

The Great Simplification

Nate Hagens (00:00:00):

The impacts from climate change on our temperatures, on wildfires, on ocean heat currently around Florida are approaching 100 degrees have been in the news. This podcast is going to be about climate research and climate journalism, and I'm aware that to those listeners who think humans are going extinct in the next two decades, I'm not going to reach them ever with this sort of podcast. To those humans who think that climate change is a socialist, globalist hoax, and that the climate has always warmed and it will warm again, and humans have a negligible role, I will never convince those people either. But there are many people in between who know that climate change is happening. It's largely caused by humans pulling up ancient carbon and emitting it 10 million times faster than it was sequestered. So we want to understand what paths still remain and which ones are fantastical.

(00:01:18):

My guest today is Roger Pielke, a professor of environmental science and policy at the University of Colorado. Roger and I talk about the historical architecture of the representative concentration pathway scenarios in the IPCC, the fact that many of these are exogenously created. They had nothing to do with science. They measured a certain amount of GDP in the year 2100. The bottom line is that the amount of fossil fuels that are affordable and extractable probably is a fraction of what some of the early climate models show.

(00:02:03):

On the flip side, the biological feedback mechanisms that we're facing are probably higher than was originally estimated. Roger and I also talk about what was the deal with two degrees Celsius? Why was that chosen as a threshold? Roger researches and writes on subjects from understanding the politicization of science, to decision making under uncertainty, to policy education for scientists. He just recently gave a presentation to Congress. His most recent book, *The Rightful Place of Science: Disasters and Climate Change*, takes a deeper look at the IPCC and climate science and how it is being interpreted in the media. I hope you learn from this episode, and please welcome Professor Roger Pielke.

(00:03:10):

Roger, greetings.

Roger Pielke Jr. (00:03:13):

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Hi, Nate. How you doing?

Nate Hagens (00:03:14):

I am good. It is a Friday afternoon. It's 82 degrees here in April, and tomorrow night it's supposed to snow. So it's the strange spring that we've had. Where were you in Denver or Boulder, I forget?

Roger Pielke Jr. (00:03:27):

I'm in Boulder, Colorado, and it's snowing behind me right at this moment.

Nate Hagens (00:03:31):

Oh, okay. That's headed this way. So I have long been aware of you and your work. We have some mutual friends. I literally have like 100 questions to ask you, so if your game, we're going to try to break eight hour podcast record. No, I'm kidding.

Roger Pielke Jr. (00:03:54):

I got my coffee ready. Let's go, yeah.

Nate Hagens (00:03:55):

Okay. All right. So climate, huge, huge topic in our world relative to our future. You are prominently writing about what's going on with climate, climate history, the models, the politics, the science. Here's how I'd like to start. I'd like to get into the RCP, the representative concentration pathway scenarios and their implications. But first, before we do that, how did the climate models and the assumptions that go into them come about, because I don't think a lot of people think about that or know about it? Could you give us a little story of how that ended up happening?

Roger Pielke Jr. (00:04:38):

Yeah. Well, first, thanks for having me. It's great to be here and I'm looking forward to our conversation. So to run a physical science climate model, it needs some inputs. And if you want to know what the climate's going to do in coming decades and centuries, you need to make some assumptions about how much we're going to emit. If you want to know how much we're going to emit, not just carbon dioxide, but methane, nitrous oxide and so on, you have to know something about, well, how many people are going to be on the planet? What kind of energy are these people going to use? How are

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they going to produce that energy? What's the economy going to look like? Where are people going to live? How are we going to get our food? Go on and on and on. So it turns out that the physical sciences of climate change are themselves built on the back of a lot of work that's done in what's come to be known as integrated assessment modeling.

(00:05:29):

But that's built at the back of things like futures and demography and economics and even political science and so on. And so in order to run a climate model, you need to have these assumptions. And going back to the very first IPCC intergovernmental panel on climate change reports in the late 1980s, you start out with what are called scenarios. Those first reports, the very first report had four scenarios. The most recent sixth assessment report AR6, had thousands of scenarios in its database. So the scenario world has expanded, and the RCPs, which we can talk about in more depth, are the main scenarios that the climate research community focused on really from 2005. It's still fairly prominent in the literature, even though there's another generation of scenarios out there.

Nate Hagens (00:06:23):

Okay. So what was the origin of those RCP scenarios? There were four of them. Then particularly I want to talk about RCP8.5, which you've written a little bit about.

Roger Pielke Jr. (00:06:38):

Yeah, so it was probably about the third formal generation of scenarios under the IPCC. A process was started in 2005 to identify a small number of scenarios. In a small number of scenarios, you can't use 1,000 scenarios, because computer models are computationally intensive. They take time and money to run. So the community needed to winnow down thousands of scenarios to just a few. They decided to focus on four scenarios. It really wasn't anything more complicated than, well, we need one that's pretty high, we need one that's pretty low.

(00:07:15):

At the time they said, "Well, we need two in the middle, because if we picked just one, everybody's going to focus on that as the central tendency." And so they went to the existing literature on scenarios that was out there and had a process with integrated assessment modeler experts, climate modeling experts, where they selected four of

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these scenarios, which were intended to be quote-unquote "representative" of the family of scenarios that they come from. And RCP8.5 was selected at the time as the only, what's called, a baseline scenario. So this is a world without climate policy. Yeah.

Nate Hagens (00:07:56):

The RCPs and the 8.5 stands for 8.5 watts per square meter under that scenario of climate forcing, right?

Roger Pielke Jr. (00:08:05):

Right. Refers to the energy balance at the top of the atmosphere. So the higher the number in the RCP scenario world, the greater the change to the climate in the energy system.

Nate Hagens (00:08:21):

So I think there was an assumption, because I originally had this assumption, I don't know, 10 or 15 years ago, that these scenarios that were distilled down into four categories from 1,000 or whatever you said were "this is what we expect could happen to the climate based on our science. And our science suggests that in the year 2100, there will be 8.5 watts of forcing per square meter." But you just said that, let's pick a low, let's pick a high. And then did the RCP8.5 scenario, was it based on climate science and then built out, or was it based on, "let's see, what sort of forcing would be really high and then back cast from that?"

Roger Pielke Jr. (00:09:10):

It's very much the latter. People will be, and probably should be shocked, that the scenarios that are at the Center of Climate Research, really for the last two decades were never evaluated for their plausibility or their probability, their likelihood. What we know now is that RCP8.5 was never a realistic projection of where the world was heading, either in terms of the emissions to generate the forcing or the forcing itself, because the scenarios that exist today can't generally produce that level of forcing now.

(00:09:46):

There's some scientists who say, "Well, if we added some things or uncertainties break a certain way, that's fine, but those aren't in the scenarios we have today. So it's a

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little bit more, a little bit less precise than you might think it is. It's let's have a high one, 8.5 that's pretty high, let's have a low one, 2.6 that's really low and a couple in the middle. And it was really nothing more sophisticated than that. One of the things I and my co-authors have done is to try to increase the focus on plausibility, because we want to focus on scenarios that are plausible futures, so they're more meaningful in policy and public discussions.

