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**Battery + Storage Podcast, EV Tech Series: The Inflation Reduction Act's Impact on the Energy Industry With Judy Kwok and Marc Machlin**  
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**Bill Derasmo:**

Hello, welcome back to the Troutman Pepper Battery and Storage Podcast. For today's episode, we are going to focus on the recently passed Inflation Reduction Act. It's going to have a profound impact on the sector that we cover here, storage, but also renewables and many other things, as well. Today I have as my guest, Judy Kwok, one of my partners in the firm, and Marc Machlin, another one of my partners in the firm, based here in DC. We've got the Harvard Mafia in town here. We've got, Judy is a double Harvard, she got her undergraduate degree and law degree from Harvard. Marc messed it up, he went to Brown for undergrad, but then he went to Harvard for law school. Welcome Judy and Marc. I'm glad you're on the program today.

**Judy Kwok:**

Thank you, Bill.

**Marc Machlin:**

Very happy to be here.

**Bill Derasmo:**

Excellent. All right, turning first to Judy. Why don't we dive into the conversation? This program is about battery storage mainly, and for many years, obviously the investment tax credit, the production tax credit, they were critical for wind and solar for renewables development. Then storage became more prominent on the scene a few years back. But there was always a question about, okay, how do we take advantage of the investment tax credit or possibly the PTC? This act really clears up a lot of things and beyond just its application to storage. Another area where I think it makes things easier is perhaps the way we had to structure things in the past to take advantage of those tax credits. You had to always ... not always, but a lot of times rely on, for instance, the tax equity investors. That's just a taste of some of the things that this major new law impacted. So Judy, why don't you just speak for a second on the ITC. We've been waiting a long time for the battery ITC. So how does that work and how does it change the existing law?

**Judy Kwok:**

Certainly been waiting a long time for it. The standalone storage bill has been around in one form or another for literally years and it's finally here. It's both a blessing and a challenge because the storage industry now has to reckon with tax equity and tax equity issues like everyone else now. As many of you know, the new battery ITC is a significant departure from the historical pre IRA law, where energy storage property could qualify only if it was part of an otherwise ITC eligible project. Typically solar or wind and certain other requirements were met that had to do with how much energy was being drawn from the grid and how much energy was being drawn from the renewables project.

That regime for batteries placed in service after January 1st, 2023 has now been replaced by this new standalone credit. Which is part of the same statute as the existing ITC for all the other modalities, solar, geothermal, heat pump, fuel cells, and it follows the same basic rules. It's equal to 30% ITC eligible basis, assuming you meet the labor requirements, which we are going to talk about later. 50% of the ITC will cause it basis reduction in the ITC eligible property, that you have to place in service after January 1st, 2023 to get this new credit. And you have to begin construction by December 31st, 2024 under the current statute.

After December 31st, 2024, we switched to a tech neutral regime where batteries still qualify for the ITC. That regime extends to a beginning of construction deadline by the third year after the later of the point where their calendar year, where the emission reductions hit a specific target or December 31st, 2032. So the battery ITC is going to be in play for at least the next 10 years.

So moving to the mechanics of what qualifies as energy storage, its basic definition is that it has to be property which receives stores and delivers energy for conversion to electricity. And has a capacity of at least five kilowatt hours. There's two exceptions to this, no properties primarily used in the transportation of goods or individuals, so no vehicles, and not for the production of electricity. If it's hydrogen storage it just has to store energy, it doesn't have to deliver or convert to electricity. The battery ITC also applies to thermal energy storage property, which is a system that is directly connected to HVAC heating and cooling units. It removes heat from or adds it to a storage medium for subsequent use and provides energy to cool heat the interior of a residential or commercial building. The same restrictions apply throughout the ITC and other contexts.

So no swimming pools, buildings don't count. The combined heat and power system property already has its own ITC. So that's a very quick overview, but to be clear, as we're going to talk about later in this podcast, in most circumstances the ITC decreases if you don't beat certain labor requirements. So you go from 30% to 6%, and the ITC can potentially increase to 40% or 50% theoretically if you meet certain requirements as to the location of the project and the amount of US manufactured equipment in the project. So there's a lot of complexity in optimizing your credit that tax councils are currently busy advising developers on.

**Bill Derasmo:**

I'm sure you're very busy already. I just wanted to pause on one big picture item and that is you were saying that the bill really allows for certainty more or less for the next decade. Is that correct?

**Judy Kwok:**

Yes. Effectively, once you factor in the technology neutral credits. But even the technology neutral credit that replaces the standard ITC specifically mentions batteries.

