

Western MA Solar Forum Session 4 - Tuesday, 19 December 2023 11:34 - 193 minutes

Participant: UMass CEE [UC] English (US)

00:27:16 [UC] Good afternoon, everybody. I'm Mindy Domb.

00:27:19 [UC] I'm the state representative for the third Hampshire district, which includes the town of Amherst and half of the town of Granby.

00:27:26 [UC] And I'm today's moderator.

00:27:27 [UC] Welcome to the Western Massachusetts Solar Forum, our fourth and final session for this cycle.

00:27:35 [UC] And today, as many of you know, we're going to be talking and listening and learning about all the various perspectives on solar energy currently happening in our region and in our Commonwealth.

00:27:47 [UC] Today's panel goes from about now to a little bit before 3:00.

00:27:53 [UC] I'm going to go through some logistics as well as, an introduction to the panel in just a moment.

00:28:01 [UC] Hopefully you're in the right place.

00:28:02 [UC] And if you're not, please stay with us because it's going to be a great afternoon and very fascinating.

00:28:08 [UC] can we please change to the next slide?

00:28:12 [UC] First, a little bit of logistics and getting oriented.

00:28:15 [UC] As you know, you've come in to the portal through zoom.

00:28:18 [UC] we're going to be able to watch the presentations, which have all been pre videotaped.

00:28:24 [UC] the chat function is disabled, you're muted.

00:28:28 [UC] Your camera is off, but you can turn it on.

00:28:30 [UC] And as you can see we have ASL available.

00:28:33 [UC] And I want to give a shout out to UMass not only for organizing this panel, which we'll talk about in a moment, but for making sure that ASL is available as well as Spanish translation.

00:28:43 [UC] If you go on the event platform, which you probably went on in order to get here and to register or the attendee hub, you'll see there's a place for you to ask questions.

00:28:53 [UC] You'll see the speaker biographies on that page, as well as the detailed agenda.

00:28:59 [UC] The biographies are important because I'm not going to take up a whole lot of time, in our limited time today with giving you a full biography on each person.

00:29:08 [UC] But you're going to want to see what their background and expertise is.

00:29:11 [UC] There's also information on that page around Spanish translation.

00:29:15 [UC] Thank you, as well as the survey that we're going to be asking you to complete.

00:29:20 [UC] And if I can, I just want to say this survey is going to be critically important for us in terms of our understanding about how this panel has benefited you, but also, what else we need to do.

00:29:33 [UC] What is the information that we didn't cover that should be in a subsequent forum?

00:29:38 [UC] What would you like to see in a subsequent forum?

00:29:41 [UC] And thank you for changing the slide.

00:29:43 [UC] UMass is always on top of it, where you can see on that page the specifics of where you can access Q&A, where you'll be able to get the survey, both on the upper right hand corner of that page where the speaker bios, as well as a reminder that the questions that you put in the chat will not be provided to the speakers since they are on videotape, but the staff will be reviewing them and using them to, today's panel discussion and the session, as you know, is being recorded.

00:30:15 [UC] I want to thank the members of the Western Mass delegation that are co-sponsors of today's forum, and I'm going to read their names quickly.

00:30:24 [UC] But to give make sure that each one has an, the opportunity for me to acknowledge their co-sponsorship.

00:30:32 [UC] they represent the, four counties of Western Mass from the Berkshires to Hampden County, Hampshire and Franklin.

00:30:38 [UC] That would be my Senator, Jo Comerford, Senator Jake Oliveira, representative Brian Ashe, representative John Barrett, representative Natalie Bley, representative Dan Carey, representative Pat Duffy, representative.

00:30:51 [UC] Tricia Farley-bouvier, representative Mike Finn, representative Carlos Gonzalez, representative Smitty Pignatelli, representative Angelo Puppolo, representative Lindsay Sabadosa, representative Aaron Saunders, representative Todd Smola, representative Susannah Whipps, and representative Budd Williams.

00:31:08 [UC] And that really gives you a sense of the breadth of this sponsorship.

00:31:12 [UC] I also want to acknowledge and thank the numerous state and municipal officials who've joined us for today's panel discussion, but have also joined us in previous ones as well.

00:31:25 [UC] And I want to thank I won't read off all their names, the members of the solar Planning Committee, which have been so instrumental in presenting not only today's and organizing today's panel session, but also the three prior ones.

00:31:38 [UC] I want to give a special shout out they didn't make their own slides, so I'm going to give it to them to the UMass Clean Energy Extension, which has been the driver of this forum and such commitment, to its to this initiative and to making sure that we provide really foundational information to members of our community around solar energy, solar siting and solar power so that we can all engage in these really intense and important conversations around policy and decision making.

00:32:13 [UC] I want to give a special shout out to River strong, Duane Brecher, Mary Kraus, and the amazing Sarah Dowling.

00:32:21 [UC] for their just really breathtaking, commitment to this effort.

00:32:27 [UC] So big thanks to them. Next slide please.

00:32:31 [UC] So today's agenda is a packed one.

00:32:33 [UC] We have invited people who represent different perspectives on solar energy to make a 10 to 15 minute video using the same set of prompts, which I'll get to in a moment so that we can actually hear how people differ.

00:32:47 [UC] But also maybe where people are the same, where is the common ground, and also where's the places that we have to work harder to get to common ground?

00:32:56 [UC] you'll see that each one is representing a unique perspective. We have one change on the schedule.

00:33:03 [UC] Aaron Nelson of Mount Grace Conservation Trust will not be in the presentation today.

00:33:09 [UC] He's been working on updating his video, but has been ill, so hasn't

been able to complete what he wanted to.

00:33:15 [UC] he is planning to release his video, in the new year, and he apologizes for the delay.

00:33:22 [UC] As I mentioned earlier, there'll be no formal Q&A to today's session.

00:33:26 [UC] It's really about taking the information that we've heard in the previous three sessions, which, as I said, foundational to knowledge around solar power and listening to the various ways that people apply it through their own perspective, the question that we asked speakers to consider when they develop their presentations are here.

00:33:47 [UC] I'll read them briefly so that, for those of you who may not be able to see them, you can hear them.

00:33:53 [UC] And how these videos are shaping in response to these questions, we asked people what led them to work in this field or have an interest in the topic?

00:34:03 [UC] What is their role as it relates to solar?

00:34:05 [UC] What does this translate into in terms of day to day or not? Day to day?

00:34:10 [UC] What values, concerns, and goals shape their perspective on solar development?

00:34:16 [UC] What are the biggest challenges that they see to meeting the Commonwealth's goals for greenhouse gas reductions?

00:34:23 [UC] What are the most important things they think we should know about solar PV?

00:34:27 [UC] That we may not be aware of?

00:34:29 [UC] And what have they learned from those who have different perspectives regarding solar PV?

00:34:34 [UC] How did it change or reinforce their own perspectives?

00:34:37 [UC] And so I think you'll find there 10 to 15 minute videos are going to be pretty interesting in terms of what we learned from them directly, in terms of their own knowledge and perspective, but also hopefully what they've learned from other people.

00:34:53 [UC] so each speaker was asked to respond to these, and I believe we are going to move right to the videos. I'm used to saying, do we have any questions?

00:35:02 [UC] But of course there isn't a Q&A session.

00:35:05 [UC] But if you have questions, please put it in the chat.

00:35:07 [UC] They are being monitored by UMass staff so that if something comes up specific to today's presentation that we need to answer, we'll be able to.

00:35:15 [UC] So our first presenter is going to be my great colleague, who I want to thank for being part of this today.

00:35:24 [UC] It is Representative Jeff Roy who comes from the town of Franklin, but he's been asked to present because he's also the House chair of the Joint Committee on Telecommunications, Utilities and Energy, otherwise known in the state House as two and two has responsible for a lot of the climate legislation that comes through the state House.

00:35:46 [UC] So welcome, Chairman Roy.

00:35:51 [UC] My name is Jeff Roy, and I'm the state representative from Franklin, Massachusetts.

00:35:57 [UC] I'm also the House chair of the Joint Committee on Telecommunications, Utilities and Energy.

00:36:03 [UC] I became chair of the Energy Committee last session, and in doing so, I inherited a comprehensive climate bill that had fallen just short of the finish

line in the previous session.

00:36:15 [UC] The next generation Road Map bill laid out the goals and plan for Massachusetts to decarbonize in line with global science targets.

00:36:26 [UC] After successfully navigating that over the finish line, the House under the leadership of Speaker Mariano, initiated a plan to meet those targets and in collaboration with the Senate and Governor, we passed a second landmark climate bill in two years.

00:36:43 [UC] This one focused on generating clean power, preparing the grid and encouraging cross sector electrification in order to meet our ambitious goals.

00:36:55 [UC] As chair of the Energy Committee, I study all clean energy resources and seek to craft energy policy that takes an all of the above approach, meaning all resources that can help us meet decarbonize should be a part of our solution.

00:37:14 [UC] Solar is very much a part of that solution.

00:37:19 [UC] During each legislative session, the energy committee that I chair considers several solar bills.

00:37:25 [UC] It listens to testimony provided on those bills and seeks critical input from stakeholders to guide our actions in thinking about the future of the Commonwealth solar policy.

00:37:38 [UC] In addition, I hear directly from my constituents and from other legislative offices that are seeking assistance on solar matters.

00:37:47 [UC] Getting this boots on the ground perspective helps me learn about the practical challenges that people are experiencing.

00:37:56 [UC] It helps me to be alert to issues before or as they become part of a larger trend and also to understand real world impacts delays that solar users have.

00:38:08 [UC] Experian faced in getting their systems connected to the electricity grid is a great example.

00:38:14 [UC] It was a large part of our motivation to tackle grid modernization in last year's climate bill.

00:38:21 [UC] My perspective on solar development is very much shaped by the Commonwealth's net zero goals, which we've agreed to reach by 2050.

00:38:32 [UC] To that end, the mass 2050 decarbonization roadmap identified that Massachusetts must deploy between 27 and 34GW of solar by 2050.

00:38:47 [UC] That's more than ten times the amount of solar currently installed in Massachusetts.

00:38:53 [UC] We can think of this as the Commonwealth's goal for solar development and deployment.

00:39:00 [UC] However, to make this happen, we are going to have to find a physical space for all those solar installations.

00:39:08 [UC] I've spent a lot of time speaking with my colleagues from Western Massachusetts communities whose residents have been upset with the way that solar siting happens, with how it has allowed for the clear cutting of trees and forests to make way for large photovoltaic installations, ones that oftentimes don't benefit the communities they are located in.

00:39:31 [UC] These are valid environmental concerns, and they're raised in response to the success of a state program created to bring clean solar energy into the grid.

00:39:43 [UC] In response, the state resized its incentives in a way that deters developers from building solar in open fields or on forest land, and encourage them instead to invest in harder to build areas such as brownfields or built structures

like building roofs or parking lots.

00:40:04 [UC] The trade off here is that installing solar in built environments makes solar more expensive to build.

00:40:12 [UC] Taking these further siting constraints into account, the department of Energy Resources had done a technical potential of solar study to just how we were going to reach the goal of deploying between 27 and 34GW of solar by 2050.

00:40:32 [UC] The study found that Massachusetts technical solar potential is 506GW, 15 to 18 times greater than the amount required by 2050.

00:40:45 [UC] About 30% of that, or 60GW, could come from large scale farms of 1.3 acres of land or more, and 39GW could come from smaller ground mounted land parcels.

00:41:00 [UC] However, this runs into land use and preservation concerns.

00:41:06 [UC] The study identified that rooftop solar could provide 40GW of power from about 1.9 million rooftop parcels, located all around the state, and solar canopies built over parking lots could provide 14GW of power from just over 83,000 parcels throughout the state.

00:41:30 [UC] We will have to figure out exactly what mix of ground mounted rooftop and canopy solar will be the right answer.

00:41:38 [UC] Enduring all this, we'll have to keep resilience and equity in mind.

00:41:44 [UC] It will be important for our solar installations to be paired with battery storage, smart meters and distributed energy resource management systems to maximize solar potential.

00:41:56 [UC] So that they are as efficient as possible, making our grid more resilient.

00:42:03 [UC] Low income residents have traditionally had less access to solar, but have been left with covering a larger share of the electric grid.

00:42:11 [UC] As more people with higher incomes net meter after installing solar on their homes, as was the case in California equity and access to solar will be crucial.

00:42:25 [UC] A focus on equity will also help us ensure that one region of the state is not overburdened with solar infrastructure, while another region is deprived of it altogether, giving special attention to rural and environmental justice communities will have to site our solar with equity in mind in more than one way built environments with empty rooftops, so long as they are suitable, seem like the perfect place for solar.

00:42:55 [UC] But will require us to address the interconnection, siting and grid modernization issues that come up each time.

00:43:03 [UC] We want to add a new energy resource to an area with a high electricity load.

00:43:10 [UC] Grid modernization and siting are already huge challenges for us to deal with and will play a pivotal role in our ability to meet our greenhouse gas reduction goals.

00:43:23 [UC] A National Grid study on highway electrification found that to accommodate an EV future, just one of our Massachusetts highway rest stops will need as much power as a small town.

00:43:37 [UC] While we're electrifying our transportation sector, we'll also be working on electrifying our buildings.

00:43:44 [UC] How much electricity will a small town need to green their buildings?

00:43:50 [UC] If just one highway rest stop will need the equivalent of what a small town uses today to supply that electricity, we won't only need the clean

energy itself, but we'll also need a much bigger and smarter grid network for the energy.

00:44:07 [UC] Energy to travel through.

00:44:10 [UC] To make this happen, we'll need to build new substations, new poles and wires, new factories to produce all the electric vehicles, the energy storage batteries, the wind turbines, the solar panels, and all of their components.

00:44:27 [UC] Simultanea Ously.

00:44:28 [UC] We'll need to be training the workforce to maintain in all this new equipment.

00:44:34 [UC] And as we build it, we'll have to balance the need to rapidly scale up the siting of energy infrastructure while recognizing the infrastructure of the past is too often overburdened, our most vulnerable communities, and we must not repeat the mistakes of the past.

00:44:53 [UC] Massachusetts is a small state with a lot of residents and therefore high energy needs.

00:45:00 [UC] Finding the physical space to site our grid.

00:45:03 [UC] Modernization, buildout will be a challenge under the legislature's leadership, the House and Senate has recognized the need to convene the experts in this area so we can have strategic plans going forward.

00:45:19 [UC] Thanks to the 2022 climate Bill, the Grid Modernization Advisory Council, the Electric Vehicle Interagency Coordinating Council, the Clean Energy Transition Working Group, and others are hard at work to identify solutions to these pressing challenges, something I think that's important to keep in mind is that because solar only produces energy when the sun is shining, it poses a challenge for power grid operators.

00:45:48 [UC] In the evening, when the sun goes down at the very same time of day, when Massachusetts consumes the most electricity, just being aware of the benefits and limitations of solar as compared to other resources that are zero emission or low emission, but a more readily available and can be quickly brought onto the grid is a key part of the equation.

00:46:12 [UC] To address the logistical challenges presented when solar stops producing in the evening.

00:46:20 [UC] A Commonwealth Magazine article recently noted that a scenario with 100% solar and wind would make our electric system less reliable.

00:46:31 [UC] We've seen in the past weeks, months, and years that capacity constraints due to the reliance on natural gas and extremely limited electric transmission capacity in the region, has resulted in too many near-misses.

00:46:45 [UC] While needing to burn the dirtiest of fuels such as coal and oil, to keep the grid operating for customers across New England.

00:46:54 [UC] All this is to say that solar is crucial to the success of our decarbonize nation, but that it cannot succeed alone.

00:47:03 [UC] We will need intermittent resources such as solar to work in tandem with well built out batteries, a reliable and smart grid, and other resources that will be able to depend on when cloudy skies mean that solar needs a little help.

00:47:20 [UC] I want to thank you all for letting me speak here today in this important moment, the Commonwealth must use all the tools at its disposal to remain both a national leader in the climate mitigation effort and a prosperous, affordable home to residents.

