

Climate Solutions That Go Beyond Carbon: Scalable Solar

Summary

Georgia's solar future is expanding fast, but how do we scale it without harming sensitive habitats, and who actually gets to benefit? In this Drawdown Georgia webinar, moderator James Marlow brings together three experts working on different pieces of that puzzle: Michael O'Reilly of The Nature Conservancy on low-impact solar siting, Allie Kelly of The Ray on roadside solar and EV charging, and Lenwood Coleman of Groundswell on bringing solar's benefits to low- and moderate-income communities.

Key Takeaways

- Georgia's largest solar installation is a 200-megawatt project in Twiggs County, and the state's largest planned facility, at Warner Robins Air Force Base, will reach 128 megawatts, part of a broader wave of large-scale solar development across the state.
- The Nature Conservancy's low-impact solar siting tool found that more than 60% of Georgia's land has both strong solar suitability and low environmental sensitivity, giving developers a roadmap for building solar that avoids sensitive habitats and farmland.
- The Ray has identified roughly 52,000 acres of underused land at highway interchanges across the lower 48 states suitable for solar, estimated at 23,000 megawatts of potential capacity, enough to power more than 12 million electric vehicles a year.
- Groundswell measures "scalable solar" by whether low- and moderate-income communities are treated as stakeholders, not just recipients, tracking outcomes like jobs created, families served, and whether a project helps address the root causes of poverty.
- All three panelists pointed to policy as the next frontier for solar in Georgia, from siting standards and net metering rules to legislation aimed at bringing renewable energy investment directly to historically underserved communities.

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James Marlow: All right, well, good afternoon everyone, and welcome. It's a distinct pleasure to be the moderator of our inaugural kickoff Climate Solutions webinar series with Drawdown

Georgia. I'm calling in today from the Velo offices where I work, and as a member of the advisory board for Drawdown Georgia, I speak on behalf of a really great organization.

The topic today is scalable solar in Georgia, and we've got three really interesting panelists, experts and thought leaders, and I get the pleasure of kicking them off. I'll do a quick introduction. As moderator, I get to pull rank and share a few thoughts, a bit of a wish list and an update on large solar projects in Georgia.

Let me begin by saying we're not going back to normal. We live in a world of abundance, and we really need to work together to create a new vision, a new vocabulary, and a new narrative. We've seen Allie doing that in transportation innovation, and we're seeing it from these other panelists too. Change is also accelerating: things that were working well before the pandemic, much of that started working even better, like digitization. Other things are really struggling, and we're going to see that acceleration continue.

We're in what I like to call the death of the fossil fuel era, and the death of the industrial age. The end of an age doesn't go quietly into the night, there are usually fights and struggles and real conflicts, and that's where a lot of the disinformation we see in this space is coming from, something I think we need to spend some time thinking about.

In doing so, we need to think in a transdisciplinary fashion and become more and more ecosystem thinkers, because this is all connected. Energy, the environment, the climate, jobs, lives, education, it's all much more of an ecosystem than we often think. One thing I've learned recently that I've been sharing with people is this: we really need to stop focusing, particularly as businesspeople, on the maximization of profits, and focus instead on the optimization of our business, government, nonprofit, or institution, for all stakeholders.

Those are some things on my mind as we begin, and I'll try to tie it together at the end. But I also have a wish list, what am I thinking about as a solar professional? I'm obviously thinking about more solar, but specifically, solar for everyone everywhere, across communities and incomes. We need a lot more diversity in our workforce, there's so much we need to do. We need more distributed generation. We need a mix of about 80% large-scale solar and 20% distributed generation, and there are real benefits to that. In Georgia right now, about 96% of our solar is very large-scale. We need to do more energy storage, more electric transportation for both personal and fleet use, and in general, more innovation across everything we're doing.

Lastly, a quick update. In preparing for this, I actually sat down and realized I didn't know what the largest operational solar plant in Georgia is right now. So I reached out to my friend Wilson Mallard and asked him for an update. It's a 200-megawatt project in Twiggs County, Georgia, built by my friends at Origis. We built one of the first megawatts of solar in Georgia together, people laughed at us when we said we were going to build a single megawatt. Now they're up to 200 megawatts. Georgia Power will own its largest plant at Warner Robins Air Force Base, which

will be a 128-megawatt facility. There's also a 213-megawatt plant under construction, and another 220-megawatt facility that just secured a power purchase agreement.