**Bill Derasmo:**

That's a critical point in and of itself because for years, even just with respect to renewables, it involved these short term extensions relatively speaking. Then of course, as you said, for storage it had to be a pertinent to a solar or wind facility and it was complicated. It had to be fueled by renewable energy from the grid. So just the clarifications that have been provided

and the certainty that's been provided for the next 10 years, I would think is going to spur a tremendous amount of investment in the sector. We already had tremendous investment moving into the sector, but now it's a lot safer for investors from that perspective.

**Judy Kwok:**

Absolutely. This is a much, much more extensive and in many ways, a clearer credit than the credit that existed for storage before.

**Bill Derasmo:**

If you're a battery developer, what are the immediate practical implications of the new law? What should developers be looking out for?

**Judy Kwok:**

So many things, but if we're talking about triage, two things that come up. The first one is if you have a project that's going to come online in the near future, you have to bear in mind that the battery ITC or the storage ITC only kicks in if it's placed in service after December 31st, 2022.

As I've been telling clients, if your initial plan was to place on service, for example, on December 30th, 2022. You may want to rethink that and try to delay the placed in service date. Otherwise, you're under the old regime with a 26% ITC and you have to draw the energy from a renewables project, which in most cases is going to be less favorable. Secondly, you should start construction as soon as you can, if possible. Because if you start construction within 60 days after the regulations on the labor requirements come out, then your grandfathered in and you don't need to meet the prevailing wage and apprenticeship requirements which can slow down or add costs to the construction schedule. So if you're in the process of signing an EPC or a BOP, you may want to build in provisions to ensure that you start construction in time or that you're able to pivot to meeting the labor requirements, if necessary.

**Bill Derasmo:**

That's a good segue in terms of requirements. So maybe you could talk about what are some of the labor requirements, apprenticeship requirements and a separate issue, but domestic content requirements maybe in other contexts?

**Judy Kwok:**

Yes, definitely. The labor requirements are in a class of their own because you need them just to get to the 30% ITC. If you don't meet them, you drop to 6% or you have to pay penalties. There's two requirements. The first one is that all the onsite laborers and mechanics have to be paid a prevailing wage set by the Department of Labor for the locality and the type of work. And second, each contractor and subcontractor with four individuals working on site or more has to have at least one registered apprentice. These requirements may in some situations tend towards encouraging developers and contractors to use union labor. From my experience, whether these requirements pose a serious burden varies depending on the profile of the contractor and the type of labor they're used to using. That's the labor requirements.

Bill, you also mentioned the enhancements. The other thing developers should be thinking about is looking at potential ways you can take your ITC from 30% to 40% or even 50%. For batteries there are two adders. One of them is location based, and that's the energy community enhancement. If you locate your project either on a brownfield site or in an area that meets certain employment based criteria that exhibit dependence on the fossil fuel industry. So either point 17% of direct employment in the area or 25% of the local tax revenues is demonstrated to be dependent on natural gas, oil or coal, and your unemployment beats the national average. Then you can take your ITC up another 10 percentage points. That also applies if you look at your project in the same or a joining census tract as a coal mine that closed in the last 20 years, or a coal fire electric generating unit that retired in the last 10 years.

The other adder is equipment based and that's the domestic content adder. That says that if 40% of the costs of components in your project and 100% of the steel and iron elements in your project are from US manufacturing, then you get another 10% addition to your ITC rate. That's potentially very powerful because the numbers, especially in a large project, can be very large.

**Bill Derasmo:**

The numbers are staggering when you get up into those percentages. I was going to ask if you could click on the 45X battery manufacturing credit. We've got a lot of interest, I think, among the audience on that issue of battery manufacturing in the United States.

**Judy Kwok:**

Yes, so there's an advanced manufacturing production credit with respect to each eligible component that's produced by the taxpayer in the United States and sold to an unrelated person for the taxable year in the taxpayer's trade or business. Eligible components in this statute are listed very precisely for each renewables industry. And for battery, there are three components, electrode active materials, battery cells and battery modules. Each of these eligible components is accorded a specified dollar amount of credit. Or if you're a rare earth's producer, the credit also applies to a very long list of certain critical minerals like lithium or aluminum that are converted to the right molecule and then purified. The credit phases down for most eligible components to 75% of sales in 2030, 50% for sales in 2031, 25% in 2032, and then it ends. It's effective for components that are produced and sold after December 31st, 2022.

In addition, the taxpayer can elect to treat a sale components to a related person as a sale to an unrelated person. In other words, you're going to accelerate the credit provided that the secretary may require some information or registration to prevent you from double dipping. The credit is eligible for a direct pay election regardless of whether the tax payer is a tax exempt organization. That's very important because most of these renewables tax credits can get direct pay under the new regime only if the tax payer is tax exempt. But there's three exceptions, and one of these exceptions is this advanced manufacturing production.

