

HPCA Conversations on Climate Change and Energy Policy:

Valerie Karplus, "The Future of China's National Emissions Trading System"

Transcript

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00:00:07.440 --> 00:00:15.299

Robert Stavins: So good morning Good afternoon, good evening or good middle of the night, depending upon where you are in the world.

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00:00:15.780 --> 00:00:27.120

Robert Stavins: I'm delighted to welcome you to this session of conversations on climate change and energy policy, a virtual forum from the Harvard project on climate agreements I'm your host.

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00:00:27.480 --> 00:00:36.900

Robert Stavins: Rob Stavins Professor here at the Harvard Kennedy school and director of our Harvard environmental economics program and the Harvard project on climate agreements.

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00:00:37.830 --> 00:00:48.030

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

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00:00:48.510 --> 00:01:01.260

Robert Stavins: from the private sector from NGOs or from government and today we're fortunate to have someone with us, who has solid experience in research and policy engagement.

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00:01:01.620 --> 00:01:12.810

Robert Stavins: In this case, focused on energy and environmental policies in an exceptionally important part of the world, namely China, but before I introduce today's guest.

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00:01:13.620 --> 00:01:23.490

Robert Stavins: Let me say a few things about the logistics in case this is your first time so as you heard we're recording the seminar and the video and audio.

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00:01:23.940 --> 00:01:37.860

Robert Stavins: will be posted with a link on the website of the Harvard project on climate agreements, if you wish to pose a question at any time during the webinar.

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00:01:38.460 --> 00:01:44.010

Robert Stavins: just use the Q amp a function, which I think is at the bottom of your screen.

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00:01:44.520 --> 00:01:54.930

Robert Stavins: we're not going to be monitoring the chat or anything else so use the Q amp a function it's great if the questions are our brief and as clear as you can make them.

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00:01:55.350 --> 00:02:10.830

Robert Stavins: Now i'm not going to take questions for our guests until after she has finished her presentation, but you can just begin posting them because i'm going to look at them more or less than the order in which they arrived.

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00:02:12.360 --> 00:02:23.580

Robert Stavins: What else do I want to mention is that we're going to adjourn promptly at the top of the next hour, so this will be 57 minutes or so from now.

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00:02:24.000 --> 00:02:33.270

Robert Stavins: And with that then i'm very pleased to introduce today's guest has been a frequent collaborator of ours in the Harvard project on climate agreements.

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00:02:33.780 --> 00:02:48.300

Robert Stavins: Valerie karplus Valerie is associate professor in the department of engineering and public policy at Carnegie mellon university, sadly, for those of us who are in the Boston area.

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00:02:49.170 --> 00:03:00.300

Robert Stavins: She moved from the MIT sloan school of management to Carnegie mellon recently but we're happy for her nevertheless.

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00:03:01.110 --> 00:03:12.570

Robert Stavins: valerie's an expert on china's energy system, including related climate change policy, which is obviously a very timely topic, given current developments.

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00:03:13.050 --> 00:03:21.720

Robert Stavins: In China, including the beginning of trading and the National Emissions Trading System, the tradable performance standard just last week.

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00:03:22.290 --> 00:03:36.270

Robert Stavins: She previously directed the MIT Ching hua China energy and climate project, which was a five year research effort focused on analyzing the design of energy and climate change policy in China.

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00:03:36.990 --> 00:03:47.520

Robert Stavins: and its domestic in its global impacts i'll note that she holds a bs in biochemistry and political science and interesting combination from Yale university.

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00:03:48.240 --> 00:04:10.500

Robert Stavins: And a PhD in engineering systems from MIT her presentation today is on the future of china's national carbon market, so it is really a great pleasure to for me to welcome a colleague, a friend, a collaborator Valerie karplus so Valerie it's all yours.

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00:04:17.610 --> 00:04:30.090

Valerie Karplus: terrific Thank you so much for off it's a great pleasure to be here and and it's been such a pleasure to collaborate over the years on this unrelated on today's topic on the carbon market.

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00:04:31.260 --> 00:04:34.020

Valerie Karplus: and related issues, so thank you very much for having me.

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00:04:35.250 --> 00:04:50.340

Valerie Karplus: Today, the agenda is really the focus is on the carbon market, but I want to first situate this in the context of the type of research that I do so broadly i'm interested in how nations and individuals.

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00:04:50.670 --> 00:05:02.460

Valerie Karplus: And every layer in between organizes to enable the energy transition and so carbon markets are really striking example of how this takes place and fits into the third theme of my research which is how.

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00:05:03.720 --> 00:05:16.080

Valerie Karplus: Organizations mainly firms are responding to carbon markets around the world, just want to say also work on perspective modeling climate policies, as well as looking retrospectively using.

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00:05:17.790 --> 00:05:18.900

Valerie Karplus: In many cases.

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00:05:19.950 --> 00:05:30.240

Valerie Karplus: Very high frequency data, looking at the impact of climate policies on firm behavior, in particular, a lot of this work has focused in China.

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00:05:31.350 --> 00:05:39.240

Valerie Karplus: So let me to sort of introduce this topic i'm going to make the case that you that we really need to understand.

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00:05:41.160 --> 00:05:49.560

Valerie Karplus: We really need to understand kind of some of the backdrop before we can understand and evaluate china's emissions trading system and so.

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00:05:50.940 --> 00:05:59.760

Valerie Karplus: Basically what we're going to do here is spend some time initially to understand the country's climate ambitions pledges and progress on these.

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00:06:00.300 --> 00:06:15.900

Valerie Karplus: towards meeting these pledges so far, we also need to know a little bit about how the economy and environmental policy in China works, and we need to be aware of the over a decade of history and the development of the national carbon market.

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00:06:20.400 --> 00:06:43.560

Valerie Karplus: So if we rewind back to last September and President XI Jinping announced the country's 2016 carbon neutrality goal which accompanies a number of other announcements some more announcements by other nations around the world, as we look ahead post 2030 and think about long term.

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00:06:45.540 --> 00:06:53.520

Valerie Karplus: Long term actions to mitigate global climate change in particular, you know, this is, I think, very ambitious, because it is the first time.

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00:06:54.180 --> 00:07:05.370

Valerie Karplus: that there has been discussion of deeply reducing emissions in China and trying that in a long term goal, so if we think about how China.

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00:07:06.210 --> 00:07:17.910

Valerie Karplus: Plans to implement this there have been groups in China work done, in particular by some of our collaborators is a has indicated that there is a.

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00:07:18.780 --> 00:07:28.680

Valerie Karplus: There are plans underway to think about how all of the different energy sources will need to change in order to support china's carbon neutrality full by 2016.

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00:07:29.190 --> 00:07:48.060

Valerie Karplus: And so, this projection which i'm showing you is a recent production that was is still current and performed by Ching hua university to give us just a by the Institute of energy, environment and economy and what it shows you is just how dramatic some of these changes.

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00:07:49.530 --> 00:07:52.800

Valerie Karplus: Are are going to look over the next.

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00:07:54.060 --> 00:08:11.580

Valerie Karplus: 40 years or so, so coal is supposed to is expected to reduce dramatically natural gas as well, relative to 2025 projected levels oil as well, largely through the electrification of transportation, if we look at projections for.

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00:08:13.140 --> 00:08:21.090

Valerie Karplus: Some of the renewable energy types just want to point out that no you're not looking at plutonium, but you are looking at very rapid expected growth.