So there's a lot of activity here, and that leads us into today's discussion. At this point, I'm going to introduce our first panelist. Lisa, keep me on schedule.

Lisa Lilienthal: We're going to hear from Michael O'Reilly at The Nature Conservancy. While Michael's presenting, I just want to ask everybody, if you have a question for Michael, put it in the chat, and at the end, James will bring some of those questions to our panel.

James Marlow: Okay, and I have a couple more housekeeping items before we start. New events on the calendar will be posted at www.drawdownga.org, and this presentation will be on the YouTube channel. Also, if you haven't seen John Lanier's TED Talk, I'd definitely recommend it, he's doing some really interesting work there and becoming a powerful communicator on climate and these topics.

So, a quick introduction of Michael O'Reilly, director of policy and climate strategy for The Nature Conservancy, who's going to share some fascinating work they've been doing. Then we'll go to Allie Kelly, someone I have tremendous respect for and a personal friend, who's the executive director of The Ray, doing some of the most innovative transportation work in the country in an area where innovation is genuinely hard. She continues to inspire innovation across Georgia and the country. Then we'll hear from Lenwood Coleman, chief program officer at Groundswell, and also a nine-year Air Force veteran, and we honor his service in that. At this point, I'll turn the floor over to Michael. If you have questions, put them in the chat, and hopefully we'll have some lively dialogue at the end. Take it away, Michael, thank you so much.

Michael O'Reilly: Thank you, James, and thank you to Drawdown Georgia and the Ray C. Anderson Foundation for this opportunity today. I'm really looking forward to the conversation with these great colleagues on the panel.

The expansion of solar energy in Georgia has been an exciting development that's helping to position our state for economic growth and sustainability. The Nature Conservancy supports this solar expansion and the broader transition from carbon-intensive fuels like coal to clean energy sources. We need to move rapidly to low-carbon energy generation to meet the challenges we face from climate change.

Along with that challenge, we're also seeing a sharp decline in biodiversity around the world. The United Nations has estimated that we're in danger of losing a quarter of plant and animal species to extinction within the next few decades unless we take action to stop it, and much of that decline will be linked to habitat loss.

So as we move forward with ramping up our renewable energy capacity, in Georgia, in the United States, around the world, we have to do it in smart ways that give us the clean energy we need

while protecting the lands and nature we cherish. Large arrays of solar panels require extensive land area for deployment. Utility-scale solar facilities on average require between five and ten acres of land for every megawatt of power generated. As Georgia grows its solar generation to provide half or more of statewide demand, it could require the disruption and development of up to a quarter million additional acres of land for large-scale solar facilities.

Where we site these facilities can make a huge difference. The Nature Conservancy is working to help guide renewable energy development toward areas with low impact on sensitive lands and habitat. Siting facilities in these low-impact locations gives developers an opportunity to avoid conflicts that can delay construction.

What do I mean by low-impact locations? These are areas where the land has already been significantly altered, for buildings, infrastructure, other development, or marginal farmland where the soil is depleted and no longer considered prime. These are areas that are ripe for that type of development. For example, we've seen a solar facility established on the site of a former mining operation in Nevada. Areas like this, and other locations previously used for commercial or industrial purposes, can make ideal sites for large-scale solar. The benefits of developing in low-impact areas include reduced conflict and cost for development, economic gain for communities, minimized impacts to wildlife and habitat, and retaining the carbon currently stored in our forests and natural lands.

To help distinguish between low- and higher-impact areas, The Nature Conservancy worked with partners to develop a mapping tool that helps developers identify sites in Georgia that are good for solar generation and pose minimal impact to sensitive lands and critical habitat. We were led by our climate and lands coordinator, Amy Gutierrez, in developing this low-impact solar siting tool, in partnership with the Georgia Department of Natural Resources, the University of Georgia, and NASA.

So what went into creating the tool? We drew on a range of data relevant to solar suitability and environmental sensitivity. The solar suitability factors included proximity to transmission lines, solar insolation, or how much solar energy the land receives, and other inputs like aspect, land slope, and land use and cover data. For environmental sensitivity, we looked at the location of protected and conservation lands, critical habitat for key species, prime farmland, and landscape connectivity. Put it all together, and the formula is: high solar suitability plus low environmental sensitivity equals preferred solar siting.