Nate Hagens (00:10:28):

So I think I remember, and here's another problem with all these things, is I've done a lot of looking into climate over the last 15 years, and I care deeply about the natural world and the environment and the oceans, but a single person can't possibly stay on top of all this stuff, even within the climate field. And I'm looking at finance and human behavior and plastics and politics and you just can't stay on top of it. So what I heard, and this may be a faulty memory, is that some people in the IPCC brought in some economists and said, "Come up with a reasonably plausible economic scenario that would lead to 8.5 watts of forcing in the year 2100 and then put in the amount of coal, oil, natural gas, et cetera, and economic growth that would get us to that point, because we want to see if the world warms like that, what would be the impact on all heat and precipitation and everything else." So it was kind of an economic overlay and then it was fed into all the climate models. Is that what happened?

Roger Pielke Jr. (00:11:40):

Yeah, that's pretty much correct. It's interesting, because if you go back far enough in time, so the '80s and '90s, the way the IPCC did its scenario work leading into the physical science climate models or system models is you had to do the socioeconomics first. We had to come up with projections for population, projections for energy consumption, projections for the economy, and put those into a scenario. And then once the scenarios are developed, then you run them through the climate models. Well, in 2005, the climate modeling community said, "Hey, we can simplify this. We can make this a lot easier. We're going to pick the radiator forcing levels for 2100, and then we'll send those trajectories of radiator forcing to the climate modelers, which is what they need to run the earth system models. And then we'll also send them at the exact same time to the integrated assessment models and the social scientists, and then they can tell us what futures will arrive at those levels."

(00:12:39):

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So there was this split where the radiative forcing was selected quite independently of the socioeconomics that produced that forcing. This was a problem, because when they sent the 8.5 watts per meter squared radiator forcing scenario back to the integrated assessment modelers, almost all of them were unable to create a future with that level of forcing. It required heroic assumptions about the burning of coal in particular. So that was, I think, a fundamental error that it's an emergent property, but it's something that came out of the community trying to do good work, but not realizing that once you cut that link between the socioeconomics of the real world and the needs of climate modelers, don't be surprised if you find yourself in a place where your assumptions actually are implausible.

Nate Hagens (00:13:36):

So I'm going to come back to this, but can you give us an update on, I seem to have recalled reading a month or two ago that the Biden Administration officially discarded the RCP8.5 model, and it is starting to be discredited as plausible. Can you give an update on what's going on there?

Roger Pielke Jr. (00:13:59):

Yeah, I think there's a general recognition in the community that it's an implausible scenario. Whether or not the world can reach radiated forcing levels of 8.5 watts per meter squared or even higher, is certainly the subject of continuing research and discussion and debate. Nobody in the energy space or even the climate space thinks it's plausible that the world is going to turn all of its energy consumption into coal based sources. We're not going to get rid of wind and solar and nuclear and hydro, replace it with coal. We're not going to get rid of petroleum and natural gas, replace it with coal. It's just not going to happen. So I think there's a general acceptance of that. The Biden Administration in its update to what's called the social cost of carbon, they engage with a group called Resources for the Future to produce a set of scenarios of the future. RCP8.5 was way beyond even the top of the envelope of those scenarios. The Biden Administration didn't put out a press release saying, "We junked RCP8.5," but in practice, it's nowhere to be seen.

Nate Hagens (00:15:07):

Except that many, and this isn't a recent thing, but over the last 10 years, I know a lot of IPCC climate scientists who are specialists on the Arctic or specialists on water

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vapor or whatever. They're not like macro analysts, but they all say that them and all their friends just assumed that business as usual would result in RCP8.5. There were many famous books like *The Uninhabitable Earth* by David Wallace-Wells and others that set this cultural Overton window that that was the base case. So my question to you is, you, Roger have written extensively on apocalyptic climate scenarios, but even outside of the RCP8.5 scenario, catastrophic scenarios have been present for a long time in environmental research. Have these, and in particular RCP8.5, hurt the cause for reducing the human impact on the environment, because it created a Chicken Little, a sky's falling cultural dynamic where, oh, this is the base case. Well, not really. Well, what are your thoughts on that?

Roger Pielke Jr. (00:16:26):

Yeah, I have a couple thoughts on that. The first one is, I don't think the efficacy of a bit of research for advancing a particular cause, no matter how worthy it is, that's not the criteria that we should be using to evaluate the quality or importance of the science that we do. There are some futures that are more or less plausible, and the minute we start thinking, "Well, how instrumental is that scenario for affecting the change that we want?" I wrote a chapter in my book, *The Honest Broker*, about the decision to go to war in Iraq and the narrative around weapons of mass destruction. And you can say, and I think it's true, that the Bush Administration, Tony Blair banging the drum on weapons of mass destruction, that was effective in getting people focused and maybe supporting intervention. At the same time, we can also say that the intelligence communities in the US and the UK in particular suffered a big hit to their credibility, because people were using intelligence in this instrumental fashion.

(00:17:34):

There's a debate in the environmental community, whether scare stories or extreme scenarios motivate people or not. I'm a political scientist. I focus on public policy. In the toolbox of tools that I teach and understand, scaring people into action, it works in some contexts. When there's a fire in a crowded theater, it's pretty effective, but when the ambulance picks you up and you have a heart attack. But in democratic systems where you need public consensus, and particularly on an issue like climate change, where you need public support for decades better part of a century, there's very little empirical evidence that keeping people in a state of fear for decades is actually in an effective strategy. So my first appeal to the scientific community is let's call things

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straight, regardless of whether you think it helps or hurts your cause, let's call it straight, and then we can figure out what policies are consistent with calling things straight.

Nate Hagens (00:18:37):

That's my philosophy as well, Roger. But so let me simplify that a little bit. I don't know the exact numbers, but let's just say that the research and then the media that responded to the research said, "We're headed for a four degree Celsius world," and people got up in arms about that. Then the energy reality of oil limits, and we don't have that much fossil fuels. No, the more plausible scenario is two and a half degrees Celsius. Well, two and a half degrees Celsius is going to be hella bad enough on its own. But the way the human brain works with the high water mark, it's like, "Oh, two and a half doesn't sound so dangerous anymore relative to four." And so people have a tendency on both sides of the discussion to attach their identity to a story. So how does climate science try to stick to the science with this as a backdrop?

