

SM114 | 3.25.2023**Carbon Frontiers | Episode 6****Leslie Biddle, Senior Advisor to the Undersecretary for Infrastructure at the US Department of Energy**

We continue our Carbon Frontiers series this week with Leslie Biddle, Senior Advisor to the Undersecretary for Infrastructure at the US Department of Energy and former partner at Serengeti Asset Management. SmarterMarkets™ host David Greely sits down with Leslie to discuss how the Inflation Reduction Act of 2022 and the Bipartisan Infrastructure Bill of 2021 are transforming US energy policy and accelerating the energy transition to a low carbon economy.

Leslie Biddle (00m 00s):

The Department of Energy is taking the once in a lifetime passage of these bills and looking to transform the energy economy. And I know I have the vantage point of sitting where I'm sitting, but the breadth of these programs, everyone I do believe is going to be starting to feel them in the next year because commitments are being made, dollars will start being put out the door, and shovels are going to start to go in the ground. So you'll start seeing that economic activity and then it's incumbent upon the Department to monitor these programs, share the data that we're receiving, and report back on our climate goals.

Announcer (38s):

Welcome to SmarterMarkets, a weekly podcast featuring the icons and entrepreneurs of technology, commodities, and finance ranting on the inadequacies of our systems and riffing on ideas for how to solve them. Together we examine the questions are we facing a crisis of information or a crisis of trust and will building Smarter Markets be the antidote?

This episode is brought to you in part by Base Carbon, it's time to get serious on carbon. Learn more at basecarbon.com.

David Greely (01m 17s):

Welcome back to Carbon Frontiers on Smarter Markets. I'm Dave Greely, Chief Economist at Abaxx Technologies. Our guest today is Leslie Biddle. Leslie is senior advisor to the Under Secretary for Infrastructure at the US Department of Energy, and a Former Partner at Serengeti Asset Management. We'll be discussing how the Inflation Reduction Act of 2022 and the Bipartisan Infrastructure Bill of 2021 are transforming US energy policy and accelerating the energy transition to a low carbon economy. Hello, Leslie, welcome to SmarterMarkets.

Leslie Biddle (01m 51s):

Hi David

David Greely (01m 51s):

Thanks so much for joining us today. Now, I feel really fortunate to have you here to provide us with this sort of, you know, user's guide to the Inflation Reduction Act and the investment dollars that it makes available for the energy transition to a low carbon economy. This has been, you know, one of the topics of conversation this year, so having you here to help us all understand it better is a huge help. So thank you. Before we dive into the user's guide, however, I'd like to take a step back to discuss how the Inflation Reduction Act of 2022 builds upon the Bipartisan Infrastructure Bill of 2021. Because while the 370 billion of investment headline in the Inflation Reduction Act deservedly captures a lot of the attention, I think the bipartisan infrastructure bill laid the groundwork by expanding the DOE'S ability to put that type of investment to work. So, Leslie, can you start off by walking us through how these two pieces of legislation have transformed the Department of Energy's ability to support investment in the energy transition?

Leslie Biddle (02m 53s):

Dave, I'm incredibly happy to be here. Thank you so much and thanks so much for your question. I really appreciate the opportunity to lay out really how the Department of Energy is taking the really once in a lifetime passage of these bills and looking to transform the energy economy. You know, the story really begins, as you said, in November of 2021. You know, the Department of Energy has always been the heart and soul of the research and development of the energy sector in the United States. We have 17 national labs, which are the standard bearer for r and d and science and what the bipartisan infrastructure bill did was also create \$62 billion that would allow

us to actually create deployment and commercialization of those technologies and so that, that was new for us and so the way we respond to that was actually restructuring the Department of Energy we kept as the pillar.

Leslie Biddle (03m 51s):

And there's now three pillars, obviously R&D incredibly important, always will be the heart and soul of the Department of Energy. We also have, you know, foreign policy, nuclear policy, separate group, and then the new office that was created, which is the Office for infrastructure and, you know, the infrastructure muscle, like taking R&D, taking, you know, original technology and taking it all the way to commercialization was not something that the Department of Energy has historically done, again, R&D shop. So we had to build out the muscle, but to allow us to implement the program that was laid out in the bipartisan infrastructure bill and I'm happy, I'm gonna pause there for a second, but I'd like to then go into really what that bill did as far as the dollar allocations and how that went into the Office of infrastructure. But I'll pause to see if you had any questions about what I just said.