Land that ranks high for solar suitability and low for environmental sensitivity is preferred for low-impact solar development, shown on the map in green. Less preferred areas are shown in a bluish color, and land ranked high in environmental sensitivity, or low in solar suitability, is designated not preferred. There are also gray areas on the map representing protected lands that are off-limits for new solar development, including places like the Okefenokee National Wildlife Refuge in the south of the state, and the Chattahoochee National Forest in the north.

The analysis gave us some good news. Using that criteria, more than 60% of Georgia's land falls into the preferred category, with both strong solar suitability and low environmental sensitivity. We're now beginning to work with solar developers, utilities, and state and local officials to guide the development of future large-scale solar facilities toward these preferred areas.

The benefits of constructing solar in low-impact areas extend beyond helping wildlife, though. Increasingly, it's also benefiting the bottom line. A growing number of corporations and large energy buyers are setting their own renewable energy goals and securing power purchase agreements to meet those needs, and many of them are paying close attention to where that renewable energy comes from. Salesforce, a company many of you will recognize, a \$20 billion software company, has developed a procurement matrix to guide its renewable energy purchasing decisions. The Nature Conservancy and Groundswell, both represented here today, were among the organizations that helped Salesforce develop the criteria for that tool.

The procurement matrix assesses a range of factors, including a facility's impact on land, habitat, and wildlife. Any facility built in critical habitat is ruled out altogether, Salesforce won't purchase energy generated from that location. Their rankings range from low grades for facilities placed in more problematic locations, like other natural lands or prime farmland, to higher grades for energy generated on land that's already been modified or is in the built environment, in other words, low-impact locations. Salesforce is working with REBA, the Renewable Energy Buyers Alliance, The Nature Conservancy, and others to promote the integration of criteria like these into the procurement processes of other corporations and institutions.

I think the business community is increasingly playing a leading role in shaping a sustainable future, and the decisions they make in choosing low-impact renewable energy will be pivotal in ensuring there's sufficient supply of well-sourced clean energy. We're looking forward to partnering with companies across Georgia to create a solar future for our state where people and nature thrive together. Finally, on the last slide here is the web address where you can access our low-impact solar siting tool yourself, and if you have questions or would like more information, please contact us. Thank you.

James Marlow: Michael, that was great. A couple things really stood out to me as top takeaways. Your biodiversity comment about 25% of habitat potentially lost in the near term really struck me, I'm becoming a bit of a "half-Earther" myself, and I've been trying to learn more about E.O. Wilson and his work there. This procurement matrix is really important too, because it's not enough to just say we're buying RECs and doing the right thing. You can buy RECs, and that can be a powerful tool, but you need to look at these overall impacts. And of course, as a total map nerd, I loved everything you're doing with NASA and cartography, something I really love.

So, thank you very much. Are there any quick questions for Michael right now, or do we want to move to the next session and open it up for more later? All right, we'll have a little more Q&A later then.

At this point, I get to introduce my friend Allie Kelly, who's going to tell us about innovating in an area that's really hard to innovate in. Take it away, Allie.

Allie Kelly: Thank you, James, it's so good to see everyone. My name's Allie Kelly, I'm executive director of a nonprofit organization called The Ray, and I'm really excited to be part of the kickoff for Drawdown Georgia's webinar series.

So, what is The Ray? The Ray has become the nation's premier test bed and testing lab for transportation technology, innovating transportation to be zero deaths, zero carbon, and zero waste. We believe the technologies already exist for transportation to be safer, cleaner, and more productive. In partnership with Georgia DOT and the Federal Highway Administration over the last five years, we've incorporated more than a dozen innovative projects on an 18-mile corridor of Interstate 85 in West Georgia.

The Ray also refers to the Ray C. Anderson Memorial Highway, that special 18-mile stretch of interstate that begins on I-85 at the Georgia-Alabama state line, at the banks of the Chattahoochee River, and extends north into Georgia for 18 miles, ending at exit 18, the main exit for LaGrange, Georgia. West Point is the city where Ray Anderson was born, and LaGrange is the city where his carpet company, Interface, was founded. We work on this corridor because the state of Georgia worked with Ray Anderson's family, including his youngest daughter, Harriet Anderson Lankford, to establish this 18-mile stretch connecting two hometowns as a memorial to the legacy Ray Anderson left, not only in the business world, but in the global world of sustainability and circularity in manufacturing and large corporations.