Roger Pielke Jr. (00:19:39):

Yeah, I mean, I can tell you a little story. I was on a disaster survey team in Grand Forks, North Dakota when I was a young researcher in late 1990s, 1997. And one of the things we learned there, it was an ice melt flood, so it happened sun shining, but the Red River of the North flows from the south to the north. The ice and snow melts in the south sooner than the north, and the water flows to the north, and it piles up, because the snow and ice to the north hasn't melted yet. Anyway, this was a flood that could be seen coming months in advance, because of the high snow pack. The National Weather Service decided to tell people in Grand Forks, "You're going to see a flood of 49 feet." And after the flood, which people were evacuating in the middle of the night, people were surprised it was a flood, even though it was well predicted.

(00:20:30):

We interviewed the hydrologist at the National Weather Service and they said, "Well, we picked 49 feet. We didn't know exactly what it was going to be. We knew it would be a record flood, but the flood of record was 48.8 feet. And so we thought that would scare the bejesus out of people, and they would take the right action." When we interviewed citizens in the community and said, "Well, what did you hear when they

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said, '49 feet?'" They said, "Oh, well, that was only a couple inches higher than the last big flood. That wasn't so bad."

(00:21:00):

So the message people received was the opposite of the message that was sending through a quantitative number. So for me, the idea that we can use global average temperature targets as a policy target, much less as a political motivator, exactly as you said, some people are going to hear these numbers, they're going to hear how they change, and they're not going to respond how the people putting the numbers out think they're going to respond. So I'm not at all a fan of global temperature targets. It helps us to focus the mind and it's good for integrated assessment modelers. But if I'm going to Thanksgiving dinner with my family, it's the last thing I'm going to talk about is global temperature targets.

Nate Hagens (00:21:43):

Well, what are you a fan of in that domain?

Roger Pielke Jr. (00:21:48):

Yeah, so the things that I find that motivate normal people out there in the world are the economics of energy, maybe the public health effects of energy, security. There are subset of people for whom risk about the global environment are a very motivating factor. But in order to get a coalition of action in support of decarbonizing the economy, which I think is an important, I've been working on this for almost 30 years, we need a broad base of policy justifications. It turns out that scientific justifications, they're important and they underlie a lot of what we know.

(00:22:24):

But if you really want to get people off their butts and moving, it's jobs, it's the economy, it's energy security, it's looking out their window and seeing air pollution. So I'm very much a fan of meeting people where they are, and if I have to sit down and explain RCP8.5 to somebody, I've already lost the policy discussion. So if somebody can find a Ford F-150 Lightning that's reasonably priced and performs better than their old gasoline or diesel version, then they're going to buy it and I don't have to convince them of anything.

Nate Hagens (00:23:01):

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But I think it's beyond just an academic discussion, the fact that the entire climate movement was emotionally supercharged by this RCP8.5 scenario, and that changed the whole polarization of the debate and other things. So it's really a mismatch in two ways with the human brain. The human mind evolved in a vastly different situation, and the climate change itself is almost the perfect storm for humans to ignore or deny, because it's abstract, we don't see it, it's in the future. There's no easy answers. But then on top of that, there's the science and then the communication of the science. A lot of the communication of it didn't understand what you said earlier about RCP8.5 was not a climate bottom up model. It was, let's see what a big forcing is, and then back cast from there. Let me ask you if you'll change your verdict on the RCP8.5 in the face of the recent phenomenon of climate anxiety, especially among young people, and you're a college teacher, what do you think about that?

Roger Pielke Jr. (00:24:26):

Yeah, I do think there are consequences of over-hyping or exaggerating the state of science or even misrepresenting it. I teach the example as a lead in to some of my environmental policy classes. I teach the example of how the world respond to global so-called population crisis of the 1950s, '60s and '70s. There's good empirical evidence that was a crisis that never was. And yet the policies and response, particularly the one child policy or forced sterilizations of people in developing countries around the world, the responses to that non-crisis were probably worse than the crisis itself. So it is absolutely essential that we diagnose and understand problems accurately. I mean, the problem with RCP8.5 is there's a whole set of reinforcing... Excuse me.

(00:25:29):

There's a whole set of reinforcing incentives. So if I'm publishing a study, if I use RCP8.5, I'm going to get big climate change effect. It's more likely I'm going to get that study into science or nature. If science or nature decides to publish that study, it's more likely that the press release they put out is going to get picked up by the Washington Post or the New York Times. If I'm a reporter for the New York Times, I'm more likely to get a byline on the front page if I say climate change is going to be apocalyptic rather than not. Then you get to the-

Nate Hagens (00:26:00):

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So it's not only social media that's forcing extreme views on things, it's the scientific and PR process itself that is advocating for more extreme views, because they get more views and clicks and PR, et cetera?

Roger Pielke Jr. (00:26:18):

Absolutely. Yeah, there's a little bit of an element of climate politics in there where people like extreme scenarios to promote, but I don't even think that's the biggest factor. I think it's more about the culture of modern science, the incentives we've created in universities and research institutes. But then if you're David Wallace-Wells, or you're Greta Thunberg, or you're a young person in one of my classes, and all you do is you get your media from Facebook or TikTok or Twitter or even people getting it from CNN or the Washington Post, you're just getting someone skimming the most extreme of the extreme from the entire literature. Climate science is wonderful. There's a great literature out there, and I wish people could see it and understand it, because the diet that most people get fed of climate science is not representative of the science that's actually out there and the good work that people are doing around the world.

Nate Hagens (00:27:11):

How can we do that though? Whose role is it to be that honest broker of condensing the aggregate of the climate science, because it's too big for a human individual brain to assimilate?

Roger Pielke Jr. (00:27:24):

Absolutely. Right. As you said, there's nobody who's an expert in everything climate, not even close. So there's good news and bad news. The good news is we created an institution in the 1980s, the IPCC, to assess the science. I often say, and I believe this, that if the IPCC didn't exist, we'd have to invent it to do exactly what you say. Is to take tens of thousands, hundreds of thousands of studies and come up with some coherent summary.

(00:27:53):

One of the problems with the IPCC is that it has deviated from that original mission. I was very critical of the synthesis report, which originally came out, it reads a lot more like skimming the most extreme of the extreme off the top and presenting a case for

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advocacy, of getting people motivated to win the news cycle in this case for part of a day, which was about it. The IPCC needs to be an arbiter of the science, the good, the bad. I spent a lot of time with the IPCC report in areas where I have expertise and if you get into the meat of the report, there's a lot of really good stuff. The problem is you have to be an expert to separate out the good stuff from the stuff that's not so good. And that kind of limits the value of the IPCC to the general policymaker or the public.

Nate Hagens (00:28:44):

So let's move on from RCP8.5 to another IPCC benchmark, which is the two degrees threshold. So how did climate policy and the IPCC settle on two degrees as the goal for safely limiting human influenced climate change? Is it based on physical science around feedbacks and tipping points, or how did that number get chosen?