David Greely (04m 48s):

No, that's a great foundation because I think a lot of people who aren't in government don't realize necessarily the boundaries in which the various departments operate. So it's a big transition going from being primarily research and development and energy to being able to deploy and then eventually I think through the investment dollars to scale. So maybe we could get into, you know, this notion of the user's guide. As I said, and you know, you've said the headline number for investment dollars authorized by the IRA's massive. But can you walk us through what form does the available funding take? What is the mix of grants loans, tax credits?

Leslie Biddle (05m 25s):

Sure. So again, I'll break it down between bipartisan infrastructure bill and then go to Inflation Reduction Act. So in the Bipartisan Infrastructure Bill there, as you said, there are grants and there are loan guarantee programs. The Loan Guarantee Program, LPO, the Loan Guarantee program has been around since 2008 as part of the TARP recovery program and so I think a lot of probably a lot of your viewers, a lot of folks are very familiar with that program. It is, you know, for later stage companies, it is a loan guarantee program. It is working with companies that have the ability to, to repay debt. So further along in their maturity and under the Bipartisan Infrastructure Bill, the authorization. And then part of it in IRA is in the Inflation Reduction Act. The authorization for LPO was increased to around 400 billion. So a lot more horsepower and a broad mandate to put money to work in those technologies and areas.

David Greely (06m 24s):

So how do the grants and the tax credits fit into all this?

Leslie Biddle (06m 28s):

Yeah, great. So there was the \$62 billion of grant dollars that were also created during the bipartisan infrastructure bill and those dollars are really used for demonstration deployment and commercialization projects and they are focused, and I'll go through how they're broken down by technologies, but it is focused on kind of after R&D this is technology that works, it is understood for those, from a technology background, it's TR 9 and better. So we're not taking technology risk, but they have not been brought to scale and as you know, Dave, from your background, and a lot of folks here, that moment in time or moment in a project cycle when, you know the R&D works, but the capital expenditures for these, it's not like software where you can kind of build it at a piece.

Leslie Biddle (07m 19s):

Like you have to say, okay, well this works in the lab now I actually want to build demonstration facility. Those demonstration facilities are also often multiple hundreds of millions of dollars and that's what this grant money is meant to do you know, to finance the valley of death and so the grant program is meant to finance those projects. So worked in the labs, not ready for, you know, have full off take and fully structured in many cases, or they're in commodities new green commodities that are just being developed. So less off take and really meant to finance the actual construction and development of the infrastructure and the plants in order to get to commercialization. So the way that that works is as laid out in the infrastructure bill, there are a number of areas of focus and so there is GDO, which is the grid and transmission office.

Leslie Biddle (08m 18s):

They have a pro, I'm gonna give approximate numbers, there's approximately 20 billion. There is the Office of Clean Energy Demonstration. They have approximately 26 billion and I'll go into their programs, cause a lot of those are happening this summer and then we have the office of manufacturing and supply chain and they have a combination of grants and tax credits and I'll break that down. There's also many other really important areas inside of the office of infrastructure, which I won't be focusing on today since this

is really about the, some of the larger grant dollars. But we do have offices that work with energy efficiency in federal buildings. We have an incredibly strong program, it's called Indian Energy and what's happening on building out resilient infrastructure on reservations. So a number of other incredible programs, really fantastic. But I'm really gonna focus today on some of the larger programs as it relates to the deployment of this, this clean technologies.

Leslie Biddle (09m 21s):

So Office of Transmission, obviously, you know, pretty, pretty self-explanatory. Doing everything from programs where they are in anchor tenant in order to facilitate financing to working directly with states on building out critical transmission infrastructure. The Office for Clean Energy Demonstration has \$8 billion for hydrogen hubs, and we'll spend a little bit more time on those since we have two, two big events that are going on with hydrogen hubs. They have \$2.5 billion for long duration energy storage. There's \$5.8 billion for the decarbonization of industry. Those think of those as hard to abate sectors such as, you know, cement, steel, pulp paper, et cetera.

David Greely (10m 10s):

So yeah. I wanted to ask you, Leslie because the other aspect of this is the tax credits, how do they fit in. Is that within the DOE'S purview or outside the DOE?

Leslie Biddle (10m 22s):

Okay, that is a great question. I promised to answer it, but before I do, I did want to just go back to a bit on the process of the grants because in my user guide and with folks listening, I think it's just an important thing to understand because there are timelines and there are deadlines, and so folks need to, to pay attention. So the way the process works is there is a funding request process. Think about it like an RFP, it's called FOA and those go out and they have specific timelines and requirements, and this is the process of granting billions of dollars. So the process to respond to those FOAs is not exactly for the faint of heart. You cannot pull a one all nighter and get them done. So people should be watching, you know, watching for deadlines. For example, deadline for the hydrogen hubs is actually beginning of April, April 7th I believe.