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00:08:21.480 --> 00:08:29.760

Valerie Karplus: And this is what is often referred to as energy revolution energy transformation energy structural change in china's energy system.

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00:08:30.300 --> 00:08:44.580

Valerie Karplus: So these types of changes the projections the plans, looking ahead to 20 2016 raise an important question what instruments what incentive changes on the ground are going to make this type of transition possible.

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00:08:45.510 --> 00:08:55.170

Valerie Karplus: And so, in order to think about the challenge through 2016 we actually want to look back, so if we look back to the Paris Agreement and.

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00:08:56.670 --> 00:09:11.010

Valerie Karplus: Here China china's leaders pledged made a pledge in essentially four components The first was to make best efforts to reach peak CO2 emissions before 2013 So if you look at this graph.

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00:09:11.520 --> 00:09:20.310

Valerie Karplus: What it's showing is that in at the time and early the early part of the last decade, there was a lot of uncertainty.

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00:09:21.300 --> 00:09:37.080

Valerie Karplus: As to how much china's emissions are going to grow over the next 40 years now, thankfully, we are not on that no policy trajectory, and this is a joint projections that were developed between MIT and Ching hua under the Chair will entertain climb China energy and climate project.

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00:09:38.190 --> 00:09:45.810

Valerie Karplus: Instead, we are actually tracking the blue curve, the lower curve accelerated effort which.

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00:09:46.680 --> 00:10:03.870

Valerie Karplus: is now very consistent with the with the second component of the country's pledge which is reducing CO2 intensity by 60 to 65% relative to 2005 levels by 2030 now the CO2 intensity goal importantly is.

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00:10:04.410 --> 00:10:13.140

Valerie Karplus: Targeting not absolute CO2 emissions, but CO2 emissions per unit of economic output, but this is mainly.

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00:10:14.220 --> 00:10:21.900

Valerie Karplus: So this is the way that many of the targets top line targets in China are are made for both energy and CO2.

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00:10:22.890 --> 00:10:32.790

Valerie Karplus: To increase the second, the third point is to target, an increase in the non-fossil share primary energy to 20% by 2030 and there was also a target.

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00:10:33.540 --> 00:10:46.230

Valerie Karplus: To increase for a stock and increase of course uptake carbon as well, so when we think about getting to net zero we're not talking about in the long term, we also want to be thinking about some of these.

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00:10:48.690 --> 00:10:49.170

Valerie Karplus: About.

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00:10:52.380 --> 00:10:57.360

Valerie Karplus: reforestation and other ways of generating sinks for CO2.

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00:10:58.560 --> 00:11:08.070

Valerie Karplus: Okay, so how is China doing towards its target so far, well, we think about current efforts to reach CO2 emissions by 2030.

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00:11:09.390 --> 00:11:22.680

Valerie Karplus: To reach peak CO2 emissions by 2030 it's very likely that this will happen, but it's still a bit early to say if we look at the intensity target for carbon.

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00:11:24.270 --> 00:11:32.250

Valerie Karplus: The 2020 target was actually met early into that in 2017 but achieving the 2030 target will require more effort.

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00:11:33.570 --> 00:11:35.580

Valerie Karplus: non-fossil energy is also increasing.

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00:11:36.690 --> 00:11:47.160

Valerie Karplus: The target or 15% was meant for 2020 was actually met in 2019 and the 2030 target may need to be revised in order to reflect greater ambition.

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00:11:48.420 --> 00:11:55.980

Valerie Karplus: that's currently under discussion, and then, finally, the forest stock target has already been achieved in 2018.

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00:11:57.360 --> 00:12:05.730

Valerie Karplus: For for 2030 so so it looks like China is pretty well on track, if we look back to September.

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00:12:06.330 --> 00:12:16.710

Valerie Karplus: china's updated of last year's china's updated and DC also states that China aims to reach peak CO2 emissions before 2030 no longer.

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00:12:17.160 --> 00:12:28.290

Valerie Karplus: By 2030 with best efforts to peak earlier but before 2013 So these are all encouraging signs, but the big question is, what does the road look like going forward.

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00:12:28.830 --> 00:12:36.900

Valerie Karplus: Now this is evidence here, looking at the contribution of non fossil electricity types.

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00:12:37.590 --> 00:12:45.600

Valerie Karplus: Including renewables to total generation, importantly, we need to think about total generation, not just capacity build out, which has been dramatic.

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00:12:45.870 --> 00:12:53.190

Valerie Karplus: But rates of curtailment have meant that that doesn't necessarily translate into our generation, so this is the you can see that.

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00:12:53.640 --> 00:13:02.670

Valerie Karplus: In recent years, in particular there's been major contributions from both wind and solar, as some of the curtailment has decreased so there's progress but.

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00:13:03.240 --> 00:13:18.360

Valerie Karplus: If we look ahead without further action we projections through 2013 essentially have CO2 emissions flatlining and then comes the challenge of bringing emissions down into that green range, so this graph is showing.

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00:13:19.470 --> 00:13:32.970

Valerie Karplus: Greenhouse gas emissions totals in China since 1990 which, as you can see from 2020 to 2030 is projected to stay relatively flat and then comes the steep drop that needs to be.

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00:13:34.410 --> 00:13:35.010

Valerie Karplus: Almost.

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00:13:36.510 --> 00:13:37.410

Valerie Karplus: In places.

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00:13:38.460 --> 00:13:49.680

Valerie Karplus: as deep as the rise and china's emissions that we saw when its economy developed so rapidly over the over the past several decades so getting there is the challenge and.

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00:13:50.670 --> 00:14:08.490

Valerie Karplus: climate is only one of the major goals that china's policymakers, are facing, in particular, continuing to increase, standards of living modernizing industry addressing air quality and public health, our major priorities, alongside climate change so.

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00:14:09.780 --> 00:14:30.720

Valerie Karplus: If we want to move to my second point, which is really from understanding, looking back, China has done fairly solid job of delivering on its international climate pledges so far domestically, we need to understand better these domestic priorities and its policies, the policies.

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00:14:32.010 --> 00:14:51.810

Valerie Karplus: The policy context, more broadly, that will determine how china's 2016 goal might be implemented in practice, and so, as we look ahead to 2016 perhaps the closest analogue we have in China for an environment in which to look at how.

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00:14:53.220 --> 00:14:58.020

Valerie Karplus: Emissions have been brought down in the case of environmental pollution is.

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00:14:59.040 --> 00:15:06.450

Valerie Karplus: Sorry, is the case of environmental pollution, so if we look at environmental policy for local pollutants recent paper.

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00:15:07.350 --> 00:15:18.540

Valerie Karplus: By myself colleagues ginger young and didn't watch out have really tried to ask the question how does environmental policy really work in China, what do we know about.

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00:15:19.380 --> 00:15:29.790

Valerie Karplus: What works and, if we look into look at the past, we see early on, there was a lot of legislation action focused around standard setting.

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00:15:30.510 --> 00:15:37.410

Valerie Karplus: But again, much of that literature suggests that there were challenges and implementation incentives to actually change behavior.

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00:15:37.920 --> 00:15:48.150

Valerie Karplus: it's really only been since the beginning of the last decade, with changing things efforts and we're on air pollution, the air pollution Action Plan.

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00:15:48.870 --> 00:15:57.510

Valerie Karplus: which followed the Apocalypse several days of very degraded air in China, but there was really some sharp.

