

# This Moment in Climate with Michael Mann & Leah Stokes

<https://www.climateone.org/audio/moment-climate-michael-mann-leah-stokes>

Recorded on February 5, 2021



**Greg Dalton:** This is Climate One. I'm Greg Dalton. [pause] President Biden's ambitious climate plan envisions \$2 trillion for clean energy over four years.

**Leah Stokes:** These are the boldest climate pledges we have ever seen for any presidential candidate, and now president, in American history.

**Greg Dalton:** Those invested in maintaining the energy status quo have shifted their strategy from denial... to delay and division.

**Michael Mann:** What better way could there possibly be to divide us than to get us arguing about our lifestyles choices.

**Greg Dalton:** But with a pro-science, pro-climate administration in the White House, the question now is less about what can be done, and more about how soon.

**Leah Stokes:** The issue is not really about left or right ideology, it's actually about creating a livable future for current generations. And that is not an ideological issue.

**Greg Dalton:** This Moment in Climate. Up next on Climate One.

---

**Greg Dalton:** How quickly can the Biden administration turn around a gutted EPA, dozens of environmental law rollbacks, and a legacy of climate denial? Climate One conversations feature all aspects of the climate emergency: the individual and the systemic, the exciting and the scary, people in power, and people disempowered. I'm Greg Dalton

**Greg Dalton:** One week after his inauguration, President Joe Biden signed a series of executive orders taking on climate change.

**Joe Biden:** In my view we've already waited too long to deal with this climate crisis. We can't wait any longer.

**Michael Mann:** We're so close to really finally turning the corner on climate. But the forces of inaction, and I call them the inactivists, haven't given up.

**Greg Dalton:** Michael Mann is Distinguished Professor of Atmospheric Science at Penn State University. He's best known for creating the hockey-stick chart, which vividly illustrates the sharp increase in carbon pollution in the 20th century, due to industrial activities. His latest book is *The New Climate War: The Fight to Take Back Our Planet*.

**Leah Stokes:** We have got to keep our eye on the prize here and that is federal action in the United States, ideally this year in 2021.

**Greg Dalton:** Leah [LEE-uh] Stokes is Assistant Professor of Political Science at the University of California, Santa Barbara. She's co-host of the podcast *A Matter of Degrees*, and author of the book *Short-Circuiting Policy: Interest Groups And The Battle Over Clean Energy And Climate Policy in the American States*. Like Michael Mann, she insists that immediate federal action on climate is necessary, and possible.

**Leah Stokes:** With the elections in Georgia in early January, changing Senate control to the Democrats. We have the best opportunity in more than a decade now to see federal climate action through legislation. Of course, we also have Joe Biden and Kamala Harris in the White House and they have made really bold pledges. They've committed to as you mentioned \$2 trillion spending over four years, a 100% clean energy target by 2035 and 40% of investments to go to disadvantage and front-line communities. These are the boldest climate pledges we have ever seen for any presidential candidate and now president in American history. So, I am very enthusiastic that we have a really good shot to start to do federal climate action this year.

**Greg Dalton:** Though, that \$2 trillion is -- Pres. Biden has a \$1.9 trillion relief package largely for COVID for aid to state and local governments. The details are not out yet but that doesn't really include a lot of climate. So, \$2 trillion another \$2 trillion that's a lot of trillions, Leah Stokes.

**Leah Stokes:** Well, I think we need to remember and this is actually something we did an entire episode on in our podcast *A Matter of Degrees*, how much money the Republicans spent during the pandemic. A lot of it actually went to fossil fuel companies through the CARES Act, which was a large bailout to big fossil fuel companies. And so, we always seem to have money \$20 billion a year for example, in direct fossil fuel subsidies by our federal government every single year. There's always money for the fossil fuel economy, and so what we really need to be doing is starting to spend money on rebuilding our economy for the clean energy future. And that really is the cornerstone of Biden's plan the build back better agenda. And, you know, on the one hand you might say, wow this is a lot of spending but these are actually investments they pay themselves back, right. If we clean up our air it means that we have less asthma for young black children, for example. It means that we have less early mortality for people. And that actually has benefits for our economy if we start investing in new jobs in the clean energy economy. Those jobs will create multipliers and they will pay us back. So, this isn't just money like a fossil fuel bailout. They get sort of blown up in smoke after we spend it. It's money that multiplies over time. It really is like an investment.

**Greg Dalton:** Michael Mann, do you think the Green New Deal should be the north star of U.S. efforts to confront climate disruption?