Leslie Biddle (11m 21s):

And so there's been a process, the FOA went out early in the year, maybe even in December. There was a whole process of encourage and discourage and now we're getting to the final requests, people put in their completed applications. We review those over the summer and then awards are granted in the fall, and that's the case with long duration energy storage. Those final applications were submitted last week. There'll be a review over the spring announcement, the summer, the decarbonization, industrial decarbonization will be coming out later you know, at the beginning of the summer and so people should keep their eyes open for those. Then you go through a negotiation process and then the grants are given and just to be specific about the structure of those grants, sometimes I've been asked, you know, that the word equity is used, but just to be very clear, the way those, it's up to 50% cost share.

Leslie Biddle (12m 16s):

So 50% from the private sector, 50% from the Department of Energy, and there's no expectation of return of or return on capital. So as those projects are, you're meeting certain milestones. We are funding co-funding with the private sector and we are not expecting a return of capital. Those dollars are, are used to complete the project. So that's how the grants work and we have a very effective webpage. You can sign up for notices and there's, you know, the big and the small notices on the FOA requests come out regularly. So please everyone sign up and understand what's going on. Here at the doe. Now I'll answer your question as it relates to tax incentives. So under IRA, the tax incentives, generally speaking, if you the solar PTC or ITC, that is you qualify under the rules IRS rules you are able to take advantage of those, of those tax incentives pretty well understood.

Leslie Biddle (13m 20s):

In certain instances, the tax incentives are capped. Okay, so that results in an allocation process and one of the areas where there is a cap is in 48C and that is has as, as it relates to the supply chain and it's a pretty broad provision. It has, you know, inputs for energy transition, it has recycling certain minerals. It also has just a broader decarbonization category. So because that and tool is capped at \$10 billion and when that cap when you, as you're going through, which I'm sure everyone has, if you haven't, you will at some point when you're going through IRA and you see a cap, then that will be administered by one of the departments. So some of that is department of Transportation, sums, EPA on the supply chain as it relates to those provisions that is handled under the office of infrastructure, specifically the office called mask, which is manufacturing and energy supply chain.

Leslie Biddle (14m 27s):

And then I get, you know, we get asked question as it relates to, you know, grants or LPO and then what happens or doesn't happen as it relates to your ability to qualify for the production credits and so when you receive a grant from the Department of Energy, or when you receive a loan from LPO in the Department of Energy, those projects are still able to go through, through the process of qualifying for the broader tax credits. So you, it's not mutually exclusive. It's not as though I got a grant and therefore I'm not able to qualify for a production tax credit that, that's not accurate. You can stack wedding cake, double dip, people call it a lot of different things. But those, those are incremental benefits. What you can't do is you can't have a grant fund your equity component to the loan investment program and you can't have the loan investment program be your 50% of your private sector, you know, private sector costs share, like and that's just policy. It's to make sure that we have appropriate skin in the game from the private sector. But as it relates to if your program, if you're producing something that would in normal course be eligible for the production tax credits under IRA, those are still eligible. A company that would have received a grant or a loan from the Department of Energy would still be eligible.

David Greely (15m 55s):

That's really helpful to understand how those relate to each other and I just had one quick follow up question to make sure I heard you correctly. In terms of the tax credits, it sounded like you were saying that the aggregate amount of tax credits available can be subject to a cap, in which case who gets those tax credits has to go through a departmental process to allocate those. So just because you can't just do the math and say, well, there's gonna be so many more billion dollar spent because I can apply this tax credit. It's, there's an aggregate cap?

Leslie Biddle (16m 27s):

That is exactly right. So if you're just looking at the solar, you know, PTC that's just out there and everyone understands it and it's not capped. The example that I used is this 10 billion which was specifically, it's a capped credit and it is, it's actually an investment tax credit, but it's a capped amount and therefore that is being run within the Department of Energy to make sure that the allocation of that isn't just a first come first serve. We're really focused on supply chain there and we're making sure that we are, we're getting the projects and the companies into those tax credits that are really going to be the foundation and the backbone of our ability to do all these projects that we're doing across the energy transition. So there is an allocation process inside, and that is happening just on that the end of May, that request will be out, the FOA will be out at the end of May and working through the summer on coming out with the appropriate awards and allocations of that award.

David Greely (17m 33s):

And in terms of the people who would like to apply for these grants, loans, tax credits, broadly speaking, who's eligible and is the funding available for both the for-profit and not-for-profit sectors, or is there a distinction there?

