Business Better (Season 2, Episode 20): Paving the Way for Energy in Net-Zero Transportation Infrastructure

Speakers: John Smolen and Laura Rogers

Steve Burkhart:

Welcome to Business Better, a podcast designed to help businesses navigate the new normal. I'm your host, Steve Burkhart. After a long career at global consumer products company BIC, where I served as vice president of administration, general counsel and secretary, I'm now of counsel in the litigation department at Ballard Spahr, a law firm with clients across industries and throughout the country.

Steve Burkhart:

In today's episode, we're joined by a special guest and first-time podcaster, Laura Rogers. Laura is the deputy director at The Ray, a nonprofit charity on a mission to build net-zero highways. We discuss energy transitions that can be made in transportation infrastructure to achieve decarbonized highways and the challenges that come with this vision. Speaking with Ms. Rogers is my Ballard Spahr colleague, John Smolen, a partner in our Baltimore office. So now let's join John and his guest, Laura Rogers.

John Smolen:

Hello, friends and neighbors out in the internet. This is your friendly neighborhood interlock order, John Smolen from Ballard Spahr. I'm a partner in the infrastructure and P3 practice group with a real treat for you today as part of our ongoing series bringing you real time, real current, really important things that relate generally to financing, but in my case selfishly relate to infrastructure and the delivery of infrastructure, particularly in our crazy day and age with supply chain challenges, with transformation on technologies for vehicles, with the increasing populations, and the need for all of us to be able to get from point A to point B.

John Smolen:

It is my great pleasure to introduce to you Laura Rogers, who is the deputy director of The Ray. The Ray is an organization south of us here in Maryland. And I will let her speak to you about The Ray's mission so everyone can get excited while you're walking your dog or filling your water bottle as you're listening to our podcast when Laura gets to talk.

John Smolen:

But before I get too far into that, part of what makes this a treat for me is that I've known Laura for quite a while at this point. Laura comes into the infrastructure space having spent time working on energy projects in my beloved state of Maryland before she moved down to Georgia to start to champion the energy aspects and public policy interests as it relates to the intersection of transportation and electric issues and mostly innovations that make the world a better place. So without any further ado, ladies and gentlemen, Laura Rogers.

Laura Rogers:

Thank you so much, John. So as you said, I am the deputy director of The Ray. And The Ray is a 5013c nonprofit charity. We are headquartered in Atlanta, and we actually work in a formal partnership agreement with the Georgia Department of Transportation and the Federal Highway Administration on an 18-mile stretch of Memorial Highway in West Georgia on I-85.

Laura Rogers:

So this 18-mile stretch of highway was dedicated to Ray C. Anderson, who was the CEO and founder of Interface Carpet Tile Company. And in the 70s and 80s, he grew this carpet tile company into a billion-dollar global business. And then in the 1990s, he challenged the company to go zero, so zero carbon, zero waste, and also to use more renewable energy.

Laura Rogers:

And so when he passed away in 2011, his youngest daughter, Harriet, worked with the Georgia legislator to dedicate this 18-mile stretch of highway to him. And when she did that, she realized that she just put the greenest industrialist name on a dirty highway. And so that is how The Ray, the charity was born. And so our organization is on mission zero ourselves. So we are working towards net-zero transportation, so that zero waste, zero carbon, and zero deaths, which is the safety aspect.

Laura Rogers:

And so we work with the Georgia Department of Transportation and the Federal Highway Administration to onboard innovative, sustainable projects in the real world, so using this live interstate to onboard projects. And we do all kinds of work. So we have energy projects. We have connected vehicle projects. We even do landscape laboratory work.

John Smolen:

Well, you just painted the picture of a big bouquet of flowers, and we're just going to pluck one of them out, which is part of this notion that The Ray being a highway and then your mission being among those other things, decarbonization and safety, it's a segue nicely into this movement that I had sort of indicated was coming or we were going to talk about, about a transition in technologies from these dirty internal combustion engines to electric vehicles, autonomous and connected vehicles to the what is being called, for the cool kids in the space, the Connected and Automated Vehicle Environment or CAVE environment. The irony of that phrase does not escape me. We're most certainly not in a cave, but I digress.

John Smolen:

But the point here is that you are facing with figuring out ways to make that environment viable. Is that not correct?

Laura Rogers:

That's absolutely correct. So this is, I think, the first time in history that we have actually seen these major industries on this convergent path, right? So in previous times, we had transportation as they're doing their own thing, building roads and moving goods and people, and then energy was separate from that and communications was separate from that. And now, we're seeing all three of these major industries converging together. And we're really just trying to find those solutions to how to be most efficient so that we can decarbonize transportation.

