:36.660

Joseph Aldy: So let me close with a couple of comments about the lessons from the Recovery Act before we open it up for Q AMP a first. I think it's important to be opportunistic

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00:25:37.590 --> 00:25:47.910

Joseph Aldy: So interesting when we look back at the kind of history with the Recovery Act and the investments on clean energy, which actually back up about four months to early October of 2008

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00:25:48.570 --> 00:25:59.610

Joseph Aldy: Then, Congress passed the tarp bill the Troubled Asset Relief Program. This was a help deal with the dramatically declining fortunes in the financial sector concerns about the credit market seizing up

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00:26:00.180 --> 00:26:07.440

Joseph Aldy: The tarp legislation actually has more pages on clean energy tax expenditures and it does on troubled assets that need relief.

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00:26:08.250 --> 00:26:15.750

Joseph Aldy: It was just one of those ways in which members of Congress saw a legislative vehicle that was a quote most must pass piece of legislation.

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00:26:16.320 --> 00:26:19.950

Joseph Aldy: So they decided to add an extension to the wind production tax credit.

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00:26:20.340 --> 00:26:30.480

Joseph Aldy: They added a an extension to 2016 for solar power through the investment tax credit and increase the share of investment. Cause it can be recovered through that tax credit.

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00:26:31.140 --> 00:26:40.770

Joseph Aldy: That these were then amplified in the Recovery Act in February of 2009 both through the section 16 or three grant and through an extension of the wind production tax credit.

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00:26:41.520 --> 00:26:47.310

Joseph Aldy: We also saw an extension of the grant and Lieu of tax credit program and the December 2010 tax bill.

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00:26:48.090 --> 00:26:57.480

Joseph Aldy: That was negotiated between the Obama White House and House Republicans who are coming in to the new leadership of the House after the 2010 midterms.

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00:26:57.930 --> 00:27:04.230

Joseph Aldy: That piece of legislation was going to wind up extending some of the Bush tax credits extended some of the unemployment insurance from the Recovery Act.

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00:27:05.580 --> 00:27:13.740

Joseph Aldy: But it also helped continue. Some of the more effective clean energy programs such as the grant and Lieu of tax program.

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00:27:15.090 --> 00:27:24.270

Joseph Aldy: Second is incredibly important to target. We've seen some projects and some programs that I think we're quite effective at targeting module investment and others.

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00:27:24.630 --> 00:27:27.810

Joseph Aldy: That probably just has spent money for something that was going to happen anyway.

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00:27:28.350 --> 00:27:33.900

Joseph Aldy: Now, from a single standpoint, it may still be useful to get money out to a household and businesses, even as or something, they were going to do anyway.

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00:27:34.080 --> 00:27:40.770

Joseph Aldy: Because it gives them more resources, they can go spend on something else. It still has an effect in stimulating economic activity in job creation.

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00:27:41.520 --> 00:27:51.000

Joseph Aldy: But it sort of undermines the second objective of trying to transform the energy system to help reduce our carbon dioxide emissions.

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00:27:51.780 --> 00:27:53.370

Joseph Aldy: Third, I think it's important to keep it simple.

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00:27:53.940 --> 00:27:59.100

Joseph Aldy: The project the programs that were more complicated and to move much more slowly than those that were simple

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00:27:59.310 --> 00:28:06.990

Joseph Aldy: The simple programs are easier to administer from the government standpoint, they're easier for businesses and families to understand when they're trying to change their behavior.

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00:28:07.230 --> 00:28:13.380

Joseph Aldy: So simplicity is really important, although I will recognize there is a tension between wanting to be very thoughtful and how you target.

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00:28:13.890 --> 00:28:17.550

Joseph Aldy: Sometimes you might need to be a little less simple to be more effective and targeting

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00:28:18.150 --> 00:28:29.070

Joseph Aldy: But you want to try to strike the right balance so that you don't make the program so complicated that a lot of potential participants in the program shy away from its complexity or delays the rollout of the program.

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00:28:30.150 --> 00:28:36.690

Joseph Aldy: I think is a lot of value and trying to take an act. Learn act approach. We're going to need to make a lot of investments in the years to come.

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00:28:37.050 --> 00:28:40.890

Joseph Aldy: To try to decarbonize the economy and to make it more resilient to climate change.

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00:28:41.550 --> 00:28:48.690

Joseph Aldy: One piece of legislation, even if it's a large recovery package is not going to be sufficient. So there's a lot of value here to design a program

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00:28:48.930 --> 00:28:59.880

Joseph Aldy: So not only do you implement it quickly. Not only do you drive changes in energy system, but you can also learn from it to figure out what programs you want to continue and expand in the future and which ones did not work out as well as you would have liked.

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00:29:01.170 --> 00:29:09.270

Joseph Aldy: And finally, I think it's important for us to keep our eye on the prize here that in the context of climate change. It's not just as a near term investment but it's thinking through what is the long term goal.

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00:29:09.990 --> 00:29:16.770

Joseph Aldy: Many have talked about the importance of fully decarbonize the economy by the year 2050 but also to think about what may be our mid term policies.

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00:29:17.130 --> 00:29:26.790

Joseph Aldy: Will we use some form of carbon pricing, whether it's through a carbon tax, or national clean energy standard or some suite of regulations. How were the near term investments.