00:47:38 [UC] As always, I view policy making very much as a collaborative process.

00:47:43 [UC] Please know that my office is always open to your thoughts and ideas.

00:47:48 [UC] I look forward to our continued work on advancing solar policy and deployment in support of our decarbonization goals.

00:47:56 [UC] Thank you so much.

00:48:01 [UC] Thank you so much, Representative Roy.

00:48:04 [UC] and we're off to the races, everybody.

00:48:08 [UC] Our next speaker will be Ashley Randall, who is the commissioner of the Massachusetts Department of Agricultural Resources, otherwise known as Ma.

00:48:18 [UC] And Commissioner Randall will be giving us the perspective from the state administration.

00:48:23 [UC] Thank you.

00:48:32 [UC] Good afternoon, and thank you for the opportunity to be a part of the Western Mass Solar Forum.

00:48:38 [UC] My name is Ashley Randall, and I serve as Commissioner, Department of Agricultural Resources as Mda's mission is to cultivate a robust and equitable agricultural economy, promote a safe and resilient food system, and preserve a healthy environment for Massachusetts farmers, animals, and consumers.

00:49:02 [UC] Was and certainly agriculture has an important place in our economy, our culture and in our environment.

00:49:11 [UC] In Massachusetts, we currently have over 7200 farms stewarding nearly 500,000 acres across the Commonwealth.

00:49:21 [UC] These farms employ roughly 26,000 people and produce an annual market value of over 475 million in goods for a total economic impact of 10 billion annually.

00:49:35 [UC] So, as you can see, agriculture really is a strong and vibrant part of our state's economy.

00:49:42 [UC] A little under 10% of Massachusetts farmland is protected and without increasing the pace of protection and updating land use practices, up to 90,000 acres of farmland will be lost by 2040.

00:49:57 [UC] Currently projected in the Commonwealth.

00:50:10 [UC] eMDR has been actively engaged in the renewable energy field since the early days of the Patrick administration, when we established an agricultural energy program in 2007, and the intent of that program was to deliver technical assistance to farmers around energy efficiency and renewable energy development.

00:50:32 [UC] But the intent of the program further was to meet the need for education and technical assistance, to allow farmers to navigate through the various incentive programs and opportunities at the state and federal level around renewables and energy efficiencies in the farm space.

00:50:51 [UC] This subsequently led to the development of the Massachusetts Farm Energy Program and the Agricultural Energy Grant program that is part of our Climate Smart AG program.

00:51:09 [UC] As I previously mentioned, our AG Energy grant program has been a really successful model and well received by our stakeholders through that program, we provide funding up to \$50,000 per applicant to support the implementation of renewable energy systems on farms through our annual AG Energy grant program, and the program is generally oversubscribed.

00:51:36 [UC] And since 2008, we've provided over 4.29 million in funding to support the implementation of 188 PV systems with an overall capacity of 4800kW.

00:51:51 [UC] This has resulted in annual greenhouse gas emissions reductions of over 2400 tons.

00:51:58 [UC] I'd also mention our Massachusetts Farm Energy program.

00:52:02 [UC] We fund and partner with the center for Ecological Technology to present the Massachusetts Farm Energy Program, which supports energy audits on farms and delivers assistance to farmers with applications to federal funding programs such as the Renewable Energy Program for America, and also provides incentives for energy improvements on farms.

00:52:28 [UC] Over 800 farms have benefited from this program in the form of either consultations, scoping audits, energy audits, or rebate incentives to build energy efficient projects.

00:52:44 [UC] Another area that we work on at the department is the smart program and the agricultural Solar tariff generation.

00:52:52 [UC] Hewitt units, or Asju, the Solar Massachusetts Renewable Target Program.

00:52:59 [UC] The Smart program is an incentive program operated by the Massachusetts Department of Energy Resources that supports solar development in the Commonwealth.

00:53:09 [UC] We also play a key role in the review of applications to the Smart program for Asju development on farms.

00:53:17 [UC] Working with the UMass Clean Energy Extension and UMass Agriculture Extension programs, we review pre-determination applications to ensure that the proposals satisfy the requirement of the regulations and the guidelines, and this has really been a great partnership through the years to date, the department has recommended to DWR for approval of 34 projects, with 47.14MW AC of capacity.

00:53:46 [UC] City types of operations proposed include cranberry, butternut squash, lettuce, hay, the grazing of livestock including sheep and cattle, apples, Christmas tree a variety of vegetable row crops.

00:54:02 [UC] Tomatoes and broccoli.

00:54:04 [UC] So as you can see, very diverse in terms of the types of projects we're receiving, another area where we engage on renewable energy issues is, is where a project is proposed for land that we have a direct interest in through an agricultural preservation restriction on or a farm viability covenant.

00:54:23 [UC] This is known as article 97 land protected by the state Constitution.

00:54:28 [UC] And in these cases, we rely on our policy to review the suitability of a ground mounted solar installation for protected farmland.

00:54:37 [UC] It's really important for developers to understand that if the land that they are proposing for a solar installation is article 97 protected land because of the limitations on capacity that will result.

00:54:54 [UC] As I noted at the beginning, the Department is really guided by our mission statement and I'll repeat it again for everyone's reference.

00:55:02 [UC] Our mission is to cultivate a robust and equitable agricultural economy, promote a safe and resilient food system, and preserve a healthy environment for Massachusetts farmers, animals, and consumers.

00:55:15 [UC] Farmland is being lost at a significant rate in Massachusetts and this loss threatens the long term viability of farming in the Commonwealth and all of the benefits that farms bring.

00:55:27 [UC] Between 1997 and 2017, almost 60,000 acres of farmland were converted to other land uses, and average farm size declined from 130 to 79 acres.

00:55:42 [UC] The state has established goals in several plans, including the Clean Energy and Climate Plans, the Resilient Lands Initiative, the Healthy Soils Action Plan, the forthcoming Farmland Action Plan which will be released very soon, and the decarbonization pathway for the no Net Loss of farmland or soil organic carbon.

00:56:08 [UC] Farms are in a unique position to contribute to renewable energy deployment, carbon sequestration and food security.

00:56:16 [UC] However, at the department, we recognize that there are trade offs, particularly between agricultural land production and solar needs.

00:56:24 [UC] Dual use solar potentially offers a pathway forward if the correct balance can be struck between agricultural land production and solar capacity.

00:56:33 [UC] Needs and interests.

00:56:36 [UC] The trade offs to consider when it comes to potential dual use solar development on farmland include the crop suitability, reduced crop production, reduce solar production, solar generation, often at the expense of crop production.

00:56:51 [UC] Repurposing of land for a different type of agricultural production for example, crop production on prime soils to livestock production.

00:57:02 [UC] And it's really important to consider that it is a balance between these needs and understanding that we are quickly losing farmland to development pressures and other pressures, that there is a pathway forward for solar development and land use and agricultural production.

00:57:21 [UC] But it does need to be an ongoing balance.

00:57:28 [UC] Comments and opinions around solar have featured prominently in our Farmland Action Plan development and in listening sessions we've conducted over the last few years for our land use programs.

00:57:39 [UC] Participants have expressed a range of opinions highlighting the potential benefits and considerations associated with combining solar energy generation and agricultural activities, with participants in particular expressed concerns about allowing solar energy.

00:57:56 [UC] On April, protected land and emphasizing the importance of preserving farmland for food production and impact on property, property values.

00:58:06 [UC] Some participants acknowledge the potential benefits of solar energy in supplementing farm operations and reducing reliance on fossil fuels.

00:58:15 [UC] So the bottom line is that it's critically important, as I said, to strike the correct balance between solar capacity and agricultural production.

00:58:28 [UC] At the department, we are committed to addressing the need for a strong, stable food system while also pursuing our renewable energy goals and the goals for decarbonizing portion of our economy.

00:58:40 [UC] Towards those ends, we will continue to work with our farmers to help them enhance their sustainability and contribute towards the state's 2050 climate goals.

00:58:52 [UC] Again, I really appreciate the opportunity to join all of you today and thank you for this opportunity.

00:58:58 [UC] And as you can see, my contact information is on the screen as well as the link for our MDR energy programs.

00:59:06 [UC] And I would encourage you all to visit the site and learn more about our ongoing work at the Department.

00:59:14 [UC] Thank you.

00:59:17 [UC] Thank you, Commissioner Randall for the very informative, presentation.

00:59:22 [UC] Next we will hear from Courtney Feely Carp from Klavins Law Group.

00:59:28 [UC] To give us a legal perspective.

00:59:36 [UC] Hi.

00:59:37 [UC] Good afternoon. My name is Courtney Feely Carp.

00:59:39 [UC] I'm an attorney with Klavins law Group.

00:59:41 [UC] We are a small boutique, clean energy, clean tech, sustainability focused firm. Here in the Commonwealth. We represent a range of clients.

00:59:50 [UC] in these fields, from renewable energy developers to nonprofits to farmers, food co-ops, food enterprises, a whole host of of interesting and exciting ventures.

01:00:06 [UC] just a little bit of more background about me.

01:00:09 [UC] prior to my work here for, at Klavins law Group, I work for the Commonwealth, for about ten years.

01:00:17 [UC] first at the Senate Ways and Means Committee as an attorney there, and later for the Department of Energy Resources, where I had the pleasure of working with, Dwayne Breger and, and with him, began this journey, that is now solar development.

01:00:34 [UC] So I would say, you know, a little bit by accident that I ended up in this space.

01:00:39 [UC] but it is a happy accident, to have, you know, begun my career in public policy and ended up working on one of the most important issues of our time combating climate change.

01:00:51 [UC] you know, certainly in my work, both in the legislature and at the Department, I, you know, always brought a holistic, public oriented sort of perspective to the work.

01:01:04 [UC] you know, and it has been interesting to sort of figure out how to hold on to that.

01:01:09 [UC] in private practice.

01:01:10 [UC] And I try to retain those values, in the advice that I give my clients, and try to hold on to scene projects, you know, sort of the nuts and bolts and details of what they are individually, but also how they contribute and impact in broader ways and, and problem solve around that.

01:01:32 [UC] so I think that, you know, going back to my first days of working with Dwayne, we were in this unique position of we thought if we could get 400MW of solar in the Commonwealth, we would have done a really awesome job.

01:01:47 [UC] and obviously things have far exceeded those early expectations.

01:01:51 [UC] And I think it's important to note, you know, as people think about markets and policies, one of the things that we you know, wrestled with was how to appropriately shape and develop a market here for solar that would attract the industry, and create value new for the Commonwealth.

01:02:14 [UC] as we looked about ways to invigorate the renewable energy industry here and, and so I think in those earliest days, our focus was on, the development of the solar industry.

01:02:27 [UC] And as the policy advanced, you begin to see how do we are continuing to reshape that, to take into account additional values around land use, types of projects where they're located. And I think those are important.

01:02:45 [UC] and I think they are relevant to any industry as it grows, that you can't always begin how you start and that you have to adapt, that the market has to adapt, you know, to the conditions around it.

01:03:03 [UC] And I think we've seen a lot of solar developers do that.

01:03:06 [UC] transition to canopy projects, look to the built environment, find ways to do productive projects on on green space like Agrivoltaics, where the land stays in agricultural use.

01:03:20 [UC] But the solar is overlaid on top of it.

01:03:23 [UC] you know, so I think there's a variety of ways in which we've seen

the industry try to be creative and recognizing the additional values that they need to hold in their project development.

01:03:36 [UC] as a policies around the Commonwealth have changed, I think part of the one of the challenges that we navigate is as much as we were in those early 400MW, was just about finding solar and getting solar built.

01:03:48 [UC] And that was an initial first goal that, like with any large undertaking, we have picked all the low hanging fruit. I mean, it is apple picking season after all.

01:04:00 [UC] And we picked all that low hanging fruit, and now we're trying to figure out how to get up without climbing the trees and access those additional fruit.

01:04:08 [UC] And where the challenges have come have been in land use, have been in impacts in some communities over others, have been in, I would say interconnection.

01:04:23 [UC] I know that something that sort of has made a peak appearance in the form in some of these sessions, but really, when you know, is is truly one of the most significant things that developers face when they look at where to put a solar project, is what is the interconnection infrastructure and what do I need to know about that?

01:04:43 [UC] How much is it going to cost me?

01:04:45 [UC] And it would be great if we had systems in place that would hold all of these, these data sets together.

01:04:53 [UC] And we're starting to get there.

01:04:54 [UC] I think as is often the case, I think that a lot of great legislation over the last 10 or 15 years to advance the renewable energy industry here in the Commonwealth and help us achieve our mission mandates and our climate change goals.

01:05:08 [UC] However, the planning that we're talking about in terms of infrastructure required a much longer runway than we've had in order to sort of do things in stages. And now we're sort of designing the building as we're building it.

01:05:20 [UC] If you will.

01:05:21 [UC] And that's maybe not ideal, but it is the situation we're in.

01:05:26 [UC] And I think we have to be mindful of all of those things as we think about how we want our policies to continue to evolve.

01:05:34 [UC] And so we are 351 cities and towns.

01:05:39 [UC] We are also one Commonwealth.

01:05:40 [UC] I think both of those truths is what makes our state unique and wonderful.

01:05:45 [UC] I think that the ability to work locally and in community and figure out answers for an individual community are powerful things that is not necessarily seen in larger, bigger states that operate at a county wide level and don't have that that granular level of understanding of a community's needs per se.

01:06:07 [UC] But I also think that we have a number of statewide policies related to climate change.

01:06:12 [UC] And interconnection and things that sort of transcend the towns, boundaries, if you will.

01:06:19 [UC] And it's not that one is more important than the other.

01:06:21 [UC] It's how do you hold both of those things of, of value together to create good, positive results for everyone involved?

01:06:30 [UC] And I think that is part of the reason why this forum has been

convened.

01:06:34 [UC] And I've certainly valued the learning I've had.

01:06:38 [UC] as the weeks have gone by, I think one of the the hopes, certainly from my perspective, is one of the people who out planet was to ensure that voices came together and perspectives came together, that there would be communal learning around this topic, and that people would walk away with additional information and additional perspectives.

01:06:57 [UC] And in thinking and how they approach things is, to kind of circle back, as I said before, I do represent renewable energy developers.

01:07:05 [UC] I also represent, farmers or landowners.

01:07:09 [UC] And, you know, we've played on both sides of that equation.

01:07:13 [UC] And, you know, some of the projects that are near and dear to my heart are those that are located on farms because I, love to see how we can dig into an industry that has been around since the Commonwealth's inception and really say, these family farms are what have under been the underpinning of our economy for so long, and how do we enable them to adapt to a changing world?

01:07:40 [UC] And no one need look further than this past summer to see how climate change is impacting our agricultural space and if solar projects can provide a way to provide some revenue stability, diversification, some crop diversification, some new ways of thinking about their agricultural operations, then I think this represents a real boon for farmers.

01:08:02 [UC] Do I think that this means that every farm should have solar? No.

01:08:06 [UC] Do I think it's appropriate in all instances? No.

01:08:08 [UC] Do I think farmers are in the best position to figure that out for themselves to do that creative thinking?

01:08:14 [UC] Yes. And I think we all we need guardrails around that.

01:08:17 [UC] But I think one of the things that I hope we can take from this forum is how to let our creativity flow with our desire to ensure that we're taking the right steps and the right regulations to do all of these things well, and that is a challenge.

01:08:36 [UC] I think we have a lot of considerations at play.

01:08:40 [UC] We have, as I said at the end of the day, interconnection from a product development standpoint is a driving force because if the utility is not going to if it's cost prohibitive for you to build your project with the utility, that's that's not going to work.

01:08:55 [UC] do I think we need to look at things like, if we want to shift to ramping up the built environment, are the incentive structures right for that?

01:09:06 [UC] But we want to make sure that we do it in such a way that we don't overburden some of the communities that already have a lot of infrastructure.

