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4-14-2022

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S6E9: What does Maine need to expand electric vehicle use?

Date: April 14, 2022

Run Time: 00:23:06

Reducing greenhouse gas emissions in Maine will require a broader adoption of electric vehicles, according to University of Maine economist Jonathan Rubin. Officials from the Maine Department of Transportation and other state agencies have a role to play in fueling the transition away from gas-powered cars and trucks. To guide them, Rubin, professor of economics and director of the Margaret Chase Smith Policy Center, and his colleagues from the National Cooperative Highway Research Program (NCHRP) released a report that outlines strategies for reducing emissions from the transportation sector.

On this week's episode of "The Maine Question," Rubin discusses the report and what is needed to usher in a greener transportation future for the Pine Tree State.

Transcript

[background music]

Jonathan Rubin: It depends on you, me, our families, civic organizations, and politicians to say, "What is it I want out of my transportation, my cars? What is it I really want and be open to change?" It's not a foregone conclusion.

If we don't make the investments in electric charging, if we don't make sure that low-income people benefit, we are not going to get there.

Ron Lisnet: Jonathan Rubin. Economics Professor at UMaine and Director of the Margaret Chase Smith Center for Public Policy, talking about the challenge Maine faces in the transition from cars and trucks burning fossil fuels to electric vehicles.

I'm Ron Lisnet, and this is "The Maine Question" podcast.

Anybody who's had to fill up an oil tank for heat or put gas in the car knows all too well what a complicated, expensive challenge it is these days to deal with energy in our lives. Rubin focuses on those very issues, energy, greenhouse gases, alternative fuel sources, and means of transportation. He's quite busy these days, as you might imagine.

The war in Ukraine, pent-up demand due to the pandemic, and supply chain problems mean oil and gas prices have spiked. There are encouraging trends, however. Electric vehicle sales are on the rise. Renewable energy costs are coming down. Battery technology is making advances. Of course, hovering over all of these issues good and bad is the pressing need to reduce CO2 in the atmosphere.

Rubin has been part of a study that has examined all of these trends and has come up with a guide for states to find and implement the best ways to reduce greenhouse gas emissions. One of the key ways to do that, make the switch to cars and trucks that run on electricity, not oil and gas.

Electric car adoption in Maine is rising, but still pretty miniscule, about two percent of current new car sales. As a rural state, there are big challenges to the effort to increase that number. The need to drive long distances, a lack of charging stations, and weather are a few of the factors slowing down that transition. We spoke with Rubin about all of these topics and more.

Jonathan, thanks so much for taking the time to speak with us, so much to dig into on this whole topic and this story in particular. Let's talk, first of all, about the report that came out that you were involved with. I believe, you said it was more than two years in the making. What was the study for? Who commissioned it? What was the main objective you guys were going for?

Jonathan: Thank you, Ron. It's a real pleasure to talk about climate change and greenhouse gas emissions and transportation. That's my favorite topic here. Thank you for this opportunity.

I was part of the transportation research board's study called, Reducing Greenhouse Gas Emissions, a Guide for State Departments of Transportation or State DOT's.

It was a two-year effort, maybe more than a two-year effort. What we were looking at is, can we get a ready-to-use guide web-based such that state DOT's around the country can go to that website, then, click through the parts and say, "How do I start?"

Some states are way ahead, like California. Other states are not so far ahead. States are different places. This is a guidebook trying to help states where they are.

Ron: What were the key findings as to how states can reduce greenhouse gases, particularly in the transportation sector?

Jonathan: The first thing is, as I mentioned, states are all over the map. Some states are way ahead and some states are behind. The answer is, it depends on where you are. It's hard to generalize to the nation as a whole.

California is, by all acknowledgments, the leader in the United States in terms of state actions. Maine is rapidly catching up. We're doing great now under the leadership of Governor Mills, Efficiency Maine, and Maine Department of Transportation. There's a lot of progress in Maine. We're still way behind where California is.

Our neighboring northeastern states, Massachusetts, Vermont, New Hampshire, all making progress. It's a different level than California. Of course, there are some states, for largely political reasons, that aren't making the same level of effort. With this guidebook, we're trying to say, OK, first thing to do is states have to take an honest appraisal of where they are.

Once they understand where they are in this process, are they in the beginning, in the middle, or are they trying to execute the best possible plan? We're trying to meet them where they are.