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00:29:27.330 --> 00:29:33.990

Joseph Aldy: Compliment well those mid term policies and make sure that we are on a strong foundation towards our long term decarbonisation goals.

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00:29:35.220 --> 00:29:37.650

Joseph Aldy: Finally, let me close with a couple comments about what's different this time.

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00:29:38.850 --> 00:29:46.590

Joseph Aldy: First, what we've seen in the past, going back to the carriers' act in March is more what I would think of as disaster relief and economic stimulus.

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00:29:47.190 --> 00:29:55.470

Joseph Aldy: The point of economic stimulus is to get people who are unemployed at home, out of their homes and out of their apartments and into the workforce and at

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00:29:56.040 --> 00:30:03.450

Joseph Aldy: Factories at BUILDINGS DOING WORK. The challenge with cooperative courses is at times we had been actually spending money.

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00:30:04.230 --> 00:30:14.220

Joseph Aldy: Whether it is to households directly, whether it's to small businesses to try to keep people from being in the workplace, because that actually increases quoted risk.

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00:30:14.610 --> 00:30:20.340

Joseph Aldy: So I think a lot of what we've been doing has been kind of disaster relief, as we've been in the Kobe crisis.

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00:30:20.670 --> 00:30:28.740

Joseph Aldy: And we're going to need to be thoughtful about what might be economic stimulus Bianco but once we have a better management of the pandemic.

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00:30:29.550 --> 00:30:35.250

Joseph Aldy: But I think it is different. What we've been spending so far has really been more of a form of disaster relief and economic stimulus.

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00:30:35.940 --> 00:30:43.260

Joseph Aldy: Second, I think it's important for us to go beyond just investments in clean energy, like I said, that was sort of the defining characteristic of the 2009 recovery.

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00:30:43.800 --> 00:30:46.680

Joseph Aldy: Recovery Act. When we think about the climate oriented components of it.

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00:30:47.130 --> 00:30:56.160

Joseph Aldy: But now we have a much better understanding of the risk posed by climate change, we're starting to bear those impacts today, whether it's storms in the Gulf Coast or fires out in the West.

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00:30:56.580 --> 00:31:04.680

Joseph Aldy: Flooding along the Mississippi River Basin all these suggests when we look back in the last few years have more and more climate change impacts occurring.

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00:31:05.160 --> 00:31:17.940

Joseph Aldy: Which are posing risk to our populations and to our infrastructure and so will need to make investments to enhance the resilience and reduce the vulnerability of this infrastructure and our populations that rely on

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00:31:18.510 --> 00:31:24.270

Joseph Aldy: So I think we'll need to make investments on climate adaptation and resilience to compliment climate oriented clean energy investments.

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00:31:25.050 --> 00:31:29.670

Joseph Aldy: Third, I think there's, it's important to take into account the role in the impacts of state climate energy policies.

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00:31:30.030 --> 00:31:38.640

Joseph Aldy: As I did earlier, there's a lot of policies out there is sort of overlapping framework raises questions about what is the most effective incremental investment from the federal sector.

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00:31:39.930 --> 00:31:47.190

Joseph Aldy: And finally, all know we've incredibly low interest rates. And so it really raises a question about how temporary you're spending program should be

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00:31:47.490 --> 00:31:57.540

Joseph Aldy: And whether we should think about this as sort of a one shot stimulus program or think about this as the beginning of a series of infrastructure investment programs that take advantage of very low cost of the federal government of borrowing.

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00:31:58.290 --> 00:32:07.440

Joseph Aldy: To make those kinds of investments that yield high returns over the long term, to our society so that close here with my contact information if you have any questions.

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00:32:07.650 --> 00:32:11.580

Joseph Aldy: I look forward to discussing them here in the rest of our time, but you're also welcome to follow up with me.

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00:32:11.760 --> 00:32:14.730

Joseph Aldy: Via email, Rob. Let me turn it over to you know x

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00:32:14.790 --> 00:32:16.260

Robert Stavins: Ray, thank you very much, Joe.

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00:32:17.910 --> 00:32:20.730

Robert Stavins: fantastic presentation really interesting

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00:32:22.320 --> 00:32:39.690

Robert Stavins: Lots of meat for discussion. We already have some questions in the queue. But I want to mention to all the others to the well over 100 people who are with us that if you have a question for Joe or a comment. You want to make just use the Q AMP a function at the bottom of your screen.

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00:32:40.920 --> 00:32:48.930

Robert Stavins: By the way, even some of the names that show up there. There are people that I know. But I'm not going to mention the name of who is

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00:32:49.500 --> 00:32:55.380

Robert Stavins: posing a question unless actually in the question you say you authorize that your name can be mentioned.

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00:32:55.950 --> 00:33:14.130

Robert Stavins: So we have an international very international audience. This presentation was focusing on assessment of US policy, but with lessons, perhaps not just for the US but for other countries as well. And in fact, the first question is coming from the perspective of our neighbors to the north.

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00:33:15.330 --> 00:33:20.970

Robert Stavins: And that is that there is an additional policy objective that's been under discussion.

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00:33:22.200 --> 00:33:35.310

Robert Stavins: In Canada for a Canadian green stimulus program which is inclusiveness, making sure that women and other groups that are particularly that have been particularly hard hit.

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00:33:36.540 --> 00:34:01.200

Robert Stavins: By the economic downturn due to the pandemic that they're there. The focus to some degree of assistance going forward. So the question then is, are there any additional lessons from the weatherization or other 2009 Recovery Act programs that can be applied to that specific objective.

