

Center for Strategic and International Studies

TRANSCRIPT

Online Event

U.S. States on Energy and Climate: Massachusetts

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FEATURING

Judy Chang

Undersecretary of Energy and Climate Solutions, Massachusetts

CSIS EXPERTS

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Transcript By

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Morgan Higman: Good afternoon and thank you for joining us at CSIS. My name is Morgan Higman. I'm a fellow in the Energy Security and Climate Change Program.

And I'm excited to be joined today by Judy Chang, undersecretary of energy and climate solutions from Massachusetts' Executive Office of Energy and Environmental Affairs. Undersecretary Chang was appointed to her position relatively recently, in June of 2020. Before that, she co-lead an energy consulting practice. She is an energy economist and policy expert in electrical engineering with over 20 years of experience advising clients in energy planning, from wholesale electricity market design to transmission and generation projects. She is also a founding director of New England Women in Energy and Environment.

Undersecretary Chang holds a master of public policy from Harvard Kennedy School and a bachelor of science in electrical engineering and computer science from University of California Davis. I am excited to learn from her today about Massachusetts' progress and vision for mitigating climate change and guiding energy transitions.

And this conversation is part of a four-part series with leaders from four different states over the next four days. The conversations are part of a CSIS Energy Security and Climate Change Program called the Clean Resilient States Initiative. And we are so grateful to the Sloan Foundation for supporting this work.

Over the last year or so, the Clean Resilient States Initiative has investigated how states are approaching three climate-related imperatives. They are reducing emissions, creating economic opportunities around low-carbon energy, and enhancing the resilience of energy systems. Our findings indicate that comprehensive climate and energy policy at the state level is rare and difficult. And there are a lot of challenges around balancing these imperatives, articulating clear goals, and measuring progress.

But Massachusetts has a lot of ambitions in these areas, and a diverse policy toolkit and the backing of well-established bureaucracies to support its goals. So, Undersecretary Chang, to begin with, could you tell us a little bit about how your state is addressing these three climate imperatives and your role in supporting that work?

Judy Chang: Thank you so much, Morgan. And thank you so much for inviting me to speak with you and the audience here to talk about, as part of a series, working with other states about our climate and energy initiatives in Massachusetts.

As you mentioned earlier, I am part of the Executive Office of Energy and Environmental Affairs. And probably not like many other states, this is a(n) executive office that has combined the energy and the environment into one, which means that we have to consider – every energy policy, we're also considering the impact on climate, and of course in the recent decade or so much more focused on climate and climate change.

And as – part of my responsibility is to lead the state's – not only the energy policy, but also the climate policies. And as part of those functions, we are setting out both near-term and

long-term plans to mitigate climate change and specifically to reduce greenhouse gas emissions from the state. We have a statutory requirement to reduce greenhouse gas emissions by 50 percent by 2030 and net zero by 2050, economy-wide. So as part of this function – and my team and all the supporting agencies are focused on developing a plan to meet the net zero in 2050 in the most cost-effective way, by doing that, we also have to focus on near-term what are the things that we need to accomplish in the near decade.

So I'll just pause there and hand it back to you, Morgan. Perhaps you want to pick that up and – or let me know if you want to go more specific. I can definitely go more specific about the plans, goals, strategies, and we can dig a little bit deeper into that.

Ms. Higman: Yeah, let's pick up on that thread, and in particular, if you could give us a sense of some of those goals and strategies, and also the institutions that Massachusetts has either designed or called upon to support those goals. I'm thinking here of your office and the divisions within it, as well as the Massachusetts Clean Energy Center and others that you might think are important. What are the roles of these different authorities, and how do they work together?

Ms. Chang: Yeah, that's a great question. As part of the Clean Energy Climate Plan, we have to – and perfectly logical – we have to work from an interdisciplinary approach, and also that means we have to work across the agencies. So I'll start with just the energy and environment sphere. We have – the executive office really has everything environment, and that includes all the waters, and all the lands protection, and including our, you know, police – environmental police on the water and things like that on the sort of extreme environmental side.

And then on the energy side, we have a Department of Energy Resources, which is the equivalent of a state-level Department of Energy. We also have the regulator for our electricity and natural gas, the Department of Public Utilities. In other states it would be a commission of public utilities or public commission utility – public utility commission, and we have the Massachusetts Clean Energy Center, which is a quasi-agency on clean energy. They invest in clean – they help to promote the growth of innovative clean tech as well as help us deploy pilot programs that are targeted at reducing greenhouse gas emissions. So it's a – it's super nimble compared to other sort of government agencies in deploying things that we think need to be tested and tried in the marketplace as well as investments in startups, and sort of fitting a niche portion of the investment challenge in the state for clean energy and clean tech.