Roger Pielke Jr. (00:29:10):

Yeah, it got chosen in the same way that policy targets pretty much get picked in any area. You use some science, you get in the ballpark, then you pick something qualitatively and politically that seems to make sense. Formally, the two degree target came from a advisory group to the German government, which came up with a methodology in the 1980s, 1990s, which is no longer current. It's based on outdated science, actually science that wasn't really peer reviewed. But two degrees is a nice number. It's round, it's curiously round, and it got picked up and promoted. Similar with the 1.5 degree temperature target, which is also curiously a nice round number.

(00:29:58):

Again, for me, it gives the illusion of precision and sciencey-ness, but the reality is the policy message is we should be decarbonizing our economy as fast as we can and get to net-zero as fast as we can. And nobody knows where that is, but this gives us an anchor, something to hook onto. I understand it's qualitative political background and I'm not particularly opposed to it, and I'm not going to say 2.1 is better or 1.6, but I think people have to realize that it's not the sort of precise number that, "Well, if the world gets to 2.01, all hell's going to break loose, but if we get it to 1.99, we're going to be okay," it's not like that at all.

Nate Hagens (00:30:42):

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I just this morning released a video, one of my Franklys, on probability and reality and perception. And I included some real IPCC probability distributions of temperature out to 2100 as well as my own perceived that I think in some ways it's far less likely to reach those, because we don't have the fossil fuels available. But then again, it's likely that we'll exceed them, because no climate model integrated assessment model looks at denuding forest for fuel in the future if an end of growth scenario, and they don't include a nuclear war as a possibility, et cetera. So I want to ask you some questions about this, but let me first lead with this. If you, Roger Pielke had to, right now, knowing all the things you know, had to create a probability distribution in your own mind of temperature relative to pre-industrial average in the year 2100, what would be that range and how much confidence would you have in the midpoint and the range of that? Or is that even a fair question to ask you?

Roger Pielke Jr. (00:31:54):

It's a fair... Here's my answer. My answer is that I can come up with a number of different methods to produce such a number, but I will tell you that any number that I would produce, I would assign zero confidence to. All you have to do is look at the history of long-term predictions of the evolution of society, including technology, energy consumption, population, wars, economic growth. We suck. We are really bad at that. And so if those are the inputs, and let's just postulate that the earth system models, the physical science models are perfect. Even if we postulate that, we still can't do it. For me, it's far more important to figure out how do we start this long-term journey rather than how do we finish it? And there's so much attention being paid to how do we get the last ton of CO₂ out of our economy?

(00:32:51):

What I want to know is how do we get emissions to peak and then decline by 2030? Let's just start at the beginning. Once we do that, then ask me, "Well, how do we accelerate it?" Policy is incremental. It's a little bit like asking someone, an expert, in 1920 and say, "You know what? Give me your best estimate of a probability distribution for the global average lifespan in 2023." Can people do it? Sure, they can do it. Would it have meant anything? Well, it's before they invented things like penicillin and MRIs, and it's just kind of a ridiculous effort.

Nate Hagens (00:33:27):

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Okay. Two responses to that. First, especially the high status silverback, male hominids in our world, everyone likes to have an opinion. I think it's going to be three degrees Celsius. What? No, you forgot about the positive feedbacks and methane, it's going to be four degrees. Everyone seems to have an opinion and they like to debate about it, like the Buffalo Bills will win the Super Bowl next year. You know what I mean? Well, the real answer should be an answer like you just said, "I have zero confidence." Well, with the exception is there is a pipeline of prior emissions. We can be confident of certain things. What do you think about all that?

Roger Pielke Jr. (00:34:10):

So we did a study recently with me and Matt Burgess at Colorado and Justin Richie at UBC. We took the big family of IPCC scenarios, and we just asked two simple questions, what subset of those scenarios are most consistent with history? So history is like 2005 to 2020, because they were mostly-

Nate Hagens (00:34:31):

You mean the history of actual climate measurements?

Roger Pielke Jr. (00:34:36):

Actual emissions, and what are called the Kaya identity factors. Basically GDP, population, energy consumption, energy production. Our focus was on carbon dioxide emissions. Then we asked which ones are most consistent with the near term projections of the International Energy Agency. We went from something like a couple 1,000 scenarios to a couple 100 and that subset projects as a whole 2.2 degrees in 2100. Do I believe that? No, not for a second. And then people who criticize our paper said, "Yeah, but these scenarios are just a subset of possible futures." Yeah, absolutely. They're just a subset of possible futures. But those are the ones that we're using to guide the IPCC International Climate Policy. So if that's the fact, we ought to know where we stand with respect to them. But again, I'm much more confident in a prediction of what are our emissions going to be next year, which is hard enough or 2030. 2100, we might as well debate who's going to win the Super Bowl in 2100 and it's not going to be the Buffalo Bills, but it'll be somebody.

Nate Hagens (00:35:50):

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So here's another theme that is kind of prevalent, and I think I remember seeing you write about this in the past, is the actual real observed temperature and climate situation now in 2022 or 2023, how does that relate to what the RCP scenarios projected in 2005 or in the past? I think there is a sense that things are much worse than the models even had projected.

Roger Pielke Jr. (00:36:30):

Yeah, this gets to your choice of indicators, and there's more indicators of the climate system than we could ever hope to discuss or count. Is it sea level rise? Is it global concentration of carbon dioxide? Is it radiator forcing? Is it the number of hurricanes? Is it flooding? Is it the economic damage? Is it people dying from... Is it agricultural productivity and all of these factors that we care about. So the number of species, the health of the oceans, coral reefs, and so on. All of these factors are confounded by the fact that there's much more that impacts them than just climate by itself.

(00:37:14):

So for example, if you look at deaths related to extreme weather events, that's dropped by two or three magnitudes over 100 years. And so if there is a climate signal, it's really hard to see that there, because we're smart, we're inventive, we invented weather satellites, evacuation planning, and so on. So are things worse than were projected? In reality, pretty much everywhere around the world, if you look at indicators of human wellbeing, things are better independent of whatever the climate's doing than they have been in the past.

Nate Hagens (00:37:49):

Yeah. With a big old asterisk in that a lot of these risks are back loaded, particularly climate. You can't look at the last 10 years and say, "Well, look how good things are," because we know what's in the pipeline and the next 20 or 30 years are going to be-

Roger Pielke Jr. (00:38:06):

That's a different question. Yeah. Your first question was, looking to today, are things worse than were predicted? So just stop the clock today. And the answer is no, things are not worse. All right. Then the question is, well, what do we think is going to happen in the future? And again, that's a different question. Yes, I agree with you that the climate risks are back loaded. This is something that I see a lot in the media, is people

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will report, well, here's what's predicted for 2100, more tornadoes. I'm just making that up. And then they say, "Oh, we had a tornado yesterday." So that's consistent with what the predictions are, and it just doesn't work that way.

Nate Hagens (00:38:47):

So not only are we facing climate change, which to me is not the problem, it's a symptom of a much larger dysfunction of a aggressive creative species finding a huge amount of buried sunlight and throwing a party for two centuries. But not only is there the climate change aspect of this, but it just seems, and this is hitting home with you speaking today, it's like humans encountered this complexity bomb. That even the experts can't agree on some of these things. How do we even manage this? It's a rhetorical question.