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00:34:02.310 --> 00:34:11.820

Joseph Aldy: I think that's certainly something that's elevating the debate on both sides of the border. We're seeing that here in the US as well. An interest to make sure that we have a kind of shared economic growth.

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00:34:13.020 --> 00:34:15.870

Joseph Aldy: And that we're able to sort of, I think, effectively address

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00:34:17.340 --> 00:34:27.960

Joseph Aldy: The sort of the distributional impact here, in addition to just how do you increase the aggregate number of jobs. And I think that gets to how you think about design that is targeted.

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00:34:28.440 --> 00:34:34.890

Joseph Aldy: Design and policies as targeted so so there are some programs and it's a question of when you think about the entire portfolio.

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00:34:35.670 --> 00:34:42.210

Joseph Aldy: So, so, you know, I gave two examples. One is a weatherization program by design that only goes to low income households, it's implemented.

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00:34:42.600 --> 00:34:50.400

Joseph Aldy: Funded by the federal government goes down to state and local governments, there's an income requirement. It's a means tested program.

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00:34:51.000 --> 00:34:59.340

Joseph Aldy: It does vary a little bit state to state, but the intent is to make sure that it's lower income households who enjoy the benefits of having their homes retrofitted to become more energy efficient.

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00:35:00.030 --> 00:35:11.820

Joseph Aldy: I think this is a lot of value, longer term when we think about the potential energy shots. We may face in the future because of climate change. So whether it's a heat way that causes increase electricity demand for cooling

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00:35:12.960 --> 00:35:20.700

Joseph Aldy: What matters will help low income households. When we think about a future where energy prices are higher because of climate change greenhouse gas mitigation program.

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00:35:21.810 --> 00:35:28.320

Joseph Aldy: But that's a brokenness clearly targeted to low income households and we can contrast that with EV subsidies which which can go to anybody.

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00:35:28.890 --> 00:35:35.280

Joseph Aldy: But when we look at, in practice, who's buying new electric vehicles. They were very high income households who could claim those subsidies.

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00:35:36.060 --> 00:35:38.730

Joseph Aldy: So it may be that in the long run.

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00:35:39.300 --> 00:35:48.540

Joseph Aldy: giving subsidies, a decade ago to high income households for ease may spill over to lower income households in the future by helping to bring down the cost of like vehicle technologies over time.

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00:35:48.840 --> 00:35:52.140

Joseph Aldy: broadening the market. So, more and more people will be able to enjoy that technology.

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00:35:53.070 --> 00:35:59.220

Joseph Aldy: But in the short term, it looks like that, something that benefits disproportionate higher income households and maybe when you're crafting a package.

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00:35:59.580 --> 00:36:04.200

Joseph Aldy: When you have a number of different objectives. You want to make sure that you're targeting some of the low income households, but you also want to try to

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00:36:04.500 --> 00:36:09.180

Joseph Aldy: Push out some of these innovative technologies are going to be key to transforming the energy system.

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00:36:09.690 --> 00:36:14.790

Joseph Aldy: Then you're going to be sort of balancing these kinds of trade offs and and so I think you end up with a what we had in which

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00:36:15.090 --> 00:36:24.360

Joseph Aldy: without really thinking through, like, who's going to benefit from all these we didn't do as much. I would say distributional analysis in 2008 2009 as people are thinking about today.

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00:36:25.080 --> 00:36:34.290

Joseph Aldy: But as a as another note we didn't do nearly as much analysis back then as I think people are doing today, getting ready for the next recovery package.

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00:36:34.710 --> 00:36:38.190

Joseph Aldy: Me. Part of it is just that we didn't have nearly as good a data back then.

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00:36:39.120 --> 00:36:46.950

Joseph Aldy: The economy was falling, really, really fast. You know, is it was about October of 2018 we're talking about maybe a \$300 billion recovery package.

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00:36:47.640 --> 00:36:54.870

Joseph Aldy: And by January, they're saying no, it needs to be more than a trillion that the target change dramatically, given how quickly the economy was was falling

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00:36:55.590 --> 00:37:02.010

Joseph Aldy: But I think we have a lot better understanding of what about the effectiveness of programs a lot better data to understand how we craft things now. And there's been more Lita

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00:37:02.760 --> 00:37:14.400

Joseph Aldy: I know congressional staff and stakeholders have been thinking about how to craft different kinds of energy programs right now going forward. So I think there's there's a much more concern and interest in how to design programs have target.

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00:37:16.380 --> 00:37:20.430

Joseph Aldy: Certain either populations or communities.

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00:37:20.760 --> 00:37:28.680

Joseph Aldy: And I think that's going to be important going for. But I think we're gonna have to try to strike a balance here between what might be important to help sort of accelerate some new technologies.

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00:37:28.980 --> 00:37:41.820

Joseph Aldy: Where we're not going to be population targeting and now there's where we want to make sure that the benefits are really enjoyed by say lower income households or underrepresented communities that haven't really enjoyed the gains from clean energy historic

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00:37:43.470 --> 00:37:51.180

Robert Stavins: Thank you. So Joe. Would it be okay with you one person asked for this. If we put your email address into the chat so that

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00:37:52.110 --> 00:37:52.710

Joseph Aldy: That would be great.

