

Transcript for Episode #74. Why We Need the Biofuture Campaign August 29, 2022

Guests:

- **Jim Spaeth, System Development and Integration Program Manager, US Department of Energy Bioenergy Technologies Office**
- **Dr. Pat Gruber, CEO, Gevo**
- **Jerry Ostheimer, Co-manager, Clean Energy Ministerial Biofuture Campaign**

Fueling the Future of Transport Intro ([00:01](#)):

You're listening to Fueling the Future of Transport hosted by Tammy Klein, the founder and CEO of Transport Energy Strategies. We'll talk all about the fuels and energy it takes to keep the world moving forward.

Tammy Klein ([00:16](#)):

Hi, everyone. Welcome to the show. I've got a really special show today. I have with me three really wonderful experts in their field, and we're going to be talking about biofuels and the Biofuture Platform. We're going to tell you what the Biofuture Platform is all about, but let me welcome guests to the program. First of all, we have Jim Spaeth who is with the US Department of Energy's Bioenergy Technologies Office. Jim is the system development and integration program manager. I'm sure many of you listening, know Jim and Jim is actually serving as the current Chair of the biofuture Clean Energy Ministerial Initiative. So Jim, welcome to the program. And I also want to welcome Dr. Pat Gruber, who is the CEO of Gevo, one of the four running companies doing a whole lot of things, but also in the area of sustainable aviation fuel. And then I also want to welcome my friend, Jerry Ostheimer. Jerry is actually serving as the co-manager of the Clean Energy Ministerial Biofuture Campaign. Guys, welcome to the program. It's great to have you.

Tammy Klein ([01:32](#)):

Great to have you, so I'm right into the questions and I'm going to direct the first question to Jim. Can you talk to us about the Clean Energy Ministerial and the Biofuture Platform? What is it, what can it do for governments and also for private industry? Tell us about it.

Jim Spaeth ([01:50](#)):

Sure. Thanks Tammy. So the Clean Energy Ministerial is a high-level global forum that was catalyzed by the DOE and the IEA back in 2009. And it's focused on helping to bring the clean energy future into being. It's a mechanism to enable countries to work together in various initiatives and to essentially promote clean energy policies, to share technologies and to really try to advance the net zero future that we all think we need. And the Biofuture Platform in particular is the only Clean Energy Ministerial initiative focused on bioenergy and biofuels, bioproducts, biochemicals. And it was established similar to the <inaudible> in to enable countries to work together, to promote and speed of the development of biofuels, bioeconomy. And our goals are to try to remove some of the barriers to that development. So we're focused on things like technology, cooperation looking at issues related to sustainability and biomass quantification, and promoting policy, as well as trying to make sure that the financial community is very comfortable with bioenergy and bio opportunities to help speed its development and deployment.

Tammy Klein ([03:10](#)):

Thanks, Jim, I want to bring Jerry in here. Can you tell us about the Biofuture Campaign and how industries getting involved and what's happening there?

Jerry Ostheimer ([03:22](#)):

A real pleasure and thanks again for hosting us, the Biofuture Campaign is a creation of the Biofuture Platform initiative that Jim just described. And so the countries that came together to create the Biofuture Initiative always felt that it was going to be essential to engage with the private sector. And so the vehicle for doing that, the mechanism for engaging with the private sector, is actually called the Biofuture Campaign. And I have the pleasure of co-managing that process with another great guy by the name of Paulo Frankl, who leads the Renewable Energy Division at the International Energy Agency. And so we work to recruit, engage, listen to the private sector and then really build a strong bridge between the private sector and the countries of the Biofuture Initiative, and more broadly to the Clean Energy Minister.

Tammy Klein ([04:31](#)):

So Jim, what is DOE's role in the platform currently, and what's the platform's key objectives, anything more you want to add to what Jerry was saying there?

Jim Spaeth ([04:43](#)):

Sure. The Biofuture Platform was actually established as an independent initiative back in 2016 and led by Brazil with 19 other countries joining them. And the U.S. was one of the original members and Brazil led that very successfully for five years and they were looking to help to hand off the role and get some assistance, help them lead the platform. So just a little over a year ago in June of 2021 at the last Clean Energy Ministerial meeting, the U.S. was nominated to and gladly accepted the Chair role of the Biofuture Platform. So the U.S. is now leading this group of countries and initiatives in the platform. And so our activities are our objectives are to essentially reduce roadblocks to bio bioeconomy development and particular, one of our main work streams is focused on issues related to biomass, sustainability and <inaudible>.