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00:15:58.230 --> 00:16:08.580

Valerie Karplus: Steps taken both up the planning level, as well as at the implementation level, and so what this what this chart is showing you that there is a has been.

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00:16:09.330 --> 00:16:20.040

Valerie Karplus: A sort of parallel tracks moving forward for environmental pollution and we can think about a similar process kind of kicking in now for climate so legislation.

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00:16:20.610 --> 00:16:30.630

Valerie Karplus: it's been on the books for a while, but now we're really starting to see in the form of action plans in many cases for environmental policy.

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00:16:32.040 --> 00:16:43.620

Valerie Karplus: The government has relied on command and control and technology specific instruments directed, you know even towards specific firms to make changes in the energy system and.

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00:16:44.670 --> 00:16:49.500

Valerie Karplus: To address the sources of air pollution, and so we can really think about this as.

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00:16:50.790 --> 00:16:52.470

Valerie Karplus: A case of.

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00:16:53.490 --> 00:17:00.390

Valerie Karplus: What you see is not always what you're going to get so if you look at policies on the books start to look at.

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00:17:01.800 --> 00:17:13.200

Valerie Karplus: You know china's efforts to start to address carbon emissions, we should think about it as a gradual and long term process and the planning process and even action plans.

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00:17:14.250 --> 00:17:27.600

Valerie Karplus: will also play an important role alongside efforts to address carbon through legislation targets, and this in the case of carbon lot of the accounting of carbon is just now starting to happen and so.

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00:17:28.380 --> 00:17:43.920

Valerie Karplus: it's well developed for the power sector, but for the other sectors in the ETS it's still not developed, so we need to think about how these different how to read the tea leaves essentially on how different instruments will come into play and have different impacts over time.

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00:17:45.180 --> 00:17:51.300

Valerie Karplus: So the goal of this talk is really to consider how china's carbon market will perform on four dimensions.

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00:17:52.020 --> 00:18:02.640

Valerie Karplus: So i'm going to think about well, will it support CO2 emissions reductions in line with its the country's climate pledges how far can the can the carbon market, but China is developing go.

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00:18:03.300 --> 00:18:15.540

Valerie Karplus: Will it generate a meaningful CO2 equivalent price equal to the marginal cost of PhD emissions reductions in the country, this is something that economists, in particular, importantly, focus on.

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00:18:16.800 --> 00:18:29.310

Valerie Karplus: We will ask does it improve see firm CO2 emissions, accounting and awareness and doesn't reinforce or interact with how does it interact with other government bowls including air quality economic reform.

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00:18:30.570 --> 00:18:40.530

Valerie Karplus: Most recently, and I think importantly the developments in other parts of the world to introduce border carbon adjustments and things like national technology leadership.

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00:18:41.520 --> 00:18:58.140

Valerie Karplus: So, first of all let's just take a step back and say Okay, China has launched its carbon market for electricity last Friday trading has begun, why does this matter both china's carbon market when it launched became.

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00:18:59.610 --> 00:19:11.640

Valerie Karplus: Just for electricity again became the largest in the world, this is a major addition to total carbon emissions, subject to pricing systems at full scale, this is.

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00:19:13.110 --> 00:19:20.280

Valerie Karplus: This system will be even larger, but the and and contribute importantly to.

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00:19:21.600 --> 00:19:35.850

Valerie Karplus: Addressing emissions in a number of other industrial sectors currently the system again only covers electricity, but if you look at this graph and each of these colored bars represents coverage of different emissions trading systems around the world, you can see how dramatic the increase.

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00:19:36.870 --> 00:19:41.280

Valerie Karplus: In percentage terms, is from the addition of china's national carbon market.

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00:19:42.540 --> 00:19:47.730

Valerie Karplus: Now the carbon market has been a long time in the making and actually intertwines with.

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00:19:48.780 --> 00:19:56.700

Valerie Karplus: The broader history of environmental policy making in China, so if we look back to 2006.

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00:19:57.240 --> 00:20:06.630

Valerie Karplus: This began an effort to really target energy intensity reductions and energy intensity in china's industries which were growing rapidly.

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00:20:07.560 --> 00:20:21.060

Valerie Karplus: In the wake of the country's entry into the World Trade Organization and this export boom, and so the top 1000 and then later the top 10,000 firms energy saving program really increased the coverage.

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00:20:22.380 --> 00:20:36.060

Valerie Karplus: met brought many more firms into a system that focus them on saving energy, again energy intensity reductions relative to this their scale about, but now.

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00:20:37.260 --> 00:20:47.820

Valerie Karplus: That was, we can think about this program as many ways as a kind of a pre course or a template for emissions trading and part, but the main difference was is assigning.

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00:20:48.300 --> 00:20:58.410

Valerie Karplus: Targets at the level of individual farms, without any trading so there's no flexibility or opportunity to reduce marginal cost through trading what it also.

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00:20:59.190 --> 00:21:06.390

Valerie Karplus: Did was for the many times, it really wasn't affect a way of targeting CO2 and tends to be as well, because at that point.

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00:21:07.020 --> 00:21:23.070

Valerie Karplus: In the beginning of the last decade 68% of china's primary energy was cold and so that is a major contributor to carbon emissions now let's fast forward and with the Copenhagen pledge, and then the.

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00:21:25.050 --> 00:21:31.680

Valerie Karplus: For the first time, there was an interest in introducing carbon intensity targets in the country, and so that.

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00:21:32.040 --> 00:21:40.350

Valerie Karplus: occurred in the 12 five year plan and the it was announced that carbon markets would be used to support the achievement of those targets.

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00:21:41.280 --> 00:21:52.800

Valerie Karplus: In 2011 the launch of pilot emissions trading systems, as well as planning for the national ETS and i'm going to use the words Emissions Trading System carbon market.

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00:21:54.270 --> 00:22:04.260

Valerie Karplus: interchangeably in this presentation, it should be noted that the emissions trading system is actually being implemented as a tradable performance standard which i'll talk about in a few moments.

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00:22:04.980 --> 00:22:12.420

Valerie Karplus: Now this development occurred in parallel with a number of developments to try to address air pollution so.

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00:22:13.530 --> 00:22:19.170

Valerie Karplus: There you had, at the same time firms facing many of the same firms facing targets for.

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00:22:20.670 --> 00:22:29.160

Valerie Karplus: swapping out equipment address addressing local pollution emissions in by 2015 when China.

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00:22:31.980 --> 00:22:49.500

Valerie Karplus: formalized its Paris pledge, it was already clear that the nation that emissions trading would play an important role in carbon reduction and addressing climate change so by that point multiple seven pilot systems had launched in 2013 and 2014.

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00:22:51.030 --> 00:22:52.230

Valerie Karplus: And in.

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00:22:53.910 --> 00:23:07.440

Valerie Karplus: December of 2017 there was an official announcement that the country would be pushing forward over in a gradual way, the development of national emissions trading system.

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00:23:08.370 --> 00:23:15.210

Valerie Karplus: in earnest and over the coming years now, this process has been delayed at different points in part because.

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00:23:15.690 --> 00:23:27.450

Valerie Karplus: Most recently, because of cover but before that there was the transfer of authority for the admissions trading system from the national development and reform Commission in China to the Ministry of.

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00:23:28.830 --> 00:23:38.520

Valerie Karplus: ecology and environment, and so there was also been challenges and getting the data and the sort of broad.