**Michael Mann:** Well, I think the goals of the Green New Deal as described by AOC, Ed Markey are

laudable. And ultimately, I think we need an expansive approach to climate action that does deal with all of the intersectional issues that come with climate change. The pragmatist in me like Leah, I want to see action immediately. We don't have any time to waste. We've got 10 years basically to bring global carbon emissions down by a factor of two. And so, in the current environment with a split 50-50 Senate, you know, I wish we had had a blue wave a congressional blue wave that swept in large majorities large Democratic majorities in both houses of Congress and had the votes to pass expansive a Green New Deal type legislation. But that's not what materialized we have a closely divided Senate. We also have a president as Leah has mentioned who is very committed to climate action who is using basically every tool at his disposal incorporating climate action into every agency into every appointment. And so, we can make a lot of progress on the executive side repairing our relationships with other countries once again reasserting ourselves on the international stage as a leader in climate action. But it would be great if we could also at least get some climate legislation in the meantime. And, you know, I agree with Leah. I think there's a real opportunity. The best opportunity we've had in some time. We can get a climate bill or set of bills onto the Senate floor, something we couldn't have done with Mitch McConnell. And there probably are in fact just before the segment I was listening to MSNBC and my friend Sheldon Whitehouse who is one of the leaders among the Senate Democrats when it comes to climate action. Does seem fairly optimistic that look there's a handful of Republicans who are willing to join with Democrats on some common sense, basic compromise climate legislation. We got \$35 billion of green stimulus in that stimulus bill. And so, that shows that you can get Republicans and Democrats both on board with legislation if there are incentives for both to act in good faith. And that's going to be the challenge to find those Republicans who will work with Democrats in good faith. Some of them won't. There's that residual sort of poisonous Trumpist segment of the Republican Party, they probably won't engage meaningfully on issues like climate change as long as they're captured by the fossil fuel industry. But I think there are some who will join with Democrats. I think we're gonna get meaningful climate legislation within the next two years and who knows two years from now, we might have those larger majorities where we can do something even bolder.

**Greg Dalton:** Right. And Lisa Murkowski being one of those Republicans who shown that she's willing to do deals and comes from an energy exporting state. Leah Stokes. Some Democrats are embracing the term socialist. Bernie Sanders, of course, and others and the Green New Deal has been branded as socialist because it mentions the guarantee of a job with a family sustaining wage. Moderate Democrats say that word is toxic and will cause them to lose their seats. Tough midterms ahead in 2022. Where are you on using that term socialism? Do you embrace it do you run from it?

**Leah Stokes:** I mean I don't focus too much on that particular term in my own work it's not a term I used to describe myself but it's also not a term that I think that other people shouldn't be using. I think people are more than welcome to use that term if they want to. But to me, the issue is not really about left or right ideology, it's actually about creating a livable future for current generations. And that is not an ideological issue. If you look at polling from Pew or the L program on climate change communication. Young Republicans are very worried about climate change. People, you know, more around my age in their 20s or their 30s, and that's because they realize that when we talk about 2050, you know, that's not sometime way in the future that's within our lifespans that's within our adulthood. And we to have a livable planet. So, I think that a lot of these fights over ideology and labels are missing the point which is that the economy our society, our democracy is built on the bedrock of a stable climate. This is the only stable climate we have and it is the only climate we have ever lived in as humans. And if we disrupt that, that has nothing to do with being left or right it just has to do with, you know, whether or not we have a stable economy, stable society, a stable way for people to plan in the future. And that isn't about being left or right wing. It's really about as Michael was saying common sense solutions that we have to have a livable planet for our economy, let alone our society to thrive.

**Greg Dalton:** We'll get into some of those divisions a little bit later. Michael Mann, what is it in activists and how the people on the left bring them gifts every day?

**Michael Mann:** Yeah well you know this conversation we're having right now leads naturally into this discussion in the new climate where I talk about sort of the challenges that we face now. We're so close. Leah and I and so many others have been working so hard and we're so close to really finally turning the corner on climate. But the forces of inaction, fossil fuel interest and those doing their bidding there are forces of inaction and I call them the inactivists haven't given up. Look, they can't deny that climate change is happening anymore. So, they've shifted to a whole new array of tactics in their efforts to prevent us from making the transition to renewable energy from fossil fuel energy. And one of the things that they've tried to do is to divide us and using labels is a great way to try to do that, right, to instill tribalism. And they've really worked hard to divide the climate advocacy community so that we don't speak with one unified voice, demanding action. And so, that's one of the things that we have to look out for how language is being used online and elsewhere in an effort to divide us. How individual lifestyle choices and things of this sort are being used once again to divide us. Dividing is one of the critical tools that the inactivists are using to prevent us from acting.

**Greg Dalton:** Right. And Leah Stokes, how do you think about that the tribalism, you have an undergraduate degree in psychology. Freud talked about the narcissism of the small difference. We don't need other people to kind of that's kind of natural and human nature is to kind of, you know, inside circular firing squad kinds of things. That comes naturally we don't need inactivist to cause that to happen.

**Michael Mann:** Especially within the Democratic community.

**Leah Stokes:** That's what I'm gonna say like exactly.

**Michael Mann:** Sorry.

**Leah Stokes:** No, I'm agreeing with you exactly that the Democrats appear to be really very adept at disagreeing with each other. I mean I think that it's difficult because you know I'm a social scientist and so part of my job, you know, I was trained in econometrics I know how to do post hoc evaluations of policy I have a PhD in public policy. And so, you know, part of my job as a researcher is to evaluate policy and to try to figure out, you know, did this get us where we need to go is it going to get us there fast enough. That's sort of my job. And so, on the one hand, when people like me, you know, critique policies, or engage in our research to try to uncover what might be tools that get us where we need to go from a political perspective from an effectiveness perspective, you know, that can be used by others to say oh we shouldn't act. But it's important that people like myself are on this and speak the truth and do empirical research and put that forward. So, for example on carbon pricing, right, carbon pricing is something that I have studied for quite a while. My partner has actually written an entire book on carbon pricing all around the world. And it's funny when I look back on my early writing on climate change, I've been doing this for 15 years now, climate policy. I was pretty pro-carbon pricing I studied the EU ETS you know these were the thing that's the EU Emissions Trading Scheme -

**Greg Dalton:** Thank you.

**Leah Stokes:** -- a very prominent cap and trade program, the most prominent globally. And, you know, I was very pro these things. But I think we have to realize that there are studies coming out now from economics from political science from other disciplines that are pointing to these policies not moving fast enough. But I also understand where Mike is coming from where he says ultimately,

we're gonna have to get a deal in Congress we're gonna have to use every tool in the toolbox. And carbon pricing might need to be one of those tools. I agree. I just think that we have to be clear eyed about how effective that tool might be. And you know have a dialogue within our scientific community around that. But Mike is right, that can really be used to divide the community and can potentially lead to an action. So, I take his critique seriously and think about that in my own work.