Jim Spaeth ([05:45](#)):

So out in the general world of clean technology, a lot of people are not as familiar with bioenergy and its capabilities compared to solar and wind and hydrogen and some of these other technologies. So the Biofuture Platform is also targeted at making sure that there's a great awareness of the opportunities through bio-based resources. And we are trying to remove some of the roadblocks to make sure that there's an understanding that there is enough biomass available to make a substantial impact towards our net zero future. And that biomass can be produced sustainably and converted sustainably, and we would only want it to be done under those conditions. So we're working to help share that knowledge and promote a conversation on the topics in particular of sustainability and quantification in the near term.

Tammy Klein ([06:39](#)):

So Pat, I want to bring you in here. So for the listeners who may not be familiar, can you talk a little bit about Gevo. What you all are up to there? You're doing some exciting things in the area of SAFs - sustainable aviation fuels- and I guess for you, what's the draw for participating in an initiative like this?

Pat Gruber ([07:01](#)):

Well I always have to get things a little bit of context because people talk a lot about GHGs without really understanding where they come from. So worldwide about 70-plus percent come from the burning of fossil fuel for the generation of electricity, for making natural burning of natural gastric heat sources. And of course, liquid transportation fuels for the diesel, gasoline and jet fuel are all part of that. Agriculture is also has greenhouse gas emissions, but it's actually very, very minor people. There's lots of hand waving and handwringing and agenda pushing and all this stuff. And what this really comes down to in a broad way is that we've got to be able to have a fact-based set of decision making. Any of these broad brushes brushes that say, all electricity is good. Well, that's not true. We know it's not true.

Pat Gruber ([07:51](#)):

I'm having to build a wind farm for Gevo because I otherwise I have stuck with fossil-based electricity. I don't want fossil-based electricity. So got to have facts, right? And that's what's important about what's going on here with Jerry and Jim and the others is they're trying to get everybody to be oriented towards the real facts on the table frequently. Well, let me step back, liquid transportation fuels are going to be important in the future because it's going to take time to deal infrastructure. And jet fuel. Jet fuel people look at it and go, wow. I think jet fuel's going to be around a really long time. Cool. Well, you need two things. You need renewable carbon and you got to know where that carbon came from. It has to be you got to know it can't be, you got to know what's sustainable.

Pat Gruber ([08:40](#)):

You need to know what its carbon footprint is. And then whenever you manufacture something, it takes electricity and heat. So where did those come from? And so you have to account for everything across the whole of the business system. This is a very different way of thinking than what's been done in the past. And yet a business like ours, where we're on a crusade to make sustainability aviation fuel and other hydrocarbons and document everything throughout the whole value chain straight through is just a different approach. We need renewable carbon as a raw material. Where are we going to get it? Well, CO2 in the atmosphere is the right place. Okay. How do you capture that in the most efficient way? Believe it or not, it's photosynthesis. That is the most efficient way. Plants are good at this. Now, how do you get that plant matter and turn it into jet fuel?

Pat Gruber ([09:27](#)):

Although that conversion is just a combination of biological chemical techniques and they actually work extremely efficiently. And then there's a question of what's going on and where'd you get the carbon growing the plants? Well, if it's agriculture, we hear a lot of people just believe agriculture's bad, pollutes the earth. Well, that's not true. It depends. Some people really, they might, that might happen. Others are superb at it, and they're doing sustainable agriculture in the U.S.. It's called Climate Smart Agriculture. There's a technique that we got to give credit to the USDA or the DOE for doing with Argonne National Labs. They've developed a model called Argonne GREET Model. It is the gold standard benchmark that everybody in the world uses. Now, the problem is people start morphing it to their own agenda. What we really need is just rock-solid data straight through, including the agriculture, including people will talk about let's use waste feedstocks what same rules has to apply to them?