01:09:13 [UC] The environmental justice communities and urban settings, in many instances, have borne the burden of that infrastructure.

01:09:19 [UC] And as we look at the built environment, how do we put that equity lens to work?

01:09:23 [UC] How do we ensure that distributed generation plays an appropriate reliability value in more rural areas?

01:09:30 [UC] Everyone focuses on the intermittent nature of solar, but particularly paired with storage.

01:09:35 [UC] Are there ways in which the increased distributed generation is increasing resiliency of our grid, and how are we quantifying that?

01:09:42 [UC] I think we have a lot of questions to answer.

01:09:47 [UC] I think we have a lot of tools in our toolbox.

01:09:49 [UC] I think part of what this form is doing is taking an opportunity for all of us who've been sort of sprinting in this fight against climate change, to take a step back and really say, okay, what are the values that we are looking at in our community, in our Commonwealth, and in the role that we play in this conversation?

01:10:07 [UC] And how can we kind of reach out and take a hold of some of the other perspectives and find ways to have win wins?

01:10:16 [UC] All around and solve multiple problems?

01:10:19 [UC] And it is a challenge.

01:10:20 [UC] I am constantly amazed and gratified and just, in awe of all the the hard work I see across different sectors in in the Commonwealth and how many people are working on this issue in so many different ways. And I think we have the resources to do it.

01:10:39 [UC] And certainly I hope and I, as I continue to work in my space to continue to evolve my thinking and and have really enjoyed listening to folks here, and I hope others do the same, as we all kind of take all of this creative energy and and hopefully push it towards positive solutions for all involved to achieve multiple goals. So thank you for having me.

01:11:03 [UC] and I have certainly enjoyed listening to the other presenters and, and hope you enjoy the rest of the afternoon. Thank you.

01:11:13 [UC] Thank you, attorney Philly Carp.

01:11:16 [UC] Next we will hear from Claire Chang from Greenfield Solar, who will give us the perspective of a Massachusetts based small solar installer.

01:11:27 [UC] Welcome, Claire.

01:11:32 [UC] My name is Claire Chang.

01:11:33 [UC] I'm with Greenfield Solar, a small residential and small commercial solar installer here in western Massachusetts.

01:11:43 [UC] And what got me interested in solar was that, I was actually a physics major in college at IU, and my advisor was pushing me to do nuclear physics, and I was like, no, not doing nuclear physics, even though they got a brand new cyclotron.

01:12:00 [UC] And you have to understand, this was in the 70s.

01:12:03 [UC] It was a lot of, work being done.

01:12:07 [UC] So I went into environmental science, and with all the impact of Earth Day and everything else, it was lots and lots of fun because we were really trying to push the envelope and do lots of different kinds of things.

01:12:21 [UC] So.

01:12:22 [UC] So when I moved here to Western Massachusetts, we were working to shut down the local nuclear reactor, Vermont Yankee, and people were saying, oh, but we need the electricity. We can't shut down.

01:12:34 [UC] And I was like, well, we need to work on the solutions.

01:12:38 [UC] And one of the solutions, of course, is solar.

01:12:41 [UC] But but back in 2008, solar was very expensive. It was \$10 a watt.

01:12:48 [UC] So, so it was really hard for people to think about putting solar on their roofs.

01:12:54 [UC] And fortunately, the mass CEC stepped up with the Commonwealth Solar Program costs for solar.

01:13:02 [UC] materials and equipment went down and also the Srec program got started.

01:13:08 [UC] So that really made solar viable for homeowners and small business owners to pursue.

01:13:16 [UC] And that's how everything how we got involved and how everything just really pushed forward from that point.

01:13:26 [UC] So I think, I think a lot of the influence has been because I'm a minority in many different ways, so I wear lots of different hats and people put lots of different hats on my head.

01:13:39 [UC] but growing up in the Midwest certainly wasn't easy.

01:13:43 [UC] My brother and I were the only two Chinese, only two Asians in our schools, and and, there were.

01:13:52 [UC] Yeah, there was a lot to growing up like that, which is just.

01:13:55 [UC] I think made me aware that there are different kinds of issues and situations that people are in and that you we need to make up, especially renewable energy, more equitable and accessible for everybody.

01:14:10 [UC] And we can't keep it as a rich person's or a, or even just a homeowners person's, prerogative that it needs to be equitable.

01:14:26 [UC] And it's not such a high cost.

01:14:29 [UC] We're not talking about, you know, hundreds of thousands of dollars.

01:14:34 [UC] per person.

01:14:35 [UC] These are very doable amounts just to get them to a threshold where it makes it equitable for particularly a low income person to be able to afford putting solar on their roofs.

01:14:48 [UC] And, and then and in fact, for the state to meet its climate goals, we need every roof surface that's eligible because because there are plenty of roofs that are not eligible for solar because of shading, slate build things, trees, skylights, any of a number of issues.

01:15:11 [UC] And so if someone who's low income has a really perfect south facing roof, we should definitely take advantage of that for meeting their electric load and maybe their neighbor's electric load.

01:15:24 [UC] So there's no reason for people to be disenfranchised or left behind just because they don't have the financial resources.

01:15:35 [UC] And, that's something that I think is really, really important and that the state can work to make happen quite easily.

01:15:43 [UC] So I've put together a little bit of a slideshow to give you an idea of some of the different topics and ideas that I've been thinking about that, we can put into action pretty easily.

01:15:56 [UC] Thank you.

01:16:01 [UC] So since 2008, Greenfield Solar has installed hundreds of residential and small commercial solar and storage systems in western mass.

01:16:09 [UC] We have a dedicated number of partners who've ridden the solar coaster up and down with us over all these years, funding, incentives and policies have all added to and subtracted from everyone's ability to generate 100% renewable energy.

01:16:27 [UC] I'd like to focus on issues that can help the Commonwealth move faster towards our climate goals.

01:16:34 [UC] One and everyone we've heard over the last three weeks has indicated that we need to double and triple the current rate of solar PV installations to help meet our climate goals.

01:16:47 [UC] For 2030 and 2050, we need to make large investments in training, business development, grid modifications, low and incentives for low income and

energy justice communities.

01:17:01 [UC] We need to increase the speed of regulatory determinations for climate and energy legislation passed in 21 and 22, and hopefully for new legislation that will be passed in 24 and the future.

01:17:16 [UC] The DPU backlog is holding hostage this important legislation to rapidly increase adoption of renewable energy in the Commonwealth.

01:17:24 [UC] There is no deadline required in the legislation, so for future legislation, we should probably put deadlines.

01:17:34 [UC] The climate bill that was passed in 22 increases the maximum size of solar system is eligible for full net metering credits to 25 kW on single phase, and to 60 kW on three phase.

01:17:50 [UC] It's currently 10 to 15 kW on single phase and 25 kW on three phase.

01:17:57 [UC] As everyone switches from fossil fuels to electricity, there will be more demand for solar generation.

01:18:04 [UC] We already have seen a number of people who are ready out there to jump.

01:18:10 [UC] As soon as this legislation is enacted, this increase will be enabled.

01:18:16 [UC] Farms or anyone with a large roof to meet their whole total electrical demand.

01:18:23 [UC] We in Western mass have the land and space for homes and farms to potentially generate all of their electricity needs on site.

01:18:33 [UC] The DPU has been too slow enacting this legislation and is therefore keeping homeowners, farmers and business owners from generating more 100% renewable energy.

01:18:46 [UC] We need to put pressure on the governor and the DPU to move the climate bill into reality.

01:18:55 [UC] Next, we need some new legislation.

01:18:58 [UC] Currently, the financial incentives for homeowners who have tax liability is 30% of the federal tax credit of the total system cost.

01:19:09 [UC] Full net metering credits for our maximum system size of 10 or 15 kW, depending on the utility, and a state tax credit of 15% of the total system cost, capped at 1000.

01:19:21 [UC] We have a bill before the DP net, the DPU, the telecommunication Options, utilities and Energy Committee.

01:19:28 [UC] The two bill S2119 that would eliminate the tax credit cap of \$1,000 to allow for the full 15% tax credit against tax liability, and it would also allow for refundable for those without tax liability to be refunded.

01:19:49 [UC] And the tax credit, when they file their income tax.

01:19:56 [UC] So we need to make sure that all the senators and representatives will help to move the to the bill.

01:20:05 [UC] S 2119 out of the two committee and to vote for passage on the floor.

01:20:14 [UC] Additionally, the mass Clean energy Incentive Clean Energy Center from 2016 to 2020 had a solar loan support program of 30% that was critical for reducing the payback period and leveling the playing field.

01:20:33 [UC] A number of lending institutions have continued to offer their own solar loan programs, increasing solar generation through direct ownership.

01:20:42 [UC] No third party leasing systems were funded by the solar loan.

01:20:46 [UC] A full description at this website.

01:20:49 [UC] I suggest restarting the solar loan support program with a variable

percentage of loan support based on income level 30 to 100%.

01:20:59 [UC] Loan support would truly enable many more viable homes to install solar and contribute to the Commonwealth's climate goals.

01:21:07 [UC] This new program will need to include funding for roof and electrical service upgrades, which will also be needed for full electrification.

01:21:16 [UC] So as we add in all those new heat pumps and EV chargers for electric vehicles, electrical systems will need to be upgraded and all these houses and apartment complexes and businesses and the CEC could certainly contribute suit to that effort.

01:21:35 [UC] So I urge the CEC to reestablish funding for a solar loan, support and interest rate buy down program for low income and environmental justice homeowners to install solar and that's the end of my comments.

01:21:52 [UC] I look forward to questions.

01:21:55 [UC] Thank you very much.

01:21:58 [UC] Thank you very much, Claire.

01:22:00 [UC] I'm just a reminder that people can put questions into the chat and they'll be forwarded off to speakers and we'll be back in touch with you.

01:22:08 [UC] But there isn't a particular Q&A piece to this afternoon.

01:22:12 [UC] I also just want to remind you that the previous three sessions that are being referred to have all been recorded and are accessible through the Hub.

01:22:20 [UC] Next, we'll be hearing from Kelly Fike from Nexamp, who will be giving us the perspective of a Massachusetts based large solar developer, Claire just gave us from a small developer and Kelly will be here to give us from the large developer.

01:22:37 [UC] Welcome, Kelly.

01:22:49 [UC] Good afternoon.

01:22:50 [UC] My name is Kelly Fike, and I am currently the director of a civil engineering group for a large scale Boston based solar developer, owner and operator.

01:22:59 [UC] Our company is primarily focused on solar and energy storage projects that vary in size from one megawatt AC, up to 5 to 6MW.

01:23:08 [UC] AC projects of these sizes are typically sited on 10 to 50 acres. Most of our projects are in the community.

01:23:15 [UC] Solar market, enabling us to make many of the benefits of solar more easily and equitably available to all residents.

01:23:24 [UC] I pursued my degree in civil engineering because I wanted to have an impact on the many critical issues our current infrastructures face.

01:23:32 [UC] My increasing concerns regarding climate change led me to the intersection of civil engineering and the renewable energy industry, and I was fortunate to land at a consulting firm working on large solar projects.

01:23:45 [UC] After several years in consulting, I decided to make the leap directly into the industry where I work daily with abundant passion to support the deployment of clean, renewable energy.

01:24:00 [UC] As I've already mentioned, I'm working as a civil engineer in the industry and lead a team of professional engineers reviewing plan sets for projects going through the land development, permitting process.

01:24:11 [UC] Additionally, my team reviews our construction drawings once all of our permits have been obtained.

01:24:16 [UC] Our primary goals are to minimize the overall impacts on the project parcel and ensure project Constructability.

01:24:24 [UC] We focus on stormwater design and erosion and sediment control best management practices to protect adjacent landowners and any environmental resources into vicinity such as wetlands, streams, etc. our goal is to thoughtfully consider each site and ask questions like, is there anything we can do to reduce the lengths of our access roads and thereby reduce impervious area on the project?

01:24:48 [UC] Or can we minimize the earthwork required on site, especially on agricultural sites?

01:24:53 [UC] Every site presents its own unique challenges and there is almost never a one size fits all solution to get to our final design.

01:25:04 [UC] In response to what primary values, concerns and goals shaped my perspective on solar development, I would say that my biggest concern is climate change and what the future may hold for my four children and their children.

01:25:17 [UC] I want their kids to still experience snow when they live in Massachusetts and enjoy the frigid summer ocean waters off our New England coast.

01:25:26 [UC] It is no secret that fossil fuel consumption has had significant impacts on our planet, and that we need to move to cleaner energy solutions.

01:25:35 [UC] It's the reason I work so hard in an industry I truly believe in, and where I can take pride in doing something that matters.

01:25:44 [UC] I was asked to comment on the biggest challenges I see with respect to the Commonwealth's goals for greenhouse gas reductions.

01:25:51 [UC] My colleagues and I believe that Massachusetts is a national leader in successful solar programs that are fostering a clean energy economy that is equitable, sustained, inclusive, and resilient for communities across the Commonwealth.

01:26:07 [UC] Not only has the Commonwealth been able to demonstrate its ability to deploy large and successful solar programs, but it has the opportunity to go above and beyond its existing frameworks to make an even greater impact to customers across the state.

01:26:23 [UC] Currently, the major program that drives solar development, the Smart Program, is bogged down in regulatory proceedings without a regulatory order to determine the direction of existing programs, it is difficult for companies like mine or legislators to be forward thinking about future programs for greenhouse gas reductions.

01:26:44 [UC] That's why we look forward to seeing an order come out of the Department of Public Utilities regarding the future of smart.

01:26:53 [UC] Additionally, there are significant structural, technical, and market barriers to deploying solar in the Commonwealth.

01:27:00 [UC] For one, we need to improve billing and crediting processes across the board to better bring the benefit of local distributed solar to customers.

01:27:10 [UC] Community solar is an excellent way to bring the benefits of solar to households who cannot otherwise benefit from on site solar, but it hinges on the application of credits to customer bills to offset their electricity bills using the output from solar projects across the state.

01:27:27 [UC] This allows customers to understand the true value of distributed generation, because they can see the normal, familiar monthly utility bills significantly reduced, often to zero, through community solar.

01:27:41 [UC] A proposal for a single bill system for community solar subscribers is pending at the mass.

01:27:48 [UC] Department of Public Utilities.

01:27:50 [UC] Solving this problem is critical if we want to increase low income

enrollment in community solar, we also need to provide interconnection processes and resources to make sure that the solar projects that are incentivized under the Commonwealth Solar programs can actually get built extremely high interconnection fees, which is the cost to upgrade the electric grid and turn a solar project on, can often be an insurmountable barrier for solar projects that are working to decarbonize the grid and reduce greenhouse gas emissions.

01:28:25 [UC] Massachusetts has done great work in setting up the grid Modernization advisory Council to aid, in collaboration with utilities, to identify high cost solutions, but there is a need for continued work to provide solutions to the projects that need it most to make sure we can keep putting solar in the ground.

01:28:46 [UC] I think it's important for people to understand that there are a variety of ways to benefit from solar beyond the traditional rooftop solar model that is so familiar.

01:28:56 [UC] Most people don't know about community solar or how it works, and that's created a barrier to entry for many, 75 to 80% of Americans can't put rooftop solar on their homes due to lack of access to capital.

01:29:11 [UC] Unideal siting conditions, such as shading on their roof or their roof needing to be updated, improved or not even owning their own home.

01:29:21 [UC] Community solar programs make solar more accessible to all Americans, particularly to those with low to moderate incomes.

01:29:30 [UC] Renters and other community members for whom traditional rooftop solar is unavailable.

01:29:35 [UC] Rather than putting solar on their own home or building community, solar allows energy users to subscribe to a shared system of solar panels, often located within their own community.

01:29:46 [UC] Massachusetts has an incredible ecosystem of policies that allows Commonwealth residents to directly access the benefits of solar without having to put solar on your rooftop.