---

**Greg Dalton:** You're listening to a Climate One conversation about the prospects for immediate action on climate. Coming up, how climate intersects with other social movements.

**Michael Mann:** I think we're going through the next tipping point moment on issues of racial justice. And that bodes well for that next tipping point that we need to see the tipping point on climate action.

**Greg Dalton:** That's up next, when Climate One continues.

---

**Greg Dalton:** This is Climate One. I'm Greg Dalton, and we're talking with Leah Stokes, Assistant Professor of Political science at the University of California, Santa Barbara. And Michael Mann, Distinguished Professor of Atmospheric Science at Penn State University. His new book is *The New Climate War: The Fight to Take Back Our Planet*. Michael writes about corporate America's "divide & conquer" strategy, that deflects attention from the systemic roots of the climate emergency, onto individual decisions.

**Michael Mann:** What better way could there possibly be to divide us than to get us arguing about our lifestyles. There's nothing more personal than that there's nothing that we are more invested in, than our lifestyle choices. And so, the reality is that we should do all those things that we can do in our everyday lives to decrease our environment footprints our carbon footprint as well. And in so many cases they save us money they make us healthier they make us feel better they set a great, great example for other people so of course we should do those things. The problem is when that's used as an argument against taking the systemic actions that we need to a policy change. What makes this a fraught conversation is that there are some malevolent actors who are actually using this as a way to divide us online in particular, bot armies, trolls looking to get you know environmental progressives arguing with each other about their lifestyle choices. It's deflection it deflects attention away from the needed systemic changes in policy solutions to individual behavior. In the book I use the example of, this ad that we grew up with the crying Indian ad, Native American. It's called the crying Indian advertisement. It was a public service announcement in the early 1970s, and you know, without going into all the details, details are in the book. It ends with this Native American with a tear running down his face. And the tagline is people cause pollution. People can solve it. And what it was trying to do was to convince us that all that bottle and can waste that was piling up. It was because of you and me. We needed to do a better job picking up our litter. What they didn't want happening was the passage of bottle bills in the individual states and ultimately at the national level because that would require the beverage industry to process their own bottle and can waste it would cost them money it would decrease their profits. And so, they engaged instead in this massive public relations campaign that was hatched on Madison Avenue to try to thwart efforts to solve this problem systemically and instead make it about you and me. And as a result, we have one of the other great global environmental problems today global plastic solution. Thanks to a successful deflection campaign by the beverage industry. Well, the fossil fuel industry is doing the same thing today that's a great playbook and they're taking it and they're running with it. And it isn't a coincidence that the idea of a personal carbon footprint calculator in

the early 2000's came from British Petroleum. That's where it started out. So, let's be aware of the fact that some are trying to convince us that individual action is the entire game. That's the whole solution as a way of diminishing our support for systemic changes for policies.

**Greg Dalton:** Leah Stokes, as a person who thinks about systems, I'm interested in how you see white supremacy and fossil fuels. People acknowledge the existence of climate change and get more concerned when they realize it will affect them. Now, white people are starting to realize that white supremacy is a threat to them too. How do you see any parallels between those systemic threats?

**Leah Stokes:** Well, there have been academics and also journalists writing about the links between white supremacy and the fossil fuel industry. I won't get into that because it's not my area of expertise, but I would just point out I think Emily Atkin who runs a newsletter called HEATED recently wrote about that if people are interested. But I think more broadly, you know when we look at all this amazing peer-reviewed research which shows that the benefits of the fossil fuel base system go to overwhelmingly white Americans and the costs in terms of let's say asthma pollution in backyards, those go towards Black and Latinx communities. And so, I think we have to recognize that you know the fossil fuel based system is built on white supremacy in many ways that it is only doable to create really giant oil refineries and polluting industries if you can stick them in somebody else's backyard. And that is overwhelmingly Black, Latinx and indigenous backyards. And so, I think that that understanding has brought a whole new layer really to how we think about climate action. And I think it is something that will fuel the movement going forward. And we've seen how successful the movement for black lives has been at mobilizing the biggest mass movement during a pandemic by the way when people like, you know, are social distancing and mostly staying in their homes. They got people to come into the streets like day after day after day all summer long. And I think that the climate movement could learn a lot from the movement for black lives. And so, I think that there's hopefully going to be a coalition forming between these communities over time to build a very big mass movement which doesn't just, you know, think about protecting, you know, species which are very worthy of protection or white people, which also are worthy of protection, but also people of color in the United States and globally who are overwhelmingly on the front lines of the fossil fuel based energy system and on the climate crisis. So, I think that this is really an emerging area that all of us have to think more about.

**Greg Dalton:** Michael Mann. I've learned a lot, reflected on my own white privilege over the past year and learned by interviewing and speaking with indigenous leaders about how pervasive systemic racism is in this country and how it connects with climate. What have you learned about your own white privilege during this racial reckoning in America?

