

Power Finance & Risk



Project Finance Leaders Roundtable 2019

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**SPEAKERS:**

Brian Goldstein, Sector Vice President and Head of Project Finance, CoBank

Michael Kumar, Global Head of Project Finance, Morgan Stanley

Andy Redinger, Head of Utility, Power and Renewable Energy Group, Keybank Capital Markets

Richard Metcalf, editor, *Power Finance & Risk* (moderator)

EDITOR'S NOTE

How does a leading project finance institution keep its cool and maintain discipline in an increasingly crowded, competitive market?

In the past few years, U.S. power and renewables projects have been in vogue in the credit world, drawing attention internationally, not only from the major European and Japanese banks that have traditionally financed them, but also from South Korean financial institutions, Israeli pension managers and insurers and regional banks across the U.S. The influx of capital has had a predictable effect—squeezing margins and leading to reduced allocations in oversubscribed deals.

Some bankers have been praying that a rise in interest rates and spreads will save them. Others have been getting creative, convincing their credit committees of the benefits of innovative risk

management products, making the case for battery technology, reaching out to sponsors with smaller balance sheets, financing projects with unrated offtakers and attributing value to merchant cash flows.

Nonetheless, project finance bankers and officials at project sponsors insist that underwriting standards have not slipped, debt service coverage ratios remain robust and appropriate discounts are being applied to both contracted and merchant cash flows.

In this project finance leaders roundtable, we will discuss how power and renewables deals struck in 2018 reflect the dynamics of the project finance market, how market participants have reacted, what policies, signals and trends financiers have been watching and what 2019 holds in store.

Richard Metcalf, PFR: To begin with, I'd like to discuss activity in 2018 in general terms. I pulled some figures this morning on deal volume and they show total project finance debt in power and renewables last year of around \$25 billion in the U.S. and Canada, which is down significantly from 2017 where it was more than \$35 billion.

It's Jan. 7, so not all of the deals will have been reported yet and the figure for 2018 may well grow. But, nevertheless, it does look to be a little bit down on 2017. And, so, you may have had different experiences that don't reflect those numbers, but I was curious to get your views on how 2018 looked compared to other years.

Andy Redinger, KeyBank Capital Markets: This includes thermal, right?

PFR: Yes.

Redinger: Okay. That's probably a reason the numbers are down. I suspect there were less thermal financings in 2018 versus 2017. Although we dipped our toe into financing

thermal projects in late '17, Key's primary focus is on renewables—wind and solar, regulated investor-owned utilities and other green technologies.

From a renewable perspective, we had a better year in '18 versus '17 in the total number of deals closed and total revenue. '18 was equal to our best year ever, which was 2015, despite increased competition and tighter margins realized on closed deals.

Brian Goldstein, CoBank: I think for CoBank, our practice is very similar to Key's. And we, likewise, had a very strong year last year. In line with our 2017 year, which was the best year that we'd had at the bank in this segment. I think I would agree we also focus more on the renewables, and there was a lot of activity. It was a better year than we had originally planned.

Our first quarter was extraordinarily slow. I think we all expected tax reform to cause a lot of renewable projects to be put on hold as people re-evaluated their capacity for tax equity as a result of the BEAT [base erosion and anti-abuse tax] issue. But, then, once the investors realized that their capacity was not really affected, they came back in, in a big way. Our second quarter was really strong. I think that was really just timing. People put those projects on the back burner until that was resolved. And then we had a very strong second quarter which carried through to the rest of the year.

Michael Kumar, Morgan Stanley: It's interesting. When you sent this over, I went back and looked at the numbers. I think they are very accurate. For us, it was a very busy year, probably on par with 2017 and 2016, which were both record years. But, for us, it's a little misleading because we play in renewables, we play in conventional and we also play in other sectors, broadly defined, in project finance.

I did not have a chance to look at what our activity was purely in power year-on-year. I suspect it was about flat. But then we also do a lot of refinancings in the term loan B market. But if I look at our balance sheet, meaning what we're lending directly in the term loan A market, it probably is down.

PFR: You mentioned the term loan B market. Power and renewables project finance

takes place in many different markets. The bank loan market, the private placement market, the term loan B market and there's mezzanine capital and, of course, for renewables, tax equity is a vital component of that mix as well.