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00:23:40.110 --> 00:23:46.740

Valerie Karplus: Organizing and effect, to support the National Emissions Trading System, and so it is now.

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00:23:48.420 --> 00:24:06.570

Valerie Karplus: Just in fact last Friday that trading in the power sector has begun after multiple years of preparation, training and the issuance of something called the administrative measures, which is the most authoritative document governing the current the start of the power sector trading.

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00:24:08.040 --> 00:24:16.890

Valerie Karplus: That we've seen, thus far, so this is sort of the gives you sort of the the where we are today and how we got there and just one slide.

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00:24:18.030 --> 00:24:20.460

Valerie Karplus: Now, if we think back to you know, looking at these.

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00:24:21.480 --> 00:24:30.480

Valerie Karplus: Energy saving programs as a so So why did China develop emissions trading, I think that's the first the operative question well the.

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00:24:31.500 --> 00:24:32.820

Valerie Karplus: The experience of.

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00:24:34.860 --> 00:24:45.210

Valerie Karplus: Targeted firm energy efficiency programs was that, as the programs were expanded became ever more difficult to to enforce compliance, so it was.

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00:24:46.500 --> 00:24:50.100

Valerie Karplus: While the program has expanded non compliance rates increased.

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00:24:52.260 --> 00:24:55.440

Valerie Karplus: Several times over, between 2010 in 2014.

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00:24:56.190 --> 00:25:09.480

Valerie Karplus: There were also is also evidence that most of the compliance was driven by state owned enterprises which were the provinces leaned on very heavily to meet their energy intensity targets, so this created.

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00:25:09.810 --> 00:25:17.370

Valerie Karplus: an impetus to develop a market based system which offered the promise of reducing costs across the board and also.

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00:25:18.420 --> 00:25:30.300

Valerie Karplus: Preserving some of the logics around fairness and inclusion that are typical of many Chinese policies now, if we look at.

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00:25:31.320 --> 00:25:38.490

Valerie Karplus: The pilot emissions trading systems which started and again 24th 2013 2014.

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00:25:39.210 --> 00:25:47.130

Valerie Karplus: The pilot emissions trading systems are really kind of a way again very similar to what has happened in other reform context in China, where.

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00:25:47.910 --> 00:25:59.730

Valerie Karplus: The basic can design of different systems is tested in different diverse parts of the country, and so the pilot eds regions.

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00:26:00.270 --> 00:26:16.680

Valerie Karplus: were chosen in order to represent diverse conditions and local governments had a lot of autonomy and how they developed each of their systems, these systems covered a total of 7% of china's china's total CO2 emissions and they continue to exist, to this day.

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00:26:17.760 --> 00:26:35.460

Valerie Karplus: Now these systems varied and, as I mentioned in terms of their setup as well as the CO2 prices, on average, that they produced the what we can can essentially learn from this first experience is that these systems were very likely not.

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00:26:37.080 --> 00:26:44.490

Valerie Karplus: Putting a tremendous amount of pressure on farms to reduce emissions dramatically, this was about reducing from say.

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00:26:45.600 --> 00:26:49.440

Valerie Karplus: by several percent up to 10%.

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00:26:51.030 --> 00:26:53.220

Valerie Karplus: And again benchmarking.

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00:26:55.020 --> 00:27:15.690

Valerie Karplus: or basically the in the systems, the focus was again on it, supporting energy and carbon intensity targets and so that meant Of course there wasn't as much pressure to reduce emissions in absolute terms now compliance rates were high, perhaps because there was limited pressure.

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00:27:17.130 --> 00:27:30.030

Valerie Karplus: And you can see that there was huge variation and incentives, including incentives which which were non financial so limiting or.

147

00:27:32.850 --> 00:27:37.050

Valerie Karplus: Firm leaders in some cases were ineligible for awards some investments.

148

00:27:38.610 --> 00:27:51.780

Valerie Karplus: loan eligibility was curtailed cetera so this gives you a sense of how diversity systems which were again in different parts of the country from Beijing to Tang Tang and the Center to Guangdong in the cell.

149

00:27:52.950 --> 00:27:53.430

Valerie Karplus: and

150

00:27:55.290 --> 00:28:02.880

Valerie Karplus: It I think generated a lot of valuable learning ahead of the national system some of this this learning.

151

00:28:03.900 --> 00:28:14.760

Valerie Karplus: took the form of sort of the you know the the coverage differed across provinces in part because different industries were more or less important in different regions and.

152

00:28:15.360 --> 00:28:25.020

Valerie Karplus: This was largely a result of prevention discretion, so this would have to be addressed in the national system Alec allowance allocation needed to.

153

00:28:27.360 --> 00:28:34.470

Valerie Karplus: Again, it was much of the allocation in these early programs occurred through grand fathering and.

154

00:28:36.150 --> 00:28:46.620

Valerie Karplus: policymakers learned that benchmarking would actually be a important way to avoid the hot air problem and, as well as.

155

00:28:47.730 --> 00:28:50.340

Valerie Karplus: Ensure that kind of a.

156

00:28:51.660 --> 00:29:00.630

Valerie Karplus: With using different benchmarks, you could still address some of the equity concerns the monitoring, reporting and verification or MTV ran into.

157

00:29:01.320 --> 00:29:13.200

Valerie Karplus: Substantial challenges in some places in Beijing, third and fourth party verification was found to be really essential and improving data quality, and I think we still don't fully know.

158

00:29:14.700 --> 00:29:18.000

Valerie Karplus: How data quality looks for many of those pilots.

159

00:29:19.530 --> 00:29:32.520

Valerie Karplus: legal foundation I think what's important is that they're moving to a national system was going to require a strong legal foundation to establish sufficiently high non compliance penalties and get the attention of.

160

00:29:33.480 --> 00:29:41.850

Valerie Karplus: Firms included in the system in terms of prioritizing the changes and compliance actions needed and then.

161

00:29:42.810 --> 00:29:59.070

Valerie Karplus: continue to be very important, as ever, in environmental policy in a developing country that for political a set except ability reasons the system needed to have limited impact on local industry, the pilots also showed that.

162

00:30:00.090 --> 00:30:20.850

Valerie Karplus: You know trading activity varied a lot in some cases was quite limited and overlapping policy directives may have contributed to this, including environmental policy directives, so if we look just on this data quality point, you can see that, over time, this is the graph shows the discrepancies.

163

00:30:21.870 --> 00:30:33.180

Valerie Karplus: Here by ownership category in reported relative to verify total emissions for different compliance entities, and so in this, in this case for all the.

164

00:30:33.720 --> 00:30:41.370

Valerie Karplus: Pilot systems was at the firm level, and so you can see that there are big discrepancies in the beginning, which fell over time and.

165

00:30:42.210 --> 00:31:03.600

Valerie Karplus: The government supported Mr V up until 2013 but after that they moved to a system in which firms were paying for verification, but the government still funded a randomly selected subset of firms to subjecting them to back checks on the.

166

00:31:04.950 --> 00:31:15.270

Valerie Karplus: On on their on the verify our performance, so this, I think this is sort of think about the you know, first of all, what we found from this is that really.

167

00:31:15.720 --> 00:31:19.110

Valerie Karplus: Errors move in both directions so some firms are.

168

00:31:19.560 --> 00:31:28.530

Valerie Karplus: are essentially overestimating others or are under estimating how much they're emitting when they've measured their emissions, for the first time, so there's time required to learn.