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00:37:52.980 --> 00:38:04.860

Robert Stavins: So, Casey. If you could please put Joe's email address into the chat, then people can have access to it. So the next question is one which really packages together, what must be a dozen

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00:38:05.250 --> 00:38:12.810

Robert Stavins: Separate questions and I'll put it together into one. And that is, I'll phrase it this way, but it's the essence of them.

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00:38:13.230 --> 00:38:27.600

Robert Stavins: Can you comment on what we might anticipate in regard to green economic recovery from a Biden administration and from a Trump administration in the second term that is

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00:38:28.290 --> 00:38:33.630

Joseph Aldy: So let me start with the second one first, since that's shorter, not much.

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00:38:35.490 --> 00:38:45.690

Joseph Aldy: I it's, there's been little, little interest. I think from the Trump administration in obviously spending on clean energy technologies.

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00:38:46.560 --> 00:38:57.000

Joseph Aldy: But having said that they've been fairly passive I think engaging Congress on on legislation generally for four years. It's a, it's a, to me, a fascinating departure from

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00:38:57.450 --> 00:39:00.660

Joseph Aldy: Not just the administration. I worked in the previous administrations, where you would bring

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00:39:01.650 --> 00:39:08.730

Joseph Aldy: Both the, the policy objectives, but the expertise of the executive branch to bear to inform the crafting of policy in

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00:39:09.630 --> 00:39:15.870

Joseph Aldy: In working with Congress and we just haven't seen that from this administration and even in these ongoing talks between

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00:39:16.350 --> 00:39:27.360

Joseph Aldy: Sexual Revolution and the House for the most part there doesn't seem to be a lot of analysis, there's, it's kind of a political game to see what might happen right before an election.

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00:39:28.140 --> 00:39:34.500

Joseph Aldy: But I think if Trump were to be reelected. I don't think there'll be much web for that focused on energy in a recovery package.

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00:39:35.070 --> 00:39:39.540

Joseph Aldy: For a president like Biden. I think there are considerably can be considerable investment here.

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00:39:40.470 --> 00:39:48.150

Joseph Aldy: He has talked about as a part of the Biden Sanders Sanders unity effort that there would be significant ramping up spending.

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00:39:48.510 --> 00:39:56.550

Joseph Aldy: On the order of a 2 trillion over four years with a large fraction. I think about 40% that we're trying to target disadvantaged communities.

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00:39:57.060 --> 00:40:06.780

Joseph Aldy: So recognizing again the need is really share the benefits of clean energy investment in climate oriented spending across the population, but really ramping it up to a new new scale.

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00:40:07.770 --> 00:40:16.680

Joseph Aldy: Remember when we spent about 100 billion dollars. That was the largest energy bill ever. And now we're talking about something that is an order of magnitude larger. So it's potentially a really big spin

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00:40:17.610 --> 00:40:25.800

Joseph Aldy: That the Biden team has in mind. And I think what we would see here is a mix of more investment in clean energy trying to push out more on

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00:40:26.490 --> 00:40:30.810

Joseph Aldy: Renewables probably trying to be more on electric vehicles, maybe EV charging

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00:40:31.530 --> 00:40:38.520

Joseph Aldy: Perhaps trying to think through ways in which we can sort of accelerate meaningful transformation. So it's not just do we make, how we consume energy in the home more energy efficient.

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00:40:38.850 --> 00:40:47.460

Joseph Aldy: But maybe how do we accelerate the electrification of homes so that you can actually get down to sort of zero carbon homes in the future. I think that you would also see

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00:40:48.630 --> 00:40:59.280

Joseph Aldy: You know, considerable discussion about sort of what's going to be the policies beyond a recovery act. So I think it's going to be important, not just you. But spending to create

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00:40:59.880 --> 00:41:10.170

Joseph Aldy: New jobs and energy space and invest in these new technologies, but if you have a clear regulatory framework, you have a clear policy framework. If it's a carbon tax or a clean energy standard or what have you.

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00:41:10.650 --> 00:41:15.810

Joseph Aldy: That makes it all the more likely that you're going to see a positive quick investment in the energy space.

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00:41:16.080 --> 00:41:26.730

Joseph Aldy: Because the businesses recognize that not only are they investing to take advantage of near term subsidies but there's going to be more demand in the market in the future because of a clear policy framework.

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00:41:27.360 --> 00:41:32.730

Joseph Aldy: That creates that demand for these for these technologies. So my sense is, it would be a very ambitious.

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00:41:33.060 --> 00:41:43.410

Joseph Aldy: Perhaps we might call it sort of a whole of government approach to climate change and abide in administration and it's going to be something that would be a very important component of what would go into a post covert economic recovery program.

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00:41:44.160 --> 00:41:46.260

Robert Stavins: So that's quite a contrast between the two.

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00:41:48.420 --> 00:41:56.250

Robert Stavins: Another here's another attempt on my part to summarize package a whole bunch of questions and that is you have emphasized.

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00:41:57.030 --> 00:42:18.270

Robert Stavins: That within economic recovery package the thinking. Then, and perhaps always is to move fast. There's that cliché about Shovel. Shovel ready projects but climate change is a long term issue. It's going to require structural changes in the economy that will take place over time.

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00:42:19.980 --> 00:42:29.670

Robert Stavins: How do you view that trade off in terms of the challenges there for for designing a future green economic recovery package.