Has that landscape changed in 2018? Are there new pools of capital that sponsors have been tapping over the past 12 months?

Kumar: The term loan market, the B market, is very active and, up until the last two months of the year, it was tightening dramatically. In fact, a lot of the activity last year was repricing old transactions, as they tightened. And then, when the overall market had a hiccup, the term loan market in power and renewables tends to experience a kind of a multiplier effect. When the regular market drops a couple of points, these transactions are considered less liquid, it'll drop in a multiple of that. And it takes longer to tighten.

So, overall, I'd say for three-quarters of the year the term loan B market was incredibly healthy, but for the last quarter, incredibly disrupted. And it is probably going to stay that way. Not because of the power market itself, but because the overall leverage loan market will probably stay that way for the next two months.

PFR: And I understand that there are a couple of potential transactions out there that are probably waiting for that to stabilize.

Kumar: They are. We were fortunate. We priced CPV Shore's transaction the second-last week of December. It was the only transaction that got priced. It's interesting because a reasonable portion of the transaction was placed with non-traditional lenders. And that's what allowed it to get priced in a market as disruptive as that was.

PFR: In terms of the cost of capital, as Michael pointed out, the term loan B market was disrupted in the last quarter of 2018. Rather than pricing going up, that just means deals, on the whole, don't get done at all. How has pricing in the bank loan market been moving in the last 12 months?

Redinger: Brutally lower.

Goldstein: I would agree. While our experience is that the volumes, for some of us, have been able to be maintained from '17 to '18, I think '18 was a year of significant pressure on pricing. We've seen overall spreads on loans coming down anywhere from a quarter to three-eighths from a year earlier. Upfront fees are likewise being pushed down in line with where the margins are being compressed.

I think it's also a function of these new entrants. I don't think there are new pools of capital, but I think there are a lot more banks that have hired experienced personnel to build up new teams to focus on this space and, to the extent that we've got choppy markets in term loan B, we're seeing some investment banking firms moving more into trying to support clients on their renewable contracted side. So people are trying hard to differentiate themselves and one of the ways of doing that is through lower pricing.

Redinger: And I would also add structure, as well. For us, '18 was a year when we saw a significant move in structure. Not only has pricing come down, as Brian just mentioned, but the structure on a lot of these deals are pushing the envelope in regards to amortization period, equity cushion, merchant tails, basis risk, non-rated offtakers, tax equity asks, curtailment risk, and lower DSCR's [debt service coverage ratios]. I'm hoping that ends in '19. But there's a tremendous amount of new capital and even more entrants in the bank market chasing deals. It is where banks are finding growth.

Kumar: I would say it's a tale of two cities, though. To differentiate in renewables, it is absolutely a case of massive compression. I'll give you an example from Morgan Stanley's perspective. If you look back at 2014, 2015, we were actually a very big lender in the wind construction space. We only did one transaction last year. And that was for a solar plant. And the reason is very simple. We can't compete on a cost-of-capital basis. We love the product. We think they're great assets. We've been priced out of that market for the time being.

Now if you look at conventional power, though, which is not contracted, where, by definition, there's a merchant exposure, I don't think there's been as much movement, if at all, frankly, in that sector, in pricing.

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Goldstein: I would agree with that as well. We've seen that.

PFR: And is that just because there are fewer potential lenders?

Kumar: Yes.

Goldstein: And the lenders that are actively participating have recognized that risk, and they're not convincing themselves that the quantum of risk they're taking has changed.

PFR: The risk profile of contracted renewables is also attractive to private placement investors. Have we seen more of that in the last year?

Redinger: Versus a couple of years ago, for sure. A few years ago there weren't many insurance or pension fund companies that were directly investing in renewables. What's happened is they've come up to speed. We're seeing there are more investors now in that private placement market than ever before.

We can see that trend continuing. The big challenge with the private placement market is that the rating agencies are still a tad conservative relative to the bank market. With a private placement, typically, a project needs to receive an investment grade rating to be considered for financing. Usually, after the rating agencies get hold of the project models and apply their haircuts and inflation factors, the quantum of debt that can be raised for a specific deal is typically lower than what can be raised in the bank market. The trade-off is that the tenor of that debt is typically much longer than what is offered in the bank market.