**Michael Mann:** Yeah, well I mean I've been horrified I think so many of us have between you know with what we've seen play out. There's an element in society that was sort of latent it was there but we didn't really see it bubble to the surface and let's face it, those vices are preyed upon by the inactivists that I'm talking about. Look, in order to implement their fossil fuel agenda, the fossil fuel industry needs to win elections. They need politicians who are on their side. They need presidents who are on their side. And they long ago recognized that in order to get the sorts of numbers that they need to win elections they needed to weaponize this sort of disaffected base that we now think of is the Trump base, the MAGA crowd, who have you know who are sort of lured by red meat issues tinged with racism and nativism and white supremacy and misogyny. We saw that all come to a boil and the reason that that movement wasn't suppressed was that the fossil fuel industry and the special interests that they are part of need that base in order to win elections. And so, they're unwilling at least thus far have been unwilling to distance themselves from it because it's a wink, wink, nod, nod, they'll say things that sort of sound like there's an acknowledgment of the impropriety of the things that they're doing, but ultimately, they condone it they support it. And we saw that all come to a boil and maybe to extend the analogy we're finally in a position to lance that

boil which is to say that maybe we're finally past that hurl. Maybe that is the tipping point that we've just gone through as Leah said, we've gone through these amazing tipping points good tipping points, not the bad tipping points on climate that we fear but societal tipping points in the public consciousness. Whether we're talking about marriage equality where we went through this cultural tipping point where over a period of months, we saw a massive increase in public support for marriage equality. And there are and I'm sure Leah and her colleagues are aware there's a whole literature on sort of the social movements and why tipping points happen in social movements. And we're seeing that happen and we're seeing that right now. I think we're going through the next tipping point moment on issues of racial justice. And that bodes well for that next tipping point that we need to see the tipping point on climate action and there is an intersection between all these things. And we need to accept that recognize that build large coalitions who are helping us to advance through these tipping points in public consciousness.

**Greg Dalton:** Michael Mann is distinguished professor of atmospheric science at Penn State University, best known for his work creating the hockey-stick chart. His new book is *The New Climate War: The Fight to Take Back Our Planet*. My other guest today at Climate One is Leah Stokes, assistant professor of political science at the University of California, Santa Barbara. She's cohost of *A Matter of Degrees* podcasts and author of a recent book on state policies on clean energy. Ten years ago, Brandon Dennison founded Coalfield Development in Barboursville, West Virginia. They trained former coal miners and other locals for jobs in new industries including solar. We asked him to share his thoughts on how the Biden administration might approach Appalachia and in the region in need of both an economic boost and a green energy reset.

---

**Brandon Dennison:** We exist to rebuild the Appalachian economy from the ground up. So, we helped start the first solar company in this part of the state. We have a sustainable agriculture company we've done some recycled content manufacturing concepts. We've trained a total of just over 1200 people and about a quarter of those were connected to the coal industry prior to their training with us. We have seen coal miners become renewable energy workers and sometimes the skills are quite transferable. The first ever crew chief of our solar enterprise was underground minor who was already a licensed electrician because of the nature of the equipment that he worked on underground. So, it is possible but it's way harder than most folks realize and there's a lot of frustration in coal country. A lot of times the national discussion sort of put the lease as well we can just retrain those people. Part of the problem is that the new jobs don't pay as well as the coal jobs did. You could have only a high school education and earn 70 or \$80,000 a year in the coal industry and that's just not the case right now in some of the other renewable energy industries. Now the Biden administration there is a lot of talk and even written proposals in their transition plans to support coal communities and I think there's going to be dollars attached to that and that's good. I would caution that folks here in Appalachia are really skeptical of new government programs. So, we need government investment, but we want to contribute and be part of businesses and start our own business and we don't want to have to depend on the government to put food on the table. So, I would encourage may be a more liberal administration that yes we need those federal investments, but do it in a way that honors the dignity and the agency of the people in the communities here on the ground. People need individual financial assistance I don't want to dismiss that. But long-term, we need to support our local entrepreneurs and our local small businesses that are trying to do things the right way and that are trying to be environmentally sustainable involving local leaders and involving the private sector is gonna be really important to figuring this transition out.

**Greg Dalton:** Leah Stokes, as someone who's written about clean energy jobs around the country, I'd like to hear your reaction to Brandon Dennison's pointing out he's CEO of the Coalfield Development in Barboursville, West Virginia. I'd like to hear your response to him saying that

retraining is possible it's way harder than most people realize and clean energy jobs often pay less.

**Leah Stokes:** Yeah, well those facts are fairly well known unfortunately, and to be true. And I think we have to reckon with them when we think about the transition. Right now, unionization rates in the clean energy economy are much lower than within the fossil fuel industry. And that's a problem because it means that the pay is not as good that the representation is not as good benefits aren't as good. So, we really have to figure out how we can get unionization rates up in the clean energy industry and that's gonna involve companies like for example Tesla major car manufacturer that has not been pro-unionization coming around to unionization at their plants, right. If we have combustion engine cars fossil fuel powered cars that can be built in union shops, but we don't have electric vehicles being built in union shops that is a problem. So, I think that this is a big challenge going forward and there's a trade-off here too, right. Because on the one hand, if we have more high-paying jobs in the clean energy economy which I fully support that will also make the clean energy transition more expensive, right. And so, jobs have benefits on the one side are also costs on the other side. And that's why I don't necessarily think the goal should always be doing things the most efficiently as possible minimizing costs because costs are also benefits for other people through high-paying jobs. And I think that he made many good points when he talked about how the goal would be to have support from the federal government to kickstart initiatives but then those companies would grow over time and create their own reinforcing cycle. What's been so unfortunate for example, the CARES Act, which was the coronavirus stimulus bill passed last year through the Republican controlled Senate is that that money did not go to small businesses it did not go to people who were going to try and employ people and create opportunity and start to build the new future. Like I mentioned earlier, a lot of it went to very large fossil fuel companies who I will mention were laying off massive amounts of workers during the pandemic. There were fossil fuel companies I believe Exxon is the one that were more willing to fire people during a global pandemic and economic crisis than cut dividends for their shareholders. So, the fossil fuel industry is increasingly becoming a pretty bad employer, not just from sort of a health and safety perspective but also just from in terms of protecting its workers during a really critical time. And so, I think we need to realize that this transition is happening now that there are already people being laid off by the irresponsible fossil fuel industry, that the fossil fuel industry is getting a lot of government handouts and is not using them to employ people. And so, we need to be putting federal dollars investing them into the clean economy so that there can be small businesses in places like West Virginia and so that we can start this transition and pay people really a livable and a good paying job.