Pat Gruber ([10:24](#)):

Where exactly did you get it in house? There's no game playing because we're trying to solve the problem. And so this is just a very different way of going about it. It's being like hypervigilant about documentation is where everything comes from. I like this Argonne GREET model and we've worked with Argonne National Labs and we are just are transparent with our data. Jim helped us out through his office of making sure it all got published. Because we just are trying to set a new standard. The jet fuel is boring in some ways. It's just jet

fuel. And so I guess it's a bit of a miracle when you consider that we could do a net zero fuel across the whole, the life cycle all the way from capturing CO2 in a farm field, through the burning of it at a jet engine, it's net zero across that whole cycle, including your production. You know what that means when it's sitting in our plant in a tank it's like minus 100, meaning it's negative one hundred. You heard it, it goes back up. So it's really quite miraculous as to what can be done here if we're focused on it. So what we're really trying to do is show people what can be done because we can make a difference.

Tammy Klein ([11:32](#)):

So, talk to me a little bit more about your outlook for SAF in the U.S. I mean, you just signed this amazing deal with American Airlines. I feel like I'm reading an announcement coming out from you guys pretty much like every...if not every week, definitely a couple times a month. There's a lot of exciting stuff going on there. We now have an Inflation Reduction Act. Well...almost...so kinda sorta....at least through the Senate..it looks very positive that it will pass the House. There's some, there's some stuff in there for SAF what's your outlook in the next few years for the industry in general and also for Gevo.

Pat Gruber ([12:16](#)):

So the liquid fuels markets are enormous in all cases what's interesting about is now we have 350 million gallons of jet fuels signed up with customers like Delta, America and all the rest...Alaska, and these are take or pay kind of contracts. What that means is if I make it they're buying it, the reason that that's important is that helps us get financing and gain financing in debt.

Pat Gruber ([12:40](#)):

So this is really, quite the big change over from what's been in the past. Airlines are going to put up their balance sheet or letter of credit to back it. That's a big deal. It helps go ahead and get financing. New capacity has to be built and it's capital intensive, the investment we're going to make in our first plant, it'll be in Lake Preston, South Dakota...we're going to have the groundbreaking in September and that's going to be over a billion dollar investment on a fully financed, fully installed basis. So it'll make 54 million gallons of SAF. It'll make another 6 or 7 million gallons of diesel and jet fuel are diesel and gasoline, but these are enormous capital investments yet they're profitable. And then what's interesting about this is the airlines buy into it because we share some of the green value with them.

Pat Gruber ([13:26](#)):

That helps to offset the increase of cost that we would charge. And so we share it. And this is a really fundamental principle sustainability. You have to share equitably across the whole of the value chain for everybody. This is a really fundamental point. Otherwise you don't get the right behaviors, right? So this is why I think what we're doing is a little...this is a different kind of business system. It isn't trying to put all the money in our pocket, it is trying to make sure we make enough money so we can get investment of equity and debt, but then also make sure everybody else makes money fairly along the way.

Tammy Klein ([14:01](#)):

It gets the industry continues to grow, right?

Pat Gruber ([14:03](#)):

We have to, and that's what you're seeing and why we're getting so many contracts is because we've taken this approach. And what I like is these airlines, we just had Delta up at our site with their customers, think

about that. They're bringing their customers to our plant in Laverne and we take them out to the farms to go meet farmers. And so they can see how stuff actually is grown versus what's talked about in DC. And so that's all part of this just to show it is not business as usual. We can change things, but we got to work together and we have to account for it accurately and then build that into policy correctly.

Tammy Klein ([14:41](#)):

Right. Right. So Jim, I want to bring you back in here and just ask you, what's your outlook for SAF on behalf of DOE and what about other advanced biofuels? Because to me it seemed like there was this, this valley of death <laugh>but you know, now you're starting to, in terms of the R and D and development and scale up, but now you're really seeing there's companies out there...there's, Gevo there's <inaudible>, there's Velosys, there are others ...Red Rock, there are others that are out there that are really emerging and really beginning to scale up. So what's your outlook?

Jim Spaeth ([15:25](#)):

Well, I would add beyond, in addition to the US companies that you just named, there is tremendous interest globally in sustainable aviation fields. I had the opportunity just last week to be in Japan where they've also developed their own roadmap for sustainable aviation fuels, but their investments are pretty much in the early stages. And they're looking to the US to look at our example and see what we're doing. And the US has also developed its own roadmap for aviation that we hope to release in the very near term. But we think sustainable aviation fuel, or SAF, offers a tremendous opportunity to decarbonize aviation. There are other elements to decarbonization of aviation, including technology and efficiency improvements of the aircraft itself, as well as the engines, but it's the sustainable aviation fuel that is viewed as essentially the biggest hammer to be able to make the biggest difference over time between now and 2050. That the fuel itself is a huge element carbon footprint and reducing the carbon impact of SAF is going to make a tremendous difference overall.