169

00:31:28.920 --> 00:31:39.870

Valerie Karplus: How to how to do the accounting and then, and this is even in Beijing, where institutions and awareness is most developed so this presents a huge challenge for the rest of the country.

170

00:31:41.340 --> 00:31:46.230

Valerie Karplus: And second I think there is a very important to think about.

171

00:31:48.240 --> 00:31:54.660

Valerie Karplus: As well how you how you roll out these Mr T systems to prevent us reporting and other parts of the country.

172

00:31:55.590 --> 00:31:58.380

Robert Stavins: Valerie just to alert you were over.

173

00:31:58.650 --> 00:32:00.990

Robert Stavins: we're at about 30 minutes in and.

174

00:32:01.020 --> 00:32:02.040

Valerie Karplus: About five more minutes.

175

00:32:02.730 --> 00:32:04.440

Robert Stavins: got a ton of questions here for you.

176

00:32:04.560 --> 00:32:08.940

Valerie Karplus: Okay, all right all right great oh just want to about.

177

00:32:09.120 --> 00:32:09.990

Robert Stavins: yeah about.

178

00:32:10.080 --> 00:32:13.920

Valerie Karplus: Three or four slides left and i'll i'll go quickly great so.

179

00:32:16.230 --> 00:32:23.310

Valerie Karplus: So if we think about what is the mission is trading system likely to deliver we're expected to deliver.

180

00:32:24.660 --> 00:32:30.480

Valerie Karplus: It is expected to contribute, about half of the reductions to meet needed to.

181

00:32:31.950 --> 00:32:44.850

Valerie Karplus: track china's 2030 Paris commitment it operates as a tradable performance standard and i'll explain very briefly what that means it limits enterprise level CO2 emissions index to physical output.

182

00:32:45.810 --> 00:33:02.850

Valerie Karplus: And it right now covers just thermal electric power doesn't include renewable power over 2000 plant power plant operators and is expected to expand to energy intensive manufacturing and civil aviation at full scale, it is expected or I should say.

183

00:33:04.320 --> 00:33:06.300

Valerie Karplus: is expected to cover.

184

00:33:07.350 --> 00:33:20.580

Valerie Karplus: 72% of 2017 emissions or about half of and deliver about half of the reductions at full scale it includes firms with the threshold for inclusion is.

185

00:33:21.390 --> 00:33:42.210

Valerie Karplus: 26,000 tons of CO2 and it allocates permits using benchmarking with limiting auctioning under discussion loaded auctioning under discussion now just to explain how this briefly works with no math we have allocations of CO2 emissions allowances, based on historical CO2.

186

00:33:43.590 --> 00:33:54.600

Valerie Karplus: multiply it times a benchmark factor, so a firm receives a portion of its allowances upfront allowable emissions are determined by its benchmark plants benchmark category and there are four benchmarks.

187

00:33:56.430 --> 00:34:05.370

Valerie Karplus: The allocation has been adjusted based on some additional factors, including, for example, the factors that relate to environmental impact.

188

00:34:07.650 --> 00:34:20.160

Valerie Karplus: Then up to 5% of a firm's compliance obligations can be satisfied with voluntary emissions reductions and, at the end of the compliance period, the final allocation is actually based on the realized physical output so.

189

00:34:21.420 --> 00:34:34.440

Valerie Karplus: misreporting missions results in a fine of 10 to 30,000 run non compliance 20 to 30,000 UN, and these are relatively small amounts compared to revenues from an average power sector from.

190

00:34:35.460 --> 00:34:48.510

Valerie Karplus: The program the trainable performance standard implicitly subsidizes output and Larry folder and colleagues have done some really nice work on the implications of this so basically we're.

191

00:34:49.200 --> 00:35:03.630

Valerie Karplus: At the if you imagine how missions benchmark works, where basically you if you're a firm above a benchmark you have incentives to reduce output to take other actions to improve efficiency.

192

00:35:04.830 --> 00:35:09.420

Valerie Karplus: But if you're below the benchmark you essentially have no.

193

00:35:10.770 --> 00:35:18.060

Valerie Karplus: No such incentive and to reduce output and then you engage in trading.

194

00:35:19.770 --> 00:35:27.390

Valerie Karplus: Using the benchmark is basically the basis for allocation now, if we look ahead.

195

00:35:28.050 --> 00:35:34.980

Valerie Karplus: I think this is an important timeline to keep in mind the dates have shifted but the contours remain the same so there's discussion of.

196

00:35:35.250 --> 00:35:48.540

Valerie Karplus: In order to get to 2061 of the important challenges will be moving from a rate based to an amount based system that can implement an absolute target, this is something that's currently under discussion, finally.

197

00:35:52.440 --> 00:35:55.950

Valerie Karplus: I'll just highlight for additional.

198

00:35:59.190 --> 00:36:11.100

Valerie Karplus: areas to watch as the ETS develops one is whether the new interim regulations pre the legal basis, I see that Rob is on so I'm going to skip right to the punch line that's okay.

199

00:36:14.820 --> 00:36:16.530

Valerie Karplus: question is, I think.

200

00:36:17.640 --> 00:36:29.280

Valerie Karplus: If we think about well this carbon market deliver the premier preliminary assessment suggest that it will likely keep emissions in line with pledges in the near term, but in the long term, the ETS alone won't be enough.

201

00:36:29.850 --> 00:36:41.280

Valerie Karplus: If we think about whether this will generate a meaningful CO2 price equal to marginal cost of CO2 emissions reduction think in a near term, the answer is no, but with market reforms, this could improve over time.

202

00:36:42.420 --> 00:36:50.400

Valerie Karplus: If we think about emissions accounting that will and it's already improving through the system, and this system is also very.

203

00:36:50.730 --> 00:37:00.900

Valerie Karplus: integrated with and compatible with a number of other government goals which could enable the system but also constraint it, and so I think I just want to conclude with one this point.

204

00:37:01.560 --> 00:37:09.450

Valerie Karplus: One key message, which is the overtime, I think the key question here is what mix of central planning technology policies and market mechanisms.

205

00:37:09.720 --> 00:37:16.320

Valerie Karplus: are going to be able to balance cost effectiveness, on the one hand, with the target responsibility that has been.

206

00:37:16.980 --> 00:37:30.840

Valerie Karplus: A hallmark of past more command and control style policies and supporting china's carbon neutrality goal and given how deep that reductions need to be, I think the ETS will be important, but it can't do it alone, thank you.

207

00:37:32.070 --> 00:37:40.770

Robert Stavins: Great Thank you Valerie very, very much and you could stop the sharing, so the weekend see you really well That way, there you are.

208

00:37:41.940 --> 00:37:47.220

Robert Stavins: So we've got quite a few questions on Valerie's very interesting presentation.

209

00:37:48.090 --> 00:37:58.230

Robert Stavins: The first thing I should say is that Valerie referred to the fact that Larry Golder professor and Stanford's done work on a tradable performance standard in China.

210

00:37:58.920 --> 00:38:04.470

Robert Stavins: On August 8 in our series of podcasts distinguished from this webinar series.

211

00:38:05.010 --> 00:38:13.830

Robert Stavins: Larry is interviewed by me, we have a conversation in the podcast and one of the topics that we discuss is in fact the tradable performance standard.

212

00:38:14.100 --> 00:38:20.250

Robert Stavins: In China, so that's an August 8 that will be that podcast will be made available through the.