**Greg Dalton:** I'll just mention though, Leah Stokes, that those dividends, dividends are very important for energy shareholders people who own stock in energy companies and the companies loath to cut those dividends but those dividends are also income for pensioners and people teachers and others, you know, so those dividends do go to some people who rely on them, in some cases for their income. Michael Mann. Brandon Dennison also mentioned honoring the dignity and agency of fossil fuel workers. I rarely hear that in climate conversations, which often vilified the fossil fuel industry as though it's a monolith. I want to hear your thoughts on that is that talking about because the concern is that coastal elites talk down to fossil fuel workers the retraining is oversold, green jobs are oversold. I'd like to hear your point on that empathy and dignity he talked about.

**Michael Mann:** Yeah, it's important. And I'll tell you the fossil fuel industry has done a wonderful job with the propaganda campaign that they have implemented to convince us that the corporate profits that go to the fossil fuel interests somehow represent the good of the people who work for those interests. There's a big difference between a coal worker who statistically speaking will ultimately suffer health consequences for the dangerous nature of that job. There's a huge difference between them and the management and the owners who make record profits off of the



backs of these workers who make a decent wage, but pay for it ultimately in health and in other ways. And so, what we have to recognize is that look those people in a sense are heroes, right. I live in a state Pennsylvania it is a true fossil fuel state. It's where we discovered oil in this country. It is where you know it was built on coal substantially and now natural gas is an emerging an important emerging part of the economy here. So, I have an appreciation for the role that the fossil fuel industry has played in providing for you know jobs and the livelihoods. But tthere's a saying the Stone Age didn't end for want of stones and the fossil fuel age won't end for want of fossil fuels, it'll end because something better has come along and that's renewable energy. And so, we have to thank those people for helping or having grown the economy that we all benefit from today. Well, jointly recognizing that it is time to move on and you know I speak in parts of the state that are coal country and where the kids the college kids that I'm speaking to come from coal families. And that the reason they were able to go to college in part was because of the career of their parents in that industry. We need to make sure that they have other opportunities and opportunities to get a living wage and also to not have to make the health sacrifices that fossil fuel workers had to make in the past. And if you were to account for the health damages of fossil fuel extraction on the people who to do it and the people in those communities. If you were to actually incorporate that into the price tag fossil fuel energy would be remarkably outcompeted by renewable energy. And the problem is that that isn't in the price tag right now. Fossil fuel industry is getting a free ride the damage they're doing to the planet and the damage that they're doing to their workers to the health of their workers and people in the communities is not part of the price tag. That's why I do think that carbon pricing is one of the tools that we need in the toolbox to help level that playing fields that renewable energy can compete fairly in the marketplace.

---

**Greg Dalton:** You're listening to a conversation about transforming our energy economy. This is Climate One. Coming up, turning obstruction into cooperation.

---

**Leah Stokes:** The big dream that I have is that electric utilities will wake up and they will realize that they don't have to be fossil fuel companies, that they can create clean electricity and that they can be huge allies and make a lot of money in the clean energy transition.

**Greg Dalton:** That's up next, when Climate One continues.

Music: out

STATION ID BREAK at (approximately 40')

Music Bed - 60 seconds

Outro from second Station ID break:

**Greg Dalton:** This is Climate One. I'm Greg Dalton. We're talking with Michael Mann,

Distinguished Professor of Atmospheric Science at Penn State University, and author of *The New Climate War: The Fight to Take Back Our Planet*. And Leah Stokes, Assistant Professor of Political Science at the University of California, Santa Barbara and co-host of the podcast *A Matter of Degrees*. This program was recorded via live stream, with questions submitted by audience members. Given the current focus on Washington, listener Rolph wanted to know what environmentalists are doing to get climate-friendly policies enacted at local levels.

**Leah Stokes:** Right now, actually one in three Americans more than one in three Americans live in a place that has a target of 100% clean electricity in the coming years. And the most recent one on that list is Arizona, you know, not exactly a blue state. And so, we're starting to see cities and states across this country targeting policy. And, you know, the federal opportunity is an opportunity to use all that knowledge and momentum and take it up a notch, you know, put it to the federal level so that it applies to all the states in this country. Because we have places like Florida where local activists have been working for like more than a decade to try to get clean energy laws passed and they had been opposed by electric utilities and they don't have any target. And do you know how clean the electricity system in Florida is? It's about 15% clean, that's it.