Jim Spaeth ([16:39](#)):

So the US is very excited about it. We've articulated what we call the grand challenge, which is to produce 3 billion gallons of SAF by 2030 and 35 billion gallons by 2050. And so that 3 billion gallons, it would be approximately 15% of our current usage just within the US, but the 35 billion gallons very importantly, is targeted to replace all of the aviation fuel that we currently use. To completely eliminate fossil-based aviation fuel by 2050. And beyond aviation fuel, there are other opportunities for biomass, bioenergy, bioproducts. There are other heavy duty transportation applications like marine and heavy duty trucking, we're looking at those as well. And in addition, bioproduct opportunities are very attractive and can offer perhaps more attractive gains in the near term, sometimes smaller markets, but greater return on investment. So the DOE is investing in all these things, but at the moment, our highest priority is really SAF.

Tammy Klein ([17:43](#)):

Hmm. Interesting. So can you talk to us a little bit about how the DOE actually views its role in the bio economy? You know, especially in transport energy, I mean, you just talked about your view...the DOE views it's fundamentally important SAF...what about how does it view it in light of other technologies that are scaling up? I mean, especially electrification like in the light duty fleet. So how does, how does DOE view its role there in the bio economy?

Jim Spaeth ([18:21](#)):

So transportation accounts for about a third of all of our GHG impacts. And previously previous to the last few years, we were focused more on light duty vehicles, but we have seen, we have seen the future and we think

that the future for light duty vehicles is electrification. The DOE and governments all around the world are investing in electrification. And so we've realized that a much greater opportunity for impact from biomass resources is sustainable aviation fuel and some of these other heavy, harder to electrify applications. So it's very much on all of the above approach. We need electrification, there'll be a lots of opportunities for hydrogen and even power to liquids in the future. Yeah, but in the very near term, we think that sustainable aviation fields is the best place to make our investments. And out of the DOE budget, we are out of the Bioenergy Programs budget, all of our program areas across the board are spending approximately 75%, 100% on technologies that can go towards helping develop sustainable aviation fuels. So some of those are in earlier stages of R & D, but we are trying to ramp up our portion of the investment in the scaling technologies. So starting to take these technologies off of the lab bench, do the initial integration, getting them through piloting and demonstration and getting them ready for complete commercial hand-off out to industry and getting them deployed.

Jim Spaeth ([19:54](#)):

There are a few SAF technologies that are already commercial, but there are others, many others that are in the developmental pipeline and the DOE sees its role as to help bring along these other technologies, help them develop...de-risk some of the technologies and contribute to their development because it is expensive. It's a major investment and we need many different conversion technologies and many different buys, resources, including CO2 from there to reach the goals of volumetric goals that we are seeking.

Tammy Klein ([20:24](#)):

So Jerry, Pat talked a lot about carbon accounting the need for fundamental sort of a equivalent baseline, if you will, working from a baseline set of assumptions, so on and so forth, can you talk to us a little bit more from your perspective as the manager of this platform about carbon accounting. What we can do about it and how this will be handled sort of in the campaign.

Jerry Ostheimer ([21:00](#)):

Thanks, Tammy. If you hadn't asked that question, I was going to push my discussion in that direction. So Pat is a leader and a deep thinker on this and he's not alone fortunately. And so the process of developing the campaign actually started over two years ago, actually. And it started with a series of conversations and we talked to everybody from integrated oil companies to venture funded firms, and everybody came back with a similar answer, which is related to themes that have been a part of the renewable fuels and chemical space for a long time, which is basically how do we get credit for being green? Because if at the end of the day, you produce a molecule that is chemically indistinguishable from a fossil-based molecule where does the value come from? And where I think a lot of people have landed is that there is this social valuation on a desire to de-fossilize.