Laura Rogers:

And I think one of the big misconceptions that folks have, especially in the transportation world, is we think that if we just electrify vehicles then we solve the carbon problem, right? So transportation is the biggest contributor in the U.S. to carbon emissions. But it doesn't just stop at electrifying the vehicles, right? We have to think about the energy source and if that's a clean energy source. We also have to figure out how to provide enough power to electrify all of those vehicles because right now the grid cannot support.

John Smolen:

But gee whiz, Laura. I mean, wouldn't it be as simple as just running some power lines onto the highway system and people pull off on the side of the road and plug their fancy cars in and move on their merry way? "Why is this such an issue?" he says sarcastically.

Laura Rogers:

So let's take it back just a little bit and talk about our grid. So we actually, in the United States we don't have one grid. We have three grids. We have East, West, and Texas. And we don't have interconnection between the three. And so as we are talking about how to, one, clean up the grid, and then also add capacity to the grid for the extra load, which is, of course, electric vehicles, but also the data centers and the other support facilities that we're going to need for connected vehicle infrastructure, we simply can't onboard enough renewable energy right now with the current grid and the grid does not have the capacity.

Laura Rogers:

So we also can't move energy long distances. So when we think about where the greatest renewable energy resources are in the United States, they're mostly in the middle of the country, right? But our major load centers are on the coasts. And so what we need to do is we need to build new transmission so that we can move big power, big renewable energy from the middle of the country out to where it's needed most, on the coast in the big population centers.

John Smolen:

So let's pretend that we, well, first off, yes, we should figure out how to do that. And friends and neighbors, the shorthand on this is these grids, albeit regulated, are generally handled through the private sector. So those movements require us to be thinking as part of the... You know, here my infrastructure lawyer hat on my bald head says we have to figure out ways where folks can find there are ways that are not going to put them at a liability to help bring that power out to those load centers in an increased power basis. Renewables for sure going to be needed to increase the power load distribution from the center to the coast. But let's just for fun say that we wave our magic wand. This magically happens. We are able to produce enough power. We're able to transmit all of that power out onto the coast or to where the loads are. Question for you Laura is, is are we done? Once we manage to solve that problem, is everything going to be okay?

Laura Rogers:

Well, it will help. And if we could wave a magic wand, that would be amazing. But I think as a part of waving that magic wand, transportation, transportation assets and infrastructure can play a major role, right? So we have a really hard time building new transmission in this country. We haven't built any significant transmission for over 25 years. There's a few projects going on in the country right now that hopefully will come online.

Laura Rogers:

But one of the biggest reasons is because of public opposition, right? And the public opposition is because where we are residents, we don't want to see the big power lines going over our heads, over our cities, through our beautiful ecosystems. So what transportation can do is they can lend their property assets. They can lend their right of way along the roads to actually bury high-voltage direct current transmission lines to help solve that land use strategy and take away some of that public opposition.

Laura Rogers:

And so when we put the transmission lines and the energy infrastructure close, adjacent to the transportation infrastructure, then that also gives us increased resilience because it's buried and we have it close to the use, to the use source, the load centers. So that means as we're building EV charging stations across the country, every 50 miles at least along our corridors, and that doesn't even include EV charging infrastructure for medium and heavy-duty freight vehicles, which are much, much larger, that's going to require a lot of power. And so having the transmission and the distribution infrastructure close to the transportation infrastructure means that it's going to be easier to tap off of it.

John Smolen:

So if we get to a point, Laura, I think if I understand you, where we have a favorable view of this. And as a matter of public policy, it seems like the thing to do is to implement some existing legislation that allows this to happen because public rights of

way, of course, are governed by laws, be it municipal, state, or federal. So are there obstacles currently in our legislative system that preclude the elegant alignment of the transportation and the energy infrastructure to anticipate this wave in transportation?

Laura Rogers:

Absolutely. Absolutely, there are barriers. But I would say that there are not any barriers that couldn't be overcome. So let's start with EV charging infrastructure. So there is a U.S. code, 23 U.S. Code 111 that says that we are not allowed to commercialize on our interstates. So the interstates are important because that's what connects the major cities, the load centers, all of the above. And so if we want to have long trips with our EVs, we have to be able to provide EV charging stations, both wired and wireless, along our interstates.

Laura Rogers:

And so we can use the land outside of it, the private land, all of that. But there are areas where the best location to install EV charging stations are going to be on the interstate right of way. And right now, yes, we can install that infrastructure, but we can't actually collect a fee for the operation, maintenance, or even the energy that is being used by those EVs on the charging stations.

Laura Rogers:

And so, as we all know, free does not scale. So yes, we have a few examples of EV charging stations on our interstates. But this is not going to be something that is common across the U.S. until we can get rid of this commercialization prohibition and allow state DOTs and the private sector, who will be contracting with the state DOTS, the option to collect the fees to run those EV charging stations.