Ron: With so much variability among the states. They're all unique in their own way. There's some commonalities, certainly, like you mentioned in the northeast. How different is the menu of solutions because of that?

Jonathan: The menu of solutions, what makes sense, partly depends on whether or not you're a rural state, an urban state, how good your mass transit system is. In a rural state like Maine, it's very challenging because we don't have big urban cores. We don't have a well-established transit system.

I know we have transit, but we're not talking about subway systems and the type of infrastructure that exists in bigger urban areas.

Ron: Let's back up a little bit to the 30,000-foot level. You deal in this every day. There's so many big tectonic plates moving here. You have the war in Ukraine, and what that's doing to gas prices. You have electric cars coming up. You have mass transit. You have renewable energy starting to rise and compete for price.

Then, overall of that is climate change and what is happening with fossil fuels fueling that problem. What's your assessment? Is this a hot mess right now [laughs] that we're dealing with?

Jonathan: It is a hot mess. We will make progress. We are making progress. One universal thing that is recognized in the United States and around the world is the need for electrification of the transit sector. That's not just cars, and light-duty trucks that we drive, it's also buses, heavy and medium-duty vehicles.

Electrification of the whole transportation system is seen, and I agree, is the way forward. That's mainly because there's a couple of advantages. One is you don't need to use

petroleum fuels, as you said, will get you out of that oil-driven issue, of how the oil price-flicked variability.

Also, when you charge an electric vehicle, and then you drive an electric vehicle, you don't have tailpipe emissions. You get air quality benefit at the local level, to complement the greenhouse gas emission reductions from using an electric drive, as opposed to using a internal combustion using gasoline or diesel fuel.

Ron: How does Maine get its energy? What are the main sources?

Jonathan: In the electrical sector, the electricity sector, it's natural gas, hydro, wind, and solar. Maine, in particular, the generation side has about 75 percent renewable, which is quite large, one of the largest in the country. Maine's ahead.

We're also part of the regional electricity power grid called ISO, independence service operators New England, ISO New England. In ISO New England, again, it's mostly natural gas with some renewables for wind, biomass, and solar. That's the breakdown for ISO New England in Maine in particular.

Ron: Back to the study for a moment, can you talk about the need to coordinate the effort to reduce these greenhouse gases? There has to be a partnership between the local state and federal government. Is that a key part of this?

Jonathan: Yeah, absolutely. This study that we worked on targeted the State Departments of Transportation. The way decision-making works in America is you have both federal state and local decision-makers. They all have to work together to be effective.

In our report, we do highlight how state DOT's can partner with their local communities, smart growth, in-growth. You want to densify areas of cities so that people don't have to drive, maybe they can find a walkable store or groceries or things in the community.

It is both local growth initiatives, as well as state policies for things like subsidizing electric vehicles or getting more public charging stations out there. It is a true partnership between the state and local communities.

Of course, we do need federal money. A lot of federal dollars do flow to the state Departments of transportation for transit. We do need federal partnerships, federal guidance, as well. It's a multi-level partnership.

Ron: Now, we talked about Maine being a rural state, and that's certainly the case. What does that do to the challenge to use more electric cars, in terms of the range, in terms of charging stations, whether all those factors? Are those some of the things that make it more difficult in Maine to make strides in that area?

Jonathan: Charging is probably the thing that most electric vehicle owners are going to be concerned about. "Where am I going to charge?" Most people charge at home. In that sense, being rural isn't necessarily a handicap, but in Yatta, but then you want to say, "Well, how far do I have to drive on any given trip?"

To the extent that rural-ness means you have to be able to drive further, it does pose a greater challenge for rural areas. There's also less opportunity because we're rural to find urban areas, not exclusively, but that's often where public charging stations are located. It does make it harder.

I don't think it's something that can't be solved through conscientious, through planning, but it is a challenge.

Ron: How is Maine doing in terms of adopting electric cars? Who's leading the way?

Jonathan: The country that's leading the way is Norway, by far. Norway has somewhere in the order of 80 percent of new vehicles being sold, being either battery-electric or battery plugin with some use of gasoline. With the full battery electric somewhere in the 65 percent range. They're by far the world's leader.

That has to do with all-out government policy to raise the cost of internal combustion or gasoline, diesel cars, through a 25 percent tax. Then no tax on the electric vehicles, as well as other perks such as free parking and other things. We're not there yet in terms of policy, and Norway is a much smaller country.