Jerry Ostheimer ([22:22](#)):

And so people value that. And so the question becomes valuating that. And so now you get into broader questions around carbon taxes and cap and trade and sort of big, big economy-wide questions. But I think maybe one of the reasons that we haven't actually gotten there yet to where we have these big economy-wide questions is because we haven't necessarily fleshed out the basic accounting so that we can actually do a genuine apples to apples comparison across sectors. And so it's not just a function of comparing a fuel molecule to a fuel molecule. We're not going to just say even between molecules say between gasoline and ethanol and getting an understanding of where all the contributions, or if it's a gasoline where the molecules where the carbon was actually captured by a plant or whether it was captured by a plant recently, or if it was captured by a plant hundreds of millions of years ago, a fossil.

Jerry Ostheimer ([23:35](#)):

So, what has happened is that industry paying attention to society has landed on generating a value and tracking the value of replacing fossil carbon. And so this it's been universal, and whether it's a company that's producing a renewable chemical, whether it's a company that's producing a renewable plastic or a company that's producing a renewable fuel, this all came from them. And so what we want to do is we as, as Pat said, it really nicely, it's a new way of doing business. It's a new way of thinking. It's a whole new way of approaching problems. So this requires leadership and communication, and it requires a stage. It requires a platform to do that level of communication to engage different people that may or may not be aware of all the progress that has been made.

Jerry Ostheimer ([24:35](#)):

And so that's why we look to the Clean Energy Ministerial. So as the name says, it is an annual meeting of ministers energy ministers from around the world or in the case of the U.S. Energy Secretary. And it's the only time that they get together annually to talk only about the clean energy transition. And this is like the G20. So it's that it's more of a developed country situation, but we do have also Indonesia and China and Singapore and South Africa and Saudi Arabia, UAE. So it's the G20+ and it is an opportunity. And Jim alluded to this too, where Japan is just starting down this path and so the Clean Energy Ministerial gives us a chance to harness, not just government-to-government dialogue, but government-to-industry dialogue. And so industry has really rallied to this.

Jerry Ostheimer ([25:37](#)):

The next meeting is coming up in Pittsburgh, the third week of September. So the 21st through the 23rd of September in Pittsburgh. And we're all, actually, all of us are working super hard to make sure that we get our message right. And that we develop the right environment. So that ministers that might actually be skeptical of bio-based products, get to see them in a new light and get to hear them in a new light. And then, as Jim said, for us, it's about building a lot of confidence and it's a lot about building a lot of trust. And so, as Pat said, it's about getting to the data and getting to the evidence and not being shy about focusing on the benefits, but focusing on the risk profile as well. And so taking all of those aspects of sustainability, but realizing that we've been doing this for a decade and a half, some people have been doing it for multiple times longer but at least in terms of US legislation,

Jerry Ostheimer ([26:47](#)):

You know, at minimum 15 years, depending on which RFS you want to look at, and we've learned a ton, we are working our way up the, the learning curve. And as we do our emissions get lower and lower and lower. So we want to tell that story. We want to raise awareness and the Clean Energy Ministerial really provides a very unique opportunity for industry and policymakers to directly engage. And I'd like to just make two more points. One point, at least in this part, one point is a lot of people could be familiar with say the UNFCCC. Some people that are more in the fuel space are probably aware of the International Civil Aviation Organization or the International Maritime Organization. These organizations are treaty organizations. At the end of the day, they produce very difficult to achieve international agreements.

Jerry Ostheimer ([27:46](#)):

And then countries have to abide by those agreements. The Clean Energy Ministerial is not meeting to hammer out an agreement. We're the photographic negative, we're the opposite. We're a bottom up activity. We're about bringing together real leaders and communicating and showcasing what they've done. So sort of like the tour of that Pat was giving where we really point to the real world solutions that are available now and

available in the future. The point I want to make is we're very project oriented. So this is not about getting together, just having a conversation it's about driving results. And the other thing is it's not just about meeting once a year. This is, this is ongoing work partnerships between countries, partnerships with industry that is ongoing work throughout the year. So next year we'll be in India, but this year we're in Pittsburgh in Pennsylvania in the United States. And in between those two meetings, we're going to get a lot done. We're very excited for the things we're going to announce in Pittsburgh. And we're very excited to show the progress that we're going to make for next year.

Tammy Klein ([29:11](#)):

So I want to go back to Pat, you know, there's an event and I think I'm going to talk with Jim and ask Jim about that in a minute, but you know, there's an event coming up in New York. There's an event coming up in Pittsburgh. Gevo is involved in this campaign. What do you hope to achieve? What do you, or what does Gevo want to walk away having achieved and accomplished at the end of these meetings in September and then going forward into the ongoing work that Jerry mentioned leading up to the meeting next year.