My hope is, as time goes on, the rating agencies catch up and look at the models the way the bank market does and, therefore, we'll have a true competitive tension between two markets. But right now, the only reason why you tend to go to the private placement market is to get tenor, not necessarily more debt.

PFR: And we should also mention tax equity, in the context of renewables. We have heard reports that pricing of tax equity has come down.

Redinger: Not enough. Let's face it, tax equity yields, in a best case scenario, probably in the

6% to 7% area, still significantly above the fixed cost of debt on many projects. Banks are potentially taking 20-year risk and in many instances behind tax-equity in the payment waterfall. Tax equity typically gets its required return in five to seven years and doesn't necessarily have to have the project operate to get a lot of their expected return. The project has to operate, produce cash flow, for banks to generate any return. In some ways, I think tax equity structures are almost senior to the bank debt in how the deals are structured.

PFR: With back leverage?

Redinger: Yes. So as I look at this industry going forward, where there's still more room to squeeze, if we need to do that, tax equity has plenty of room. That's the one player that hasn't really felt the pain.

Kumar: I think that's accurate, but I think it's a function of supply and demand.

Redinger: Supply and demand, exactly.

Goldstein: And all of the suppliers of tax equity kind of know each other. And there aren't a lot of them. And so, to a large extent, they've established a market pricing. And there's not really a strong incentive for anybody to try and undercut each other because, at some point, they all just have so much capacity.

PFR: It starts to sound like OPEC.

Kumar: A bit like.

PFR: But they have given a little ground.

Kumar: I think where you see it is in longer-dated PPA deals, because those are the ones that everybody wants, and so they'll compete very aggressively for those. "Aggressively," in quotes. But on the hedge deals, then no there's no movement. In fact, it's two different levels of pricing.

Goldstein: And I think where you start to see them compete a little bit more is duration. We're seeing more of these renewable projects that are leaning into higher amounts of tax equity. You need a little tax equity to put a higher quantum of capital. Then they're going



"One year does not a forward capacity auction curve make."

Brian Goldstein, CoBank

to need to take some operating risk to get some of the cash flows from the project to generate the overall returns they need in order to put up more capital than just amortizing the tax credits. And we're seeing more and more of that. And that gives them maybe a term of seven years or seven-and-a-half years in a project.

PFR: Moving on, whether 2018 was a record year for you or, looking at these figures, whether it was a slight down-year compared to 2017, what was driving that activity last year?

Redinger: Increased number of distributed solar generating opportunities, refinancings of existing deals and M&A activity. For KeyBanc Capital Markets Renewable Energy Group, we're anticipating '19-'20 will be driven by state mandated renewable programs, for example SMART [Solar Massachusetts Renewable Target], Connecticut DEEP [Department of Energy and Environmental Protection], increased M&A activity, investor-owned utilities' increased interest in the renewable sector, continued growth in residential solar, and developers looking to qualify their solar projects for the 30% ITC [investment tax credit] before Dec. 31, 2019.

Goldstein: I would agree. For us, we've also been focusing on the fact that part of our mission is to lend to co-ops. We're seeing increasingly, as IOUs have met their RPS [renewable portfolio standard] requirements, a lot more sponsors are now looking at co-ops as offtakers, who are looking to bring in more renew-

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ables and help balance a generally coal-heavy orientation in their portfolios.

But I would also agree with Andy. A lot more refinancings, and a lot more of these projects are changing hands, and so that's enabled us to do more M&A financing. Not just on the larger, thermal assets, but also as we see more and more consolidation in the renewable space as well.

Kumar: For us, it's really, over the last year, refinancing and M&A.

PFR: And on the thermal side, we had a PJM capacity auction last year that came out better, I think, than almost everyone expected, but which did not translate into a flood of deals out of that sector. Any idea as to why that is?

Kumar: You have to parse it very carefully. If there was an existing portfolio that could be refinanced, that was in fact done. It was repriced. If you had a construction project that was nearing the end of its construction period, where they would have logically looked to refinance, if they were ready, they started to get ready. If they weren't ready, they weren't ready. Hence the backlog that you see in December of at least four projects that are looking to get refinanced. They would have loved to have done it. But they weren't ready at the time.

Redinger: Do you think, Mike, we're at the end of the cycle in PJM? There's a lot getting built, right?

Kumar: Yes. I think we're getting close to it. That's my gut instinct.