**Greg Dalton:** The sunshine state. The sunshine state is not very -

**Leah Stokes:** Not very clean. And the national average by the way is about 40% now. So, they're way below the national average. And so, we have to have everybody moving in the right direction fast enough. So, I will definitely give shout outs to organizations like the Sierra Club which maintain chapters throughout the country and does a lot of local campaigning work. Right now, they're actually doing a lot of local campaigning on trying to get fossil gas out of homes and buildings and they've managed to pass those policies in 40 cities across California right now Santa Barbara is considering it where I live. Groups like 350 had been very effective at blocking new oil infrastructure, pipelines, LNG terminal things like. Lots of indigenous organizations have also been very effective at doing local fights. For example, if you think about the DAPL protest, right at Standing Rock.

**Greg Dalton:** Dakota Access Pipeline.

**Leah Stokes:** Yup, this was a really important thing led by indigenous groups. And so, you know, the movement has been very effective and I think passing clean energy laws locally and also blocking fossil fuel infrastructure locally. And what we really need to be doing is taking this moment at the federal level to scale that up. Because the federal government has something that states and cities don't have particularly in this moment, which is a lot of money, right. They can spend debt. and, in this moment, where so many states and cities are in terrible financial shape because of the pandemic and economic crisis. We need federal leadership to be supporting all these initiatives.

**Greg Dalton:** Michael Mann, you advised Jerry Brown when he was governor of California and some environmentalists beat up on him and his successor, Gavin Newsom for not banning fracking. This is some of the state-level action that Leah is talking about. Is that a healthy debate about legitimate issues or harmful distraction that sows division and hurts climate progress we've been talking?

**Michael Mann:** Well, I think we have to have a more nuanced discussion of that. Jerry Brown and Joe Biden, neither of them has as a goal the, you know, our continued reliance on fossil fuels, including natural gas, coal and oil. But banning, you know, outright bans aren't always the most sensible way to do things. Look at the death spiral that coal has undergone over the past four years under Trump's watch. Was that because of Trump's war on coal? No, it was because of market forces that have worked in a direction that is made them increasingly uncompetitive against other

energy sources. We can try to seize hold of those market forces and use them to accelerate the transition away from fossil fuels to renewable energy and that's what Biden supports and that's what Jerry Brown supports. So, there are different tactics different approaches, but the same goal here is to get us off fossil fuels. And there's a legitimate and worthy debate to be had about the policy instruments precisely how we go about doing it and let's have that debate. But let's not question the goals of other climate advocates simply because their preferences for different combinations of demand-side and supply-side approaches to solving the climate crisis. I did wanna comment on one other thing, which this previous conversation where we do see action at the local level in the state level in blue areas. But of course, the red states and Florida unfortunately is now in that category. We haven't seen the sort of progress that we ought to be seeing there. And it's a reminder that elections do have consequences that one of the most important things we can do and that's true in presidential elections, but it's going to be true in the off term and midterm elections as well is to come out and vote and vote at the national level all the way down I like to say from president all the way down to dogcatcher to make sure that we have people who support these actions at every level of our government. Otherwise, we get the sorts of backward policies that we see in places like Florida where it's just ridiculous. The sunshine state not even coming close to getting what it could out of solar energy or North Carolina, a state that when it had a Republican super majority actually banned the sale of Teslas. Is that free market economics is that consistent with conservative ideology? No, it isn't and it's hypocritical but the ultimate goal there was to keep renewable energy out and for them to help out their fossil fuel friends in the automobile industry. So, that's another lesson here. Voting is a big part of it.

**Greg Dalton:** Leah Stokes, your book tells the story of how clean energy moves forward and then backward in Arizona, Texas, Ohio. There's a tendency I think, get these laws passed and okay job is done. What's the pattern in those states of policies being enacted and then clawed back

**Leah Stokes:** Yeah, I really looked at how we can take one step forward and many steps back. And the book looks actually perhaps building on Mike's work about the hockey stick graph. I came up with this narwhal curve, so to speak, which looks at where we are today and where we need to go from a clean energy perspective. And it is a dramatic line upwards because we are not moving fast enough. And although we have made some progress at the state level like I mentioned one in three Americans live in places targeting 100% clean electricity. There have been concerted attacks from the fossil fuel industry and electric utilities on progress. And in some states like in Ohio, for example, electric utilities First Energy also now called Energy Harbor as well as AEP have spent \$60 million trying to buy off specific Republican politicians in order to get a massive coal bailout. That is what happened in Ohio and you don't have to just read my book to find that you can read the FBI affidavit where they, you know, put out this information before they arrested then Ohio speaker of the house Larry Householder for being involved in a \$60 million bribery scheme, all alleged at this point, but I would say there's a lot of evidence pointing in that direction that this is what happened. So, you know, there are like Mike was writing about in his book, like I write in my book. Like other people like Naomi Oreskes and Geoffrey Supran and many others have written, Bill McKibben. There are vested interests fossil fuel companies and electric utilities who do not want this clean energy transition to happen. And they don't just win by rolling back policies they also win by delaying because the longer we take to clean up our electricity system or cut carbon in lots of different sectors, the more money they can make on continuing to run their dirty coal plants and also continuing to extract fossil fuels. And so, just like this book the new climate war my book is about organized combat. It's about this big fight between clean energy advocates on the one hand climate advocates and the fossil fuel industry and electric utilities on the other. And the big dream that I have is that electric utilities will wake up and they will realize that they don't have to be fossil fuel companies that they can create clean electricity and that they can be huge allies and make a lot of money in the clean energy transition. And there are a couple utilities who are just at the tipping

point of beginning to think that way, but they are way too slow on the marks, so to speak because we are not moving fast enough when it comes to cleaning up our electricity system.