Pat Gruber ([29:52](#)):

So what we're going to try to do, and going to try to get people to think differently, and this is because people believe, food versus fuel. You can't do both. Well, that's not true. The two most productive crops for generating protein for nutrition are corn and soybeans. With corn, you get carbohydrates too. People don't think of it that way. They just think of it as a simple answer. They don't realize the only 1% of corn is actually used for food directly. They have no idea. So part of it is educating people and then the and teaching about how things can be done more sustainably, because the world has changed. All the rhetoric is lagging like 15 years. So bringing up to speed and then this really important thing, the actual real footprint is measuring stuff. Even if you use crappy numbers for agriculture, it's still about electricity and natural gas.

Pat Gruber ([30:43](#)):

That's what causes the big footprints for everybody. And so this is an infrastructure issue. It's about how to think differently about that, that we got to get our...my agenda is the same as EV guys, I got to get the same problem. I do. We need green electricity. Oh, I need green biogas. Well, that's the same as the green hydrogen people. Oh wait, I'm making green hydrogen too. So, and I need a little bit, so we'll make extra. So it's just a very different thing than everyone likes to think about. It needs discrete buckets and then they use these extreme words to describe it. All cars have to be EV...no, they don't and they won't.

Tammy Klein ([31:22](#)):

Ad they're not going to be yes, absolutely.

Pat Gruber ([31:24](#)):

The transition and so it's about how do you do this systematically? And our fundamental issues are the same. We burn too much fossil fuel. That's the fundamental issue. And we do it through electricity, gas, and then liquid transportation fields. Cool. We have technologies that can substitute those. And this thing that Jerry mentioned is exactly right. We start off with the things that are available today, so we can get started, but you know what, once we, how to measure things and account for them properly, like people want to say for years do we sponsor lots of projects. The problem is if you're just trying to do off some new technology around a new feedstock, and you're trying to say, make ethanol, that's hard because ethanol's got a limited market in the first place here. We don't have that, but we'll also have a system that can take in those carbohydrate feed stocks

and we can price them, end value on their sustainability, which is an important part because I don't want a cellulosic wood base feedstock.

Pat Gruber ([32:18](#)):

For example, if it isn't proven to be sustainable, I don't want it. My customers will not take it so it's the same rules apply for everybody. And that's what's important about the work that's being done here. And this is a very different paradigm than what's been talked about. People want simple things and don't want to talk about the whole system, but this is to solve greenhouse gasses. It's a whole system approach. That's just the reality of it. And, you know what? We're getting it figured out and bringing people along and it works and there's all kinds of new techniques. We have this technique called Verity Tracking. It's a blockchain tracking, developing, and it's going to go measure field by field, all the data, attach it to it, blockchain style. So there is no question as to where the heck this stuff came from, it will end the dang debate and I can prove it. And, so now we won't have...

Tammy Klein ([33:12](#)):

And you can monetize it or the farmer can monetize it.

Pat Gruber ([33:15](#)):

That's right. And it'll be immutable and all the rest and the point is the only way that I think we can solve the problem and stop with all the backbiting that occurs throughout the value chain. Otherwise is just get the dang data, document it, prove it, and stick it in people's faces. It can't be denied. And that's how you win over time. Plus then make cost effective fuels that work really, really well, which we also can do.

Jerry Ostheimer ([33:39](#)):

I want to just add something into what Pat was just saying. Pat was talking about the synergies that occur between green electrons, green, hydrogen, biothane, et cetera. It's hard like everybody working in all of those sectors has their eyes on the prize and they're focused on getting plant zero, getting plant one, getting their projects moving forward. But there's a few people that are seeing as Pat described the interconnectedness of it all. And I just wanted to highlight, so the Clean Energy Ministerial, I don't think we've emphasized this. The Clean Energy Ministerial is the whole clean energy spectrum. So they have, they have 18 or so, 16-plus different initiatives that are working on everything from gender equity to electric vehicles, to CCUS, to green, hydrogen, to hydrogen, et cetera. And so the CEM today, we want to use to educate people about the biosector commitment to accounting and sustainability and transparency. So a word that we could be using a lot here is transparency and evidence-based and science-based. But if you don't have to look too far over the horizon to realize that the CEM is a perfect platform to bring together the hydrogen people and the CCUS people and the Power to X people and the biopeople, so that we actually generate that circular carbon economy that deep down we know that we need.