01:29:58 [UC] Finally, I've been asked to comment on what I've learned from those who have different perspectives regarding solar PV and energy, and how this has changed my perspective or the work I do personally, I think the key to understanding different perspectives in solar or anything else honestly, is to approach conversations with open mindedness and civility.

01:30:18 [UC] It has been my experience that allowing people the opportunity to voice their perspective, and really taking the time to listen can really go a long way.

01:30:26 [UC] We live in an age where we have access to all sorts of information and opinions, some reasonable and perhaps some less reasonable, but it's critical to listen and be understanding and compassionate.

01:30:39 [UC] Several people in my life have challenged me on the benefits of solar, and sometimes those conversations can get a little intense.

01:30:46 [UC] It is never my goal to convince people to think about large scale solar development the same way I do, but we can't make any progress if we aren't open to the conversation.

01:30:56 [UC] Every single set of plans I review, I think about neighbors views and what they might think when they look out their window or drive past the solar site.

01:31:06 [UC] And often I have to think about how these impacts come about in our communities that we're building with solar projects.

01:31:14 [UC] Often, for example, it came up in a municipal meeting where I was

presenting that it would be great if the solar project could have flowers planted beneath the racks as a result, I actually invested quite a bit of time in the glass.

01:31:28 [UC] Four years working on our company's pollinator native vegetation program to implement our on our projects.

01:31:35 [UC] It's become a very successful initiative and is a great example of how listening and working together can benefit everyone.

01:31:43 [UC] In closing, I'd like to thank the UMass Clean Energy Extension for hosting the Solar Forum and for letting me present my solar perspective.

01:31:51 [UC] If anyone has any follow up questions, please don't hesitate to reach out.

01:31:55 [UC] Thank you so much for listening. Thank you.

01:32:00 [UC] Kelly Fike from Nexamp.

01:32:02 [UC] In a moment, we'll hear from two different municipal officials.

01:32:06 [UC] But I just want to give a heads up on two pieces of information.

01:32:09 [UC] One, the chat has some directions for folks.

01:32:13 [UC] If you want to submit questions on how to do that.

01:32:17 [UC] Thank you, Mary Krause from UMass Amherst for putting that in.

01:32:21 [UC] And I also just want to remind people that after we hear from these municipal officials, we'll have a little bit of a break and then resume at about 140.

01:32:31 [UC] That's just to give you a heads up that we're not planning on going straight through.

01:32:35 [UC] There'll be a little break so you can get stand up, stretch and take care of yourself.

01:32:40 [UC] So next we'll hear from municipal officials.

01:32:43 [UC] The first one is Sean Suhoski, who is a town administrator from the town of Athol.

01:32:50 [UC] And Sean will be giving us his municipal perspective. Welcome, Sean.

01:33:00 [UC] Hi.

01:33:00 [UC] I'm Sean Suhoski.

01:33:01 [UC] I'm the town manager in Athol.

01:33:04 [UC] for the last ten years and very much looking to participate in this solar forum.

01:33:10 [UC] Well, I've been in public service about 30 years, and I started as a grant writer and, in economic development director in some cities and towns in north central mass and then moved into town management about 15 years ago.

01:33:27 [UC] And, and, my interest in this field in public service is because in town administration, you get involved in everything from public works to public safety to education to energy efficiency, both from a financial standpoint and from an environmental standpoint, as a policy matter, you want to have, clean and healthy and thriving communities that are sustainable and so, while I don't profess to know much about the solar industry per se or how the photons get converted into electricity, I do think it's very important that that public sector officials serve as facilitators to make these good projects and programs and policies happen.

01:34:21 [UC] So the interaction of, say, a town manager such as myself can vary depending on the size of the community.

01:34:29 [UC] Athol, we're a community of about 12,000 people, and we do have a full time planning department staff.

01:34:35 [UC] We have an active energy committee.

01:34:37 [UC] And of course, policy direction comes from our select board.

01:34:41 [UC] So my role really is to help facilitate good policy decision making by the Board of Selectmen supporting whether it's through me or through staff, our energy advisory Committee, so that we're making good decisions on energy efficiency.

01:34:57 [UC] And, really, it's a facilitate where I may have used that word earlier, but you you really want to make good things happen.

01:35:06 [UC] You bring people together with expertise.

01:35:09 [UC] It might be a solar developer. It might be somebody that knows the financing piece.

01:35:13 [UC] It it might be a civil engineer, land use expert.

01:35:18 [UC] And you mesh these things together and you make things happen.

01:35:22 [UC] same on the permitting side.

01:35:24 [UC] There are facilities that are all private sector driven.

01:35:28 [UC] That's where most of our megawatts are, at least in my experience, private sector developers, they come in, they see a good piece of land.

01:35:37 [UC] It's got a southwest facing slope and lots of sunlight.

01:35:42 [UC] And by golly, this three phase power nearby. And, you know, you have a eureka moment.

01:35:47 [UC] And these things can happen.

01:35:50 [UC] so really, government in these things needs to have good policies.

01:35:54 [UC] And then when there's a good project, stay out of the way, let it happen, let good things happen, not micromanage.

01:36:05 [UC] So So there are some concerns about meeting the Commonwealth's, goals, and we want to do it.

01:36:12 [UC] Gosh, let's let's make it happen.

01:36:14 [UC] But there's always a financial concern. There's concern about new technology.

01:36:19 [UC] I know we're talking about solar, but to meet those Commonwealth goals, we're talking about an all electric vehicle fleet and tell me which fire chief wants to be the first one to have an electric ladder.

01:36:30 [UC] It's so there are policy considerations and there's reality checks as we go along, but there's ways to keep improving and working towards those goals. And I think that's important.

01:36:40 [UC] Not only for the, clean energy footprint and reducing carbon emissions primarily, but if we can do this in a way that makes sense, we can educate our citizens that it is a, excuse me, a cost effective, transition to clean power, that it works for them, it works for the environment.

01:37:01 [UC] It works for everyone. That's that's a challenge.

01:37:04 [UC] It may be not a concern, but a challenge that we need to do that and educate people.

01:37:09 [UC] further, a further challenge on the ground is that we've encountered is we have about over 16MW of approved and now lapsed solar, PV facilities just in in my community, because the grid infrastructure cannot accommodate this new influx of power.

01:37:33 [UC] And so we need to make sure that we're working closely with the utilities to ensure they can accept this clean energy.

01:37:41 [UC] And that their, infrastructure is sufficient and robust enough to handle the power demands of the future.

01:37:49 [UC] I don't think folks realize that we have an aging grid in capacity,

and maybe there's some, it's beyond maybe beyond my pay grade at the utility and the DPU level as to how to really engage the utilities, whichever one it may be.
01:38:08 [UC] and mandate upgrade so that we can accept more and more solar, with respect to local permitting and acceptance of solar, my experience has been that people want to have clean energy. It makes the community feel good.

01:38:27 [UC] but when you all of a sudden have a large, solar installation and then another and then trees are cut down for another, and now they're closer and closer to, say, a residential neighborhood, you get sort of a fatigue, a solar fatigue.

01:38:44 [UC] Maybe we're allowing too much, and then you'll get the pressure to have zoning that starts to have greater and greater setbacks. And it limits and limits.

01:38:52 [UC] how many new facilities and future facilities could come on board? And I'm not saying that's bad.

01:38:58 [UC] we need to find the right balance.

01:39:00 [UC] And I think, communities across the Commonwealth, across the nation are striving to do that now.

01:39:06 [UC] Not not every solar project is going to be greeted with open arms from the community.

01:39:13 [UC] I can think of one, that was going to be located on a nice southwesterly facing ridge that overlooks a lake in a recreational area that's very heavily used in a in an area that's known for its environmental and recreational opportunities.

01:39:31 [UC] And, the citizenry, was not accepting of that.

01:39:36 [UC] And, there was private private sector litigation.

01:39:40 [UC] The town, was just kind of a bystander because we had hearings before planning and zoning boards.

01:39:47 [UC] but, that ended up, I think, just halting that project in particular.

01:39:52 [UC] So, you know, not everything is all, peaches and cream, you know, we do run into roadblocks here and there, but I think in the end, if you're keeping focused on good policies and a long terme goal of sustainability, you'll create more and more opportunities than those that do not come to fruition.

01:40:14 [UC] So I think it's important that we always learn because, as you know, again, I noted earlier, I don't profess to be an expert in all things solar.

01:40:29 [UC] So that good things can happen. And I'll, I will use an example.

01:40:34 [UC] I won't name the I'll use a generic energy advisory committee from Anytown, USA and what you'll have is if you have people volunteering, these are volunteer citizens, right?

01:40:46 [UC] Some may have expertise, some may just have an interest in, clean energy or the environment or the, you know, the Earth caretaking the earth.

01:40:54 [UC] And so what happens is you may have folks that are more progressive and knowledgeable on that advisory committee than may be in the town manager's seat or even in the select board seats.

01:41:06 [UC] And so when you get different perspectives or somebody that pushes the envelope, it's almost like an icebreaker.

01:41:13 [UC] Think of it, you know, in the Arctic or the Antarctic, if you want to move anyway, you got to have the and get someone in there kind of breaking the ice, and you're not going to go as quick as you'd like.

01:41:24 [UC] You might not get right to the South Pole, but you're going to get some leeway. You're going to make progress.

01:41:29 [UC] And I think that's, when you, you know, talk about government involvement.

01:41:35 [UC] It's and I and I'm in it and I want it to move quicker.

01:41:38 [UC] But there's just a rhythm to it because you've got to get the community on board.

01:41:44 [UC] You govern by the consent of the governed. So you need to have enough critical mass behind you.

01:41:49 [UC] And those icebreakers with those different perspectives make it happen. So it's important.

01:41:54 [UC] I think what's important is to remember that everybody has a role to play, and not one person or one profession is going to do it all.

01:42:04 [UC] And if we, I hate to say, stay in our lanes, but as a public administrator, if I I'm not trying to build a solar field, I'm not trying to develop a new technology, but I am trying to ensure that local permitting, local policy boards, the citizenry that folks understand the policy of sustainability and green energy going forward, then it makes the whole process come together.

01:42:31 [UC] I think we all have a role to play.

01:42:37 [UC] Thank you Sean.

01:42:38 [UC] Next we'll hear from Michael Dichiaro, who is on the planning board from the town of Shutesbury.

01:42:45 [UC] Welcome, Michael.

01:42:53 [UC] Hello there.

01:42:54 [UC] my name is Michael Dichiaro, and I live in the town of Shutesbury, which is just north of Amherst.

01:42:59 [UC] I've been following solar since 1979.

01:43:03 [UC] when I was a freshman in college and wrote a piece in the local campus paper about solar panels.

01:43:09 [UC] At that point, we were optimistic.

01:43:11 [UC] President Carter had solar panels on the white House. Things looked like they were going the right direction.

01:43:17 [UC] I then learned about, climate change and greenhouse gases in the late 80s and 90s when I worked at Greenpeace.

01:43:26 [UC] and for context, I helped organize a protest in New York, at the UN in early 1992 as the International community was getting organized around how to respond to climate change.

01:43:38 [UC] So before the Cop meetings actually started, more recently, for the last 20 years, I've been in municipal official, and, my current role, I'm chair of the Energy and Climate Action committee for Shutesbury, and I'm on the planning board for Shutesbury, but on the planning board for about 5 or 6 years, and have been the primary author of our solar bylaws.

01:44:04 [UC] I'm really coming to the forum representing, municipal hat.

01:44:08 [UC] You know that in all the presentations where many of the presentations that we've heard, at least in the first three sessions, were the federal and state perspective.

01:44:15 [UC] And I gotta say, it was very frustrating because, for whatever reason, they don't understand the fundamentals of how municipalities have to deal with solar.

01:44:24 [UC] So I think the thing that I can contribute to this conversation and the solar forum in particular, is understanding of statute in relation to municipal regulation of solar.

01:44:33 [UC] it hasn't come up.

01:44:35 [UC] And like I had mentioned, it was very frustrating to listen to the feds and state folks and have them not address it.

01:44:43 [UC] So the core is in state law in mass general laws. there's zoning regulations.

01:44:51 [UC] And within the zoning regulations, there's nine exemptions which have special treatment, according to the state.

01:44:58 [UC] So think about education, think about religion.

01:45:01 [UC] One of those exemptions is solar.

01:45:03 [UC] It's paragraph nine, chapter 48, section three, paragraph nine to be exact.

01:45:08 [UC] it was created in 1985.

01:45:11 [UC] So if we reflect on 1985 commercial, photovoltaics were not an option.

01:45:17 [UC] We're really talking about rooftop solar at the time.

01:45:19 [UC] So this law was is totally outdated at this point and taken out of context, but it's still on the books and with the law effectively says, is that municipalities cannot unreasonably regulate solar air with the exception of public health, safety and welfare.

01:45:35 [UC] And for the longest time, municipalities interpreted that to say we can't regulate solar at all.

01:45:42 [UC] with the success of the asterisk program, the Smart program after that, with increased development in Massachusetts, it became an issue where all of a sudden you had large, large and larger scale industrial scale solar getting developed and municipalities trying to grapple with that.

01:45:57 [UC] So Shutesbury passed its first solar bylaw in 2016.

01:46:01 [UC] A few other towns did as well.

01:46:03 [UC] and the thing I would say, having been in municipal government for 20 years, is that towns don't want to get sued. They can't afford to.

01:46:12 [UC] They don't have a whole army of lawyers and so they do everything to avoid getting sued, which means they try to be as, risk averse as possible.

01:46:21 [UC] and that's why there was no bylaws for a long time.

01:46:24 [UC] But as I said, 2016, 17, 18, 19 people were starting to develop solar bylaws.

01:46:29 [UC] Fast forward to 2022.

01:46:32 [UC] The Supreme Judicial Court, reached down to appellate court and took a case called Tracer Lane, which is based on a solar development. And, it was in Lexington.

01:46:42 [UC] But the issue was with Waltham and that was the definitive case to date about solar development.

01:46:50 [UC] And it was really interpreting what kind of solar regulation can a municipality, Have.

01:46:59 [UC] and really, the problem is the way I see it is that where they decided Waltham was that they interpreted Waltham to allow commercial PV in 1 to 2% of the city, and that was deemed insufficient given the climate goals of the state. They didn't define the climate goals of the state.

01:47:19 [UC] They just said it was insufficient.

01:47:21 [UC] so there's no that's all we have to work with that you should be aligned with the climate goals of the state and wanted 2% is insufficient.

01:47:29 [UC] the problem is, in my opinion, is in order to prove that a regulation

is only regulation is consistent with public health, welfare and safety, you have to go to court.

01:47:42 [UC] And so so the law is there.

01:47:44 [UC] But the, you know, all it takes is a developer coming in with lots of money and lots of lawyers to say we don't like your regulation and we're going to sue you because we want to do what we want to do.

01:47:54 [UC] And the frustration that I have from a municipal level is that towns and cities want to be team players.

01:48:01 [UC] I mean, like I said in my intro, I care about climate change.

01:48:04 [UC] I want to actually do things to mitigate it, and to build resilience.

01:48:09 [UC] But we can't be team players because of statute and there's a, there's basically a bullying, going on. Municipalities are forbidden from participating.

01:48:19 [UC] If they try to, they get threatened to be sued.

01:48:22 [UC] so when I hear state and local and federal officials say we want to work with the community, we want to hear what the community has to say.

01:48:29 [UC] We want to sort of be collaborative.

01:48:31 [UC] It's ill informed, naive, maybe cynical.

01:48:35 [UC] because we can't, and that's the problem.

01:48:39 [UC] So, you know, I just jumping forward the action that can be done.

01:48:44 [UC] there are two bills, one on the House side, one on the Senate side.

01:48:48 [UC] Currently that would modify, state law, that solar exemption to allow for regulation to protect forests, wetlands, agriculture, things that we know, sequester carbon, then create resilient ecosystems.

01:49:05 [UC] So to give you a good example about how the solar exemption gets in the way, in terms of municipalities not being able to be a team players.