And then also I want to also emphasize the importance – because climate is not just about energy and environment even though energy is extremely important – we also work very closely with our Department of Transportation because, as you know – as least in Massachusetts – you know, more than 40 percent of the emissions – greenhouse gas emissions come from transportation. So we work very closely with our transportation colleagues.

And then we have a separate executive office for housing and economic development. I know we're going to talk about economic development in a second, but housing is extremely important because we happen to be in a state where housing – we don't have enough housing – affordable housing, and so placing more regulation on housing and the built environment has – potentially could have impact on housing, so we work also very closely with our housing colleagues.

Ms. Higman: And you've talked about these direct groups working closely together. What form does that take? Are there task forces or commissions? Are they co-authoring these plans and goals? What does that look like?

Ms. Chang: Yeah, very good question. From Department of Environmental Protection who – I actually should have brought this up as well. Our Department of Environmental Protection also hosts all the – and conducts all the greenhouse gas inventories, so they set the regulation of how to count the greenhouse gas emissions, but also set the inventory.

We work closely – I will say it's not in a particularly formal task force perspective, but really the actual plan is developed jointly from our energy and environmental side of the house of the executive branch. And then we also directly engage with our transportation colleagues to essentially develop the plan for transportation. And then on the building sector – and I will talk a little bit about – in fact, I'll talk about that next – on the building sector, we work directly with our housing and economic development. And then I also, later on, talk about the economic development associated with energy systems.

So let me just give you a sense of what's in the – a climate plan. And we, of course, looked around quite a bit – look at other states, look at other countries – and have, you know, tried to understand, like, what others are doing and what are the lessons learned in coming up with our plan. But it turns out that these are very – you know, we wanted to be as specific as possible and as detailed as possible as we can. And therefore, the focus is very, very detailed on sort of Massachusetts-based and almost like Massachusetts-centric, or I'll say New England-centric, and I'll explain why that is.

So I'll start with the content. The content of our most recently released plan, which was released two weeks ago – less than two weeks ago; a week-and-a-half ago – contains, you know, here the main topics.

One is – the first and foremost is environmental justice, energy environmental justice. Like, how do we set a climate plan and energy plan and all of the policy associated with that with a focus, with a(n) attention to how the – how they might impact our environmental justice communities?

Then we have transportation, a whole chapter dedicated to transportation, a whole chapter dedicated to buildings and really the heating of buildings.

And then we have a section on electricity supply, which really is all of the power sector – everything associated with the power sector.

Then we have an industrial process and all the non-energy sources of emissions.

And then we have a whole new chapter which, you know, this is – by the way, this is not the first time we've produced a plan. This is – I don't – I think it's like the third or fourth plan. But this is the first time we're releasing a plan that actually also has a whole section on natural and working land, trying to identify the sources of emission and the sources of sequestration and storage for greenhouse gases. Because we need to get to net zero in 2050, and it's important to not only focus on reducing the emissions but we actually have to understand how much we can absorb within the state when it comes to net zero by 2050. So we started working on really detailing the – not only the actual accounting of emissions on our natural and working lands, but also the uncertainties around that, because unlike counting emissions from a powerplant – you can measure the fuel and the emissions rate and things like that – it's quite difficult and challenging and with lots of uncertainties when looking at what our land and forests are doing.

When it comes to process, I think this might be interesting particularly for other states. We worked several years now – I would say three or four years now – of detailed modeling of our economy from an emissions and really energy consumption costs, emissions, and impact on communities and population perspective for probably three, four years. So even though the plan just came out last week or two weeks ago, the work has been really building up over the last, I would say, three to four years, just trying to understand what the economy holds, how to model the economy, and how to balance the economy from an emissions perspective. So the process starts with many years of, you know, building up and improving the way we model specific sectors, and then how – and then try to understand how the sectors interact with each other across the economy.

And then we coordinate with our greenhouse gas inventory, as I said, as part of the Department of Environmental Protections work. We also have significant processes interacting with stakeholders – not just the internal stakeholders that I just said, you know, from a government agency's perspective, which we do – we do interagency meetings about how to plan for each of these sectors – but also significant input from our Implementation Advisory Committee, which is basically our climate advisory committee – external advisory committee. And we have many public stakeholder meetings, you know, where we prepare the – you know, the process and the questions that we are posing in the plan and how we – how we plan to answer them. And then eventually a draft set of policies and strategies, and we send that out to the public and have public hearings around that just to hear what people are most passionate about, really – that's what it turns out to be – and what are the issues and just gain a lot of public comments, both in writing and in oral comments. To finalize the plan we have reviewed about 1,200 individual comments from – written comments from stakeholders.