Roger Pielke Jr. (00:39:33):

Yeah, yeah. But I'm very optimistic about our ability to transform the global energy system over the next 50, 70, 80, 100 years, because we've done this sort of thing before. If you look at agricultural productivity, if I asked you, you're a worlds leading agriculturalist in the 1930s, how are we going to feed 8 billion people in the 21st century? Your answer would be, "Hell, if I know." I mean, that's a tough problem. If I were to say, "How are we going to deal with diseases and the fact that there's people and lifespan in some countries was like 35 years a century ago?" Again, the answer would be, "I have no idea how we're going to do that." People still don't agree about the global population crisis. Earlier I said it was a non-problem. Some people will go to the mat and say, "Thank goodness for the green revolution that saved us."

(00:40:27):

So I expect even if we successfully decarbonize the global economy, 80 years from now experts are still going to be arguing over what it all meant and how we did it. Was it the fact that we had scare scenarios that forced us to do it? But I have a lot of faith in the technological ingenuity of human beings. And if we decide as a species that we want to decarbonize the economy to a very low level by the end of this century, there's no reason why we can't do it. And you're right, it's absolutely a consequence of us discovering fossil fuels. And they had a lot of benefits, but that party went on too long and too much of a good thing is not a good thing. But at the same time, I think we're going to get on top of this one also, and it'll be a lot like the

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population crisis. One day we'll be better off and then we'll be arguing why that is, and we won't agree.

Nate Hagens (00:41:21):

I don't really agree with that. I don't think we're going to optimize for carbon. I think we're going to try to optimize for economic growth, and we're going to kick every can possible to keep growing until we can't. Then there is a shrinkage. I call it a simplification on the horizon. So we will have less emissions and then figure stuff out and hopefully have low carbon energy sources as part of the mix. But let me dovetail that back to your expertise and your writings. As far as I know, Roger, zero of the integrated assessment models have global economic growth stopping in the next 50 years, and most of them don't stop through the year 2100. How important is this to accurate climate assessments? And is it because it's too politically difficult to forecast an end of growth and therefore it can't be spoken due to oil production declining, et cetera?

Roger Pielke Jr. (00:42:18):

Yeah, so let me start with saying, I agree with you that the world's going to optimize for economic growth going forward. It's not going to optimize for carbon, but I don't see optimizing for economic growth and decarbonization is at all inconsistent. And we could unpack that also. I think a lot of times people talk about economic growth and it's accelerating or slowing down or even stopping or de-growing without having a real good understanding of what economic growth is. One part of economic growth is a growing population, all else equal. The world's not going to, unless there's an asteroid, a nuclear war, or heaven forbid, a worse pandemic than COVID, the world is not going to intentionally, at least, depopulate before 2050. Maybe that's the inflection point somewhere around there.

Nate Hagens (00:43:10):

Well, most countries in the world are below replacement rate right now.

Roger Pielke Jr. (00:43:15):

Right. The central estimates of everyone from IHME to the UN is a peak and then decline this century. So that in itself is going to slow down and retard economic growth. But another big part of economic growth is our gains and efficiency. So I

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mean, if you're talking about energy efficiency or the efficiency with which we employ business processes, hey, guess what? You're a fan of economic growth, because you can't help it. It's a consequence of becoming much more efficient in how we do business.

(00:43:47):

So I wrote a piece a few years ago on let's just take apart economic growth and do you want less people? Do you want less efficiency? Do you want to stop getting more, more from less? And it turns out it would be hard to stop economic growth even if we said we wanted to. Now, what I think people who talk about de-growth actually mean, and if you look at the literature, they'll actually come out and say it, they don't mean stopping economic growth. It means changing what economic growth means and the significance of what it is that we're pursuing and getting more from less from. So I find it's not a particularly useful debate, because economic growth, in many contexts, it's just an emergent property of humans doing the human thing.

Nate Hagens (00:44:39):

On the backs of 100 billion barrels of coal, oil, and natural gas equivalent every year.

Roger Pielke Jr. (00:44:46):

There are a lot of places that are very unique. I lived in Norway last year. Norway seems to do pretty well with economic growth, maybe too well for professors who are visiting without any heavy reliance on fossil fuels for their energy production. So I think it's possible to see societies, parts of the world that have economic growth and have very low carbon footprints. So I don't see those as being inconsistent in the slightest.

Nate Hagens (00:45:19):

My question was more about, there doesn't seem to be anyone in the IPCC in their public charts and projections that acknowledges the peak oil and the consequences of that. Not like we're running out of oil, but that oil underpinning our vast financial Rube Goldberg machine has an expiration date, that's just not in the models. So how accurate are the climate projections if we're going to have the energy credit nexus kind of snap back at some point before 2050?

Roger Pielke Jr. (00:45:58):

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Right. No, I think that's a fair criticism. My response is, you have a lot of fellow travelers for people who say, "Well, the IPCC integrated assessment models, don't build an equity around the world." A lot of the work of decarbonization is on the back of people in Southeast Asia and Africa, for example. The IPCC models rely on, and I'm happy to use this kind of disparaging terminology, but magical technologies of carbon sequestration. A simple thing, you can't find an IPCC model that goes all nuclear. In many respects, the assumptions that go into the model are a reflection of the politics we see as acceptable to talk about today, not some vision of the future that is plausible or even possible. And so that's why I say take these projections with a grain of salt, because the future is going to be a different place. What do the IPCC integrated assessment models say about the effect of AI on future decarbonization?

Nate Hagens (00:47:05):

No, you make your point. It's so many aspects to this. So that segues to this question I have for you. You are a political science professor at University of Colorado, and on this podcast, I usually interview ocean marine biologists, climate scientists. Why is a political science background relevant for studying and answering these important questions about climate change?

Roger Pielke Jr. (00:47:31):

Yeah, and technically I'm a professor of environmental studies. I think the political scientist had enough of me in about 1994.

Nate Hagens (00:47:40):

Okay. Well, your bio says you're a political scientist.

Roger Pielke Jr. (00:47:46):

Yeah, I have a PhD in political science. My PhD was on, how do we use climate science to make better climate policy, which would seem to be somewhat relevant to this topic. But the answer is, there is a field of study out there. It goes by the name of policy, which is about how we make decisions in the public and private realms. I happen to focus on a subset of that area called science and technology policy, which is how we make decisions about science and technology, but also how we use science and technology in making decisions. For me, the training that I've had, the experience I've

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had, I tell my students, "If you want to participate in big, messy, wicked debates, then knowing something about policy and how it's made is really important."