01:49:13 [UC] so some of you might know about biomass.

01:49:16 [UC] Masswildlife has been working with NOAA for years to develop the biomass program, which basically identifies environmentally important land in the Commonwealth.

01:49:27 [UC] both the support habitat resilience and climate change. so that's at the state level. That's an initiative.

01:49:35 [UC] The smart program actually, says that if solar developments are on more than 50% biomass land, they can't receive a state subsidy for their solar developments. So those are two good things.

01:49:48 [UC] What's interesting is that at the municipal level, the Shutesbury bylaw, we actually have regulations regarding, limitations on development in biomass land at the local level being aligned with and consistent with and supporting the efforts of the Commonwealth.

01:50:03 [UC] However, we're being sued for that.

01:50:06 [UC] So what's very interesting is that municipalities cannot, at the local level, support state initiatives that have been highly invested and I think universally supported.

01:50:19 [UC] the biomass program, for example, just came out with an updated version.

01:50:22 [UC] Its third one.

01:50:23 [UC] so it continues to be very vibrant.

01:50:26 [UC] So it's a good example of where municipalities are banned from participating and cooperating with the state in terms of policy and implementation at the local level.

01:50:36 [UC] You know, thinking about how towns can participate in this conversation and actually be part of the solution.

01:50:42 [UC] if we reflect back on what Tracy Elaine said, that regulation, zoning regulation particular has to be consistent with state climate goals.

01:50:51 [UC] So it's encouraging finally is in the last couple of months with Dover's potential of solar siting report and then mass Audubon and Harvard Forest report about growing solar protecting forests.

01:51:04 [UC] Both of those are acknowledging what I know I've been saying, and I think others have been saying, but we didn't have documentation as strongly to basically say that we can protect forests, which not only store and sequester carbon, but build resilient, ecosystems.

01:51:22 [UC] And that in a change in climate, we need resilience.

01:51:24 [UC] We need resilience any way we can get it.

01:51:26 [UC] and both of those reports are documented and the DWR is an official one.

01:51:31 [UC] It's, you know, part of the state infrastructure and the the energy.

01:51:34 [UC] So to be able to have regulations that are aligned with that would make sense.

01:51:41 [UC] One of the key points I'd like to make is not only do cities and towns want and need to be part of the problem, problem solving the problem. But we know the solution.

01:51:51 [UC] Like in every other way.

01:51:52 [UC] People who are closest to the ground have information.

01:51:56 [UC] So Shutesbury does not look like Waltham does not look like Boston, does not look like Worcester, does not look like Great Barrington.

01:52:02 [UC] and if you think about biomass, we have the data to say where should we build to achieve our state's climate goals?

01:52:11 [UC] and that's a thoughtful approach.

01:52:15 [UC] But unfortunately, because of the solar exemption, we're forbidden from applying a thoughtful approach in terms of regulation and actually furthering the goals of the state.

01:52:24 [UC] Because of this archaic law that was developed in 1985.

01:52:31 [UC] The other issue which is evolving is, you know, I mentioned that it feels like there's a corner being turned in terms of documentation of the value of forests, agriculture, wetlands, water resources generally to support ecosystem.

01:52:48 [UC] we have we need policy to follow up with that.

01:52:52 [UC] A great example, I think, is that the way it works in terms of regulations at the municipal level is towns develop bylaws.

01:53:00 [UC] The attorney general then has to look at them and approve them with the bar being are they consistent with the Constitution?

01:53:08 [UC] It's a very low bar. So it's not getting into policy and things like that.

01:53:11 [UC] Like the SJC, just as it if it's, Constitution.

01:53:16 [UC] There is a town in Western Mass, very small. I'm not supposed to say who it is.

01:53:21 [UC] who was looking at the issue of lithium ion batteries, lithium ion batteries are basically dangerous. they're documented to catch fire.

01:53:32 [UC] the dynamic is that they're unstable.

01:53:35 [UC] So if one battery catches fire, it heats up, causes the next battery to catch fire.

01:53:40 [UC] the big issue is you can't put lithium ion batteries out with water.
01:53:43 [UC] The best practice nationally.
01:53:46 [UC] And if you look at the sort of fire safety standards you douse it with large volumes of water.
01:53:51 [UC] And the idea is to keep the heat down so it doesn't expand, it doesn't put the fire out.
01:53:55 [UC] this summer, there were two separate lithium ion battery fires in New York state, same week, different sites.
01:54:02 [UC] And they burned for several days each. so it's a known fact.
01:54:05 [UC] It happens all the time.
01:54:06 [UC] So the practical problem is if you put them in a forest where, you know, in my town, for example, we only have, water for firefighting out of ponds and we have drinking water wells.
01:54:18 [UC] We don't have hydrants, so we don't have access to lots of water and we have lots of trees that will burn.
01:54:24 [UC] the other part is when these things burn, the toxic chemicals, get into the air and they get into groundwater.
01:54:30 [UC] If we think PFAs is the problem, this is a similar issue.
01:54:34 [UC] so the dilemma that I see, that's sort of background, but the dilemma I see is that the attorney general recently has been building upon the solar exemption to allow the development of lithium ion batteries and tell municipalities they can't regulate them.
01:54:52 [UC] it is true that in Smart now, if you want to get a Smart subsidy, you have to have a battery system. but that's in zoning terminology.
01:55:03 [UC] It's a secondary use.
01:55:04 [UC] So solar is the primary and batteries the secondary.
01:55:07 [UC] So those the SJC and trace and Lane determined are a whole part of the solar development.
01:55:13 [UC] So you can't regulate batteries.
01:55:15 [UC] But if it's a standalone battery, which is what's now happening in the Commonwealth is pushing them out to have a whole initiative about pushing out batteries.
01:55:22 [UC] Those can be and should be regulated because they're primary use. They're not connected to solar.
01:55:27 [UC] You know, there are acres and acres of trailers with batteries.
01:55:30 [UC] the attorney general is telling towns they can't regulate that.
01:55:35 [UC] It from a safety perspective, makes no sense. It's totally public health, welfare and safety.
01:55:39 [UC] and there's no solar involved at all.
01:55:41 [UC] So the sole exemption technically should not apply.
01:55:44 [UC] But yet that's the foundation.
01:55:47 [UC] The exciting part, you know, in my reflection, if thinking about to say, the 70s, when solar sort of emerged, is that there was a way of creating distributed energy, you know, that was closer to communities, that was not centrally.
01:56:00 [UC] I mean, if you want to look at resiliency, decentralized is the way to go.
01:56:04 [UC] If you want to have, vulner able system, you have big transmission lines going through a centralized place.
01:56:10 [UC] And if there's a big storm, everyone loses.

01:56:12 [UC] so that's one thing.

01:56:15 [UC] I think the other thing that's worth noting is it's cliché, but you got to follow the money, you know, and if there's following the money and also leading the money.

01:56:23 [UC] And so the thing that the state has to do is change the incentive structure.

01:56:28 [UC] You know, I think developers are agnostic about the solution they're in it for as a business.

01:56:33 [UC] Some care about green energy, but I know that others clearly are not.

01:56:38 [UC] you know, just from sort of seeing what has happened in the past.

01:56:41 [UC] and so if that's the case and they're in business, you have to sort of direct where investment goes.

01:56:47 [UC] And I would say based on the DWR report from the summer and mass Audubon Harvard Forest report, we have enough land.

01:56:55 [UC] And we also know that we have to maintain sustainability and solutions.

01:56:58 [UC] So change the incentive structure and then we can get there until we change the incentive structure.

01:57:04 [UC] We could say all the nice flowery things we want. That's not where it's going to be.

01:57:07 [UC] In fact, I would say in the smart regs it says good stuff.

01:57:11 [UC] It's just that it's not mandatory.

01:57:13 [UC] And so all the development is happening in the wrong way.

01:57:16 [UC] It's what's the right way because, it's not required.

01:57:19 [UC] So there's just a lot of lack of understanding of how to incorporate and invite and actually support municipalities to be part of the solution.

01:57:28 [UC] And it's very frustrating at the local level because there's flowery level words at the state and federal level don't really help on the ground implementation.

01:57:37 [UC] So in closing, you know, if you were to say what should what should someone take away from today?

01:57:43 [UC] In my presentation, I would say the most important thing is to either modify or delete the solar exemption.

01:57:52 [UC] In state law, the chapter 48, section three, paragraph nine.

01:57:56 [UC] Until we do that, municipalities cannot participate in productive regulation.

01:58:01 [UC] And I want to thank everyone for listening.

01:58:05 [UC] Thank you Michael.

01:58:07 [UC] We are going to take a seven minute break to about 140 and come right back here. You may not want to get off zoom.

01:58:16 [UC] You might just want to do what you need to do.

01:58:18 [UC] And then just click back on and we'll resume at 140.

01:58:23 [UC] Thank you everybody.

01:58:24 [UC] Thanks for hanging in there.

01:58:42 [UC] And please feel free to check out the event platform.

01:58:46 [UC] The information that's there, as well as the place to submit questions and don't miss looking at the speakers biographies.

01:58:54 [UC] Thank you everybody.

02:05:10 [UC] Welcome back, everybody, to the Western Mass. Solar forum.

02:05:15 [UC] This is the fourth session where we are listening to different

perspectives on solar power.

02:05:22 [UC] Solar development, solar siting, and a whole list of other kinds of issues that emerge.

02:05:29 [UC] I want to welcome everybody back.

02:05:31 [UC] I want to thank all of our previous speakers as a reminder, these presentations have been prerecorded.

02:05:38 [UC] There is no Q&A piece that's in real time for this, session.

02:05:44 [UC] However, if you have questions, please go back to the Participant Hub and you can indicate them on the hub and submit them.

02:05:51 [UC] You'll be going back there later.

02:05:53 [UC] Also to survey and tell us what you thought about today.

02:05:57 [UC] Please feel free to enter any questions that you have on the Q&A section on that hub, on the upper right corner of the event platform for the session.

02:06:06 [UC] That will give us a good sense of what we still need to cover, and also how to direct your question.

02:06:12 [UC] So we're going to start off the second part of this session with Jill Buchanan from Smart Solar Shutesbury, who's going to give us the perspective of a grassroots organization opposing large scale solar siting.

02:06:29 [UC] Welcome, Jill.

02:06:35 [UC] So my name is Jill Buchanan.

02:06:37 [UC] I live in Shutesbury, Massachusetts, on West Pelham Road.

02:06:42 [UC] And I, am part of Smart Solar Shutesbury, which is a grassroots organization in in this small community of about, well, 1200 people or so.

02:06:53 [UC] and I, lived here for about five years now.

02:06:59 [UC] I am a environmentalist.

02:07:03 [UC] and care deeply about, our future, our climate future, a sustainable future. energy concerns.

02:07:13 [UC] What what do we need to do to have a livable future?

02:07:17 [UC] and I, you know, know that solar is an important part of that, a critical part of it.

02:07:23 [UC] but I but I am concerned the reason I joined this community group is that I believe for one, community action is incredibly important.

02:07:32 [UC] I think most, the most, power we have is at the local level.

02:07:37 [UC] And I was concerned about, some a project that was being proposed in our, in our town, of, of a very large, solar proposal for a very large solar installation in Shutesbury.

02:07:53 [UC] and knowing the importance of trees and, a bit about, conservation and, ecology, this was an important issue to me.

02:08:04 [UC] So my role with regards to solar is, to really pay attention to what is happening here.

02:08:16 [UC] in our community.

02:08:18 [UC] what the scope of the project, the proposed solar, large scale solar project looks like, how it would affect the, land and the, you know, water and safety of our community.

02:08:34 [UC] So it's it's really, as one of the leaders in smart solar shutesbury, our role is to really be very well informed as well informed as we possibly can, both on the impact to the community for a project like this.

02:08:51 [UC] to find experts who who really know deeply, the soil science, the wetlands, the, you know, water issues.

02:09:02 [UC] then to look at, legal issues, what what is legal here?

02:09:08 [UC] What is happening at the state level, what's happening nationally?

02:09:12 [UC] What is the best, location both in our state and and around the world for large scale solar installations?

02:09:21 [UC] Does it even make sense in a, in a town that is primary Ali. Important forested land.

02:09:28 [UC] to really keep ourselves informed and then to to communicate that information to our followers.

02:09:36 [UC] And we have about 450 people in our tiny town who are on our communications list.

02:09:43 [UC] So we feel a very strong responsibility to understand this issue as deeply as possible, to work with our local leaders, to work with communities around us as well, who are also following this issue, and people who are very knowledgeable on this.

02:09:59 [UC] and, you know, to try to be as active as we can and to be good partners, you know, work within our system to make sure that our you know, that our town is is going to have a healthy and sustainable future in the scope of, you know, a clean energy future for our the state and and our in our world.

02:10:22 [UC] In terms of my values and goals and concerns, you know, I, I am believe that you know, we all have personal responsibility to do what we can, in the current context that we live in, we are living through a, climate crisis and in, you know, living through the, the six visit, mass extinction.

02:10:50 [UC] right now we have to recognize that we're living this right now. This is not in the future.

02:10:56 [UC] We have we have to personally take responsibility to make sure that we have as little impact on our, you know, environment and the natural environment as we possibly can while creating a, you know, sustainable or livable future.

02:11:13 [UC] Our impact is greatest at, at the local level.

02:11:16 [UC] you know, it's remarkable to me that in this, the again, in this in the world that we're living in, that, you know, multinational issues, issues that are global are really being played out at the local level, you know, so that the pressure on local leadership, the pressure on our these small town communities where, you know, you have people who have no idea what they're signing up for when they become like a town administrator or a conservation commission, leader, you know, they're taking on something that is so huge.

02:11:50 [UC] And so, challenging.

02:11:54 [UC] you've got you've got huge multinational, very powerful, very wealthy, entities that are, that are, you know, working at a global level, you know, you're just part of their business plan.

02:12:06 [UC] And we have to take responsibility to say, like, you know, we're not just part of your business plan. We are people.

02:12:14 [UC] We live in a town.

02:12:15 [UC] You're you know, what you do is actually going to impact us at a local level.

02:12:19 [UC] and we have to use and we're lucky to live in a country where we have laws and regulations and bylaws and the ability to fight for for our, you know, for, for justice and, and appropriate action.

02:12:34 [UC] And it's up to us to actually take those actions and, and put them to work.

02:12:40 [UC] The biggest challenges that I see for the Commonwealth, couple things

I guess, one is that, you know, we have some outdated old regulations and laws that are that are making it challenging, to, to have appropriate solar.

02:13:03 [UC] We need to update our regulations and our laws for the current situation.

02:13:08 [UC] I think there has been a lot of momentum in, in the creation of, you know, incentives and, and, moving things forward.

02:13:17 [UC] But some of those have been created that are, again, like they're incentivizing the clear cutting of forests, which I think even regulators are now realizing this is not not appropriate.

02:13:29 [UC] And they want they're shifting it, but it's a slow process.

02:13:32 [UC] So that's my my point is that change in legislation is very slow.

02:13:37 [UC] And it we don't have time. We need to make those changes. Now.

02:13:43 [UC] We need to move quickly where it makes sense.

02:13:47 [UC] and and really, you know, the state needs to invest and be able to move the funds to, to get the, you know, infrastructure built.

02:13:57 [UC] I mean, that's another issue is building infrastructure is a very complicated and time consuming.

02:14:04 [UC] And again, it takes, you know, time you have these incentives that are allowing even if they just allow, you know, for the clear cutting of a forest, even if the company knows this is not the right thing to do.

02:14:17 [UC] they're incentivized to make as much money as they possibly can.

02:14:20 [UC] So they're going to do it because the bottom line is what dictates what they do.

02:14:26 [UC] if you have a regulation that says, you know, you can create large scale solar or you can create smaller, you know, installations that aren't as large, but you're not going to you maybe make half the profit.

02:14:38 [UC] You still make a profit, but you only make half of it.

02:14:41 [UC] that's not going to make them all that happy. But that's what we need.