John Smolen:

So the level set a little bit, this is by analogy effectively the amount of money that you might be spending on gas. When you pull off onto a rest stop to fill your car for a long distance trip, part of the incentive for that gas station to have gas at that place is that it can pay to bring the gas to you, make its markup, go home and feed the family. So a similar situation here would be how is it that we're going to be able to bring this power, this increased need for power from the places where power is generated into our transportation adjacent environment if we are not able to collect the costs back to ensure that we can build that infrastructure into place? Did I get that right?

Laura Rogers:

So that's part of the issue, right? And this is where it gets a little kind of hanky with how the laws work. So the EV charging stations are not considered utilities in probably about half of the states. Half of the states do consider them utilities. Now, there's this whole other section of law and policy that allows for utility accommodation in the transportation right of way, which also includes our interstates. So if you can fall under the definition of utility, that means that the commercialization definition and that prohibition does not apply to you.

Laura Rogers:

So here's what's interesting. We can and we do, we can install renewable energy resources along our roadsides. So we have a few examples of solar arrays. We have a solar array on the Ray Highway. Oregon was the first to put solar on their interstate, on the roadsides in 2008, and then Massachusetts in the 2010s. And The Ray was the third. So we have examples of that.

Laura Rogers:

And then we can also, under federal law we can install transmission lines, buried HVDC in the transportation right of way because they all fall under utility. And those companies, they can collect their fees just like they do. There's no change. But for EV charging stations, that is not the case. So we can build the foundational infrastructure to put into place for the EV

charging stations. But the EV charging stations themselves on the interstate continues to be a problem because we cannot collect the fees.

John Smolen:

So it seems like we have a situation where the law is complicated. That has never happened in my experience. Never happened. Nobody needs to have someone help to untie the Gordian knot sometimes of the law. But if I'm right, a little bit more seriously here, if I'm right here, there seems to be, as you had pointed out, a real collision across the public policy relating to utilities, the public policy relating to commercialization of the transportation infrastructure, and then essentially a cultural and policy view of what the right of way is for.

John Smolen:

So is it fair to say, Laura, that The Ray's view is that opening up the right of way by allowing for commercialization to help both these other infrastructure projects would be, if you will, a best and highest use for the right of way?

Laura Rogers:

Absolutely. So at The Ray, we are big fans of what we call the layer cake. So in the South, we have these really decadent cakes where we have these thin pieces of cake and we put frosting in between each and every layer because you want to pack in as much as the good stuff as possible. And so we see the transportation right of way kind of in a similar way, right?

Laura Rogers:

So the number one use is, of course, for transportation and for the safety of the traveling public. And that always has to remain number one. But after you meet that standard, there is an asset sitting there that can be used for so much more. So on the ground level, we can install renewable energy, wind and solar power. Underneath the wind and the solar power resources, we can put pollinator habitat or meadows, which help with our storm water infrastructure and can actually draw down more carbon, helping us meet our carbon reduction goals. And then underground, we can bury the high-voltage direct current transmission lines. We can lay a fiber line in the very same trench or duct bank because they can be together.

Laura Rogers:

And so you can kind of see this cross section of how we can get all of these benefits that not only benefit transportation of course as we continue to electrify and as we move toward connected autonomous vehicles, but it also has broader societal benefits. So when you think about bridging the digital divide, we can start addressing that in this layer-cake approach to really get the best and highest use of a publicly owned asset. Right? And so that is where we want to be. We want to be able to get as much benefit as possible using the publicly available transportation infrastructure.

John Smolen:

Now, I think you and I probably just heard a little bit of a thud, and that was all of the engineers that are running right now on their job listening to you talk to us about the layer cake, which is a cause, by the way, for me to run even farther based upon the layer cake that I will now be consuming later today. But the engineers ears are perking up because somebody's going to say, "Well, gee whiz, how you going to jam all this stuff into this one finite space?" And it seems to me, if I recollect, you at The Ray have some teaming of late that helps folks to understand essentially how to maximize the use, at least of some of those spaces as it relates to solar. I'm wondering if you would be up for sharing a little bit about that one little feature of one of the layers of the cake.

Laura Rogers:

Absolutely. So just to take us back a little bit, when I was with the Maryland Department of Transportation, I created the solar program for the DOT that also extended to the rest of the state. And so a little bit of my history, I have done these types of analyses manually. So looking at GIS layers and all of the different considerations that go into place when you do a project

that's an alternative use of the transportation right of way. And so it's complicated. It's hard. There's a lot of things that you have to take into account, right? So you have to know where the other utilities are located in the right of way. And is there a threatened and endangered species habitat that we have to consider? What about flood plains, right? The list goes on and on and on.