(00:48:40):

Now, that said, that by itself doesn't get you very far. You need to have subject matter expertise. I'm lucky. I grew up in a household with a PhD atmospheric scientist. I was a computer programmer at the National Center for Atmospheric Research. I worked there for eight years. I was in a big Climate Science Institute, University of Colorado, Boulder. So I have a lot of substantive knowledge about climate. I'm probably one of the few people with a PhD in political science who publishes regulating the climate science literature. So all that is to say, don't judge anybody by their PhD. Take a look at their work and give it a good hard scrubbing, because that's how we figure out who knows what and who doesn't.

Nate Hagens (00:49:21):

Well, speaking of who knows what, one of your co-authors recently told me that of all the scientists that he's ever co-written papers with, Roger Pielke has the highest scientific integrity. I think when someone says that I pay attention. However, your work has raised controversy in climate policy debates. What has this conflict been like as a faculty member teaching at a university? And how do you see the role that universities play in fostering free thinking that's necessary, but can sometimes run into these roadblocks and be contentious?

Roger Pielke Jr. (00:50:05):

Yeah. Well, first, wow, that's a wonderful thing for a colleague to say.

Nate Hagens (00:50:09):

I don't want to embarrass them. You could probably guess who it is, but anyways.

Roger Pielke Jr. (00:50:14):

Yeah. Yeah. No, it could be anybody... No. Again, I'm going to go back. If you are in the space where you're discussing writing about advocating policy in highly politicized contexts, you should be so lucky that your work generates criticism and quote-unquote "controversy". My goodness. That means people are taking your ideas seriously. You tell me one topic, one policy proposal that you can put forward in the United States

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today that somebody's not going to criticize from one side or the other. Welcome to policy debates.

(00:50:56):

Now, I will say, as a person, as a human being, sometimes it's really hard. It has been difficult. I'm better at it now. I'm 54 and I've gone through congressional investigation and done all that. But having the privilege to be able to participate in high level debates, to me that's why I do what I do, because that means people are taking your ideas seriously. It's a difficult time in academia. I often say I have academic tenure and I use it, and that means I can't get fired for my ideas. And I'm sure there are some people who would want to fire me for my ideas, but it's harder. I think it's harder than when I started, and universities are tough places nowadays. There are attacks from politicians, but there's also attacks from our peers in academia. So will tenure exist as it does today in 10 years? I don't know.

Nate Hagens (00:51:50):

There are some people who might like to fire you for your ideas. Your ideas generally being that climate might not be as catastrophic as some of the public conversations about it are?

Roger Pielke Jr. (00:52:03):

Yeah, well, I think that's objectively true. So if we go back to our discussion of RCP8.5, and we recognize that the vast majority of studies cited in recent IPCC reports rely on RCP8.5, either you believe RCP8.5 is either implausible or kind of at the fringe, or you want to make a case that it's where we're headed. Not many people are making that case now. So I think objectively, I think that's what pisses some people off. Also, is that I got a lot of criticism in 2007 to 2015, but I'm still here. And I think a lot of these ideas and issues, I've been around long enough that they've survived, not everything. There's a lot of history that goes along with personalities and so on.

Nate Hagens (00:52:55):

The way that the world works, or at least the modern world, is that I'm now going to get criticism, because I'm having you on my show by the transitive property. Even if people don't listen to this conversation, the fact that Roger Pielke is on The Great Simplification, what is Nate thinking? Doesn't he understand that climate is existential

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and a huge risk? Yes, I do. But I want to understand what the thinking and the modeling and the conversation that led to our current public debate and understanding of it are. So I'm also a free thinker, but I'm speculating that that'll be the case. We'll see.

Roger Pielke Jr. (00:53:36):

Yeah, we'll see.

Nate Hagens (00:53:38):

I have a lot of climate followers in my stream.

Roger Pielke Jr. (00:53:40):

Yeah, number one, good for you. But number two, I know my ideas pretty well. They're not all that radical. I'm a big supporter of the IPCC. I've been advocating for accelerated decarbonization of our economy before a lot of the people who are talking about these issues were even born. So I think my track record is pretty good. There are radical voices out there, and it's fine to hear from them also. But I think it's just a sign of the nature of our public debates that heterodox thinking is not often welcome. So number one, I appreciate having the chance to articulate some of these ideas, but number two, I don't see myself in any way as a firebrand radical on the left or the right. And maybe that's part of the problem.

Nate Hagens (00:54:32):

I don't see you that way either. Otherwise, I wouldn't have invited you here. But relative to, for example, the near term human extinction movement, you would seem radical or not radical enough.

Roger Pielke Jr. (00:54:44):

Yeah. Well, yes. There's a lot of groups in society you can compare me to that I'm not as radical as. That's one of the wonderful things about politics is that we have this great diversity of views, and in order to get stuff done, we got to come together. One of my favorite, it's not a quote, it's a paraphrase of Walter Lippmann from 100 years ago, said that the goal of politics is not to get everybody to think alike. It's to get people who think differently, to act alike. So for me, disagreement is healthy. It's normal. It's part of our political ecosystem. The challenge is, how do we get enough

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people to get on board with action so that we collectively make progress? That's the political challenge.

Nate Hagens (00:55:29):

So from a political lens, looking at climate, how do you see the climate policy and the climate debate evolving in the future? And what would be kind of a best case outcome and what would be a worst case outcome?

Roger Pielke Jr. (00:55:49):

Yeah, so I've been on sabbatical for the last year. I spent most of it overseas, the first half in Europe, much of the spring in Southeast Asia. I guess the first thing people should understand is that our long-term climate future as changed by humans, is not going to be dictated by what happens in North America or in Europe. You've got billions of people in Asia and Southeast Asia and Africa who are going to be consuming vastly more energy. It'll be fossil fuels if it has to be, because if your choice is energy services or no energy services, all of us would make the same decision.

(00:56:32):

So the long term climate future I view very much is not going to be determined in large part by what we do here in our political battles, it's going to be determined in the rest of the world. Now, we can collectively, in the US and Europe, decide to help those processes along through technological advancement by helping countries to gain access to energy services while they grow their economies, or we can stand in the way. So I do think we're at a big inflection point, but a big part of me thinks that a lot of the debates I see on Twitter, in the New York Times, in the US Congress, in Europe, are little parochial when it comes to what's actually happening around the world and where future emissions are going to come from.

Nate Hagens (00:57:22):

Two comments there. I recall reading a paper, I think it was 2014, that showed if the United States did everything that the Paris Accord stated perfectly for the rest of the century, but the rest of the world didn't, the temperature in the year 2100 would be identical to the scenario. In other words, if it was just the United States, it wouldn't matter. Second response is, how are the climate debates in Southeast Asia? And you said you were in Norway or Europe. Is it different than the United States? And why is

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the US so polarized along political lines and its views on climate change relative to some of these other places?