**Bill Derasmo:**

Again, you provided a good segue because I think the next question was going to be, there's been a lot of news about the ITC and the PTC being refundable and transferable in certain

situations. Maybe you could tell us a little bit more about that and how it's going to impact the energy storage market. In particular, the structuring behind these projects.

**Judy Kwok:**

This is a very hot topic. So to level set, there's two regimes. The first regime is direct pay. Where instead of getting the credit, you can just elect to get cash from the government. This regime is generally available only to tax exempts, but for certain credits, not the ITC or the PTC. But like I said, for the advanced manufacturing credit, as well as clean hydrogen and I think carbon capture, you can get direct pay even if you're not a tax exempt entity. For everyone else, you don't get direct pay, but you do get a transferability regime where all the renewables credits, including the battery ITC, the storage ITC can be sold for cash to an unrelated party.

This cash payment is non deductible to the buyer and it's non-taxable to the seller. It has to be in the year the credit is determined and the credit can only be transferred once. They can't circulate endlessly throughout the market. And to the extent there's recapture, for example, if the battery goes out of service in the five years after it's placed in service, then the recapture risk falls on the buyer of the credit who becomes effectively the taxpayer with the respect to their credit.

So this is potentially a very powerful tool that has not been seen that much in the code generally. I understand that there was a similar regime that occurred in another context back in the eighties and it lasted a very short period of time. So there isn't that much experience with this kind of situation. We've identified some drivers as to whether and when transferability will really start to take off as a potential replacement for tax equity investors.

So one driver is that transferability leaves a lot of value of the tax benefits in a project on the table. As in, you can transfer the credit, but you can't transfer the depreciation associated with the credit, which is frequently very powerful because it can be bonused. The makers, you can take 100% expensing in the year of placed in service, so you can't transfer that to anyone.

So the second thing you leave on the table is that in an investment tax credit deal, you can transfer the battery for fair market value at a step up from what you invested in the battery. That's going to increase the amount of ITC eligible basis to the buyer. So they're going to get more ITC than you would've gotten if you just took the credit yourself, effectively, if you sold it to the tax equity vehicle. So that's left on the table as well because that's not available outside of tax equity structure.

Another issue is that nobody's going to buy the credit for just exactly what it is because you could just pay your taxes if it's just going to be a dollar for dollar transaction. What's going to affect the discount on the market, maybe a variety of factors like how much do people value this tax attribute? And what's the allocation of risk if something goes wrong with the credit? What are the risks on the buyer side as to their own projections of tax capacity if they're committing before the end of the taxable year or for a future taxable year?

There's also the question of the timing of the payment. So if you place and service in January, when are you going to be able to sell the credit? Is anyone going to be willing to buy your credit in January, even before they've done all of their tax capacity projections. If the market shakes out so that buyers prefer not to pay until later in the year, that may affect the decision from a cost of capital perspective on whether to do tax equity or to just transfer the tax credit.

There's also an element of uncertainty as to all of these mechanisms because the IRS has the right to put in regulations requiring additional information for purposes of preventing duplication and fraud and excessive payments. So there is some uncertainty about exactly how it works and until the concept of transferability is tried and tested by real developers in the market and everyone has validated that it's possible to do and that the IRS doesn't come after you and you can actually sell your credits in a way that actually works. It may take some time, perhaps two or three years before a fully liquid market in these tax credits emerges.

**Bill Derasmo:**

Overall, the headline, I think is this tremendous opportunity created by the Inflation Reduction Act, but it's not for the faint of heart. You should really engage competent tax professionals, lawyers and accountants to help you sort through all this because my head was spinning, but you were running through that. But no, I think that on a serious note, it's a game changer for the industry, both the renewable side and storage and really the utility industry in general. The public power now can take advantage of some of these provisions. It's just a game changer in general, but there's a lot to sort through and the IRS is going to have to issue further guidance and regulations on a number of these issues.

**Judy Kwok:**

Definitely. As I think the group that might be watching this the most closely is probably US manufacturers that are associated with the storage industry. Particularly since some of these provisions like the support for US manufacturing given in these Inflation Reduction Act provisions is basically unprecedented, at least in the renewable sector. It's going to be a lot of planning involved, a lot of thinking about how to best optimize these opportunities.