They're the world's leader. People do look to them, but I'm not sure that the lessons of Norway are going to apply to a large nation such as United States. Within United States, California is by far the leader. They have about 12 percent of their new vehicle sales being electric right now.

That's up about 10 percent, up 10 percent in the last decade. They've made a lot of progress. I want to acknowledge that Maine is making a lot of progress, too, but we're still in the two percent range of new vehicle sales. Getting up to 10 percent is going to be a challenge. We'll get there, but it's a challenge.

Ron: Ironic because Norway is awash with oil, right?

Jonathan: Yes, they're washed with oil, and they sell it on the world market. Most of that money goes into a sovereign wealth fund.

Ron: Can you talk a little bit about the need to communicate the benefits of making this switch, I guess. What can be done so everybody benefits, not the people that can afford for electric cars is a much bigger price tag?

Jonathan: When you think about the benefits of electrification and cleaning up our transportation, it's important that these benefits go to everyone. Everyone in society, low income, disadvantaged communities, as well as higher-income people. Everybody should win on this.

It's important because it's the right thing to do for everybody to get better transportation, cleaner transportation in their local communities. It's also good public policy, in the sense that this is a transformation we need to make. We need everybody to benefit so that everybody's willing to pay and contribute to make this transition happen.

Ron: Let's talk a little bit about the challenge of making this switch big picture. We have an economy that for what? 150 years has been based on internal combustion engines. It's not transportation, it's drive-ins. It's people that repair cars, it's auto parts stores. Everything is based on these gas-powered vehicles.

Changing that and going to electrification, can you get your arms around how big tectonic plates shift that is? It feels huge like you're trying to turn around a tanker in a swimming pool or something.

Jonathan: It's important to be realistic about the challenge ahead of us. It is huge. Then your tanker example is a good...I like that analogy very much. It is about turning it around a tanker, which is slow to turn, and it takes a long time. It does involve the repair stations, it doesn't involve everybody.

At the same time, we've seen transitions. Once upon a time, we didn't all have little smart computers called cellphones in our pockets. Today, we do. Not universally. In fact, one of the problems today is that especially with low-income people is they don't have necessarily have access to smartphones, and good Internet connectivity.

We must make sure that this transition includes everybody. It is a very large undertaking because it involves insurance, it involves charging. Involves the way you go about your day, because it is fundamentally changing a whole system that we have established.

It works very well for us in many regards, except for balance of payments. Where are we buying this oil from? All those issues.

Ron: We talked at the top about all the competing factors that are at play here, short-term versus long-term. We have the war in Ukraine. What is that doing to energy prices right now? We have the long-term needs and desires to reduce greenhouse gases and move away from internal combustion engines.

Can you talk about the interplay and the battle between [laughs] those competing dynamics short-term versus long-term? It's a bit of a tug of war going on right now. Isn't it?

Jonathan: It is. It is a tug of war going on right now. The war in Ukraine is driving oil prices up. Oil is a worldwide commodity. Even though United States is a very large, one of the world's largest oil producers and refiners and we do export a significant amounts of refined product.

It's a worldwide commodity, higher oil prices anywhere, mean high oil prices in America. It's what it is, it's a world commodity. You do have sectors in the United States economy that produce oil, and those high oil prices are very beneficial to parts of the US economy. Let's not forget that.

If you're in Oklahoma or Texas or other oil-producing states, this is a time to make some money because oil prices are high. That is important, it's real, and you have to acknowledge that. It's important that we have what's called the language going around these days is a just transition.

Looking after those oilfield workers and other people who stand to potentially lose or if not lose their job, they are going to have to find a different job.

They have to find new skills, because it's not the skills that you need to be electrical vehicle technician, or manufacturing, or all the component parts are not necessarily the same skills as taking the oil out of the ground and refining it.

It's disingenuous to say to people, "Don't worry about your job, it's a good future, you'll be fine. I think we have to really pay attention to those people whose jobs may be at risk." It's the right thing to do to pay attention to that. We need to acknowledge it. We need to work with it.

I don't think we can stop because some folks will lose their jobs doesn't mean we should not do this, but it means we have to make sure that they are adequately taken care of.

Ron: You can't open a newspaper or watch a news program or open your phone without hearing about supply chain problems these days. Whether it's chips or cream cheese, or whatever, it seems to be a big problem as we come out of this pandemic.