Roger Pielke Jr. (00:58:11):

Yeah, I mean, the short answer is because politicization of climate favors the Democrats and the Republicans. So everybody's familiar with Al Gore's conversion to a climate warrior. It was very convenient for Republicans then to take climate and say, "Look at that lefty project." It's part of a broader trend in the United States of scientific issues becoming politicized. We see this with COVID and so on. It takes two to tango, and I know people on the left are going to say, "Well, it's all the Republicans fault." And people on the right say, "Well, it's all the lefty environmentalists." The reality is that for something that becomes so deeply politicized, it has to benefit pretty much everyone across the board. So there is not a lot of interest in depoliticizing the climate issue in the US, because it does confer intensity advantages, particularly in primaries, particularly for progressives and the far right to demonize the other side.

(00:59:19):

So did it have to become politicized? No, it didn't. We see some of this, a little bit in Australia, a little bit in the UK, but there's a little bit more political angst over climate in much of continental Europe. I talk to people in Asia and Southeast Asia, the economic growth and development is kind of a primary goal that everyone accepts and hey, let's do it in a way that's clean. So a lot of parts of the world I see much more focus on.... There's a general political consensus, we should do something about this whole climate thing, so let's do it. And where you can have criticisms is how fast things are going, whether there's greenwashing like with the German car industry and things like that. But the unique high level electoral polarization in the US is pretty extreme compared to other countries.

Nate Hagens (01:00:18):

It almost seems to me, this gets back to human behavior, but let's forget about the details of climate for the moment. But if you were to present three scenarios, one is, "This climate change thing it's a socialist hoax created by those lefty liberals that want to control your life." Or, "Climate is changing, it's due to humans. It's not going to be as bad as some people say, but it's going to be pretty bad. It's also, in fact, in the oceans, and there's some other nuances we're probably not going to do a lot of about

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it. We're dependent on economic growth, blah, blah, blah, blah, blah." Or the third category, "Climate is disaster and wet bulb temperatures are going up. We're going to have premature dying of billions of people, and we're headed towards a hot house earth." Of those three scenarios, I think a lot of humans gravitate towards the first and the third scenario. The second scenario isn't as interesting or compelling, and it's also complex and nuanced. I've just made this all up. Do you think there's anything to that?

Roger Pielke Jr. (01:01:23):

Yeah, this resonates really well. I had a mentor friend, the late Steve Rayner, who often said that we have to accept as we move through the world, that people have different worldviews. And each of the three scenarios that you described are reality to some segment of society. So arguing over whose vision of reality is the correct or right one, for me is probably not a route to policy or political action. What I'd like to do is say, "All right, given that there are, let's take these three buckets and there's probably seven or 12 or whatever, but where is the place where we can come up with policy alternatives that are acceptable to a sufficient number of each people in those three different buckets, that we increase the chances for action to occur."

Nate Hagens (01:02:15):

But on this particular problem, that intersection is pretty damn small, don't you think?

Roger Pielke Jr. (01:02:21):

Well, I think it's the small, because we've made it so. Here's part of the problem. A lot of action that we could take that would accelerate the decarbonization of the economy, which is a technical term, but changing the technologies of energy production and consumption, are probably best sold to people, not by putting climate first. If you're a climate warrior, what do you mean you're not going to put climate first? I participated in the great light bulb war of 2011 where people were arguing over incandescent light bulbs and in the squiggly compact fluorescence and members of Congress saying, "You'll take my incandescent out of my cold dead hands." It went away. The partisan angst didn't, but we got LED light bulbs now that are plenty cheap, and they last a long time, and that damn technology took the politics right out of that issue.

(01:03:22):

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So I'm optimistic that, and again, this is something I think is really important, we need to expand the scope of available choice. That might be technological choices. Maybe it's advanced nuclear, maybe it's reprocessing of nuclear waste. Maybe it's improving solar panel efficiencies even beyond where it's at, having better transmission, more effective use of geothermal, whatever it happens to be. Expanding our technological options tends to be something that can take the hot politics out of issues. That's the story of chlorofluorocarbons in spray cans. So I think there's a lot that can be done. The other is, if we focus on things like energy security, economics, in many places around the world, energy access, you will find a lot of people get on board who might not otherwise say, "Oh, I care about carbon dioxide." So I would love to see more of these options tried.

(01:04:22):

The problem, as I see it, when you expand policy options, it can disrupt existing political camps. Oh my gosh, what happens if in the United States, a group of Republicans and a group of Democrats agree. Oh my gosh, that's a mess. That's how people think these days. We have so many straight line partisan votes in Congress, because the idea of bipartisanship is kind of a no-no in our current politics. If you want climate policy to survive for 50 years, you're going to need Democrats and you're going to need Republicans and that's just the way that's going to work. So I'm very much a supporter in taking people where they are, and we're smart. If we can come up with integrated assessment models, we can come up with policy options that we haven't thought of yet for accelerating decarbonization. So I think the battle has just begun, and we're either going to decide to be pragmatic on climate or we're going to decide we love the political battle so much that we'd rather have the political battle than decarbonization. And that's the big fight, I think, in the climate space.

Nate Hagens (01:05:30):

Well, when you say we love the political battle, what you really mean is, we love the tribal nature of our current situation in this ring. And the social benefits that it confers on us to be with our tribe and what they say.

Roger Pielke Jr. (01:05:46):

Absolutely.

Nate Hagens (01:05:49):

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Awesome. Well, this was a great overview. If you have a few more minutes, I'd love to ask you some personal closing questions that I ask all my guests.

Roger Pielke Jr. (01:05:58):

Sure, absolutely.

Nate Hagens (01:05:59):

So we've talked about climate. I'm just curious, what risk in the world are you most worried about, Roger, in the next decade or so?

Roger Pielke Jr. (01:06:13):

Yeah, so I gave a big talk in Oxford while I was on sabbatical last fall called Catastrophes of the 21st century. I basically put things into three bins. So one of the things that we know of, and we kind of have some ability to expect, a big earthquake in Tokyo or San Francisco, even a pandemic. We don't know the details, but we know about pandemics. The next category is emergent phenomena. So we learned in 2011, there was a big flood in Bangkok, but it turned out that it disrupted supply chains for the global automobile industry everywhere from Bangkok to Japan, and had all these knock on effects. Or look at the global financial crisis of 2008 with the destabilizing role that risk models played. So we had these emergent catastrophes.

(01:07:10):

Then there's the stuff that comes completely out of the blue, things we're not even talking about right now. So the examples I used are, what happens if we discover extraterrestrial intelligent life tomorrow? What does that do to our social fabric and so on? Is that going to be a catastrophe? Things we can't even imagine that aren't on the radar screen.

(01:07:32):

What I did is I said, "Let's take a look at where we focus our attention." And guess what? Almost all of our attention is focused on the stuff we know about, earthquakes, hurricanes, even pandemics didn't get enough attention, but we focus a lot on public health. Emergent phenomena we tend to look at after it happened. Sure, there's somebody who warned about the global financial crisis and other emergent phenomena, but we usually don't spend enough time.