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00:42:30.480 --> 00:42:36.630

Joseph Aldy: Well, for one thing, I think it's important. Why in your Climate Change Program. This is only the first step.

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00:42:38.070 --> 00:42:50.130

Joseph Aldy: This is back in 2009 our intent was to make strategic investments in in clean energy that's what President Elect Obama described it yet three major strategic investments in the Recovery Act.

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00:42:50.520 --> 00:42:59.310

Joseph Aldy: On health care and education in clean energy, but the intent was to make that a first step, the major down payment in trying to deliver on

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00:42:59.790 --> 00:43:09.000

Joseph Aldy: Then President Obama's climate goals and then the plan then was to do a cap and trade program and economy wide program what passed the House of Representatives.

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00:43:09.270 --> 00:43:19.380

Joseph Aldy: Would have delivered on President Obama's goal to reduce our emissions 80% by 2050 through a cap and trade program now that didn't pass the Senate, and in the end we haven't really had much

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00:43:20.130 --> 00:43:27.600

Joseph Aldy: Improvement in our climate policy space. Since then, there was some efforts for the power sector that eventually got held up by the courts and then

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00:43:28.350 --> 00:43:39.090

Joseph Aldy: walked back by the Trump administration. But I think what's important here is I think through what are the kinds of investments that makes sense in the near term for economic activity.

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00:43:39.510 --> 00:43:50.460

Joseph Aldy: Although the neutral might be longer than what we think in the past, it's not, you got to spend it in 1218 months, although it's going to be critical for those households who are out of jobs right now to create jobs as soon as possible, but we're going to have, I think, a persistent

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00:43:51.690 --> 00:44:02.220

Joseph Aldy: underachievement of our economy relative to what would be full potential for a number of years to come. So you can have a longer tail of spending in a recovery package and and not crowd out private spend

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00:44:03.360 --> 00:44:07.200

Joseph Aldy: But you want to find ways in which you can do that. That makes the sort of initial

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00:44:07.770 --> 00:44:15.270

Joseph Aldy: Or a new round of investments in clean energy that's going to really set the foundation for, I think, what will be a more aggressive Climate Change Program through policy and regulation.

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00:44:15.720 --> 00:44:29.940

Joseph Aldy: So you really want to think about these sort of a one to step, maybe even a one in a 1.1 1.2 if you think is going to be say several infrastructure bills were clean energy of the big part of infrastructure bill in addition to what would be an initial recovery package.

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00:44:30.750 --> 00:44:42.690

Robert Stavins: And and you've made an important distinction between, on the one hand, a disaster relief package and the other hand and economic recovery package and presumably the cares that falls into the former category.

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00:44:42.750 --> 00:44:50.220

Joseph Aldy: The care, I think, okay, the cares act as if we're trying to pay people to not go to work, which is certainly what we were doing back in the spring.

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00:44:50.910 --> 00:44:59.430

Joseph Aldy: That's not trying to stimulate economic activity that's just helping people with cash flow is helping small businesses with pencils helping some large businesses with cash flow.

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00:44:59.760 --> 00:45:08.310

Joseph Aldy: In the near term, because that's how we are trying to manage the public health risk and I'll emphasize something that many of our colleagues in economics. I've been saying for the last six months.

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00:45:08.970 --> 00:45:15.810

Joseph Aldy: The most important way to stimulate economic activity is to manage covert risk and we could do a much better job of that.

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00:45:16.170 --> 00:45:21.450

Joseph Aldy: I mean it is I think shameful the job, we've done in the United States. When we look in comparison to many other countries in the world.

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00:45:22.020 --> 00:45:30.450

Joseph Aldy: Of both the loss of life, the incredible morbidity, but also the economic costs were facing just because we haven't been up to the task.

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00:45:30.810 --> 00:45:37.440

Joseph Aldy: Of managing the risk of gathering the information we need through a credible system of surveillance through testing and tracing and so on.

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00:45:38.130 --> 00:45:44.040

Joseph Aldy: But if we were to get much better and smarter about that and manage the risk. That's the most more thing we can do to stimulate the economy.

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00:45:44.670 --> 00:45:51.150

Joseph Aldy: But we're gonna have a lot of people who have been out of a job long enough, whether there's a concern that those aren't temporary layoffs. There's going to be persistent job losses.

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00:45:51.480 --> 00:45:55.980

Joseph Aldy: Where I think an economic stimulus program will be important to get them back off their feet and enter new jobs.

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00:45:57.090 --> 00:46:07.860

Robert Stavins: Now, next. Here's a question that will warm the heart of economists and that is based upon research that's been done since 2009

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00:46:08.400 --> 00:46:20.520

Robert Stavins: Or if there is no research, just based upon your personal assessment or gas of all the different elements that were part of the recovery package and as you pointed out, there were many

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00:46:21.840 --> 00:46:37.020

Robert Stavins: Which turned out to be most efficient or least efficient or most cost effective or least cost effective and you can choose whether it's efficiency or cost effectiveness, you want to comment on

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00:46:37.920 --> 00:46:45.960

Joseph Aldy: So I think the challenge on efficiency is we don't have a lot of research that's really getting at the efficiency question.

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00:46:47.610 --> 00:47:02.190

Joseph Aldy: permits us even if we're trying to assess efficiency. If you were to look at a paper published and say 2011 or 2012 it might use a very different estimate of the benefits of reducing CO2 than what a paper published a year or two ago might use the social cost of carbon.