There are a few other commissions. One specifically is set up, it's called the Commission on Clean Heat. That's the first of its kind that I know of. We did set it up just at the end of last year to really have a set of experts in the field, but also a diverse group of people that are practitioners around heating – heating of our buildings – and try to get them to understand

how the future would look like when we transition from fossil – use of fossil fuel to heat our buildings to less GHG-intensive sources of heating.

I'll pause there and hand it back to you, Morgan.

Ms. Higman: That's a terrific overview. Thank you for that.

You mentioned environmental justice, and I think that's a topic that has sort of rightfully gained a lot of attention across states within their clean energy transition priorities. I wondered if you could talk a little bit about how you're defining justice or equity or diversity or inclusion, the terms that you're using, what they mean and how they are being sort of implemented in a meaningful way? And what progress or performance indicators have you developed around that goal?

Ms. Chang: Yeah, great question. So we have a specific environmental justice policy, so the state actually has a policy office that's primarily focused on environmental justice. And that office works with all the other regulatory agencies to make sure that when we set really procedural, you know, processes in developing regulation or policies, that we account for public engagement in the most inclusive way. I mean, that's – in a nutshell, first and foremost we want to make sure that the voices that have traditionally not been appearing in these public processes are able to participate. So increasing participation. Just like some of the federal agencies have started to do, we're just trying to be as inclusive as possible. We make sure that the meeting times are, you know, repeated so we do the same meeting several times, so that people who work during the day can attend at night, or people who are busy in the evenings can attend during the day. So we translate out our meetings so that the participation level can increase. That's first and foremost.

And then the second thing is the environmental justice policy includes setting – we actually identify which communities are environmental justice communities. So when we set out to develop the strategies and policies in each sector, particularly in transportation, we then think about if there are incentive programs, for example, we want to dedicate as much as possible to the – of the incentives to environmental justice communities and try to really understand, if we provide a certain incentive, who are we actually reaching.

I'll give you – and this is not necessarily an environmental justice policy, but I'll just give you an example. We have a sort of nation-leading energy-efficiency program called Mass Save. It's nation-leading because we've been, you know, sort of set up as sort of number one and number two multiple years in a row. Really helping residents and businesses to increase the efficiency of their buildings by, you know, energy audits. And I know many, many states are doing this, doing energy audits and helping and providing financial incentive for people to retrofit their homes and to insulate and to use less energy. The latest set of analyses show that while we intentionally wanted to reach as many people as possible, right, as many residents as possible, we've found that certain populations were not participants. So I think, given that, that kind of information and data gathering and analytics will help us and have helped us define and refine the program going forward so that we basically say in our case it's actually part of the incentives for the utilities that's

conducting these programs will be focused on how much delivery actually happen(s) in our EJ communities – environmental justice communities. That’s just one example.

We also want to focus on making sure that the emissions are reduced quicker in EJ communities. And so, from a transportation perspective, for example, in the plan, we focus on making sure that we try to decarbonize transportation – not only the individual vehicles, right, but also medium- and heavy-duty trucks that travel through many of our EJ communities, not only from a greenhouse gas emissions perspective and an extremely important contributor of greenhouse gases, but also for air pollution. So we try to make sure that our focus and incentive really start with EJ – with a(n) EJ lens, right, to just see how those policies and programs might impact EJ communities.

So we try to make sure that every program we design we think about how do we make sure that our participation level is great in our EJ community, and if not how do we reach out to the folks to make sure – you know, and it might not be government directly interfacing with those communities. We may need, you know, to work with community leaders in those communities or third parties work with community leaders in those to really reach people who are traditionally not included or have not been participating in some of these programs.

Ms. Higman: So it sounds like environmental justice is a diffuse goal. It’s being embedded in all your different programs and authorities. I wonder, when you think about economic development strategies and resilience, do you think sort of in opposition to environmental justice those are more siloed authorities when we think about energy resilience being really located in, you know, the Department of Utilities or economic development as being anchored in Mass EC? Or do you think these other sort of imperatives are also broadly sort of embedded in your different state-level authorities and institutions?

Ms. Chang: That’s a great question. So, in general, I do think the less siloed that we can be, the better, right? But siloes are created to, in some ways, be more efficient, right, so people can be focused on specific items.