Tammy Klein ([35:27](#)):

Yeah. On, a global basis as well. What I think is really exciting about what you're talking about Pat is, I mean, I think a lot of folks...I question this on the enviro side, because they're the ones that have been most skeptical about does it reduce greenhouse gases? No, it's not, let's just electrify everything. Let's do all EVs, but it's like have you ever been to a farm? You know, <laugh> You know, and I just think like, to get, to give the farmer to be able to, again, like to measure, and I know RPE has been doing some studies and some research in this area. And to me it's really exciting because you know, a lot of farmers out there suffer this gives them a buy-in

this gives them a pathway to participate in this bioeconomy that they might not have had had access or been able to before simply because they couldn't quantify.

Tammy Klein ([36:33](#)):

So to me, this is all...it's really, really exciting for that. It's another win, win, win. And that's part of the sustainability question is the economic question. That's part of it. And so, yeah, it's just, it's exciting.

Pat Gruber ([36:49](#)):

Well, I'll tell you one thing that's interesting is an underutilized resources, the soil of our farmers for capturing carbon. So if you do this with low-till and no-till techniques, leave the complete systems intact and they build up soil carbon over time. And so environs it's like people skeptical people say, well, what happens if they plow it someday? Well, you know what? It might go backwards a little bit, but you know what, if they go back to this normal techniques, then it builds it up again. Conventional tillage does release CO₂. There's no question for that. And so, but it's not absolutes. So how do you do it? How do you document, how do you measure, how do you establish what's real? But think about it. We got 200 million acres under that are in conventional agriculture. All of them can be used to greater and lesser degrees for capturing carbon if we wanted to.

Pat Gruber ([37:40](#)):

And yet people say, "well, no, no, we're going to just ignore that." Well, this is part of the problem. We have the simplest easy hand waving thing is it is simply ignore it. The other one is there's thing called indirect land use, which is a huge fight. It was an argument that was put forth years ago. And now there's enough data that's published that shows that theory's wrong. It's just plain wrong. It's off by orders of magnitude of what it could be. And there's tons of data available that show that. Yet, that's not the talking point. That's popular because it's convenient on the environmental front, because it allows people to say, well, no liquid biofuels are problem. And so this all about education and the way to do it is just get the facts, document them, use the model.

Pat Gruber ([38:26](#)):

Everybody uses the Argonne GREET model, the foundation. And then if they just stick to it with good fidelity, we're all in good shape. CED data, which I like it's even better. You know, that's how it works. That's what they've done. But what happens is people start going, I'm going to throw that out. I'm going to change this. I'm going to change that. And then they say, well it's an Argonne GREET one. Of course, <inaudible> did this, by the way, you can't agriculture products or sequestration. Well, that's stupid. The IRA bill is funding sequestration, they're funding climate-smart agriculture, and the other side of the government's not supposed to use it,

Pat Gruber ([39:09](#)):

What's wrong with this world. So these are the kind of things that we get fired up about, and continue to preach about. And the way to do this is this group they've put together. This ministerial thing is a large part about educating people. Look at our customer base. I got people in Europe now... Japan and the U.S, all of whom understand it's corn as of feedstock. The reason that they can buy into it is they see what we're doing in that we're separating the protein and oil supplying to the food chain. We're all over the sustainable agriculture. And they can go meet our farmers, our partners, who we believe should be paid a premium for doing a good job in sustainability.

Pat Gruber ([39:48](#)):

And they're in the game with us now. They participate with us to try to change the world. And that's what I like, because it really is a powerful thing when you get people aligned.

Tammy Klein ([39:58](#)):

So Jim, last question to you. So can you talk about the actual events that are a planned for the Global Clean Energy Action Forum and also what the Biofuture Initiative focus will be over the coming year leading up to those meetings Jerry talked about in India.