This is a broad overview of some of the projects we've brought online along this corridor, in a chartered partnership with Georgia DOT and the Federal Highway Administration. Our guiding mission and principles really revolve around reducing crashes and fatalities, zeroing out transportation carbon emissions, and incorporating more circular economy principles into the transportation sector, to reduce wastefulness and make more productive use of existing infrastructure. Ray Anderson's work at Interface is our guiding light, and our founder and president is Ray Anderson's youngest daughter, Harriet, who asked the first important question: what if highways were sustainable? On this corridor, we've brought online projects including rubber-modified asphalt, innovations in vegetative management at our landscape lab at exit six, and work with companies like Panasonic and 3M to pave the way for connected and autonomous vehicles. We've also done quite a bit of work in renewable energy and electrification of transportation.

The first project I want to talk about today is our megawatt of solar at exit 14 of the Ray Highway. This megawatt exists along the southbound lanes and exit ramps at exit 14, about

four and a half acres of Georgia DOT and federal highway property that was empty and highly eroded. We began working on this all the way back in 2016, alongside the 2016 IRP for Georgia Power and the Public Service Commission, as well as with Georgia DOT, connecting those two agencies to allow Georgia Power to use the empty land to bring online a megawatt of solar capacity, represented by about 2,600 high-efficiency solar panels.

This is also the first pollinator-friendly solar site brought online by Georgia Power, and the first pollinator-friendly right-of-way solar site in the entire country. The site was commercialized in February 2020, and Georgia is the third state to bring renewable energy generation onto roadsides, following Oregon in 2008 and Massachusetts in the 2010s.

We're at an inflection point right now, with DOTs across the country assessing their roadside land for renewable energy generation. In fact, in late April, the Federal Highway Administration issued sweeping guidance making clear that appropriate and desirable use of roadside lands on the interstate and highway system should include renewable energy generation, as well as EV charging, including in-lane charging through inductive or wireless technologies, and clean energy transmission buried in the right of way. We're working on projects across all of these fronts at The Ray, and we've been in communication with DOTs across the country about the potential to bring solar arrays like the one on the Ray Highway into communities and interstate rights of way nationwide.

In 2020, The Ray worked with UT Austin and the Webber Energy Group to analyze the interstate system across the 48 contiguous states and identify right-of-way land available and appropriate for solar, specifically at exits, at diamond and cloverleaf interchanges. We found there's approximately 52,000 acres of empty, underutilized land at those interchanges across the 48 states that would be appropriate for solar development. We estimate the capacity there at around 23,000 megawatts of solar generation, which could power more than 12 million electric vehicles in a year. I'll come back later to the point about linking solar energy with EV charging infrastructure for our growing fleet of electric vehicles.

I want to stay on that point for one more minute: 52,000 acres of empty roadside land. We just heard Michael talk about low-impact siting, and I can't think of a lower-impact place to build renewable energy generation than the roadsides of our interstate system, where the soil has already been degraded by 60 years of high traffic volume and speed. This is also an opportunity, with pollinator-friendly solar, to actually rehabilitate those soils over time, so we're building a win-win-win, at least a threefer and maybe a fourfer, just by breathing new life, purpose, and productivity into these roadside lands.

I'll go through these next slides quickly. Michael mentioned the solar siting tool The Nature Conservancy has developed, which is amazing. At The Ray, we've worked with a company called Esri, which does GIS mapping for almost all of the DOTs, using real DOT roadside datasets, specific to what agencies have not just on the roadsides, but at visitor centers, rest areas, truck parking, and maintenance facilities. With Esri's help, we're able to analyze that property for solar

radiation, solar economics, and solar value. The tool also incorporates digital twinning, so we can determine whether there would be any undesirable societal impacts associated with a planned project.

What you're seeing is real roadsides of an interstate system in Iowa. Esri developed a solar preference tool specifically for The Ray, and the areas shaded in bright green are highly preferred for roadside solar development. You can also swipe to compare existing tree cover against solar radiation without the tree cover, useful for scenarios like we've seen across Georgia, where DOT has done a lot of tree cutting back to their fence line. This gives us the ability to plan for various scenarios DOTs might want to consider.