213

00:38:20.820 --> 00:38:34.770

Robert Stavins: website of the Harvard environmental economics program now what I'm going to do in terms of Q and A is I'm going to be melding some questions together that too in the interest of time, and the first one, I think, is.

214

00:38:36.270 --> 00:38:45.660

Robert Stavins: One that always comes up whenever one presents on China, and it comes up from people who may be examine Chinese policy closely and.

215

00:38:46.530 --> 00:39:02.880

Robert Stavins: Some people who don't know anything about Chinese climate change policy and then is contained to be trusted you know so to be more specific and the Mr V system be trusted is incredible and you gave some historical information but.

216

00:39:04.200 --> 00:39:15.750

Robert Stavins: Briefly, can you say something about that, and then a related question that came in, is what about continuous emissions monitoring on stacks, as we have in the US does that exist there.

217

00:39:16.920 --> 00:39:25.830

Valerie Karplus: Great yeah, thank you for those questions so first of all, I think that china's should not be viewed as through one.

218

00:39:26.820 --> 00:39:36.780

Valerie Karplus: unitary actor here right so many of the challenges around can China be trusted come from the fact that you have different interests different parts of.

219

00:39:37.620 --> 00:39:56.010

Valerie Karplus: The system, so I would say that the intentions of the top leadership to establish a credible system can be trusted now a lot of the challenges will come in the implementation on the ground, the provinces inside firms are changing behavior.

220

00:39:57.660 --> 00:40:11.400

Valerie Karplus: Getting firms to participate fully in MTV and you know I have concerns about that, and we are going to be conducting ongoing research on that So hopefully i'll have a better answer for how that's developing as the.

221

00:40:12.630 --> 00:40:22.080

Valerie Karplus: As my colleagues that I work to do understand that better, but I do think that there is a reason to trust China in the fact that.

222

00:40:23.280 --> 00:40:33.750

Valerie Karplus: This getting such a system to work is actually in its long term interest of have developed of supporting clean energy markets developing.

223

00:40:34.140 --> 00:40:48.300

Valerie Karplus: A system that isn't subject overheating and over investment there's been a strong push over the last decade, to try to phase out outdated capacity and this supports that with price signal.

224

00:40:49.230 --> 00:40:50.790

Robert Stavins: So another question.

225

00:40:52.020 --> 00:41:01.200

Robert Stavins: Certainly many people are probably thinking about is now the Treaty just began last week is the carbon price itself, so the European Union.

226

00:41:01.590 --> 00:41:10.140

Robert Stavins: You know, has seen a tremendous increase in the carbon price but starting more or less than November of last year now, at about \$60 per ton.

227

00:41:10.800 --> 00:41:18.930

Robert Stavins: Korea as of May, their system is about \$30 per tonne back in the US California is I guess about \$20.

228

00:41:19.230 --> 00:41:27.570

Robert Stavins: per ton and those represent the marginal abatement cost and each of the sectors which itself is partly a function of the degree of ambition.

229

00:41:27.840 --> 00:41:38.520

Robert Stavins: Of the system and also, I suppose, whether or not the system is working well, can you comment on this \$8 price that we've initially seen, and only the first days, but this initial price in China.

230

00:41:39.240 --> 00:41:49.530

Valerie Karplus: Sorry, well, I will point out that eight is a very special number and China, and much of Asia so Nevertheless, I think we are likely seeing.

231

00:41:50.130 --> 00:42:02.730

Valerie Karplus: \$8 per tonne reflecting a reasonable price now, that is not the same as the marginal cost abatement, I think, in this case and, and I am actually convinced that.

232

00:42:03.210 --> 00:42:15.090

Valerie Karplus: That isn't, the most important metric of success at this point, I mean it's it's important to keep an eye on how the carbon price evolved, the system has barely traded for four days.

233

00:42:15.150 --> 00:42:15.390

Robert Stavins: Right.

234

00:42:15.660 --> 00:42:19.710

Valerie Karplus: So we I think what we want to keep in mind is is.

235

00:42:20.400 --> 00:42:27.060

Valerie Karplus: offered where are the windows of opportunity to move the system towards one that will help to better reflect the marginal costs.

236

00:42:27.330 --> 00:42:38.100

Valerie Karplus: while at the same time keeping by, and I think you know, recognizing that this is an institution building effort that is also about generating an understanding and a way of tracking.

237

00:42:39.930 --> 00:42:48.300

Valerie Karplus: On the ground, delivery towards china's climate pledges and so it's and and to keeping firms involved engaged and prioritizing.

238

00:42:50.100 --> 00:42:55.470

Valerie Karplus: climate mitigation along alongside many, many other pressing challenges.

239

00:42:55.890 --> 00:43:05.010

Robert Stavins: I mean, even if the price remains \$8 let's say a year from now, so that we can't you know simply attributed to hiccups in you know.

240

00:43:05.550 --> 00:43:21.750

Robert Stavins: converging over time to whatever it might be, and it does represent the marginal abatement costs that's not necessarily a negative commentary that's the maybe low hanging fruit, because of the feasibility of phasing from coal to alternatives, or whatever.

241

00:43:22.200 --> 00:43:32.790

Valerie Karplus: Well, and also the way the benchmarks have been said, I think there's already been a lot of progress in the benchmark setting moving from initially, I think there were 11 benchmarks of it envisioned and now we're down to four.

242

00:43:33.810 --> 00:43:46.890

Valerie Karplus: Tighter benchmarks, at the same time, I think it, you know it's not impossible, but it does reflect the marginal cost the lower marginal cost abatement, we expect that in a developing country context and hanging fruit.

243

00:43:48.570 --> 00:43:49.920

Valerie Karplus: are important to start with.

244

00:43:51.210 --> 00:43:58.530

Valerie Karplus: At the same time, I remember Danny elements speaking at Chang Bob almost 10 years ago when the carbon market was launching and he pointed out that.

245

00:43:59.010 --> 00:44:18.780

Valerie Karplus: just having a price can also make a huge difference in terms of thinking and sort of shifting thinking inside enterprises and starting to lay the groundwork to make deeper cuts and and to and so just having a price can also be a behavioral sense important signal.

246

00:44:19.620 --> 00:44:24.030

Robert Stavins: Now issue that comes up in the design and implementation of every.

247

00:44:25.200 --> 00:44:30.750

Robert Stavins: cabinet trade or, for that matter of tradable performance standard system that i've followed.

248

00:44:31.650 --> 00:44:38.400

Robert Stavins: is whether or not non compliance entities can participate in trading now from an economic perspective.

249

00:44:38.850 --> 00:44:49.560

Robert Stavins: that's desirable, they they provide liquidity their whole set of reasons why we want to have that but it's often very, very controversial, a lot of regulatory authorities in some countries, look at.

250

00:44:49.770 --> 00:44:59.580

Robert Stavins: or states or provinces look at it, as that's allowing speculators to come in so what's the situation in China wish with the national system Valerie.

251

00:45:00.060 --> 00:45:08.040

Valerie Karplus: So far, I think the expectation for the foreseeable future is that external entities will not be allowed to participate.

252

00:45:08.490 --> 00:45:14.940

Valerie Karplus: I think what you were you'd want to want to watch more closely, actually, are some of the pilot emissions trading systems which are.

253

00:45:15.300 --> 00:45:23.070

Valerie Karplus: intended to include firms that are not included in the national system, but maybe have more latitude to do some of this experimentation, we heard from.