So I do see the climate plan as a way to integrate many of these activities. And for example, you mentioned economic development. And in the energy space in Massachusetts, economic development, essentially it means creating jobs and well-paying jobs in several clean-energy space(s), right? And we did a full employment and economic impact analysis of the plan. So, actually, the plan includes a detailed section, a whole chapter on economic impact as well as a whole appendix about how do we model it, how many jobs are, you know, estimated – of course, these are models – estimated and in which sectors. And in a nutshell, you know, the way we think about 2030 is that we’re going to create about 22,000 net new jobs, and many of those new jobs in the clean energy space are really building our clean energy. One is offshore wind. So we need people trained and be ready to not only install, but maintain our offshore wind deployed for Massachusetts and really all of the neighboring states. Remember, the waters are not divided by states necessarily, so we are – the lease areas south of Massachusetts are really built – will have offshore wind built for many other states to purchase the power from. So we need to train the people. We need to

have workforce training for not only the current generation, but the younger generation and the people who might be transitioning from traditional fuels to clean energy. So, right, that's a huge effort, and our Clean Energy Center is right at the center – at the heart of that effort.

Also, similarly, we will need people to install heat pumps. We currently don't even have enough people in Massachusetts to install heat pumps. So we can – we can want to electrify our buildings all we want, but until we can convince consumers to purchase – and of course, we have some incentives through the MassAid program – but also having enough people to work and install and maintain these – maintain these equipment, as well as really inform consumers of how to use them and how to – what to expect when using heat pumps. It's another, you know, sort of big hill to climb. And so we're setting up ourselves to make sure that the market starts taking off, and the market will only take off if we start creating jobs and training people to take those jobs. And then we need, you know, others – you know, other jobs include building new transmission and distribution system to really support the electrification efforts with our electric system.

So just to name a few, those are, I'll say, the primary economic developments efforts. The other – oh, the other item on transportation, of course, is – you know, we don't just hand out checks for people to buy EVs, but we really have to roll up our sleeves and figure out, you know, where the investments for charging infrastructure needs to be. We're hoping to use much of the infrastructure bill dollars from the federal government to develop a plan, to install, to give incentives for third parties and to our utilities to install charging stations, both in people's homes and offices and public space, as well as along the highways through our Massachusetts Department of Transportation work.

Ms. Higman: Very good. We have a couple more minutes here and we are talking about market making, so I hope you could give us sort of a view from the future. What are Massachusetts's burgeoning industries? What do you think, if we look ahead in five or 10 years, will have changed. You mentioned offshore wind. I'm thinking maybe about hydrogen energy storage, other priorities to support your goals. Could you tell us a little bit about those as a closing remark?

Ms. Chang: Thank you for the prompt. (Laughs.) Yes, offshore wind is a current, you know, push to get funding to make sure that we have ports that are ready for the installation of offshore wind. I recently went to Europe and – start thinking about the next step, right? You can't just install these things. You actually have to maintain them and to make sure that they continue to deliver power. So we need to have a supply chain, not only for the installation but all of the maintenance and the workforce supporting that deployment. So offshore wind is the current, you know, sort of big push from Governor Baker, and sort of the current administrative work is all about encouraging the buildup of our ports, and we're working very closely with our legislative bodies and representatives and colleagues to make sure we put the dollars in our infrastructure.

And then – you are right – we need to better understand the future of hydrogen and the role that Massachusetts and, you know – Massachusetts plays. I mean, we are a scientific

hub here in Massachusetts with all the academic institutions, and there's a lot of interest currently on the future of hydrogen, and how we can use clean electricity to produce green hydrogen, and what the future of that hydrogen might look like, not only in the country, but also in the world. I think that's something that we are interested in, and partnering up in New York and several academic institutions in this area – in the Northeast to think about hydrogen production – or green hydrogen and the future of hydrogen.

Storage has been traditionally been coming from Massachusetts so we have many storage companies – probably started in Massachusetts and continue to grow in Massachusetts. We will need storage – like that's – I almost feel like I say too little about storage because it's – in this point in time it's a no-brainer. We need storage. I mean, if we're going to have both, you know, renewable energy and flexible load, we need storage in between both short-term storage – sort of the current technology available – but also long-term storage like hydrogen, but perhaps other technologies.

So I – you know, I personally have been on the advisory committee with MIT to think about the future of storage. There are many – both, you know, accelerated as well as start-up companies in storage, and I hope that Massachusetts is still – will continue to play a major role in the future of storage, not only for the New England grid or the Northeast grid, but also in general in the world. I mean, I think – you know, I've looked at many systems across the world, and we're going to need storage. Period. (Laughs.) I don't how we integrate all of these resources without storage.

Having said that, also I just recently talked to some transportation providers. Let's not forget the future of batteries in our EVs – large and small EVs as storage, and so the vehicle to grid and how to modernize our distribution system to accept those kind of two-way power travel from our electric vehicles are actually also an important future for not only Massachusetts, but for the country.

Thank you.

Ms. Higman: Very good.

Well, thank you so much for joining and for getting us a little insight about Massachusetts and its contributions to sort of the U.S. climate and energy progress and the world. And we really appreciate you joining us today.

Ms. Chang: Thank you so much. Take care.