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00:47:03.210 --> 00:47:11.760

Joseph Aldy: Critically important as it means for how we evaluate the benefits of reducing carbon dioxide emissions that is one way. It's an incredibly rich and fast moving literature.

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00:47:12.840 --> 00:47:14.760

Joseph Aldy: When you think about sort of cost effectiveness.

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00:47:16.080 --> 00:47:19.080

Joseph Aldy: There's, there's a lot of variation across these programs.

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00:47:20.040 --> 00:47:32.850

Joseph Aldy: Our colleague Jim Stock and people with Can Gillingham in the journal Economic sectors that did a nice job of sort of reviewing all these different kinds of programs, many of which were part of the Recovery Act, and you see quite significant variation in the cost per ton of CO2.

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00:47:34.140 --> 00:47:41.430

Joseph Aldy: But I think one thing that's important to keep in mind that they stress is not to just look at the cost effective. The static cost effectiveness, but also to think about the dynamics.

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00:47:41.820 --> 00:47:49.020

Joseph Aldy: That we may be spending and in fact I think early on, we're spending a lot of per watt solar power we were putting in

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00:47:49.650 --> 00:48:00.510

Joseph Aldy: But it helped grow that market. It helps create enough demand in the market, so that the suppliers have like one of our former students that Rob and I both enjoyed working with Todd Gerard and did some really nice work on this.

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00:48:00.870 --> 00:48:12.630

Joseph Aldy: Showing how the near subsidies in the near term for solar helped create the market for suppliers to make investments in innovation to drive down the cost and improve the efficiency of solar technology has helped enabled significant

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00:48:13.350 --> 00:48:32.220

Joseph Aldy: Growth in solar capacity around the world. So yeah, these kinds of positive spillovers over time. My sense is that where what we've done in the renewable space has been quite effective. The just a significant impact really quite unexpected growth and wind and solar

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00:48:33.270 --> 00:48:38.310

Joseph Aldy: Compared to how to say the Energy Information Administration I projected what those technologies will do over the past decade.

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00:48:38.820 --> 00:48:45.450

Joseph Aldy: Is tremendous that the night and day difference and where basically incremental build is occurring in the US power sector.

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00:48:45.930 --> 00:48:55.020

Joseph Aldy: Now I think going forward. We can be a lot smarter about how we design those policies when has been getting the exact same tax credit. Since 1992 in real terms.

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00:48:55.620 --> 00:49:03.150

Joseph Aldy: And I don't know what's the right tax credit, but I am very confident that it is not been 1.5 cents a kilowatt hour

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00:49:03.600 --> 00:49:16.320

Joseph Aldy: In 19 \$92 for the last three decades. And in fact, there's ways we can think about I think tailoring these policies so that they can really target those parts of the country that still have more carbon intensive grid so we can get bigger bang for the buck.

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00:49:17.640 --> 00:49:25.230

Joseph Aldy: Dan Stuart, one of our current grasses has been doing work on that very question. So I think there's ways we can be smarter to get to become more cost effective.

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00:49:25.650 --> 00:49:32.400

Joseph Aldy: And I think that's where we are able to learn some of the lessons from from the Recovery Act, but also bringing in, I think, was really

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00:49:33.180 --> 00:49:42.000

Joseph Aldy: Phenomenal different set of tools and data that allow us to do a much more effective job targeting where our programs can be spending resources for investment in the future.

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00:49:42.960 --> 00:49:49.830

Robert Stavins: Thank you. So Joe an old friend of yours from our FF Toshi are immoral from Japan.

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00:49:51.270 --> 00:49:58.440

Robert Stavins: poses a question, he he points out that you've said that resilience or climate adaptation

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00:49:59.460 --> 00:50:10.080

Robert Stavins: Will be a part of it or quad to be a part of economic recovery package this time. That's something that differentiates the situation from 2009 and then he has

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00:50:11.160 --> 00:50:25.350

Robert Stavins: Given that one things of adaptation is being something that sometimes localities, you know, municipalities or states do what's the role for the US government to help increase resilience, this time around.

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00:50:26.010 --> 00:50:32.850

Joseph Aldy: That's a great question. Toshi. Thank you. It's good to hear from you. I think it's, you know, one element to this can be road construction.

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00:50:33.270 --> 00:50:44.370

Joseph Aldy: So in the 2009 Recovery Act. There was a lot of money that went to the general public transportation that then went out to all the States to increase highway construction built bridge repairs.

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00:50:45.570 --> 00:50:53.850

Joseph Aldy: You know there is a park in Washington, DC. I used to walk by to go into work that was actually funded through this program as well so

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00:50:54.090 --> 00:51:01.770

Joseph Aldy: So what you do is you get a lot of projects and programs that tend to be designed at the state level, but are funded at the federal level.

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00:51:02.130 --> 00:51:05.340

Joseph Aldy: And so I think this is something like that as well, for that matter.

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00:51:05.820 --> 00:51:10.410

Joseph Aldy: We even had the energy efficiency and conservation block grant program that was Federal monies

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00:51:10.710 --> 00:51:19.800

Joseph Aldy: But most of those monies went through a formula to the states and local governments and they could use it for their own tailored energy efficiency, renewable energy and related programs.