02:14:45 [UC] We need to make sure that they're doing the right thing.

02:14:48 [UC] They depend on us to regulate them to, you know, to force them to do that. Because they're not they're not nonprofits.

02:14:56 [UC] You know, they're not non-governmental organizations.

02:14:58 [UC] They're out there whole their whole purpose is to make profit.

02:15:01 [UC] And as much as they can.

02:15:03 [UC] So I think, you know, again, like, depends on companies to do the right thing is, is, is is not, the way to go.

02:15:13 [UC] And I also think that, another concern that I have is the again, the pressure on, on local communities to uphold their own bylaws.

02:15:24 [UC] You know, these companies are now going, going in and suing small communities, to pressurize them, you know, to, to, cave into their will so that they can, you know, move their projects forward.

02:15:41 [UC] whereas these communities and the communities are just, you know, volunteers and local people and we don't have money, you know, we only have a small amount of money in our coffers.

02:15:52 [UC] if we're threatened by a lawsuit, by a company that's saying if you don't let us do this thing, you know, we're going to sue you for for many millions of, you know, tens of millions of dollars, and you will go bankrupt. You know, that's terrifying for a small town.

02:16:06 [UC] So we need the state to say like, this is not acceptable.

02:16:10 [UC] All the town bylaws are are need to be upheld. They need to be honored.

02:16:16 [UC] They need we need regulators.

02:16:18 [UC] We need, state regulators to come in and make sure that people are following the law, that, you know, that towns have the right to keep their own bylaws and keep them strong so that, we're not being exploited.

02:16:36 [UC] One of the narratives that that's out there is that you know, we have to sacrifice like we all are going to have to make a sacrifice in order to have a livable future.

02:16:46 [UC] And that part of that sacrifice means, you know, clear cutting your forest to install these solar, these huge solar, installations and that there's no other choice that that's just what has to happen.

02:17:00 [UC] It's part of the it's baked into the equation. You know, it's been figured out.

02:17:04 [UC] And that's the answer. And that's just simply not true.

02:17:07 [UC] That is, you know, a narrative that's being put out there.

02:17:10 [UC] But it absolutely does not have to happen that way.

02:17:13 [UC] It will take a force of will for us to have another solution where we actually build on, you know, highway meridians or in brownfields or, you know, in places that are, like I said, less profitable for the companies.

02:17:27 [UC] But, you know, it is not baked in that the companies have to make huge profits as part of this equation.

02:17:34 [UC] You know, they, they, they can if we can find the political will to force the, change in these regulations and, and, and force the companies to, to do their work where it is appropriate and maybe, maybe it will cost them a little bit more to do and they'll make less profit.

02:17:53 [UC] But it is that is the solution.

02:17:55 [UC] And people need to realize the incredible importance of not just the carbon sequestration, facility of of our trees and our forests, but the, the maintenance of our, you know, ecosystem and all of the, you know, intricate, interconnected life that is dependent on trees being intact, the wetlands, the, you know, microbiome, the, you know, all of the species that that depend on intact forests.

02:18:30 [UC] I don't think people realize just how I don't think people think about just how important our trees are.

02:18:36 [UC] And I also think they just decide that, like, you know, there is this sacrifice that we have to make and there's no alternative and it's just not true.

02:18:47 [UC] There's a history here of how people will run the government and how decisions are made.

02:18:56 [UC] and I'm speaking about, you know, people in our own community who are have a different perspective.

02:19:04 [UC] and I think issues tend to get conflated sometimes based on personalities, and history.

02:19:17 [UC] And so it's, it can be challenging to separate out, a particular issue, even if it's like the thousand pound gorilla.

02:19:30 [UC] it can be really difficult to separate an issue from a person.

02:19:36 [UC] What I've learned is that it's it can be really hard to kind of keep keep issues in a lane, you know, that they really do end up like because of the people involved, you know, like, oh, so and so is really upset about this thing. We need to address it.

02:19:52 [UC] And I'm you know, constantly saying, no, we need to, you know, stay focused on what we're talking about.

02:19:59 [UC] Only this thing because once you start, you know, filtering all the tendrils out to the other issues, then you've lost, you know, so, I think, that's been a challenge and a and a constant learning.

02:20:14 [UC] I don't think we've been totally successful in that regard.

02:20:18 [UC] but I think it is something that keeps getting reiterated for me.

02:20:26 [UC] The service of, healthy wetlands, protecting our critical water resources and shutesbury.

02:20:33 [UC] We are 100% dependent on groundwater for our drinking water.

02:20:38 [UC] And so clear cutting, you know, huge swaths of forests will devastate our drinking water.

02:20:45 [UC] We have no guarantee that these projects will, even if they did come through, would be managed well.

02:20:52 [UC] And we're very, very concerned that, you know, they are being brought in by multinational companies who who don't see us as people, don't see us as communities, but see us as, you know, see us as a potential product to, to be, making profit off of and, you know, we we really feel it's essentially important that that, you know, we protect our communities, we protect our safety, and health in, in small towns and, and communities and, and respect the value of our, our forests and local ecosystems.

02:21:31 [UC] not just as serve in service to us, but to our state and to the, to the world and to the globe.

02:21:37 [UC] So.

02:21:41 [UC] Thank Thank you, Jill.

02:21:43 [UC] Next we'll hear from Cinda Jones, from Coles, representing and providing us with the perspective of a large solar host land owner.

02:21:53 [UC] Welcome, Cinda. Hi.

02:21:58 [UC] My name is Cinda and I'm going to provide the point of view of the forest landowner as a host for large scale ground mounted solar.

02:22:10 [UC] I grew up in a family that valued the environment.

02:22:15 [UC] I was sent to the Hitchcock Nature camp as a kid and I went to work with my dad, to the tree farm business.

02:22:24 [UC] sold blueberries at the end of my driveway.

02:22:26 [UC] Did most of my growing up in the woods of Lake Wyola and did a lot of fishing and skiing.

02:22:35 [UC] Went to Maine for college and, then to DC and I ran divisions of nonprofit organizations like Fish Wildlife Foundation, Forest Foundation, the Wood Council. Dad said.

02:22:48 [UC] I was so good at running nonprofits, I should come home and run the sawmill.

02:22:52 [UC] That's nonprofit, too, he said.

02:22:55 [UC] So I did, and a year after I got home, it burned to the ground and struck by lightning.

02:23:01 [UC] We rebuilt it bigger, better than ever, and it still didn't make money, and we auctioned it at \$1 million loss.

02:23:10 [UC] Eight years later.

02:23:12 [UC] Really proud of how, with the kestrel Land Trust, we conserved the largest private conservation project in history at that time, and we needed it for my recently deceased father, Paul C Jones, working forest.

02:23:29 [UC] Also in 2012, after 12 years of effort, we, built two large scale solar projects with partners.

02:23:40 [UC] Today, the biggest threat and opportunity is the global climate emergency.

02:23:45 [UC] And we all need to do all we can to help.

02:23:47 [UC] There are hundreds of sites in, 30 towns in western Mass that I can use to help combat climate change.

02:23:57 [UC] I am doing this with land conservation and ground mounted solar.

02:24:03 [UC] I completely agree that solar belongs in built environments first and previously disturbed places. This should be incentivized.

02:24:13 [UC] The picture here is of course buildings fly with a lot of the solar on the roofs.

02:24:19 [UC] in 2020, when we added 2000 more conservation acres, we kept out pockets for solar.

02:24:26 [UC] We had talked to the, solar companies and found out where they could locate, where it made sense.

02:24:33 [UC] And we conserved ten times that amount of land as they were going to develop for solar.

02:24:40 [UC] And we think that's a pretty cool balance because we have managed industrial forests for so long.

02:24:48 [UC] We don't build roads or houses.

02:24:50 [UC] Most of our land is considered to be in the biomass area.

02:24:55 [UC] Most of western mass is in the biomass area because it's rural and largely undeveloped.

02:25:01 [UC] We don't deserve any fewer pilot payment opportunities or hosting opportunities.

02:25:07 [UC] We need to get realistic about solar siting in Western mass.

02:25:11 [UC] The towns where investors can build are within a mile or two of connection distance. Because it's \$1 million a mile.

02:25:19 [UC] Towns are 90% forested out here, and they have not a lot of parking lots or rooftops.

02:25:25 [UC] Most of Western Mass is rural.

02:25:28 [UC] Patches of solar in the forest is the only way to go.

02:25:32 [UC] We're doing 10 to 1.

02:25:33 [UC] Conservation on mass needs to get real about what sites they've identified are actually possible.

02:25:40 [UC] Less than a third of the Doe air map is practical. Mass.

02:25:46 [UC] Audubon and Harvard Forest didn't like the conclusion on that. We need a lot of ground mounted solar.

02:25:51 [UC] So they said if you give us \$1 billion and if we have all the time in the world, we will connect with millions of property owners, retrofit and improve their roofs and rebuild parking lots.

02:26:02 [UC] And then you won't have to put a lot of gigawatts in the field and in the woods.

02:26:09 [UC] But that's not true.

02:26:12 [UC] The Doe air maps show land that is conserved.

02:26:15 [UC] All of our 5500 acres of conservation conservation land cannot have solar on them.

02:26:21 [UC] But it says we can.

02:26:22 [UC] It says you can put them solar on the Quabbin. And that's not okay.

02:26:27 [UC] Less than 30% of the rooftops work because of the age condition, power upgrades necessary, and the inability to cut other people's trees.

02:26:36 [UC] Parking lots are shown as possible, but costs are prohibitive. The steel required is huge.

02:26:43 [UC] The cost environmentally is ridiculous.

02:26:45 [UC] When you consider recycling all the asphalt that's existing, pouring new asphalt 30% larger, covering the land and installing all that, all that on steel.

02:26:58 [UC] Do you want a parking lot for the next 20 or 30 years?

02:27:01 [UC] Few people could say they do.

02:27:04 [UC] The Doe maps didn't account for all the practical and economic decisions necessary, like connection costs, substation capacity, line congestion, cost of upgrade, installation expenses, willing host, willing funders.

02:27:18 [UC] You can't design out where solar goes.

02:27:21 [UC] Solar tells us where it needs to go.

02:27:25 [UC] So this is an interesting chart from the conference.

02:27:28 [UC] This is how much ground mounted solar we need.

02:27:31 [UC] This is how much small ground mounted solar we need.

02:27:34 [UC] This is how much rooftop and canopy.

02:27:36 [UC] So if you add canopy, rooftop and small ground together, it's about half the amount of large scale solar we need.

02:27:43 [UC] Audubon and, Harvard didn't like that.

02:27:47 [UC] And the fact of it has to go in the woods of Western mass.

02:27:50 [UC] So they said, we need 16GW of ground mounted solar today.

02:27:55 [UC] We're going to fix that.

02:27:56 [UC] They said, if you give us \$1 billion and a lot of time, we will put it all on rooftops and parking lots, or that's the impression that the public had when they heard this announcement.

02:28:10 [UC] The fact is that they can go from 16GW to 13GW, but they still need 13GW of solar on the ground in the forest.

02:28:20 [UC] So there's not enough time.

02:28:24 [UC] Maybe you can come up with \$1 billion, but you're still going to have 13GW of ground mounted solar in the woods.

02:28:34 [UC] The biggest challenge to meeting climate goals for me is time.

02:28:41 [UC] Solar projects have willing hosts and willing investors, and it takes us ten years and millions of dollars to permit the abutter challenges.

02:28:49 [UC] are hard. They're personal attacks. I've had a death threat.

02:28:54 [UC] Their state government bias against tree cutting, and therefore the reality of the situation.

02:28:59 [UC] There's an embargoed state report that says that managed forests are critical for sustainability in a time of increased storm events, activists are joining planning boards and conservation commissions.

02:29:10 [UC] They're passing petitions to stop solar.

02:29:18 [UC] All these are delaying are necessary response time.

02:29:22 [UC] We need to be pragmatic and expeditious.

02:29:24 [UC] Yes, we need to stop taking public opinion polls about where people want solar and make siting decisions based on science.

02:29:33 [UC] Rural towns need income streams and want green community status and and we need to compensate forest landowners if they're more valuable than solar pay it.

02:29:50 [UC] We need both.

02:29:51 [UC] We need conserved land and we need ground mounted solar. We can do this simultaneously.

02:29:57 [UC] I consider the best practices to be partnering with agriculture and pollinators, appreciating that 98% of a solar site is thriving environmentally under the solar panels, there's only 2% covered by solid posts.

02:30:17 [UC] This creates necessary edge and early successional habitat that migratory birds need to successfully migrate.

02:30:24 [UC] We're partnering with UMass and other institutions to assure excellent site analysis and accountability.

02:30:31 [UC] We signed on to participate in study of groundwater.

02:30:35 [UC] If grants are received by UMass scientists, there are community solar local benefits.

02:30:42 [UC] Concerns about wealth, supplies, water supplies.

02:30:47 [UC] Well run off are covered through permitting and oversight and industrial forest land is a good place to put it in.

02:30:57 [UC] A recent Mother Jones, issue, Bill McKibben, a famous environmentalist, said we are in an unprecedented emergency and we need to care more about saving our planet than protecting our backyard.

02:31:10 [UC] Two recent Massachusetts attorney general decisions agreed the amount of solar power needed by 2050 exceeds the full technical potential of the Commonwealth for rooftop solar, indicating that the substantial deployment of ground mounted solar is needed under any circumstances in order to achieve net zero greenhouse gas emissions by 2050, the attorney general said.

02:31:36 [UC] The need for large scale ground mounted solar is so important to the public good that it's necessary to take away some measure of local control to limit this land use, the attorney general said that neighborhood hostility or contrary local preferences cannot dictate whether solar energy systems and related structures are constructed in sufficient quantity to meet public demand.

02:32:02 [UC] The Attorney General said.

02:32:05 [UC] It's not okay to to unreasonably regulate the siting of large scale ground mounted solar.

02:32:11 [UC] Unless you can demonstrate it's necessary for needs of public health, safety or welfare.

02:32:18 [UC] Carbon mitigation is not public health, safety and welfare.

02:32:22 [UC] Forest protection is not, and protecting views is not a legitimate use of regulation, which protects public health, safety or welfare.

02:32:35 [UC] The conclusion of this conference is this is the time and place to get on the same page and acknowledge research and science.

02:32:42 [UC] We have a fraction of the solar available land that we thought we had, and the only way to achieve 2030 and 2050 climate goals is with a lot of ground mounted solar.

02:32:51 [UC] We need to start examining solar opportunities being offered to us.

02:32:56 [UC] We need to stop making decisions based on feelings.

02:33:00 [UC] We need to stop saying no to willing investors and to available sites.

02:33:05 [UC] We need to build on rooftops first. We need to build on brownfield.

02:33:09 [UC] Second, and on agricultural land, which is farms and forests.

02:33:14 [UC] Last but we need to do it all before it's too late.

02:33:18 [UC] Our planet depends on this.

02:33:23 [UC] Forests and solar.

02:33:26 [UC] We need both. Thank you. Cinda.

02:33:31 [UC] Our next speaker.

02:33:33 [UC] Just to point out again, was going to be Aaron Nelson from the Mount Grace Land Trust.

02:33:40 [UC] He's not with us today.

02:33:42 [UC] He is pre-recording his message and will make it available. But he's been ill and cannot participate.

02:33:48 [UC] So our next speaker represents the agricultural non-governmental perspective.

02:33:55 [UC] And that would be Margaret Christie from CSA.

02:33:58 [UC] Margaret, welcome.

02:34:03 [UC] Hi, I'm Margaret Christie, I'm the special projects director at CSA, which stands for Community Involved in Sustaining Agriculture.

02:34:11 [UC] We work with farmers and local food businesses in the three counties along the Connecticut River.

02:34:16 [UC] We provide a lot of technical assistance and training and one on one support, and also do a lot of promotion for local agriculture and local food.

02:34:25 [UC] So I'm going to talk a little bit about what led me to be interested in agriculture and in local food businesses.