We can then actually place solar panels into the rights of way. In this real-world example in Iowa, there's a scenic turnaround at the top of a hill, so we used the digital twin and the AI technology embedded in the tool to evaluate any impacts to the viewshed. Areas shaded in pink represent negative or undesirable impacts to the viewshed, and we can relieve those by removing columns or rows of panels. That lets us proceed with confidence with any state DOT, from planning and assessing societal and environmental impacts through to executing the deal.

Before I get into EV charging, I'll just say quickly that The Ray is now working in 14 states with more than 20 transportation organizations, many because of the expertise we've developed in roadside solar. I'm actually joining you from Nashville today, where we met with Tennessee DOT this morning. In addition to state governments, we're also working with county governments like Charleston County and the City of Austin, to understand what municipal and county land holdings might be converted into renewable energy generation in ways that respect both environmental and societal impacts.

Last but not least, I want to end on the importance of EV charging. James, I think you mentioned we expect to see millions more electric vehicles on our roads over the next ten years, estimates are somewhere between 18 and 20 million new EVs on American roads by 2030. I think you must have been living under a rock if you didn't see the F-150 Lightning our president drove around yesterday, that truck is hot, and I'm so proud of Ford. I love our friends at Rivian too, but I'm glad Ford was able to unveil that F-150 EV and have it profiled that way at the White House, that was really cool.

The point I want to make here more than anything: as we build out EV charging infrastructure on the roadsides of our interstate and highway system, please, please, please do not install 50-kilowatt charging. It will create a bad experience for drivers, generate complaints to state DOTs and other transportation operators, and it may cause Americans who opt into EVs to opt back out, because 50-kilowatt charging simply won't charge, in a short enough time, the vehicles that VW, Kia, and Ford are producing. The VW ID.4, for example, was announced with the capability of charging 60 miles in ten minutes, that's at least 100-kilowatt charging. At The Ray, we feature 175-kilowatt charging by ABB, a modular unit, so we can add another pedestal to reach 350 kilowatts. This is the kind of charging infrastructure we need on our interstate and

highway system to create the experience drivers need and expect, and yes, this charging can be supported by solar energy. We have 12 solar panels supporting EV charging at the Ray Highway Visitor Center at the Georgia-Alabama state line.

I'm often asked by DOTs, "How can we bring 100- or 150-kilowatt charging to our visitor centers and rest areas in rural areas, when we don't have the power there?" Our answer at The Ray: build solar energy. Solar-powered EV charging is a viable option. Everyone should look up Gridserve in the UK, they've brought online 36 EV chargers in a single EV forecourt, offering charging as fast as 350 kilowatts, backed by battery storage and megawatts of solar power. It's a great reference point for us in the United States as we build out charging on the interstate system, for passenger vehicles now, and for medium- and heavy-duty vehicles in the near future.

That's me, and that's The Ray. Thank you so much for the chance to participate. If you'd like to reach out, we're very accessible: harriet@theray.org, allie@theray.org, and my colleague Laura Rogers at laura@theray.org. We're also super active on social media, so hit us up sometime and let us know how we can help make transportation cleaner, safer, and more productive.

James Marlow: Allie, that was fantastic. I'm so proud of all you continue to accomplish. I had a big smile last Thursday, I drove by the Ray DOT solar project, and not only was it beautiful, but the pollinator-friendly vegetation around it was in full bloom, it was a garden. I smiled thinking about your contribution, not just to DOT solar, but to pollinator-friendly solar and thinking about more than just gear in the field, so thank you for all you're doing.

A couple of quick takeaways: 52,000 acres of basically unproductive land just sitting there, and 18 to 20 million EVs coming, this is going to happen quickly, and we need to encourage policymakers and utilities to radically accelerate what they're doing, with the right infrastructure to support that charging, not these low-end, discount chargers that aren't going to work well.

Any quick questions for Allie? We've got a couple. One asks: any plans to use the open area around the Atlanta airport for solar panels?

Allie Kelly: Yeah, these are no-regrets solutions. Building solar at airports and on roadsides both require glint-glare studies, this is best practice, not complicated, and we should be doing this at the Atlanta airport, and airports across the state, absolutely.