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00:51:20.160 --> 00:51:30.420

Joseph Aldy: So it's not uncommon to think about this. And in fact, I think right now because the state fiscal situation is so dire that the states have seen a dramatic decline in their revenues.

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00:51:31.200 --> 00:51:36.960

Joseph Aldy: They don't have the capacity to borrow because most states operate on under balanced budget rules that the federal government doesn't

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00:51:37.380 --> 00:51:42.450

Joseph Aldy: So they see a big declining revenues, they're going to be cutting back spending. So this is another way

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00:51:42.810 --> 00:51:53.070

Joseph Aldy: You're not gonna see the state's pushing out. I think a lot of monies for investment in more climate resilient infrastructure because of all the competing claims in a really hard budget environment.

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00:51:53.580 --> 00:52:01.110

Joseph Aldy: So this is the way I think to get them more money is to get them to do something, you're more likely to get incremental build in the near term because of that difficult fiscal situation for the states.

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00:52:01.530 --> 00:52:13.560

Joseph Aldy: And that way you know, while it is delivering primarily state or local benefits because I think of the the resource, the ability to pay just isn't there in those state and local governments, that's where the federal government can step in and help out.

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00:52:14.970 --> 00:52:18.990

Robert Stavins: So is there a related question is sensitive generalizing upon that.

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00:52:20.400 --> 00:52:27.540

Robert Stavins: How do you see the mix, then between mitigation and adaptation and a green stimulus package where, where should the greater weight be

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00:52:29.100 --> 00:52:32.310

Joseph Aldy: So, you know, part of this is this challenge, about how we think about

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00:52:34.080 --> 00:52:36.390

Joseph Aldy: What, what are, what are the criteria we want to use for evaluating

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00:52:37.320 --> 00:52:46.980

Joseph Aldy: You know, one one might say I want to be as cost effective as possible and get the biggest climate bang for the buck. And then I'd want to start generating estimates of sort of dollars per ton of CO₂.

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00:52:47.490 --> 00:53:02.370

Joseph Aldy: For various kinds of programs. And while you could do that. I think across the clean energy investment space where your investments are really focused on mitigating emissions. The challenge is trying to think, what's the analogous metric for climate adaptation and resilience

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00:53:03.390 --> 00:53:09.750

Joseph Aldy: Both are reducing climate change risk, you know, the former by, by promoting clean energy is reducing the risk

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00:53:10.200 --> 00:53:16.680

Joseph Aldy: By we just reducing the amount of missions, we're putting in the atmosphere and slowing down the the accumulation of CO2 above us.

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00:53:17.160 --> 00:53:26.310

Joseph Aldy: Whereas the other thing for a given increase in temperature and given change in the climate. We're going to bear fewer cars because we now have a more resilient infrastructure.

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00:53:27.210 --> 00:53:35.220

Joseph Aldy: So it's difficult for me as an economist, try. Think about that. I might think about this more in terms of the politics. What do I need to do to get this to be a successful piece of legislation.

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00:53:36.150 --> 00:53:47.670

Joseph Aldy: You know what, what are the different kinds of things that you could do on the climate resilience standpoint, which might actually appeal, even to say red state politicians.

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00:53:48.660 --> 00:53:59.040

Joseph Aldy: They may not, you know, talk much about climate change, but if it means creating demand for new construction jobs in their district or in their state that might be something that they find attractive.

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00:53:59.850 --> 00:54:05.040

Joseph Aldy: So when can imagine that, how, how, what sort of pitches and Taylor's a program

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00:54:05.460 --> 00:54:11.970

Joseph Aldy: There's a variety of ways we might think about this on cost effectiveness, we might think about this. I'm distributional impacts and maybe job multipliers for just one of these

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00:54:12.360 --> 00:54:20.850

Joseph Aldy: But to be honest. At the end of the day, there's a bit of the politics and the sausage making, if you will, and how you craft all the different kinds of components into a piece of legislation.

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00:54:21.300 --> 00:54:25.170

Joseph Aldy: That the effective leaders that the people who know how to pass bills in Congress.

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00:54:25.440 --> 00:54:32.280

Joseph Aldy: They know how to do that so they can then count the votes and get their bills passed in their chamber. So, so I think it's going to be a kind of mix of the politics.

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00:54:32.610 --> 00:54:38.250

Joseph Aldy: But having said that, I think there is going to be an appetite to understand how do we use taxpayer money wise.

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00:54:38.640 --> 00:54:44.670

Joseph Aldy: This clear, they're going to be adding an interest in continue deficit spending it makes a lot of sense given the say the economy to do deficit spending.

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00:54:45.150 --> 00:54:53.730

Joseph Aldy: But we're already hearing some talk about concerns about the size of the deficits, I would say perhaps a little bit overdue, if that's what you care about given some of the previous bills that have passed.

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00:54:54.060 --> 00:55:00.180

Joseph Aldy: Say in 2017 on the tax code. But what we're hearing now is, I think, a little bit of a push back on.

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00:55:00.510 --> 00:55:11.520

Joseph Aldy: On on continued large deficits and so you're going to need to be thoughtful and how you spend money so that you make the case that we need to continue to run deficits given save the economy. That means we're bringing economic activity from the future.

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00:55:12.720 --> 00:55:20.700

Joseph Aldy: Which because as a future resource that we use to pay off the bonds we issue now for more economic activity today, but to make the case we're doing it in a smart way.