02:34:32 [UC] And I think during the rest of this conversation, you know, our interest as an organization in solar and the value of renewable energy and climate change adaptation and mitigation will really become clear for me.

02:34:46 [UC] I didn't grow up on a farm.

02:34:48 [UC] I don't didn't have an agricultural background as a kid, but I landed unexpectedly in a situation where I was helping to grow food as a young adult, and I really just got bitten by the bug and I.

02:35:01 [UC] I don't operate a farm business, but I do grow a lot of food for my family at home, and I've worked in agriculture, through my entire career.

02:35:09 [UC] Early on, I worked for UMass extension doing integrated pest management research.

02:35:13 [UC] I worked for the Organic Farming Association here in Massachusetts, and I've been at CSA for a long time, since 1995.

02:35:21 [UC] and I think one of the things that's been really exciting to me as a person who's been thinking about local food and farms for a long time, is the ways that that the questions and the challenges related to building thriving local farm economies and local food economies really relate to the biggest challenges of our of our society, nationally and globally.

02:35:46 [UC] They're not local problems, and climate change is a really great example.

02:35:51 [UC] And on the one hand, that's a little daunting because we know that's a really thorny problem.

02:35:56 [UC] And there's aren't simple solutions and the solutions aren't local.

02:35:59 [UC] But on the other hand, it's brought a lot of really smart, you know, committed, passionate people into this work because they see that in local agriculture, there are ways to have real impact on climate change.

02:36:14 [UC] And so often these really big problems feel intractable.

02:36:18 [UC] But in fact, here's an area where you can do something and you can make a difference.

02:36:22 [UC] And that's really exciting to people.

02:36:24 [UC] And it's great for those of us who have cared about this issue for a long time, because it's just brought all this, you know, new energy and enthusiasm and talent in.

02:36:32 [UC] So that's really what got me here.

02:36:37 [UC] So as I mentioned at CSA, we provide a lot of individualized support for farmers.

02:36:42 [UC] And one of the things that people come to us for support with is accessing state and federal resources and expertise and information related to renewable energy.

02:36:54 [UC] So there's great programs out there that will help farmers, you know, improve their energy efficiency or implement, you know, renewable energy on their farms.

02:37:04 [UC] And sometimes people need some help in navigating those programs.

02:37:08 [UC] So that's really the most direct way I would say that we, you know, are involved with solar at CSA.

02:37:14 [UC] The other thing we hear from farmers, and I would say, we hear this much more often, is farmers tell us all the time land is the biggest limiting resource for agriculture.

02:37:25 [UC] We have some of the best farmland in the world here in the Connecticut River Valley, but we don't have very much of it.

02:37:31 [UC] And one of the things that's really clear is that local food systems and effective, successful local food systems that are producing, you know, a sizable proportion of what we can eat are a really important resource science tool.

02:37:45 [UC] We saw this in the Covid 19 pandemic, when supply chains were really disrupt.

02:37:51 [UC] And some of the real, you know, enormous problems of our food system were made more apparent to people because we were paying a little bit more attention.

02:38:00 [UC] And in that situation, local farmers were able to react very quickly, and they built new local supply chains to get food to people.

02:38:08 [UC] When they couldn't, you know, sell food at restaurants anymore.

02:38:11 [UC] Or if they had been supplying colleges and schools.

02:38:13 [UC] Those markets shut down, but they were still growing food, and they wanted to get it to people.

02:38:17 [UC] And they figured out how to do that really fast.

02:38:20 [UC] And that is what we're going to need.

02:38:22 [UC] As we we see more and more climate emergencies.

02:38:25 [UC] And if we don't have the land base that allows us to grow food, it's going to be very limiting in our climate change response here in Massachusetts.

02:38:34 [UC] So our interest in solar is really twofold.

02:38:37 [UC] On the one hand, farmers understand how critical it is to to address climate change because they are already dealing with climate change.

02:38:47 [UC] We saw in this past the growing season that's ending now in October for, you know, three very significant climate related disasters that had a huge impact on farms and their ability to produce food for us this year.

02:39:00 [UC] And so farmers really understand that climate change is a huge problem.

02:39:04 [UC] And something that we need to do something about.

02:39:06 [UC] And renewable energy is obviously a really important part of that.

02:39:09 [UC] We have to reduce our use of fossil fuels so that so on the one hand,

you know, farmers are really want to participate in, you know, use renewable energy by renewable energy.

02:39:20 [UC] It's it's important to them.

02:39:22 [UC] And there's other ways that solar can be really beneficial to farmers that can help them reduce their energy costs.

02:39:30 [UC] And most input costs are going up on farms.

02:39:32 [UC] And, that's generally not offset with the price that farmers are getting.

02:39:37 [UC] And so reducing their input costs is really important.

02:39:40 [UC] And it also can diversify their income, to put up some solar and to get some income from, from that renewable energy.

02:39:48 [UC] And at the same time, if we make it too easy to put solar on our best farmland, as I said, we will really be, you know, that will the will really put a crimp in our ability to respond to to climate change.

02:40:01 [UC] So it's we have to do this, you know, in a delicate way.

02:40:05 [UC] It's not a simple solution.

02:40:07 [UC] We have to figure out how do we help people put solar on their marginal land, put solar on their buildings, put solar on the edge of their farm roads.

02:40:16 [UC] but not put it on on the best farmland and of course, farmland has some big advantages from the standpoint of a solar developer.

02:40:23 [UC] It's generally flat and it generally doesn't have trees on it already. And so it's an inexpensive place to put solar.

02:40:29 [UC] So if we, you know, are doing too much incentivizing at the state level, I think we really risk losing, you know, a substantial portion of the resource that land provides for us.

02:40:45 [UC] One other thing that I would like to talk to or talk about a little bit is dual use solar or Agrivoltaics.

02:40:52 [UC] I think this is a really exciting development.

02:40:55 [UC] This is the possibility of growing food or producing food under solar panels.

02:41:00 [UC] And I think it's really great that we are exploring this.

02:41:03 [UC] There's some good research going on at UMass and some on the ground experimentation as well.

02:41:09 [UC] my concern about this is that at the moment, I don't think there's a lot of really, high volume food production that it's clearly possible to do under solar panels in Massachusetts.

02:41:24 [UC] So it may be that over time we learn more, and there are some, some good possibilities.

02:41:28 [UC] For example, grazing animals on their solar panels might make really a lot of sense, but again, I am very concerned about what we do with our our highest quality farmland and the most efficient way to grow a lot of food on our highest quality farmland isn't to be raising, you know, meat or fiber animals on that land.

02:41:47 [UC] And so I really want us to be able to grow you know, vegetables and the core food that people need to eat on our highest quality farmland.

02:41:55 [UC] And so I want us to be a little bit cautious about dual use and understand that we're still learning about it.

02:42:02 [UC] Before, again, we incentivize it so much that, you know, some of our best land for growing vegetables, which is, you know, food that people need every

day, to be healthy, that we're not, you know, turning that into, you know, land for pollinators under solar panels so that we can make more honey or, you know, all of it to grow or a big, you know, chunk of it to grazing animals, to raise meat.

02:42:27 [UC] but I really think we need to explore dual use before we incentivize it too much.

02:42:37 [UC] I talked a little bit earlier about, how important land is as a resource for farmers and how that's a limited resource.

02:42:46 [UC] And I also talked about the ways that, you know, that this was a very challenging year for farmers and those things are really linked.

02:42:53 [UC] And I think there's a link here to the topic that we're talking about as well.

02:42:58 [UC] this summer we had rain in lots and lots of rain beginning in June and extending through most of the summer.

02:43:05 [UC] And many people in this audience probably remember that we had extensive flooding in the beginning of July and then, you know, continued torrential rains that led to very saturated soils, you know, in addition to the land that just got outright flooded. And that causes disease problems.

02:43:23 [UC] It causes it to be impossible to get into the field with equipment and plant subsequent plantings for later crops.

02:43:30 [UC] It's very discouraging for, you know, workers and people who need to, you know, people who are doing work in the mud all day long.

02:43:36 [UC] So it has a whole, you know, myriad of complications and, you know, resulted in millions and millions of dollars of losses this summer.

02:43:44 [UC] And one of the things that people are thinking about is, can I continue to farm this flood zone prone land?

02:43:52 [UC] And one of the answers to that question is that they don't really have a choice, because farmland is very expensive here. There's not very much of it.

02:43:59 [UC] And so if your land really, you decide, isn't the best place for you, there's not a lot of ways to change that here in this valley.

02:44:08 [UC] And I think that lesson that that we hear from farmers all the time that they have to you know, work with the land that they have and figure out how to grow food on that land really also applies to this question of of solar panels and where we put them, because again, if we if we put solar panels on our best landed just reduces our options in terms of how we react to other disasters and what's available in terms of being nimble, being creative, being innovative, and, you know, being able to continue to produce ideally more and more food for residents of the Commonwealth.

02:44:50 [UC] Thank you so much, Margaret. Oh, there is my camera. There we go.

02:44:56 [UC] Thank you so much, Margaret. Our next speaker.

02:44:59 [UC] I'd like to welcome Stef Spears from solstice, who will be giving us the perspective of a community solar develop developer.

02:45:08 [UC] Welcome, Stef.

02:45:10 [UC] My name is Stef Spears, and I'm the co-founder and CEO of solstice, the thing that drove me to this work was two pretty formative life experiences.

02:45:21 [UC] The first is that I was lucky enough to work on the first presidential for the Obama campaign and later in the administration, and I was working on middle East policy during my time in the administration.

02:45:32 [UC] So we would be driving through the streets of Sana'a, Yemen, trying ang during the Arab Spring.

02:45:38 [UC] And we were trying to get this dictator out of power.

02:45:41 [UC] But when you looked out the window of the armored vehicle, we would see people lined up waiting for fuel.

02:45:47 [UC] They couldn't get enough fuel to power their daily lives because terrorists were blowing up oil pipelines.

02:45:53 [UC] And so we were spending all of our time talking about national security and almost no time talking about energy security.

02:45:59 [UC] And I realized I didn't know enough about this stuff.

02:46:02 [UC] And so I went back to grad school, both from the business side and the policy side, to learn about renewables.

02:46:09 [UC] And how do we make that more important and how we do geopolitics.

02:46:14 [UC] and the second life experience that really formed why I came to this work was I was born and raised in Hawaii. Hawaii is a really, really special place.

02:46:25 [UC] People mostly think of it as a beautiful place, but people know less about the fact that it's really, really special because of Hawaiians.

02:46:33 [UC] There are a lot of beautiful oceans and beautiful mountains everywhere in the world.

02:46:36 [UC] But Hawaiians make Hawaii special because of the values that they live by.

02:46:41 [UC] And like so many indigenous cultures, they live in balance with the land they steward the land.

02:46:47 [UC] And when you're surrounded by people who respect the land as if it is their ancestor, as if it is their family, and they live in balance with it and are nourished by it, and they nourish the land that changes how you see the world.

02:47:00 [UC] And Hawaii is also a frontline climate community.

02:47:04 [UC] You know, you watch the corals dying and the ocean acidification and rising oceans and increased flooding and are at the behest of natural disasters.

02:47:13 [UC] And at the backdrop of all of that, these special Hawaiians are the biggest population of homeless folks.

02:47:21 [UC] And Hawaii has a the fourth highest population of homeless folks in the country.

02:47:26 [UC] Hawaiians are half of the homeless folks in Hawaii.

02:47:29 [UC] And so there's this incredibly unfair inequality that plays out in Hawaii.

02:47:35 [UC] I'm not Native Hawaiian myself, but was my mind the child of immigrants to Hawaii?

02:47:40 [UC] And my mom was a single mom that raised three kids alone on minimum wage and the cost of living in Hawaii is so high that you can't survive on just minimum wage.

02:47:50 [UC] And so today, I work at the intersection of climate change and inequality.

02:47:55 [UC] For all of those reasons, my role in solar has to do with managing a community solar company called solstice, and we manage the customer experience and the software for community solar projects across the country.

02:48:10 [UC] We go and connect households and businesses to community shared solar farms, and then we manage the customer experience for the life of the 20 to 25 year project. And that includes billing.

02:48:21 [UC] That includes customer care, that includes working with utilities to make sure that all the crediting shows up correctly.

02:48:27 [UC] So it's in playing this Nexus role between the developers that are

building community solar projects and the people who are enjoying the electricity and the benefits from it.

02:48:39 [UC] So for those who don't know, community solar means that you don't put solar on the rooftop of your home.

02:48:46 [UC] You subscribe to a portion of a shared solar farm that's built somewhere in the utility zone you live in.

02:48:53 [UC] And the reason it has to be the same utility zone is because you see the benefits show up as a credit on your utility bill for the solar that your portion of the solar farms producing.

02:49:03 [UC] And what makes community solar really special in the solar industry is that it's pretty much the only product where you're getting guaranteed savings on your electricity bill.

02:49:14 [UC] So most of solar has been seen for decades as a premium product.

02:49:18 [UC] You have to pay more to get solar, and eventually you'll get paid back through your electricity bill savings.

02:49:23 [UC] But you have to have that upfront cost and turns out four out of five Americans cannot put solar on their own home.

02:49:29 [UC] They're locked out because they have the wrong rooftop, or they don't even own the rooftop.

02:49:33 [UC] They're a renter or a condo owner or their roof is facing the wrong direction, or made out of the wrong materials, or they don't have the money to install solar upfront.

02:49:42 [UC] And sure, you can get loans and financing, but you have to have a Fico credit score of 680 and above to get loan and financing, which half the country doesn't have.

02:49:51 [UC] So a ton of people are locked out of rooftop solar, and community solar gives people access to clean energy without forcing them to pay an up front cost.

02:50:00 [UC] And by giving them generally about 10% savings on their electricity bill without any upfront cost.

02:50:06 [UC] So it's seen as one of the best ways to increase access to people who have been historically locked out of solar, like communities of color, energy communities that are transitioning from fossil fuels and low income communities.

02:50:21 [UC] So it's really not a question of whether the solar industry is going to grow massively in the next decade, but it is a question of whether that growth will be equitable, whether people that have been historically excluded from solar, like, like low income households or marginalized communities, will actually benefit from the largesse that's going to come from clean the clean energy transition and the exciting thing is we have a lot of solutions on the policy side, on the investment side, on the market side to increase low income access to things like community solar, and we just have to make sure that we're implementing that across the country.

02:51:00 [UC] So one of the values that's most important to us at solstice, when we're implementing community solar, or as we expand not just to do community solar, but other distributed generation projects, we're entirely focused on.

02:51:14 [UC] Is this project going to be equitably distributed?

02:51:18 [UC] Can we make sure that the people who see the benefits and the bill savings from these projects include people who have historically been locked out and the people who need solar savings the most?

02:51:30 [UC] You know, I talked about being the child of a single mom who was an

immigrant and worked at a call center, and we often had to struggle to see which electricity bill or rental bill or phone bill we were going to pay that month because we were living so close to the edge and so many people in this country live close to the edge.

02:51:54 [UC] You know, 60% of the country lives paycheck to paycheck.

02:51:56 [UC] And so it's it's not just about justice. So that is a good reason to do it.

02:52:02 [UC] It's also practical, like how do we make sure the clean energy transition is durable?

02:52:07 [UC] How do we make sure the increasing NIMBYism meaning not in my backyard protests that are coming up against clean energy projects doesn't delay our progress on climate change.

02:52:18 [UC] Well, the way to do that is to share the benefits of these projects with the communities who are affected by them, where it's sited.

02:52:27 [UC] what are you are developers doing?

02:52:30 [UC] in community engagement, there was a university of Indiana study that looked at 30 years of NIMBYism, not in my backyard.

02:52:38 [UC] Protests against clean energy projects.

02:52:40 [UC] And they found the number one reason there was NIMBYism or not is whether the developer went out into the community and got community buy in for the project.