James Marlow: Judy Adler asked what Georgia public policies we can put in place to drive low-impact solar development. You've answered some of that already, but I'll let you hit that one out of the park.

Allie Kelly: Yeah, there's a bill that was filed late in the session this year, I believe it's numbered 299. Everyone should take a look at this bill. It's sponsored by Jeff Mullis, the Senate Rules Chairman, one of the most powerful people in the building, and there are a lot of other great people signed onto it too, like Senator Randy Robertson, who represents the district where The

Ray is located. It's a distributed generation solar bill, and I think there's a lot of good in it. We're hoping to see some hearings on it over the interim, leading into the 2022 session.

Michael O'Reilly: If I can add to that, of course, rooftop and other distributed generation is, in many ways, the best alternative, because it's being built in the built environment already, so by definition it's low-impact in that respect. One of the other policy techniques used in some other states has been to develop what are called renewable energy zones, where local officials, utilities, and others work together to make the process of developing a solar facility quicker and easier if it's done in an area already designated as low-impact. So, how do you reduce cost and speed up development? If you identify in advance where the renewable energy zones that fit that criteria are, you can do that. That's a work in progress here in Georgia.

James Marlow: Allie, outstanding, thank you so much. At this point, we're going to transition to Lenwood Coleman, chief program officer at Groundswell, and I'll let him tell you about Groundswell and the solutions they're focused on. Lenwood, please take it away.

Lenwood Coleman: Thank you, James, it's a pleasure to be here, and having spent so much time in Georgia, I feel like I'm at home.

Let's talk briefly about Groundswell. Groundswell was created in 2009 with a vision focused on helping our low- and moderate-income communities, and the best way to do that is what we're talking about today: clean energy. That impact is more than just clean energy, it's what it does for the family. In our brief time today, we'll talk about climate solutions and how we transition from carbon to clean energy through a project called solar.

Groundswell's team is small but mighty, 14 people plus consultants. We're currently in about six states, from New York down into Georgia and North Carolina, swinging back up into the DMV area, which is our headquarters, and we love what we do. We like changing the lives of the communities we serve.

As I listened to my colleagues talk today, and got to see what we're doing at a large scale, I looked a little deeper into what that means for all communities. The solar program is an extensive one that many big companies make great money from, but we keep forgetting it's everyday people who build those solar programs and make sure the panels work, and we want to make sure, through Groundswell's vision, that they're a stakeholder in this clean energy transition too.

You hear words like energy justice and sustainability, and we want to make sure that when we use those words, they actually shape the programs we're building. How do we approach climate solutions? I believe you start by looking down into the weeds and then looking up: who's impacted the most, and who's least likely to be heard in the process? We say low- and moderate-income communities make up about 80% of this country, 50% moderate and 30% low,

and that tells two stories. Many of the communities that need solar energy the most are often the last to have a voice, and that's alarming.

Even our current president has said our stimulus packages need to focus on those who need it most, to improve the communities we live in. So when we take the solar concept and think about what clean and renewable energy really means, we need to make sure every stakeholder is at the table, and that when we build it, we build it thinking about every community, not just a few.

So, scalable solar in Georgia, what does that mean? My CEO, Michelle Moore, plays an important role in what we do in Georgia because it's her home, and as her partner, I make sure that vision comes through in every thought and question we look at, as we try to improve lives in communities that cover Atlanta, LaGrange, West Point, East Point, Hogansville, and Woodbury, and we're still growing.

We've learned some important things from being in this market and being in DC, about what low- and moderate-income communities really need. It's one thing to see them from the highway, but Georgia also has to understand that without programs like S-RACs, tax incentives, and other supports that can improve inner communities, they'll be left behind. We can put solar up and down the highway and on top of factories, but if we leave out those with the least, they'll be left behind as the world understands that renewable energy is the way of the future.

So how do I define "scalable"? How many jobs are created that take low- and moderate-income communities and make them more sustainable? That's what scalable means to Groundswell. How many families improve, and how many children gain access to higher education, through scalable solar? And what does that look like across generations, as we try to eradicate poverty? That's scalable, and we can measure it by how we allow stakeholders to play a part in this new frontier of clean energy.