**Bill Derasmo:**

It's going to have a profound effect, I would think, on the supply chain in American manufacturing. So I very much appreciate all those thoughts. Judy, I just wanted to switch gears here and turn to Marc. We haven't heard from Marc since we started, and I know Marc, you've got tremendous experience in the energy sector. I also think of you as an old school, Washington, DC, inside the beltway regulatory guy. Because you can easily deal with regulatory issues beyond FERC or the energy sector. So just put a little plug in for you there.

**Marc Machlin:**

And thank you for that, Bill. Appreciate that. Thank you.

**Bill Derasmo:**

We rely on you for all those oddball issues like when things like the FAA transferring licenses or FCC, et cetera, come up. So we appreciate having you. But I know you do a lot more than that. And turning to the distributed energy sector, I guess I'll just ask a general question. Are you seeing an increased interest in battery storage? If so, what's driving that increased interest?

**Marc Machlin:**

Bill, yes, absolutely. There is increased interest in the battery storage, and part of it, I think, is the Inflation Reduction Act and all the associated publicity about it. And particular, the ability of nonprofits to take advantage in a better way of the tax incentives that Judy was describing earlier. So I think part of it is the Inflation Reduction Act, but part of it really is the state incentives. So there are a multitude of state incentives, they vary somewhat. There are per KW payments, direct payments that are based on the size of the battery storage. There are some energy production related subsidies at the state level, and there are various demand response programs. And sometimes you can mix and match. So it's very much a state by state analysis. For our off takers and our developers, what we have to do or what they have to do with our assistance is really look closely at what a particular state offers. Because you have to consider both the federal tax benefits and then these additional subsidies.

**Bill Derasmo:**

There's a perfect compliment to the first part of our discussion, when we were talking at the federal level and mainly on the ITC and PTC. What would you say the key business objectives are for the participants in these distributed energy projects that you see?

**Marc Machlin:**

For battery storage in particular, one of the key objectives is shaving their peak demand. So for our big energy users, your manufacturers, your universities, your hospitals. Much of what they're paying for energy for electric power is associated with the demand charges. So if they can use the battery storage facility to cut down what their needs are from the grid during four or five or six key hours of the year, they can reduce their overall power cost for the following year. So there's a huge economic driver there.

The other driver I think that we say is clients, particularly large energy users that are interested in backup power. So when the grid is down or when power quality is deteriorated, they want the ability to keep running. At least to keep running the core operations. These batteries can often do that for a period of four to six hours, well that depends on the design, obviously. So that desire for resilience plus the desire for the cost savings is really what does it.

**Bill Derasmo:**

Yeah, we should point out on the peak reduction issue, when we had a case at the federal level. And a lot of that's going to be driven by the specific contract provisions and what's allowed and what's not permitted under the provisions of say, a wholesale requirements contract. I just felt like I needed to offer that clarification, but definitely hear you on all that.

**Marc Machlin:**

Yeah, and maybe I should have said that what I'm referring to on peak shaving here is typically tied to retail tariffs. And there are differences in retail tariffs, even within a state the retail tariffs can differ in how these peaks are calculated and what restrictions there may be. There may even be tariff provisions that drive whether battery storage is really viable in a particular utilities territory. So all of that has to be examined, for sure.



**Bill Derasmo:**

Sure. Are large energy users typically investing their own capital in these battery storage projects? Or are they relying upon third party providers to supply the capital and to own the battery storage assets?

**Marc Machlin:**

So there's both. Many industrial users, I would say, are leaning towards the third party ownership model. And part of it is, having a third party supply in the capital makes it simpler in a way. But also the third party then typically is involved in managing the construction process, managing the interconnection process. To the extent there are any local approvals, they'll be involved in securing local approvals, which sometimes are fire code related. So I think that the third party model is popular, but it's not the only model we see. But I think we'll continue to see both. I think we'll continue to see both. And part of it is driven by what the availability of capital is for a particular up taker. And whether this is the best use for their capital at a particular moment in time.

**Bill Derasmo:**

As these storage projects are developed, what obstacles do you think typically do you see surfacing? Are the obstacles significant? Maybe some are less significant, more significant? Maybe you just talk about that for a second.

**Marc Machlin:**

Usually the obstacles are not insurmountable. So let me start with that. I may list a number of obstacles, but I don't want to imply that the projects won't be getting done. They are getting done, they will be getting done. The obstacles, one of them is supply chain difficulties right now. It's taking 12 to 18 months from a time the contracts are all in place to actually get the equipment on site. So, that delay is not helpful to these projects. Not only is there a 12 to 18 month delay, but there's some uncertainty in the marketplace. So if you're the off taker, you may or may not have a guarantee that it will actually be completed within that 12 to 18 month period.