02:52:52 [UC] And so often developers are trying to get community buy in after the project starts getting built, as opposed to when they start the development process and so by doing that, community engagement ourselves, you know, solstice is the ones going out on behalf of developers and working with communities, developing community partners like housing authority partnerships, municipality partnerships, local nonprofit partnerships to make sure that they're seeing some of the economic and social benefits of these clean energy projects.

02:53:24 [UC] So that we're not just replicating the inequities that came from the fossil fuel industry.

02:53:31 [UC] So the biggest challenge I see in the Commonwealth meeting its greenhouse gas reductions is that in the last few years, it's actually fallen behind and it's no longer seen as a leading solar state by solar financiers and developers across the country, particularly in community solar.

02:53:49 [UC] It's it's a yawning gap because Massachusetts was a pioneer in community solar. It was a leading state in community solar.

02:53:57 [UC] And then it met its solar quotas.

02:53:59 [UC] And then there wasn't that much legislative action to really make sure that the smart program would progress and rate compensations would keep a pace with the growth of the industry.

02:54:12 [UC] And so you've kind of seen a lot of these projects come to a standstill on the DG side of solar, and we really need legislative action from the, the state legislature and from the governor's office to make sure that Massachusetts becomes a leading solar state again.

02:54:33 [UC] And now developers that we work with all across the country, they're not even seeing Massachusetts as a really ripe opportunity.

02:54:40 [UC] They're looking to New York, Illinois, California and New Mexico.

02:54:44 [UC] And so if Massachusetts wants to make sure it doesn't fall behind and needs to make sure that its policy stays one click ahead of the inevitable utility, pushback against more renewable projects in the state.

02:54:59 [UC] One of the misconceptions about solar PV is the emphasis on the supply side innovation and the supply side is so important, right?

02:55:08 [UC] Getting panel costs down and getting the technology and the software to be better has enabled the the proliferation of solar, to be sure.

02:55:19 [UC] But we're also living in a decade in which we have to really focus on demand side innovation.

02:55:25 [UC] Are we actually creating policy and and creating companies that make the accessibility from the ordinary customer side of clean energy, possible?

02:55:38 [UC] And for example, on the policy side, we can talk a lot about qualification for programs.

02:55:45 [UC] For instance, in with the IRA climate bill, low income tax credits, or with any low income solar program that states administer.

02:55:55 [UC] There's often a qualification standard that makes sure that the people participating in that program are eligible for that program.

02:56:02 [UC] But some states have very different qualification standards.

02:56:06 [UC] As, Massachusetts started out by having their low income community solar programs only possible for those that were already on the low income electricity bill, credit rate with the utility.

02:56:19 [UC] And we went out and tried to sign up low income customers, and we realized there were a ton of low income customers in Massachusetts that had no idea that a low income utility rate even existed.

02:56:28 [UC] And they didn't realize that you had to renew your application for that rate.

02:56:32 [UC] Every single year.

02:56:33 [UC] And so in order to get them low income community solar credits, which were free to them and just gave them bill savings, we had to first sign them up for a low income utility rate and make sure that they knew that they had to sign up every year, and then we could sign up for them for low income solar.

02:56:49 [UC] So we're putting all this burden on poor people to prove that they're poor, which is decreasing the amount of people that will sign up for these programs.

02:56:58 [UC] Whereas, in Massachusetts, you know, upgraded their laws to be about geo qualification.

02:57:05 [UC] Looking at census tracks where their population densities of low income customers.

02:57:09 [UC] So that's an example of improvement in policy that makes it more accessible.

02:57:14 [UC] One step further that Massachusetts can take is to qualify low income customers using Self-attestation on Self-attestation is used in low income programs across the country.

02:57:24 [UC] It's used in low income solar programs in new Jersey and Maryland, and Self-attestation is just the lowest burden way to get low income people to sign up.

02:57:36 [UC] They don't have to show documentation.

02:57:39 [UC] They can just, say that I am I attest that I am low income and I need this program.

02:57:45 [UC] And so it doesn't put all these barriers in front of them to sign up for a program by by the way, mass market, higher income people have no obstacle to signing up for community solar.

02:57:56 [UC] They don't have to prove anything.

02:57:58 [UC] So it's just making sure that the people that need the solar savings the most are can get it most easily.

02:58:03 [UC] And then there's a question about what about fraud, you know, are low income people going to defraud this program?

02:58:08 [UC] If you look at every single study of public assistance from Nobel winning economists, they find that there's not really fraud from low income households on public assistance programs because these public assistance programs are so hard to sign up for anyway.

02:58:22 [UC] So, you know, this mythology of fraud is really low and if we care about solving climate, if we care about getting the maximum number of people solar as fast as possible, we should care about these little nuanced details about program qualification because it dramatically changes who signs up.

02:58:40 [UC] The last stat I'll cite is that when we saw if someone is asked to provide tax documentation or income documentation to sign up for low income program versus when they can just sign up through geo qualification in 2.3 x, fewer people sign up for solar.

02:58:58 [UC] So we're dramatically changing who adopts solar by putting on these really, policy barriers into place that make no sense in practical reality.

02:59:09 [UC] And the fact of the matter is, climate change is an all hands on deck problem.

02:59:14 [UC] And we need everyone to play a role rowing in the same direction to to do it successfully and with clean energy projects and building more renewable energy.

02:59:27 [UC] It's important that the grassroots environmental justice folks talk to the developers and the financiers.

02:59:35 [UC] And there's often not the they're not talking to one another, and they're not often in the same rooms.

02:59:41 [UC] They don't, you know, and I think notionally, the grassroots folks know you need capital to build multi-million dollar infrastructure projects, even if they're going to be community led.

02:59:52 [UC] The capital has to come from somewhere and on the other end, the developers know they're totally if they can't get permitting because a community's protesting their project.

03:00:03 [UC] And yet still these these, these communities don't talk to one another enough.

03:00:07 [UC] And personally, obviously, as you can tell, I feel very passionate about the equity and justice side a lot because of how I grew up, and a lot because that's where there are gaps and not enough action and clean energy.

03:00:21 [UC] and so I had to learn to speak the finance side.

03:00:24 [UC] I had to learn to see the world from the perspective of developers and financiers, and to see them not as so many environmentalists automatically see them as evil villains in the world, but see them as, partners.

03:00:39 [UC] That could be who we could influence to be more equitable, who need to be more equitable if they have any hope of their projects being durable.

03:00:49 [UC] And so getting the developers to realize they need the community side, and getting the communities to realize that they do need capital to get what they need done to, has been part of the journey of starting and growing solstice.

03:01:03 [UC] So what we need in this world are more cultural translators that get people who don't ordinarily talk to each other to work together to solve climate.

03:01:12 [UC] We don't need more people that create more division.

03:01:14 [UC] We have enough of that already, and so as hard as it is to get, you know, the people who speak in IRR terms, internal rate of return to speak to the people who talk about human lives and, and, and, and asthma rates in energy.

03:01:33 [UC] It's it's an ever evolving, necessary journey to do that.

03:01:43 [UC] Thank you. Steph.

03:01:45 [UC] Our next speaker is our final speaker for today's session.

03:01:50 [UC] and I just want to give everyone a heads up that we'll do some wrapping up after this presentation.

03:01:55 [UC] Just some reminders.

03:01:56 [UC] If you happen to say goodbye to us before that time, please, please complete the survey.

03:02:03 [UC] not only about this particular session, but about the Western mass solar forum.

03:02:08 [UC] Overall, your comments will be used to inform our next steps.

03:02:15 [UC] and I also just want to thank again the UMass team and Senator Comerford and her team for their incredible work for this, session and for the three sessions before.

03:02:26 [UC] So our final speaker will be John Rogers from the Union of Concerned Scientists, and he'll be representing the environmental non-governmental organization perspective.

03:02:37 [UC] So, John, welcome. Good afternoon.

03:02:41 [UC] Thank you very much to UMass for organizing this forum.

03:02:46 [UC] And to Duane Brager for the invitation to speak today.

03:02:50 [UC] My interest, my start in clean energy was in solar power more than three decades ago.

03:02:59 [UC] I was working overseas in unelectrified rural areas.

03:03:03 [UC] Even in its early days, solar was a technology that made sense for the people I was trying to serve.

03:03:10 [UC] My efforts were about connecting a technology to a market, to people and aimed at making that work for all involved.

03:03:20 [UC] When I look at solar now, that's still a lens I bring to this.

03:03:25 [UC] Solar scale has changed in a big way.

03:03:28 [UC] The size of each solar panel, the size of solar arrays on roofs and in deserts, in fields and on farms.

03:03:36 [UC] The activity across the economy, in part because of that scale, the opportunity for solar is so much larger.

03:03:47 [UC] Need for solar is still there and actually is a whole lot bigger, and the need to make sure it works for all is also still there.

03:03:57 [UC] I work for the Union of Concerned Scientists, a nonprofit organization that is headquartered right here in Massachusetts but works nationally even internationally, as an energy analyst, I do analyzes about power sector technologies and performance and costs, but I also do outreach and advocacy, trying to make connections as I did all those years ago.

03:04:25 [UC] So when I look at solar in Massachusetts, that's another perspective.

03:04:29 [UC] I bring, not just that of someone with experience in solar from early in the technology's life on this planet, but as but as one of the many people working across the country to connect technologies and needs and people and those perspectives come into play.

03:04:49 [UC] Also, when I look at challenges and across the country, perhaps the greatest challenge from my perspective is about maintaining a high enough level of

ambition, an ambition in terms of our goals and the role that technologies like solar can play, but also ambition in terms of how it happens.

03:05:12 [UC] As I think about ambition on climate change across the country, certainly you've heard other speakers in this series talk so eloquently about climate change and climate impacts and what those mean for the targets we need to achieve have.

03:05:31 [UC] So nationally, we have commitments under the Paris climate agreement to achieve net zero carbon emissions nationwide by 2050 or sooner, but also to cutting carbon pollution by 2030, by 50 to 52% below 2005 levels.

03:05:53 [UC] And because of the huge possibilities in the power sector, we also have a target of 100% clean electricity by 2035.

03:06:03 [UC] Nationwide.

03:06:05 [UC] That's a level of ambition made even more ambitious as we increase our use of electricity in cleaning up other sectors of the economy through electrification with electric cars and heat pumps for example.

03:06:21 [UC] Good modeling of meeting those targets will have a major role for energy efficiency so that we can do more with less.

03:06:29 [UC] But that will still leave a major role for renewable energy to clean up.

03:06:34 [UC] The power sector.

03:06:35 [UC] We know that wind energy will be a major piece of the renewable energy we bring to bear across the country, and that in this region, it will also include lots of offshore wind.

03:06:47 [UC] But meeting those targets nationally also requires serious, sustained ambition on solar, a technology that virtually any projection will show playing a dominant role in a much larger role than was being projected.

03:07:02 [UC] Just a few short years ago.

03:07:05 [UC] That has to do so much with what we've heard in this forum about the drop in the cost of solar over the last 15 years, and innovation and early adopters who increase the size of the market and policies that drove it to still larger scales and made more of all that possible.

03:07:23 [UC] And it has to do with solar's versatility.

03:07:26 [UC] It's applicability to so many different locations and configurations.

03:07:33 [UC] That's made solar so much more broadly accessible, so much more attractive across the country.

03:07:40 [UC] And that has made greater ambition across the country so much more possible.

03:07:46 [UC] With so much of that rooted in advances in solar energy.

03:07:52 [UC] But I work not just nationally, but in the northeast, and I look for high sustain levels of ambition, particularly in this region, which has such a history of innovation and technology and policy.

03:08:06 [UC] And we do have states in this region with net zero targets for decarbonization across the economy, including Massachusetts, and strong targets for clean energy, including 100% in the near terms in several nearby states.

03:08:21 [UC] As we have every reason to want to meet those targets.

03:08:27 [UC] And given all its advantages, we have every reason to want to have solar be a major piece of that success. Yes.

03:08:36 [UC] So we need continued and growing ambition in the region.

03:08:40 [UC] As at the National level.

03:08:43 [UC] But what's become more clear in recent years as solar has become more

visible, is how we also need to channel that spirit of ambition into ambition in terms of process and equity, and into ensuring that the benefits of the transformation underway, one that has solar at its core, are spread far and wide, but also targeted at places and situations where we have so often gotten it wrong in the power sector.

03:09:14 [UC] In terms of community impacts and smokestack pollution and public health, and in terms of community engagement, early and often in the development of projects.

03:09:26 [UC] That's something that's too easy to lose sight of.

03:09:30 [UC] That's why it's been so good to hear speakers in this forum talking about efforts from the federal government to right here in Massachusetts, efforts aimed at making sure we keep a strong focus on solar's incredible potential as a climate solution, but also its potential for increased increasing equity, for creating high quality jobs, for increasing incomes.

03:09:56 [UC] I've seen a lot of change in solar over more than 30 years in terms of the technology and its applicability.

03:10:03 [UC] See attractiveness and scale those changes, particularly in the context of a changing climate, have made it clear that we need strong, sustained ambition aimed at reaping everything that solar has to offer.

03:10:18 [UC] And we need that same level of ambition aimed at making sure it all happens in the best possible way.

03:10:27 [UC] So thank you again to the organizers of this forum for helping us keep our eyes on all the dimensions of ambition involved in achieving our aims.

03:10:41 [UC] Thank you so much for those closing comments.

03:10:45 [UC] I have a couple of my own closing comments to make for everybody.

03:10:48 [UC] First of all, I want to thank all the presenters for all four sessions of the Western Mass Solar Forum, but particularly the presenters at today's session, which required people to really not just plan what they were going to say in advance, but deal with the technology, meet with the team, really appreciate it, think it went very well and grateful for your engagement.

03:11:11 [UC] I also want to thank all the attendees who also participated in these, forum and I want to remind you that please do if you have questions that you would like to post, put them on the hub.

03:11:26 [UC] I think that the slideshow is coming up to bring me to the session for follow up slide, which I'm grateful for.

03:11:32 [UC] In the meantime, though, I also want to thank again the UMass team, especially River strong Duane Brager, Mary Krause and Sarah Dowling for their fearless and devoted commitment to this, forum on the part of our community and to thank them for all the time that they spend organizing, thinking, planning, creating, just an amazing amount of work.

03:11:57 [UC] And I want to thank Senator Jo Comerford, who's my partner, in leading this effort.

03:12:02 [UC] Also.

03:12:03 [UC] So and for her, she and her team's, incredible diligence and commitment to making sure that communities had an opportunity to come together and get this shared information.

03:12:15 [UC] So please, again, there's a post session survey that we are really hoping that you'll all fill out.

03:12:22 [UC] It's on the attendee hub.

03:12:23 [UC] You'll also get an email with a link to when this session is recorded

and posted.

03:12:29 [UC] The recording will also be posted on the Clean Energy Extension website, so that people who have not registered for the series can access it. Please share it.

03:12:39 [UC] Share it widely.

03:12:40 [UC] Let's get this information out and remember your questions and comments are really going to be what we use to not only the value of this forum, but what may still be needed.

03:12:52 [UC] So feel free to tell us what you think is still needed and what you think could use elaboration for the next piece.

03:13:00 [UC] your feedback on the forum as a whole is vital to our planning to see.

03:13:07 [UC] In fact, in our decision making around a second part to this forum, UMass, Clean Energy Extension will be soliciting your response to a survey covering the entire forum.

03:13:18 [UC] And please, again, I can't stress to you enough.

03:13:20 [UC] It's not just a way for us to get feedback on what you thought, if you thought it was successful, if you if it gave you good information.

03:13:28 [UC] But it's also an opportunity for you to inform future planning.

03:13:33 [UC] So thank you again, everybody.

03:13:35 [UC] And on that note, I'm going to sign off and thank the UMass team once again for putting in the resources.

03:13:41 [UC] His the time, the brains, the creativity to really pull this Western mass solar forum off.

03:13:48 [UC] And I'm sure it's going to help all of us engage and participate in these decisions going forward.

03:13:53 [UC] Thank you.