254

00:45:23.580 --> 00:45:37.830

Valerie Karplus: The Guangdong admissions trading system on this point, I think that's you're going to see the experimentation happening outside the national system, first, given the success of the system is important to china's to do.

255

00:45:39.210 --> 00:45:42.600

Valerie Karplus: To keep support for this agenda going forward.

256

00:45:43.020 --> 00:45:53.910

Robert Stavins: So, putting aside the issue then of non compliance entities, a question that came in, is whether or not there any US firms that are participating, given what you said would have to be US firms.

257

00:45:54.270 --> 00:46:00.390

Robert Stavins: That our partnerships or whatever with compliance entities is, is there any of that at this point, you know.

258

00:46:00.600 --> 00:46:18.840

Valerie Karplus: there's not that i'm aware and I, but I would point out that there are many US firms that are expected to have components of their supply chains covered by an expanded emissions trading system, as we move out into space, particularly aluminum.

259

00:46:21.510 --> 00:46:28.980

Valerie Karplus: iron and steel may it's going to be less important and iron steel, but still, you know that was an export and commodity.

260

00:46:30.060 --> 00:46:30.810

Valerie Karplus: Again, I think.

261

00:46:32.190 --> 00:46:48.960

Valerie Karplus: yeah I would, I would say that indirectly or directly, a lot of companies will will face pressure, but in terms of actually directly being involved in the system and participating and trading, I think that that is very limited, if even feasible at this point.

262

00:46:49.410 --> 00:47:15.450

Robert Stavins: Now, speaking of iron and steel and exports, I assume that nowadays whenever you speak with your colleagues in China that the subject of the European union's carbon border adjustment mechanism to see Bam, which is supposed to start monitoring and collecting data and 2023 for actual implementation.

263

00:47:16.500 --> 00:47:25.680

Robert Stavins: A couple of years later at the soonest that topic must come up with what's their reaction and what's your reaction to it.

264

00:47:25.920 --> 00:47:29.310

Valerie Karplus: Well, in some ways, their reaction has been.

265

00:47:30.660 --> 00:47:41.820

Valerie Karplus: commitment to the carbon market carbon market is is a is an important answer for any country when faced with border carbon adjustment and.

266

00:47:42.570 --> 00:47:57.570

Valerie Karplus: A major export destination, so I think, even though the carbon market is just started in electricity electricity is important input to almost every form of China of export that China produces and that starts to create a.

267

00:47:58.920 --> 00:47:59.550

Valerie Karplus: Basically.

268

00:48:00.630 --> 00:48:08.880

Valerie Karplus: An opportunity for for China both, I think, to engage with Europe on discussions of opportunities to.

269

00:48:10.800 --> 00:48:17.640

Valerie Karplus: to coordinate climate policy it's part of this overall ongoing discussion of coordination, but I also think it.

270

00:48:19.320 --> 00:48:22.320

Valerie Karplus: sort of dispel some of the concerns and export or might have.

271

00:48:23.370 --> 00:48:29.640

Valerie Karplus: In China, and therefore sort of limits the concern or impact, it could have on china's long term growth.

272

00:48:30.120 --> 00:48:40.110

Robert Stavins: I mean what was implicit in the beginning of your answer that not all of our viewers may be aware of is at the sea Bam proposal from the European Commission.

273

00:48:40.830 --> 00:48:49.440

Robert Stavins: indicates that the the border adjustment will be made against countries that do not have.

274

00:48:49.830 --> 00:49:00.660

Robert Stavins: A domestic carbon price and those that do it the adjustment would be the difference between the EU ETS allowance price and the domestic price in another country.

275

00:49:01.620 --> 00:49:10.170

Robert Stavins: And if they don't have a carbon price but are undertaking a climate policy that might even be aggressive, ie the United States it's unclear.

276

00:49:10.740 --> 00:49:23.130

Robert Stavins: What would happen that's a point of consideration and debate a question that came up from several people there was one of your slides is what did you mean by fourth party, why was it fourth party verification.

277

00:49:23.580 --> 00:49:32.160

Valerie Karplus: These were essentially verifiers who check up on the primary verifiers right, so we can think about this like an.

278

00:49:32.160 --> 00:49:33.150

Valerie Karplus: additional layer

279

00:49:33.570 --> 00:49:37.080

Valerie Karplus: of scrutiny, are the verifiers doing their job.

280

00:49:37.650 --> 00:49:42.630

Robert Stavins: Now, your focus and the focus obviously of the policies you've been looking at is carbon dioxide.

281

00:49:44.130 --> 00:49:47.940

Robert Stavins: The question about the other greenhouse gases first you know and.

282

00:49:48.450 --> 00:50:04.500

Robert Stavins: I certainly don't know what share of contributions to you know radiative forcing are attributed from China to CO2 as opposed to other greenhouse gases love to do it over like 100 year time period because of short life of methane and then.

283

00:50:06.150 --> 00:50:14.640

Robert Stavins: What about the other greenhouse gases are there are their policies on the books being considered, whatever for the other greenhouse gases.

284

00:50:14.820 --> 00:50:20.700

Valerie Karplus: Which is on a CO2 equivalent basis carbon dioxide accounts for about 80% of china's total.

285

00:50:22.440 --> 00:50:27.480

Valerie Karplus: And that means that there is a lot of work to do on methane.

286

00:50:29.580 --> 00:50:31.080

Valerie Karplus: and other.

287

00:50:32.280 --> 00:50:35.340

Valerie Karplus: other greenhouse gases, now I would say the.

288

00:50:36.750 --> 00:50:51.270

Valerie Karplus: There are ways that you can address, for example, methane as part of offset programs under the ETS, so the five part of that 5% that a compliance energy can can.

289

00:50:52.830 --> 00:50:54.570

Valerie Karplus: draw from allowance.

290

00:50:55.770 --> 00:50:56.190

Valerie Karplus: From.

291

00:50:57.300 --> 00:51:04.320

Valerie Karplus: offsets include, for example, of methane utilization so reducing some of the worst.

292

00:51:05.280 --> 00:51:19.560

Valerie Karplus: You know impacts, I think the now that's, the only way that the carbon market interacts with other greenhouse gases and it's not anticipated that the carbon market would expand to include all gh geez nor is china's.

293

00:51:20.280 --> 00:51:29.910

Valerie Karplus: CO2 and neutrality target it's not a climate neutrality or greenhouse gas neutrality kind of target That being said, china's.

294

00:51:31.440 --> 00:51:48.240

Valerie Karplus: Ministry of ecology and environment is taking steps now to develop reporting for all of the other greenhouse gases, for any firm that falls into this category of emitting more than a certain amount, including the 26,000 tons of.

295

00:51:51.120 --> 00:52:00.960

Valerie Karplus: CO2 so other greenhouse gases by those large monitors are being monitored, as well as large emitters of those other gases, I think one of the.

296

00:52:02.250 --> 00:52:11.460

Valerie Karplus: challenges will be finding instruments that really, really work there been a number of challenges in.

297

00:52:12.600 --> 00:52:15.300

Valerie Karplus: In monitoring hmc.

298

00:52:16.470 --> 00:52:28.650

Valerie Karplus: reductions and developments around compliance there I think that's improving and china's making important commitments in that regard, but those are important to monitor separately.

299

00:52:29.670 --> 00:52:31.860

Valerie Karplus: and equally stringently.