**Greg Dalton:** And you write that your utility So Cal Edison is one of those that supported a ban on new gas into new buildings in Santa Barbara. So, some of them are coming around. We're talking with Michael Mann and Leah Stokes. We have a listener to the livestream Matthew Johnson who asked, "Do you think, Michael Mann, that the various ways the previous administration handicapped government science will limit how effectively and quickly we can implement smart environmental policies going forward?" How badly has science been damaged?

**Michael Mann:** Well, you know the science has continued to be done and what they've done is other fossil fuel friendly administrations have done in the past is to try to suppress the message of what the science has to say. And the Trump administration in their final days actually try to throw a monkey wrench into the works within climate assessment essentially trying to install climate change denialist authors on the team that will ultimately put out the next congressionally mandated report about what the science has to say about the problem about the impacts about the solutions. And so that research continues to be done. But what I do think has happened is you know over the last four years they've been able to gum up the works. They have been able to interfere with all of the efforts that were underway at the national level at the federal level to act on climate. Donald Trump appointed you know a veritable dream team of fossil fuel lobbyists and climate change deniers to run his administration essentially outsourced energy and environmental policy to the fossil fuel industry. And while we were distracted by the Trump clown show meanwhile, the fossil fuel industry had free reign. There's a fair amount of damage that's been done policy wise. And the first thing the Biden administration will need to do is to ferret out those lobbyists and climate change deniers who have penetrated pretty far down into the government bureaucracy to repair the damage that was done, but we've got to move forward even faster because we lost four years of opportunity. That means we're farther behind we really have to hit the ground running. And yeah, we have to meet our Paris obligations for sure, but we now have to go beyond those initial obligations. We need to ratchet up those commitments. Us, and if we take a leadership position the rest of the world if we are to avert catastrophic warming. We can still do it. We've lost some time but there is still time. There is urgency, but there is agency.

**Greg Dalton:** And Michael Mann, climate science is often thought of as dark and scary, but there's actually been some positive climate science recently about how quickly climate would stabilize if we got to zero emissions. So, tell us about that promising science.

**Michael Mann:** Yeah, and it's sort of funny. And Leah I'm sure appreciate this as well. In the scientific community we've known for about a decade now, the concept of a carbon budget is based on the emerging science that shows that the amount of warming that you get at the surface anyways is pretty much a consequence of the cumulative emissions up to that point in time. That's why we can define a carbon budget for avoiding certain warming targets. And that's of course conflicts with the prevalent view that is still out there and so many people still think it's the current scientific consensus that if we stop burning fossil fuels if we stop emitting carbon that the planet will continue to warm up for decades. A lot of people still think that that was our messaging for a number of years. And it was based on outdated climate model experiments that were very simplistic. We used to treat carbon dioxide as a control knob and we turn it up and yeah, we have our hand on the knob and we turn it up and we stop it. The surface continues to warm for a few decades because what we call the thermal inertia. The oceans, the sluggishness of the oceans. They continue to warm up for decades into the future in response to the greenhouse gases we've already put in the atmosphere. But what we weren't doing in those experiments is incorporating the fact that the oceans and the terrestrial biosphere are dynamic components of the system. And so when you put carbon into the atmosphere they take some of that carbon out. And if we stop burning carbon the oceans in

particular, are continuing to draw down carbon. And it turns out that CO2 levels actually go down that sort of curves down that offsets the curve up that we would expect from that committed warming that thermal inertia. The net result, a flatline. If you stop burning carbon surface temperature stabilize within a few years. That's important because it means that there is an immediate and direct response to our actions.

[00:58:48] **Greg Dalton:** I wanna bring this home to the end here. Leah Stokes, you talked about electrifying everything and actually I saw a video that you are involved with where there's like Mr. Rogers neighborhood it was very cute showed how can electrify this one cute little town. But I want to talk about your cook stove, you changed you got gas out of your home.

**Leah Stokes:** I'm working on it. I'm working on it right now.

**Greg Dalton:** So, tell us about that because that's cutting edge, you know, for people who've already got solar and maybe an electric car. The induction stove how much does it cost do you need to get new pans?