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00:55:20.970 --> 00:55:26.190

Joseph Aldy: makes it that much easier. I think thing craft that piece of legislation that gets the votes to pass each chamber of commerce.

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00:55:27.150 --> 00:55:32.790

Robert Stavins: So we only have a couple literally two minutes left, so just very, very briefly, a lot of people

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00:55:33.690 --> 00:55:47.340

Robert Stavins: Say that with more reliance on renewables, it's going to be necessary to invest in the grid in the interstate grid. And so the question then is from one of our participants is

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00:55:48.210 --> 00:55:57.930

Robert Stavins: Where, how should that be done in the context of economic recovery, should it be done through direct federal financing of expanded grid.

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00:55:58.260 --> 00:56:09.450

Robert Stavins: Or should it be done through the Federal Energy Regulatory Commission and legislation in terms of removing barriers or in otherwise encouraging, what would be private sector spending exclusively

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00:56:10.590 --> 00:56:17.160

Joseph Aldy: So this is one of the most challenging issues we dealt with a decade ago there was a lot of appetite for building out a kind of

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00:56:17.670 --> 00:56:22.230

Joseph Aldy: Interstate Highway System of high voltage grid and

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00:56:23.010 --> 00:56:34.470

Joseph Aldy: Having having all those big transmission lines to enable LIKE THE REALLY RICH wind resource in the Dakotas of the great solar resource in the desert southwest to actually bring that power to the large population centers.

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00:56:35.070 --> 00:56:39.990

Joseph Aldy: But this isn't because there's not enough, there's no there's no money in this part of the economy.

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00:56:40.770 --> 00:56:49.290

Joseph Aldy: The people who build these lines, know how to finance them. They are subject to rate of return regulation, there's a process, they go through the challenge or act is actually non economic

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00:56:49.770 --> 00:56:57.030

Joseph Aldy: It gets into sort of NIMBY issues about where you cite your transmission lines because people don't want them in their backyards.

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00:56:57.420 --> 00:57:05.910

Joseph Aldy: There's a question. When you have transmission lines that go across multiple jurisdictions, how you allocate the cost to people in different jurisdictions that can be a sticking point

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00:57:06.540 --> 00:57:09.780

Joseph Aldy: So that the there are some cases where you find that

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00:57:10.200 --> 00:57:19.170

Joseph Aldy: You know, one of the violin community might want to be doing this to enable renewable power, but another one. The environment communities as Wait, you're building that through wetlands or endangered species habitat and that's what matters to me.

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00:57:19.830 --> 00:57:29.910

Joseph Aldy: And so, so we end up with this challenge that it's not really a spending question as much. It is these other other policy objectives that can sometimes constrain our investment in transmission

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00:57:30.570 --> 00:57:36.540

Joseph Aldy: So there could be ways we could try to streamline the siding and transmission. There was some people say we need to be able to sort of

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00:57:37.290 --> 00:57:42.720

Joseph Aldy: Had the federal government just sort of approve and a lot of this in a way that in the past the government's been able to use a for pipelines.

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00:57:43.650 --> 00:57:48.390

Joseph Aldy: But I think that does create some tension with people who care more about local issues or other environmental issues.

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00:57:49.200 --> 00:57:57.960

Joseph Aldy: But I think it's one where we've been going back and forth, one way or another, for these 15 years on the regulatory framework around transmission citing

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00:57:58.680 --> 00:58:05.070

Joseph Aldy: Where it'd be useful for us to have, I think, a really candid public conversation about how we think about these trade offs.

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00:58:05.460 --> 00:58:20.460

Joseph Aldy: And what we're willing to give up in order to cite a lot more transmission lines to enable the significant ramp up of renewables, that seems to be necessary across almost any scenario, you have the United States if we're going to get to decarbonisation by 20 2050

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00:58:20.910 --> 00:58:33.210

Robert Stavins: Okay. Well, listen, I have to apologize first to those people who submitted questions that we didn't get to. It's always the case with the questions exceed the amount of time, of course, we have

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00:58:34.830 --> 00:58:42.720

Robert Stavins: The first thing I want to say is the Thank you Joe very much for having taken time to join us. Today our guest speaker has been Joseph all the

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00:58:43.020 --> 00:58:55.320

Robert Stavins: My faculty colleague here at the Harvard Kennedy School. If you're particularly interested in this topic of what can be done in terms of economic recovery packages to green them.

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00:58:55.680 --> 00:59:13.080

Robert Stavins: Then if you do go to the website of the Harvard project and climate agreements to the place where we have the recordings of the previous in the series of conversations, you'll find that Jake Waxman from the European Union talked about this topic in the context of the European Union's

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00:59:14.370 --> 00:59:22.470

Robert Stavins: Green Deal Rachel kite spoke on using the pandemic recovery to spur the glee clean transition

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00:59:22.950 --> 00:59:32.790

Robert Stavins: And Joe Stiglitz, most recently before today's program spoke on carbon pricing the covert 19 pandemic and green economic recovery.

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00:59:33.210 --> 00:59:46.950

Robert Stavins: So those are in the past. But what I want to say to all of you with us is we hope you will join us again for the next episode of conversations from the Harvard project on climate agreements do remember that you need to

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00:59:47.790 --> 00:59:57.480

Robert Stavins: Register separately for each webinar via zoom. Finally, I'm your host, Rob Stephens. Thanks very much for joining us.