300

00:52:32.190 --> 00:52:37.830

Robert Stavins: Right now, you, you mentioned at some point, that a few years ago.

301

00:52:38.670 --> 00:52:46.530

Robert Stavins: There was the evolution of this Ministry of Environment and ecology, or whatever, and that there was a transfer of authority.

302

00:52:46.860 --> 00:52:54.360

Robert Stavins: From the end Dr C, but even more recently i'm thinking in the last his last month or so or the last several months.

303

00:52:54.780 --> 00:53:09.060

Robert Stavins: I heard about a splitting of authority with regards to climate policy and the movement back of some of it to the end, Dr see can you describe it brief, very briefly, and also, more importantly, what's the significance of that.

304

00:53:09.750 --> 00:53:21.690

Valerie Karplus: Right so for the carbon market, the plan is to continue to keep that within the Ministry of a college environment, I mean, but there was a recognition that.

305

00:53:22.650 --> 00:53:43.770

Valerie Karplus: The achieving the 2016 goal is going to need to go beyond just monitoring of CO2 emissions and managing the carbon market, but really needs buy in from economic planning which occurs within the national development reform Commission and so some functions, particularly those around.

306

00:53:45.570 --> 00:53:54.780

Valerie Karplus: anything related to energy target setting and economic target setting to be consistent with the overall trajectory is.

307

00:53:55.290 --> 00:54:15.660

Valerie Karplus: is hopefully going to be addressed by this new split, so I think it's the details are still become just now becoming clear what this will mean, but I think for today's purposes the carbon market will stay with me as far as we know, and and the RC will be.

308

00:54:16.980 --> 00:54:28.830

Valerie Karplus: will be working to to address the 2060 challenge in a more holistic way by thinking also about how to address economic targets.

309

00:54:29.490 --> 00:54:45.030

Valerie Karplus: Energy related targets energy efficiency planning, hopefully, it means that this energy efficiency program but is binding on many of the same firms in the carbon market can be either superseded by the carbon market or.

310

00:54:46.800 --> 00:54:49.290

Valerie Karplus: coordinated more effectively.

311

00:54:49.800 --> 00:55:04.080

Robert Stavins: So the way you just described it Valerie I mean it really makes a lot of sense to have that split, I would say, but that raises a question why didn't they do it that way, in the first place, instead of sending everything off to this new ministry, you have any insight on that.

312

00:55:05.520 --> 00:55:14.820

Valerie Karplus: I I wish I did I think it's I I don't have any any easy insight I think though that.

313

00:55:15.750 --> 00:55:28.200

Valerie Karplus: Part of the moving the responsibility for for CO2 and greenhouse gas emissions, monitor and to the me was recognizing the importance of connecting that with the existing.

314

00:55:28.620 --> 00:55:33.750

Valerie Karplus: and ongoing environmental monitoring program so you mentioned the continuous admissions monitoring systems.

315

00:55:34.230 --> 00:55:46.470

Valerie Karplus: This raises the potential that greenhouse gas emissions are going to be included there as far it to my knowledge, none of the sense data art, at least the publish some data do not include greenhouse gas emissions.

316

00:55:47.550 --> 00:55:53.970

Valerie Karplus: So it's I think it's sort of it's an ongoing process of recognizing.

317

00:55:55.020 --> 00:56:04.590

Valerie Karplus: What is needed to get to 2016 I think 2016 was a big product announcement or 60 goal, given the challenges inherent in that kind of a shift.

318

00:56:05.160 --> 00:56:10.530

Robert Stavins: So we only have a couple of minutes left, and I want to get in a final question to you a two part question.

319

00:56:11.040 --> 00:56:18.030

Robert Stavins: Do you think that the Chinese system is indeed going to evolve from the current tradable performance standard to a mass base cap and trade.

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00:56:18.420 --> 00:56:22.080

Robert Stavins: And if so, approximately what year would be your best guess.

321

00:56:22.440 --> 00:56:30.630

Robert Stavins: And then even more broad if you have you can do this in one minute is what are your expectations, not your hopes Valerie but your expectations.

322

00:56:30.900 --> 00:56:40.770

Robert Stavins: For the status of climate change policy and greenhouse gas emissions in China 10 to 20 years from now, what would be your your your guests, I can't expect much more than a guess.

323

00:56:41.730 --> 00:56:48.570

Valerie Karplus: Great well, thank you for those for those I think it's a three part question right so on the tradable performance.

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00:56:49.590 --> 00:56:55.860

Valerie Karplus: Standard I think moving to a mass the system, I would say it won't happen.

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00:56:57.000 --> 00:57:04.980

Valerie Karplus: It won't it won't happen as quickly as people think it will happen, but the commitment will remain in part because the 2016 cool requires.

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00:57:05.340 --> 00:57:16.050

Valerie Karplus: And is requiring currently the provinces, to think about setting absolute targets and so as soon as there is broad recognition that absolute targets are going to be the norm, then it will.

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00:57:17.220 --> 00:57:20.130

Valerie Karplus: Come back and effect the design the cap and trade system.

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00:57:21.210 --> 00:57:31.080

Valerie Karplus: Or the tradable performance standard I would put the if I had to guess a year and say before 2030, which is the peak year or the year before, which is.

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00:57:31.860 --> 00:57:40.530

Valerie Karplus: expected missions to peak now on my expectations for the next 10 to 20 years I think you're going to see a lot more electrification a lot more renewables.

330

00:57:41.310 --> 00:57:51.900

Valerie Karplus: A lot of directive energy policies in place alongside the cap and trade system and the cap and trade system will evolve over time to have.

331

00:57:52.980 --> 00:57:53.370

Valerie Karplus: A.

332

00:57:54.540 --> 00:57:55.950

Valerie Karplus: The function of both.

333

00:57:56.970 --> 00:58:07.110

Valerie Karplus: Linking with global efforts and ambition, so it provides a way of tracking and responding to what happens elsewhere in the world, it also will help.

334

00:58:08.250 --> 00:58:13.560

Valerie Karplus: To control emissions within us ever shrinking share of the power sector, which will be fossil generation.

335

00:58:14.970 --> 00:58:28.020

Valerie Karplus: But I don't see it, the carbon market per se it's being the the main driver, it is one of many drivers and that's, I think, where I expect things will still be in 20 years.

336

00:58:28.410 --> 00:58:40.200

Robert Stavins: Well that's very, very helpful and a wonderful conclusion to an extremely interesting hour at least very interesting for me as one of the viewers of what Valerie had to say.

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00:58:40.980 --> 00:58:53.400

Robert Stavins: Our guest speaker has been Valerie karplus associate professor of engineering and public policy at Carnegie mellon university Valerie Thank you very much for taking time to join us today.

338

00:58:54.270 --> 00:58:56.580

Valerie Karplus: Thank you very much appreciate the opportunity.

339

00:58:57.060 --> 00:59:10.680

Robert Stavins: So I will offer an apology to those of you who submitted questions and I wasn't able to get to them, but we got to a lot of the questions I think there are still a dozen and a half remaining.

340

00:59:11.460 --> 00:59:21.990

Robert Stavins: But I hope you'll come to future episodes so the next episode of conversations from the Harvard project on climate agreements will be announced.

341

00:59:22.440 --> 00:59:41.250

Robert Stavins: Shortly do remember that you need to register separately for each of these webinars via zoom, but if you registered for this one you'll receive a notification about the next one, and with that i'll just say i'm your host rob stephens thanks, very much for joining us.