So the supply chain is a problem. Now, maybe it'll improve with the manufacturing tax credits that Judy was describing earlier. Maybe if more of the components are made here in the US, maybe that will help alleviate some of those difficulties. I think another difficulty is the payback delay for the end users. So what I mean by that is, if I shape my peak demand in year one, I often don't reap the financial benefits in terms of my demand charges until year two. So not only do I have to wait for this project to be constructed and completed and become operational, but there may be an additional year period or close to a year period before I start to see those demand charges go down.

Another factor that we've seen on some projects is that tax equity investors, some of them are less comfortable with battery storage. They understand solar, they understand the revenue strain. But in some cases with battery storage, there are more uncertainties around the revenue stream. That's making it harder for some of the tax equity investors to get to a comfort level. Or impression today is there is a subset of tax equity investors who are interested in battery storage projects and understand the revenue profile, but it's not as big a pool to draw in.



Then the final obstacle I think I would mention is, on a per installed megawatt basis, solar is still cheaper than battery storage. And solar costs continue to go down for the most part on a long term basis. The two technologies really serve different functions, but sometimes off takers are comparing the two. So sometimes that creates a question mark. Again, they're not incompatible, so you can do solar and battery storage together at a hospital or a manufacturing site or a university. They're not incompatible, but the cost profile is a little bit different and the lifespan is a little bit different.

**Bill Derasmo:**

Sure. The warranties and those kinds of things would be very different too, I would imagine.

**Marc Machlin:**

It's typically we're seeing that understanding that the battery storage lifespan will be, say, 10 to 15 years typically. Whereas the solar projects typically can have a longer lifespan. Both will have a diminished production over time. Both will lose some of their capacity over time, whether it's 1% or 2% per year. But the solar is believed to have a longer lifespan.

**Bill Derasmo:**

Sure. Just circling back to a point you made earlier on supply chain, I think the Inflation Reduction Act is certainly ... it seemed contended to address that problem. But realistically, it's going to take some time. You can't build a factory, for instance, overnight.

I know we've talked to developers who are out there, battery companies, people with proprietary technologies that are looking to really expand in the United States. They're out scouting around sites, they're out trying to make plans to partner with someone, maybe to build a battery factory, et cetera. That's going to take time. That's time that's measured in years, realistically, I would think. So the supply chain problems are going to be here for at least the short term, hopefully not the medium term. I do think the IRA is certainly intended to address them, among other things. But it's just going to take some time is the point.

**Marc Machlin:**

I really do think in addition to having these standalone battery projects, we will also see, especially in the distributed generation sector, some retrofitting of the older existing sites. Where you have an existing solar array and you're able to add a battery component. That will just enhance the resilience of that particular site.

**Bill Derasmo:**

We should be clear that there's so many different use cases and scenarios. So a lot of times on the podcast and in my work, we deal with grid scale batteries where it's a wholesale transaction, essentially. You've got a grid scale installation of a solar project or a grid scale storage, and they're just selling at the wholesale level, either directly to a utility off taker, for instance, or just into the wholesale market. But then you've got the whole EV sector, which is a whole different story. Then we've got, I think, your sweet spot where it's, as you say, really more typically at the retail level. It could be an onsite scenario for a commercial industrial facility. Those are just all very different profiles and all very different use cases.

**Marc Machlin:**

For the developers, one of the advantages of the distributed battery storage is you can essentially lock in your customer and you can probably lock in some ways the higher price. So in the distributed sector, the level of risk for the owner, the third party owner of the battery storage should be lower. Which should make it a little bit easier to finance and they're smaller projects. There are so many ways where battery storage can be used.

**Bill Derasmo:**

There's a great point about the profile of a distributed project versus a wholesale project. I would assume the risk profile, as you say, it's less riskier because you've got a customer right there. The overall cost of project capital costs are going to be a lot lower because it's going to be typically a smaller scale project. It is very interesting to hear that perspective. I think in all the episodes that we've done, I'm not sure we ever dove into the distributed energy space, or at least we haven't done it in a big way. So it's good to have that perspective and really to remind the audience, there's so many different use cases out there.

So when we talk, a lot of times we talk in generalities. We just need to be careful about the different scenarios that we lay out. So I think it's been great to have Judy, your perspective, Marc, your perspective. Huge changes coming as a result of this law. It's just safe to say that this law is a game changer. I don't know if you guys have any final thoughts before we wrap up?

**Judy Kwok:**

Thank you for having me. This was great.

**Marc Machlin:**

Likewise.

**Bill Derasmo:**

Thanks both for being on the program. We appreciate it. I mean, I think for now we will wrap up and till next time. Thanks for listening.

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