(01:07:59):

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Then we're not paying any attention to what experts will call existential risks that are just off our radar screen. So what I would like to see is us in the expert community recognize climate is really important, but there's no shortage of experts focused on climate. Maybe some fraction of those folks could be talking about things we're not talking about. So the biggest thing I worry about is that we're going to get hit by something that we haven't really thought about enough, but we should have.

Nate Hagens (01:08:37):

Okay, good answer. I know a lot of people working on X-Risk Space. It's additive, because I'm an expert on these things and they're an expert on these things, and when we talk, we're like, "Oh, shit. I didn't know about that." But then you're saying there's things that no one knows that we're going to have to respond to.

Roger Pielke Jr. (01:08:59):

But let me just say, how you prepare for something you can't imagine is something that we can do. In addition to uncertainty, there's areas of fundamental ignorance, but just because we're ignorant about something, doesn't mean we can't build up resilience. So that's a whole nother podcast.

Nate Hagens (01:09:18):

Okay. I'll take you up on that. So given your lifetime of thinking about and working on this issues, do you have any personal advice to the listeners and watchers of this show at this time of global upheaval and systemic risk, whether it's climate or economy or environment, et cetera?

Roger Pielke Jr. (01:09:41):

Yeah, that's a great question. It's hard to know what's what, I think, in the modern era, even if you are an expert, because you get so many different channels, so much different information. What I tell my students is, the first thing is, is to do what John Dewey said, American pragmatist, was that the first step in learning how to think well is being comfortable with not knowing. Existing in a prolonged state of uncertainty or recognizing that you have ignorance.

(01:10:15):

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What should we do about AI? My first answer is, I don't know. It's not something I've studied, but it's the sort of thing that, well, if I ran a graduate seminar on it and we read a bunch of stuff, we have the ability to come up with clear thinking about the nature of problems, the potential interventions we might make. But it takes time and it takes effort. And so for anybody who's out there who says, "I want to better understand the world," the good news is, you can do that. It takes some work and some effort. The worst thing you can do is pick your favorite politician and say, "I'm going to follow what they tell me." They'll be right occasionally on things, but they'll be wrong a lot of times. So I am pretty optimistic about our ability collectively to sort through information. It's just a hard challenge day-to-day for all of us.

Nate Hagens (01:11:09):

What other advice do you give to your college students, especially as an environmental science teacher? I've taught 17 to 21 year olds on all these things, and it's tough, because they already are kind of shell-shocked with the political or financial situation. What other advice do you give your students at the end of the semester, if any?

Roger Pielke Jr. (01:11:32):

Yeah. In my class, I tell my students, the first thing I tell them is math is your friend. Understanding numbers, the scale of things like the global energy system or agriculture. I've often in courses use Hans Rosling's book, *Factfulness*, simply getting a baseline understanding of the magnitude of things that we deal with in policy. Most people don't know the size of the US federal budget or the global economy, or how much energy they personally consume every day, and how that compares to someone in Rwanda or Bulgaria. So grounding yourself is a great way to get an understanding of where we sit in the world. The other thing I try to convey to my students, and then this is just a values thing, but people are awesome. You can look at the news and get pretty depressed, but you go around and you talk to people and you meet them. In my classroom, I see this too. The students are awesome.

(01:12:32):

People overall, around the world, they want the best things for their family. They care about the world. People are good. And so I'm pretty optimistic about our collective ability to do things even though there's bad actors out there and there's crime and all

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that also. But I wouldn't be in the field of policy if I wasn't optimistic that policy makes a difference. So I try to convey to my students that it's great. Welcome to the fight. Buckle up. It's a long slog. But if you're ready to get up every day and do the hard work of learning and participating, you're going to leave the world a better place.

Nate Hagens (01:13:10):

So this is the very first time we've ever spoken. So I don't know much about you other than what our mutual friend told me, but what do you care most about in the world, Roger?

Roger Pielke Jr. (01:13:23):

Like I just said, I spent the last year, really eyeopening, I think I went to 17 countries. I care about the people and life on the planet, our ability to sustain it and to make things better. And we are an inventive, clever, smart species. I don't know, in the last few months, I don't remember exactly when it was, but the UN said, "We passed 8 billion people." I got to read, you read it, everybody read it. Some people said, "Oh my gosh, it's awful. Look at the strain on the planet." And these are 8 billion people who get to live their lives, including me, including you, including all my students, and thank goodness. Good for all of us that we get to experience life. So I'm pretty optimistic about the human condition, even with all the shit that goes on out there. That's the positive I see.

Nate Hagens (01:14:19):

If you're a member of the species, homo sapiens, there's around a 8-10% chance that you are alive right now.

Roger Pielke Jr. (01:14:29):

Right.

Nate Hagens (01:14:29):

8 billion out of 100 billion have ever lived. So it's quite something. Yeah. So if you could wave a magic wand and there was no personal recourse to your action, what is one thing, one policy or one dictum that you would do to improve human and planetary futures?

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Roger Pielke Jr. (01:14:54):

As policy analysts, I teach and we're taught to be pragmatic and you don't have magic wands. If I did, I would invent a tolerance pill that people could take and just make people chill out about being accepting that there are people who have different views than them out in society. That we can do better the work we need to do collectively. I don't think there's a policy or a program or a technology that's going to make things better. I do think there's a lot that we can do in the social fabric. If I could somehow smooth out magically with my magic wand, our ability to live together, then we'd make a lot more progress, a lot more quickly.

Nate Hagens (01:15:45):

Some people might say that Ayahuasca is a tolerance pill, but I'm not sure. So what's next for you? What are you dedicating your experience, wisdom and connections towards? What's alive for you right now in your research and exploration?

Roger Pielke Jr. (01:16:02):

Yeah, so for me, I'm at this position where I'm not at the end of my academic career, but mid-fifties. For me, having the ability to have a global platform where I get to share ideas, encourage discussions, and try to build this tolerance pill through public engagement, is what I'm focused on. So I run a Substack, has a lot of readers. I challenge people. I say things that are quote-unquote "controversial".

(01:16:34):

I call out bad practices when I see them, like when the IPCC gets politicized. I also call out positive things. I think the Inflation Reduction Act is an interesting and positive experiment in climate policy. I try to create a place where people... The phrase is, achieve disagreement. They can come, they can exchange views, they don't go to war with each other, don't call each other names, and they go their separate ways. So I'm actually trying out this whole public intellectual thing for real. Probably for the first time in my career. I'll continue to publish books and write in the peer reviewed literature, but taking advantage of my good fortune and being able to have access to a lot of people around the world is where my attention's at right now.

Nate Hagens (01:17:21):

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Well, good luck on that. That's a really important path, and I wish you success. Thank you so much for your time today.

Roger Pielke Jr. (01:17:28):

Nate, it was great fun. Thanks for having me.

Nate Hagens (01:17:31):

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