Is that also affecting the adoption or the manufacturing of electric vehicles? Or is it the same for internal combustion engines and electric vehicles in terms of supply chain problems holding things up a little bit?

Jonathan: Supply chain problems are a real issue for electric vehicle transition. That's because electric vehicles have a lot of computer chips in them, and they have a lot of specialized parts. Those specialized parts come from all around the world.

When you have a bottleneck somewhere and you need one part that can stop a vehicle from being produced and on the road and getting to a customer. I ordered a Volkswagen

ID.4. It took about eight months for my vehicle to be produced and shipped to Darling's in Bangor.

Ron: The other story you can't help but notice every day is the technological advances, whether it's new battery technology or other technologies that are moving things forward.

Have you seen any new developments of things that are coming down the pike that people should be excited about? Are we ready for a leap forward in the capabilities and technologies for, say, electric vehicles?

Jonathan: Ron, it's a good point. In some senses, electric vehicles are a perfect substitute or a replacement for your current gasoline or diesel vehicle. In some ways, they're better. They're quieter. The acceleration's great. They have all the latest safety features. These are nice vehicles. They're just really nice vehicles.

What's on there is already incredibly advanced compared to a vehicle a few years ago. If you're asking also what's coming down the pike, maybe five years from now, there's still some very interesting things in the works. One is, battery technology continues to evolve. It's not static. We do expect better ranges, lower costs, to be coming down.

That's realistic to expect that, not pie in the sky stuff. It's realistic because we've looked at the price of batteries. If you plot them on a graph, they show a clear downward trend with time and with production volumes.

We're expecting better batteries, lower costs, better technology in the vehicle. That's all occurring. It doesn't mean that new vehicles aren't tremendous now.

Ron: You've been studying this stuff a long time. Have you ever seen a time that's more volatile in energy and transportation, or more promising or more discouraging? Where are we at in terms of how you've looked at this stuff, or what but a couple of decades, anyway?

Jonathan: Yeah, I have. I wish I could say to you that this time is now unprecedented, but it's not. We've had major oil price spikes in the past. In fact, if you look at inflation-corrected oil prices, these is not the highest oil prices we've seen in the last couple of decades. This is not unprecedented.

The expectation should be that oil prices are volatile. Once you understand that, that is the norm, as opposed to the exception that in some ways makes the case for electric vehicles stronger because you don't have the same degree of price fluctuation so far in the electrical power sector as you do in the world oil markets.

Ron: As we wrap up here, we ask all of our podcast guests to gaze into their crystal ball, so to speak. Maybe you could give us your best-educated guesses or guesstimates, however,

you want to put it, about how Maine is situated going forward. Where are we at? What's the realistic best-case scenario of where we're headed?

Jonathan: If I'm looking at my crystal ball, I would say that the answer is it depends on the actions we take today. It depends on you, me, our families, our civic organizations, and our politicians to say, "What is it I want out of my transportation, my cars? What is it I really want?" Be open to change.

If people are open to change and this is a large change, and that's why I want to say it's partly an attitude of people. We can make the type of progress that we need to make, but it's not a foregone conclusion. If we don't make the investments in electric charging, if we don't make sure that low-income people benefit, we are not going to get there. That's also important to remember.

I will say as an electric vehicle owner, I love my EV. I'm fortunate that I have enough income that I could afford one. I did get some subsidies from efficiency in Maine and from the federal government. Those do help. I love my EV.

[background music]

Jonathan: People ought to go to their dealer and say, "Hey, can I test drive one? Can I see what it is like? How would it work for my family?" I'm optimistic. I'm also realistic in the sense that it takes a willingness for people to make changes. It takes a willingness and continuity of our public and civic institutions to help in this.

Ron: Well, as someone once said, "May you live in interesting times." In your world and what you study, that is certainly the case at the moment. Thanks for taking some time to chat with us.

Jonathan: Thank you, Ron.

Ron: Thanks. As always, for joining us, you can find The Maine Question on Apple and Google Podcasts, Spotify, Stitcher, and SoundCloud, UMaine's Facebook and YouTube pages, as well as Amazon and Audible.

Have questions or comments? Send them along to mainequestion@maine.edu. This is Ron Lisnet. We'll catch you next time on the Maine Question.

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