Affordable and accessible, that's where energy justice plays a role. Groundswell's vision is that everyone has a right to clean energy, it's an inalienable right, not one reserved for those with the dollars and education to make it happen for themselves. Is it affordable? Is it accessible, meaning does it reach into communities in a positive way that low- and moderate-income residents can benefit from, understand, and be educated by? We look at places like the LaGrange Housing Authority, and airports, I heard the earlier question about airports. We're working toward putting solar on airports too, but we also have to address the fact that policies need to change so that excess energy can be used in more positive ways to serve the community. We believe in community solar, and see that as an avenue to create, improve, and provide opportunities for everyone to participate in solar energy.

We have several programs since moving into the Georgia market. We have a program called Breaking Barriers, which takes that same vision and approach to impact our HBCUs. What am I saying? Minorities are often left out of the process, even when they're at some of the greatest institutions of education. Breaking Barriers takes the concept of connecting our HBCUs through

a microgrid, a solar component, battery storage, and a resiliency hub, along with a curriculum, to keep our youth competitively involved in this changing world of clean energy. This impacts not just the universities, because we take that energy and focus it into West Georgia too, to help low- and moderate-income communities with disaster resilience, education, and showing people how to live, all part of what we believe is the best way to make it scalable. That hub, spanning Spelman, Morehouse, Clark, and Atlanta University, should say enough to everyone: let's all play on an even playing field, everyone should be a stakeholder at the table.

Let's talk about saving on utilities, and take a deeper dive. When we talk about low- and moderate-income communities, they know how to make a dollar go further than those of us with more resources. Take a family that saves an average of \$50 a month through a solar credit when we install an array. That \$50 could determine whether they can afford medication, or put a couple bags of groceries on the table, something we might say is nothing, but for that family, it's a lot. We have to understand that what's "affordable" has to be affordable across the board, based on people's lifestyles, economics, and how they live. Should what's affordable for a millionaire be the same standard we apply to someone making only \$1,200 a month? I don't think so, that's not affordable. But we have to think outside the box about how we make it affordable and lift up our neighbors.

With that, we look at how you approach pay-as-you-save programs, reducing utility bills is one piece, but educating people and creating economic opportunities, including minority small businesses, is the next step. That's where our country is heading. We can't just look at the big picture and scale of solar, we have to understand how, as a country, we make it equitable for all.

And I'll close with this: what I'd like to say is that we, as a collective body of people in this conversation today, should be working together, collaborating in one focused, positive direction that serves everyone, not just the few. With that, I'll turn it back to my host.

James Marlow: Lenwood, that was fantastic, thank you so much for that inspiring presentation. As I sit here thinking about my takeaways, certainly my mantra of "solar for everyone everywhere" is exactly the way we should think about it, and you're putting that into action around energy justice and sustainable living. The stat you gave, that 80% of households fall into low- and moderate-income communities, was way larger than I expected. Thank you for that context.

I'll also mention, I did some work a few years ago with Fort Valley, working with Georgia Power, so you might want to get connected there, I don't know the current status of that project, but it was a larger-scale effort, worth putting on your radar if you're not already working with them.

We've got a bunch of questions coming in. I see Dr. Marilyn Brown mentioned the solar programs hold real promise, if you have a question around that, Marilyn, feel free to share more, I only saw the top of that message. There's also a question about this recording, it will be made

available on the YouTube channel. Allie, thanks for your posts in the chat answering questions around DOT solar and some other things.

A lot of interesting dialogue in the chat. We do have some good utilities in Georgia, Georgia Power supports, owns, and operates The Ray, that's worth mentioning, and I applaud that innovation. The co-op, Walton EMC, has a great community solar program, priced at parity, so everybody gets to participate, no upfront cost, no ongoing commitment, a very fair, equitable, and economically sound program. It was a good deal for Walton to install clean solar for their members, and their members are participating and sharing in that in an economic way. We can truly create these win-win-win programs.

At this point, we've got a few more minutes, any other comments from our panelists? You've all had some great things to say, but was there something you thought, "oh, I wish I'd said this too"? Michael, anything you wish you'd said, or any comments about Lenwood's presentation? It was great.

Michael O'Reilly: Oh, this has all been really interesting, really exciting. I think one thing I take from it is the intersection of these projects, that they're not running on separate tracks, I see a lot of alignment across these initiatives, and that gives me a lot of hope for the future.