Laura Rogers:

And you have to talk to everybody within the Department of Transportation to make sure that their concerns are addressed but also that we're not messing them up in any way that impacts their job. And so what we have been able to do is we have partnered with ESRI. So all of the state DOTs use the ESRI platform, which is a GIS. And we can take the DOT layers, GIS layers, so their parcel data information, their street center lines, if they have utility data, we can take all of that information, we can load it into this tool that ESRI configured and gifted to The Ray, and then we can do that same kind of analysis in about a week or so.

Laura Rogers:

So the analysis takes into account all of the layers, but then we look at the solar radiation. We take into account the safety setback that's needed. We can even do things like a viewshed analysis when we build a solar array in a digital model on their transportation asset so we can show them what it would look like. And then we can also do the line-of-sight analysis as well.

Laura Rogers:

And so doing this in a digital world and taking all of that data, compiling it, analyzing it, and then doing a solar suitability analysis, we can then start focusing on the best locations for where we should install solar, right? So we can do that for solar. And since that has been going so well, that's actually one of the most popular programs at The Ray is folks are asking, transportation agencies are asking us to help them do this analysis and help them walk through the procurement to install solar on their roadsides. We are now up to 20 transportation agencies that we are working with on this type of analysis.

Laura Rogers:

And so we can take that same model, we can take that same configuration, tweak it a little bit, and move it into some of these other program areas as well, like right of way transmission or fiber. Because honestly, there is not a one size fits all in any situation. Every state is going to have different considerations, different priorities to a certain extent, and kind of a different willingness on what types of right of way they're willing to allow alternative uses. And so we can do the specific analysis and taking all of those considerations into play.

John Smolen:

Sounds to me like the, to be philosophical for a moment, that your solar mapping example is an example of how analysis can maximize any number of things, which really turns a right of way from a transportation asset for communicating vehicles or human beings from point A to point B, to affording the communication of human beings from point A to point B, be it in a car, be it in a truck, be it through an electrical connection, be it through some transmission of phone information, through data information. It is a vehicle for us to distribute solar route for resiliency and other purposes. It is a way for us to interact with our environment.

John Smolen:

Sounds to me like as a guy who is from time to time in the straight-up transportation business, that I have many more things on the menu, which leads me to a very good question. If I am interested in this sort of thing, I, the average citizen, what can I be doing? Am I talking to my DOTs? Am I talking to developers? Am I talking to academics? Am I talking to power companies? Am I talking to my politicians? How is it that we can help The Ray advance this approach to transportation in the entire United States?

Laura Rogers:

Yeah. So I really think it's in all of the above, right? So what we are really looking at here is a cultural shift, not just within the transportation industry but also in the energy industry, communications, legislators, politicians are a part of this, but also public acceptance, right? We have gone a really long time thinking that transportation is just about the movement of people and goods, but as we are moving into this new world of connected, electrified, shared mobility and movement of goods, we are starting to reconsider what that means for the transportation infrastructure and our assets. And so it's going to be all of the above. It's going to be public acceptance and the pressure or acceptance that we need our leadership and our decision-makers to move forward with.

Laura Rogers:

And maybe even a redefinition of what transportation means. Right? So a lot of times folks think about the movement of vehicles, passenger vehicles or trucks, but for a long time we've actually included pipelines in the definition of transportation. And so if we can do that, why can't we also include communications and other types of utilities like electricity, especially as DOTs, the Departments of Transportation and others are trying to figure out how to reduce vehicle miles traveled, how to reduce congestion, how to connect the world in new ways that we have never been concerned about before? I think it might be time to reevaluate that definition and maybe expand it.

John Smolen:

I think that's a fine idea, Laura. So you're on notice out there on the all-of-the-above list that I had just dictated, including you, sir, holding your dog on that walk now coming up on a 30-minute podcast that is the highlight of your day.

John Smolen:

Folks, we have an Infrastructure Act that is devoted towards helping us understand how we are going to make these transitions. Laura just described, I think in great detail, a compelling case for why that transition makes sense. I invite everyone out there in the interwebs to go to https://theray.org and exploring the many things that The Ray is doing and that Laura is doing with them.

John Smolen:

It has been a pleasure to be your host today, Laura. It's been my pleasure to be your host out there, podcast listener folks. I invite you to join us as we have our periodic podcasts come out into the world. This will, of course, be the most interesting one because I'm saying so. It's been a pleasure to be with you Laura again, and I look forward to seeing your many successes and particularly those with The Ray in the near future again.

Steve Burkhart:

Thanks again to John Smolen and Laura Rogers. Make sure to visit our website www.ballardspahr.com where you can find the latest news and guidance from our attorneys. Subscribe to the show in Apple Podcasts, Google Play, Spotify, or your favorite podcast platform. If you have any questions or suggestions for the show, please email podcast@ballardspahr.com. Stay tuned for a new episode coming soon. Thank you for listening.