**Leah Stokes:** Yeah, yeah, I love it. Okay, well this is my current passion project getting gas out of homes. This is the cutting-edge. If you want to be virtue signaling on climate this is your latest thing. You just can't shame others who haven't done it yet for our earlier conversation. So, right now a lot of us not all of us actually about quarter of the country I think is already just all electric homes. But a lot of us use gas for heating and our hot water and our cooking importantly. And this is a fossil fuel we often call it natural gas and we call it methane, it's also, we could call it fossil gas. We're using it in our home and there is more and more research coming out from public health, which is showing this is actually really bad for your health. It's basically creating pollutants. Think about it, you're kind of having a fire inside, right? And even if you have some ventilation you're breathing in a lot of pollutants by cooking in your home. And there have been studies that show that children growing up in homes with gas stoves are I think about 40% higher risk of getting asthma. So, these are, you know, fairly significant large substantive effects. And so, one thing you can do if you want to, you know, move away from fossil fuels is electrify your home. And it's not that hard to do and what the research shows is that it saves you money like from the start, right. Because these new appliances that you're running on electricity are very efficient. They do not need a lot of electricity to run. And so, they're cheaper than using gas. And when it comes to the switch itself of course there's a sort of upfront cost that you have to pay. I just bought an induction stove. I paid \$1300. If you Google it you can easily see that lots of new gas stoves are about \$1300. And when I started to put this out publicly as my New Year's resolution. It was amazing because a lot of people who are renters or who don't necessarily have the money to afford to pay that started to tweet at me what they were doing to jerry rigged their own electric stove. And they got electric toaster oven which I already have actually and use exclusively for my baking. They got a little induction heat pan basically like a little heating element that they could just do that and they stuck it right on top of their existing gas stove. So, even if they are renter, they've already basically electrified their kitchen. But you can also just get an induction stove. In terms of how the technology works it is much better for cooking. People don't know that but like chefs will tell you, you get much more precise temperature. It's considered sort of the gold standard of cooking. So, this is not a sacrifice in terms of your cooking. And in terms of your pans, the vast majority of pans will work. If you want to test it you just take a magnet and you put it against your pan. But like if you use cast iron, I use cast iron you use those Dutch ovens you use all those pans all clad. If you really care about your cooking pans, they're probably high quality enough that they're gonna work. And if you don't, you can get a couple pans it doesn't cost a lot. Because there's lots of climate research which says that if we want to limit warming to 1.5°C we actually cannot build any new fossil fuel infrastructure. So, we should not be putting in buildings with new gas. And if you do it from the start there's no need to retrofit, right. The building is cheaper from the get-go. So, I'm really passionate about this. I think

it's the new thing. If you already have solar, if you already have EVs, you're a vegan, you're composting, you don't fly, you bike you walk, I don't know, all the magical things you do. This is the next one. You can electrify your home. And I hope that people get excited about this because if some of us who can act earlier start to act and change the culture around it and make it cheaper for other people to do it before you know it we're gonna hit that social tipping point and more and more people are gonna be electrifying their homes.

**Greg Dalton:** Michael Mann let's finish on the big picture. What do we know about, COVID has reduced carbon emissions? We just came out of 2020. Is it gonna be really hot, you know, what do we know about the big picture of emissions how much time are we getting from this COVID recession and there are signs that we're already, you know, emissions are starting to rise as the economy comes back?

**Michael Mann:** Yeah, and let me add one last point about the previous conversation. So, you know, if we can electrify everything and then decarbonize the grid. That's the last really important step. And you can do that by getting your own electricity from renewables which we do. We have a wind only power plan. And so, our plug-in hybrid is charged-off of wind. So, our transportation is renewable. The electricity we're using the heat pump that we're using for heating and cooling; it's electricity and that electricity is coming from renewables. So, we can do it. We just need to electrify decarbonize the grid and energy efficiency is the last sort of critical tool in doing that. Now as far as COVID-19 we could spend two hours talking about the various lessons that it has taught us because there's so many. Both good lessons and bad lessons or lessons about the importance of, you know, basically the deadliness of anti-science. And we seem that measured the toll of anti-science of attacks on health science, public health science. We can measure that toll and hundreds of thousands of human lives. The toll with climate change will be even greater if we don't act. And so, we need to realize that denial is deadly. Not listening to the word of science is deadly. So maybe we have found new, you know, we have newfound respect for the importance of actually listening to what the science has to say whether to help public health science or the science of climate change. Now, when it comes to carbon emissions, we're gonna see them or we did see them drop by about 7% in 2020. That's good news. If we can maintain 7% a year for the next decade, we're well on that path of bringing emissions down enough to avoid that dangerous one and a half degree Celsius 3°F warming that Leah spoke of. But here's the thing. Social distancing the lockdowns the sort of behavioral changes that we made only gets you so much. That got us that initial 7%. But to get another 7% this year and 7% beyond that, the year after just behavioral change we're sounding like a broken record here now, lifestyle changes alone aren't gonna be enough. We need substantive policies to decarbonize human civilization and we need to do that quickly. That's the urgency, but as Leah has spoken to as we've talked about, we have the tools to do that now. Not 20 years from now. Sorry Bill Gates we don't need a miracle which he has said before. The miracle is here when you look up at the sun when you feel the wind at your back geothermal. We have the technology to do it. We just need the commitment and that's what it's about. And going forward I'm pretty optimistic. I think we're in a good place right now. I think this is a good time to be having this conversation because there's a real opportunity now to move forward in the defining crisis that we face even greater than the coronavirus crisis which will largely be in our rearview mirror a year from now. We will still have the climate crisis looming and we have to keep our attention focused on that.

---

**Greg Dalton:** Michael Mann is Distinguished Professor of Atmospheric Science at Penn State University, and author of *The New Climate War: The Fight to Take Back Our Planet*. We also heard from Leah Stokes is Assistant Professor of Political Science at the University of California, Santa Barbara and author of *Short-Circuiting Policy: Interest Groups and the Battle Over Clean Energy*

and Climate Policy in the American States.

**Greg Dalton:** To hear more Climate One conversations, subscribe to our podcast on Apple, Spotify or wherever you get your pods. Please help us get people talking more about climate by giving us a rating or review. It really does help advance the climate conversation.

**Greg Dalton:** Kelli Pennington directs our audience engagement. Tyler Reed is our producer. Sara-Katherine Coxon is the strategy and content manager. Steve Fox is director of advancement. Devon Strolovitch edited the program. Our audio team is Mark Kirchner, Arnav Gupta, and Andrew Stelzer. Dr. Gloria Duffy is CEO of The Commonwealth Club of California, where our program originates.  
[pause] I'm Greg Dalton.