James Marlow: Okay, thank you. Allie, we do have a couple of questions from the crowd, and I'll read them out since it might be hard to find them in the chat, I know it's busy there. Marilyn had a question about whether we can use PAYS, P-A-Y-S, to help bring solar to low-income households, in addition to the retrofitting that's the traditional application of PAYS. I think that's one for you, Lenwood.

Lenwood Coleman: That's an extremely good question. I'd say yes, it would be. Every program we look at, if it's mission-aligned, plays a vital part in the success of the work we do. As you ask that, we've learned that in understanding the environment we work in here in Georgia, it's not just bringing in solar, when you do solar, you also have to look at the homes and the envelope people live in. We look at mill homes, and they often need to be retrofitted with insulation, weatherization, sometimes even rebuilding or refurbishing, which allows many of the players here today to take part in it.

What Groundswell does is take programs like PACE and bring them into the SOL program, and we call those wraparound services. Those wraparound services improve and elevate the SOL concept in a lot of ways, we've learned that it's not just about improving solar, or just weatherization, we also need to address the health issues and the economics impacted in the communities we've worked in. So there's a place for every program in this room today, or on this call, and we challenge you all to reach out to us, let's become closer partners in improving the communities, and the lives, and the children impacted by what we're talking about today.

Lisa Lilienthal: Thank you, Lenwood. We had another question, I think for you too, about the agrivoltaic program, will Groundswell consider partnering with Black farmers on solar farm projects?

Lenwood Coleman: We would love that opportunity. Let's make it clear, with the new funding coming down, and the ability to sit with these farmers and understand how, in a mission-aligned way, we can impact how they do solar with their fields and bring them into the market. We have a program called Justice40, and through that process we're able to provide support in helping them be on the cutting edge of the funding coming out over the next several years. What we bring to the table is help navigating these applications, a lot of times, as you look at these businesses, focusing on farmers, they don't know how to navigate through them. We were fortunate enough to be granted and blessed with the opportunity to take that into rural areas and help them without the cost they'd normally have to invest, to make sure they're in a competitive position to receive these funds. This is critical, we may not see another opportunity like this in our lifetime to raise up all of our different programs that impact low- and moderate-income communities.

As you'll notice in our slides, we address the human need, you see a rainbow of colors that reach across the board, it's not just about colored faces. When we say 80% of low- and moderate-income, there are white faces in there too, so let's stay real and realistic in how we approach this process. Hopefully that answered your question.

James Marlow: Lenwood, thank you. Allie, I'll let you get one more point in, what's the one thing you thought, "oh, I should have said this too"?

Allie Kelly: Well, actually, Dr. Marilyn Brown reminded me with her PAYS question. Everyone should check out House Bill 762. Representative Mesha Mainor represents West Atlanta all the way up to West Midtown, and as a freshman legislator, she passed an authority this session focused on the West Midtown area, which has the highest energy burden in the state, also leads in incarceration, and has some of the lowest graduation rates. Her authority is called the Fulton County Energy Enhancement and Technology Authority, and it's going to focus on bringing renewable energy and innovation to West Atlanta, to relieve the energy burden, and to provide workforce development and real job opportunities for those communities. Please go check it out, I think this is a great opportunity for pay-as-you-save to make a real difference in West Atlanta, just like Groundswell and Lenwood have done such great work in LaGrange and Hogansville. House Bill 762, Representative Mesha Mainor.

James Marlow: Awesome, thank you, Allie. So a quick wrap-up on a couple of questions I can hit quickly. Allie mentioned Senate Bill 299 on solar, so if you're at all interested in helping move solar forward, get involved with that bill. There was a question about the City of Atlanta elections, if you don't know Mandy Mahoney and Doug Shipman, who I know well and support aggressively, please check them out and look at what they're bringing to the table on leadership in solar and energy efficiency for the city's future. There was also a question about recycling

solar panels, they're very recyclable, and there's a lot of disinformation out there about that, happy to answer any questions on it.

Final wrap-up: the purpose of this session was solutions, and Michael, Allie, and Lenwood are thought leaders bringing truckloads of solutions that are working in the real world, more distributed solar, more rooftop, more canopies, more landfills, more DOT solar, avoiding sensitive habitats, better siting. So, tools for solutions, that's really what this whole series is about, and I greatly appreciate you being with us today. We're two of three, so we're right on schedule. Thank you, thank you, thank you.