Leslie Biddle (17m 49s):

So both for-profit and not-for-profits are eligible. That is the case for grants and for the loans in addition, which people may have noticed, but if not, they should underscore that even the tax credits this time versus in previous, there is a direct pay component which would allow not for profits to take advantage of the tax credits as well. So that's, that's new in IRA. So not for profits both eligible, but we are, you know, we're, these are American companies. There is definitely foreign ownership in various parts, but these are majority owned American companies. There is no kind of, you know, the secretary was in CERWeek whatever two weeks ago and she said, you know, this is a unapologetically American policy And so we are looking to be leaders in the energy transition and this is our step forward in that. So American companies, we are looking for American companies to take the lead.

David Greely (18m 59s):

And I wanted to ask you, how is the DOE balancing investing in the new infrastructure needed for new technologies you know, things like hydrogen and batteries versus improving existing energy infrastructure, you know, by making say, homes more energy efficient?

Leslie Biddle (19m 14s):

So there's a lot in the tax credits as it relates to existing. There's individual tax rebates on energy efficiency in homes. There's individual tax credits as it relates to heat pumps. There's individual tax credits as it relates to solar. So in addition to the new economy, we are also going down to the residential, you know, homes to bring in the energy efficiency and kind of step forward in the energy transition even at the very local level.

David Greely (19m 48s):

And I'm curious, how does nuclear energy fit into all of this?

Leslie Biddle (19m 52s):

Yeah, so we have, there are some modular nuclear plants that we are funding. There's three of them, I think folks, folks know that. So those, those will continue. We do have additional funding for nuclear assets. In addition, there is a mechanism in the existing legislature, which originally there's little sections in both bipartisan of a sugar bill and IRA that provide floor pricing essentially for the existing nukes and so the intent there is to make sure that our existing nuclear fleet has a baseline of revenue to ensure that they, they stay online. So we're really hitting that in both, which is support of incumbent as well as looking at supporting the incremental new development.

David Greely (20m 42s):

And you've walked us through a lot of the, the nuts and bolts of the application process and the timeline at least sounds like a lot's coming over the next few months. And so I wanted to ask you, you know, when should we expect to start to see the money go to work and where should we expect to see some of the money flowing first?

Leslie Biddle (21m 00s):

Yeah, so the first awards will be in long duration energy storage, and you will see those this summer and then the next large program and I think because of the way it's structured and I will spend a moment on it is hydrogen and that will be in early fall. And hydrogen, in addition to being \$8 billion, which is obviously a big number, the focus is on a developing hydrogen hubs and those really are regional economic eco centers where we are looking for the development of both supply and demand and the way that the bill has that structured is that we can do looking at establishing between four and six hubs for up to 50% cost share, but depending on the way the economics come out and the way the proposals are, if we have the dollars we would seek to, to do more.

Leslie Biddle (21m 54s):

And then, you know, that the idea there obviously is looking at what are the multiple of end uses and the reason why hydrogen is, I mean, it's all interesting and impactful and incredibly exciting overall, but hydrogen is also kind of has its own special place because it can be produced by natural gas, obviously it can, you know renewables and then there's multiple end uses and we are looking for those hubs to have multiple end uses as well. So you know, what's gonna happen in heavy transport, you know, how can you use hydrogen in the, you know, existing production, chemical production base, obviously ammonia, fertilizer, what have you, but we really are looking to and hoping that the proposals are such that they're creating that whole ecosystem. So you're, you're really starting to see the seeds that will grow into a much more national hydrogen infrastructure.

Leslie Biddle (22m 56s):

So I think that that's exciting and you, and because they're hubs, you're gonna see different participants from, from you know, there's gonna be people on the supply side and people on the demand side, and then there's gonna be the connective tissue and the, you know midstream segment to that. So I feel like that will be kind of splashy cuz you'll have a lot of people touching that and just since I took a, a little little turn on the hydrogen, I will also just put in a bit of a plug here and maybe you can put it up on the webpage, David, but yesterday we published, which is you know, a Pathways for Hydrogen. It is a report that's produced by the Department of Energy and it's called a commercial liftoff report pathway report and it provides the market kind of our best thinking, like where do we see the hydrogen market now.

Leslie Biddle (23m 49s):

And it basically is developed to create a foundation and a framework for what we're trying, looking all looking to achieve with the private sector in the development of the, of a hydrogen economy and these documents are meant to be living and breathing documents. This is data that we have now as these dollars go out the door and the information's coming in the door we will use these commercial liftoff pathway reports as the mechanism to provide feedback on what we're seeing to the markets so people understand we're all kind of working from the same baseline of information. So check that out. That's my pitch on, on that report and then we also will be publishing additional reports through throughout the summer, including one on green cement and green steel in addition to, to what's already out. So take a look at those.