Jim Spaeth ([40:20](#)):

Sure. Thanks. And I would like to start with talking a little bit more about the bigger Global Clean Energy Action Forum. So we've talked about the CEM and the CEM is focused on deployment, getting those technologies out there. But the compliment initiative is called Mission Innovation. And that's focused on the earlier R&D. So this is a joint meeting of the CEM and the Mission Innovation, and they've called it the Global Clean Action Forum because they want it to be a showcase of actions, not just talk about what might happen in the future or plans, but to really showcase the actions that are occurring right now in all these different technologies and further under the CEM, we have articulated this as the decade of action, the decade for action. So we really need to make progress. Everyone is aware of the challenges of two degrees C and 1.5 C and the scare about can we even make those?

Jim Spaeth ([41:12](#)):

So this is really the decade for action and further the Biden-Harris Administration has articulated among its clean energy goals to focus on deployment rather than R & D. They want to speed action and speed results. So just as a background. So the Biofuture Platform lives within that clean energy set of initiatives. It's the only one focused on bioenergy, but at the CEM, we will have a number of different side events. The first is broadly focused on bioenergy, not just SAF, but many challenges of bioenergy are very similar to the challenges we have on SAF questions about sustainability, availability, biomass, the need for policy and the need for investment. So in one of the first events will be what we're referring to as a CEO Minister Roundtable. So it'll be a relatively small intimate event where the ministers can offer their views of bioenergy and its importance in their countries.

Jim Spaeth ([42:09](#)):

And the CEOs like Pat have the chance to talk about what's on their mind, what are they investing in. What are their goals? How do they need help from the government? And for all to be on display? This is not just a U.S. problem or problem in any one nation. This is really a global problem. And we're talking about global industries and global markets as well as the CEOs ministers will have some NGOs and the audience and some enviros and really a mixture of different constituents stakeholders to have a broad intimate discussion. So that's number one. Number two, I'll talk about is Jerry described it an event on carbon accounting and to discuss how we can work together to make more progress on that very challenging topic. And Jerry's described it in quite a bit of detail.

Jim Spaeth ([42:55](#)):

So I won't go into that anymore, but then we have a few other events focused specifically on SAF and at the SAF events, we are hoping to have a pretty major government - U.S. Government release - that I can't really talk about now, but we're hoping toll have some really exciting progress to talk about. And then it'll be, again, it'll be ministers, CEOs, investors, et cetera. And it'll be opportunity for other companies to talk about their progress, their needs, their challenges, how the government can help them, how they can work in a larger

global community. And I also want to mention that the SAF event we are doing in partnership with the World Economic Foundation and RMI and Clean Skies Tomorrow ...I'm sorry, World Economic Forum. So it's really going to be a tremendous bringing together of different groups that are very active in the space.

Jim Spaeth ([43:54](#)):

That's collectively the more we can work together, the more we can be impactful. So as well as the SAF event, we plan to have an event focused with investors on the challenges and opportunities in, in SAF and other bioopportunities. So we'll be helped there by the loan program office and the new DOE office of clean energy demonstration. And we think that'll be a, a great conversation, an opportunity for CEOs to ask questions, to learn and investors, to talk about what their concerns are, what do they need from developers to be confident to invest, right? So we think it's going to be a very exciting set of events, very interesting dialogue, and we hope join us. The registration is free. I don't think there's much of a limit on attendance and we hope to see you there.

Tammy Klein ([44:42](#)):

All right. Thanks so much. Thank you, Jim, Pat and Jerry for coming on the show and talking to us about these important events. I think this is so critical because you know, as much as we will have electrification, that's all in the news. As much as we will have hydrogen, we, we do need that bioenergy piece. I'm really convinced in my own work that this is, this is necessary, it's necessary for the west. And I think it'll be even more critical for parts of the world in the east. And in most, especially in Africa, I don't think people really can conceptualize the fuel demand across the board. That's coming in Asia and Africa in the coming years. And I don't know that those areas will electrify so quickly, so we really will need global solutions and a global bioeconomy. So thank you all for joining. Great to have you and good luck in New York and Pittsburgh.

Jim Spaeth ([45:39](#)):

Thanks a lot, Tammy.

Fueling the Future of Transport Outro ([45:44](#)):

You've been listening to Fueling the Future of Transport. This show is hosted and edited by Tammy Klein, produced by Carolyn Schnare and engineered by Alexander Nikolic. To hear more great episodes of this show, learn more and sign up for a free biweekly newsletter. Visit transportenergystrategies.com.