David Greely (24m 41s):

That's great. Yeah, we'll be, we'll be sure to make sure we push out those links to our, to our audience and, you know, looking at this, the cycle of feedback and iteration, I wanted to ask you, you've had a very accomplished career in private sector investing before you've gone to work at, to help out the DOE as a senior advisor with this big program and I wanted to ask you over time as the data starts to come in how do we determine whether these programs are achieving their goals you know, how do we judge whether or not these investments we'll be making with considerable billions of dollars are effective in creating the impact that we need?

Leslie Biddle (25m 18s):

Yeah, I mean, first of all, we're of course very hopeful that you're gonna see them around the corner, like and you're gonna, you're gonna see them in your states and towns because they have a very broad reach and we are focused on making sure that there is, you know, equitable distribution of the programs and then as far as success and carbon or carbon goals and what we're looking to achieve, you know, each of the programs will be very closely, you know, monitoring we'll be sitting and collecting, you know, some of the most significant data and looking as we do in our research and development, looking to share that data with the market as a whole to make sure that the decisions that we're making as we're stepping through this process and the next iteration of this that we're using, you know, these dollars and the bandwidth is the most appropriately and having the highest impact.

Leslie Biddle (26m 17s):

But just, you know, and I know I have the vantage point of, of sitting where I'm sitting, but the, the breadth of these programs, everyone is, I do believe is going to just, it start is going to be starting to feel them in the next year because commitments are being made, dollars will start being put out the door and shovels are gonna start to go in the ground in many of these and then we are going to make sure as these go, I mean these projects, I mean, in hydrogen, as you know, that's gonna take years. So you'll see the beginning, you'll see the development, you'll see the coordination, you'll see people starting to place orders for equipment necessary, et cetera, and you'll, so you'll start seeing that, you know, economic activity and then it's, you know, incumbent upon the department to monitor these programs, share the data that we're receiving and report back on our climate goals.

David Greely (27m 10s):

And it sounds like things are moving incredibly quickly. You must be unbelievably busy. So we're really appreciate you taking the time to help us understand all this a little bit better. So thank you for that and before you go, I just wanted to ask you, you know, maybe there's enough happening right now, but I was curious what's next?

Leslie Biddle (27m 29s):

Well, yeah, I, so right now it is true. I mean, like, we're very much in execution mode, like we have a lot on our plate and I think that the really the ability to decide what's next has to come after the point where we have seen what the market is telling us as it relates to what we have, what we are doing this summer and through this year, to then really decide what, where are the gaps, what should you know, what should we do what and we haven't, we don't have that full vantage point yet so that we will be developing this summer and then you know, really think about where the gaps are and and what needs to be done, but looking forward, really all of this, the entire construct is really about facilitating the private sector and letting the private sector tell us where the dollars are needed in order to, to lead this transition and so we look forward to those signals from the private sector when determining where we need to go next.

Leslie Biddle (28m 36s):

Thanks again to Leslie Biddle, Senior Advisor to the Undersecretary for Infrastructure at the US Department of Energy and former partner at Serengeti Asset Management. We hope you enjoyed the episode. Join us next week as we continue to explore the carbon frontier on SmarterMarkets. We hope you'll join us.

Announcer (28m 54s):

This episode has been brought to you in part by Base Carbon. The trading of carbon credits can help companies and the world meet ambitious goals for reducing greenhouse gas emissions. But how do we judge the quality of these projects and how can we ensure that our investments are creating real value? At Base Carbon, we are focused on financing and facilitating the transition to NetZero through trusted and transparent partners. It's time to focus on what's important. It's time to get serious on carbon, learn more at basecarbon.com.

That concludes this week's episode of SmarterMarkets by Abaxx. For episode transcripts and additional episode information, including research, editorial and video content, please visit smartermarkets.media. Please help more people discover the podcast by leaving a

review on Apple Podcast, Spotify, YouTube, or your favorite podcast platform. SmarterMarkets is presented for informational and entertainment purposes only. The information presented on SmarterMarkets should not be construed as investment advice. Always consult a licensed investment professional before making investment decisions. The views and opinions expressed on SmarterMarkets are those of the participants and do not necessarily reflect those of the show's hosts or producer. SmarterMarkets, its hosts, guests, employees, and producer, Abaxx Technologies, shall not be held liable for losses resulting from investment decisions based on informational viewpoints presented on SmarterMarkets. Thank you for listening and please join us again next week.