Goldstein: I had heard two years ago from a number of bankers who are also very focused on the merchant side that they were bumping up against internal limits on how much exposure they could have with PJM. I'd also like to touch on another point in response to your question, Richard. One year does not a forward capacity auction curve make.

Kumar: Absolutely.

Goldstein: Because the prior two years were so much lower than peoples' expectations, I

think people saw this as kind of moving back to normal. But people are not yet willing to bet on it. I think in some ways it's analogous to the situation in Texas. We have all this conversation about scarcity pricing. Is that going to cause a lot of gas-fired plants now to get built again? Yet they're still trying to do the restructuring on the old Temple projects.

PFR: It seems like in PJM, the fear is over-build, and in Texas, the fear is grid stability. But from what you're saying, it sounds like the PJM capacity market auction system seems to be working, or sending out the right market signals...

Kumar: Absolutely. It's an incredibly positive development. I'm not sure there's going to be that much more massive new build. There are projects that are in the queue. And I think the flavor of the month in PJM right now is the gas netback.

PFR: So that's the big thing now for merchant or quasi-merchant gas-fired?

Kumar: Absolutely. I think all of this is, frankly, a result of the lending market. There's hardly any bank out there that will provide construction capital to a thermal gas-fired project without either a revenue put, a heat rate call option or a gas netback. And I think what the developers are finding, and not all of them—it's locational and it's based on their own views—is that the gas netback is the probably the cheapest, most efficient way to get that revenue stability on the energy side. And if you combine that with the capacity market, it's not a contracted renewable project, but it's reasonably stable.

PFR: On the renewables side, sponsors can go for a PPA, whether it's a physical PPA or a virtual PPA, but there's an increasing range of options for them in terms of risk management products.

Redinger: True, but not all of them are suitable for traditional commercial bank project financing. However, there's capital available, I think, for all those options. I don't know if any of you have financed any hedge deals?

Goldstein: We have not. We're asked, increasingly, to take a look at it. And we are going to

be happy to take a look at it.

Redinger: It's difficult especially if the hedge provider is taking all the collateral. That becomes a problem.

Kumar: That makes it a big problem.

Redinger: DOA right there.

Goldstein: We talked a little bit about insurance products that can backstop resource risk and whether or not that enables banks to add more leverage because the overall resource is then guaranteed through this insurance policy. We've looked at some of those. We're still on the fence trying to do the analysis on that.

I think the trend we're seeing more of is sponsors coming to us where they want the banks to take tail merchant risk. So what they're trying to do is say, "Well, look, you've got a low cost production facility. It's renewable. You should be willing to take X as your spot market price 16 years from now."

We're looking at that, but frankly the tail that they're trying to get us to take post the contract period requires an avoided cost that's basically the same as it is today. And we're having a lot of debate internally as to where the trend of power prices is generally going. Is it going to continue to go down as the renewable equipment costs continue to decline? Will gas prices remain low? And, if that's the case, then as you retire more and more of the old or legacy expensive plants, where does avoided cost go? And on that basis, what is the right tail risk that we should be taking on a renewable plant?

Redinger: Whatever mechanism you use, whether it's getting a financial institution to finance a merchant tail or purchasing a risk management product, it's really an effort to increase leverage. We're in a marketplace where not only are we putting more leverage on these projects, but pricing is also coming down. And it's becoming very difficult to see it going any further. We're, quite frankly, hopeful that the market is close to the bottom here. Because the equity cushion is becoming very small. There is less and less room for error.

As we come down in price, and add more leverage, these projects are returning less to its debt providers and becoming more risky for people holding paper.

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"If you look at some of the longer-dated corporate wind PPAs, a lot of them are done by subsidiaries which aren't rated and aren't guaranteed by the parent."

Michael Kumar, Morgan Stanely

PFR: Taking a step back, you mentioned corporate off-takers, Andy, and how corporations procuring renewables is a bigger and bigger driver of activity. But we're also seeing energy trading firms, energy retailers, coming in and acting as intermediaries to allow smaller corporates to get a slice of the action. I think the ones that we've seen have mostly been on existing, operational plants, but I was wondering about the prospects of project financing a project on the basis of a sleeved PPA.

Redinger: What we'd like to see is an investment grade counterparty, and limited basis risk. So if we can get our hands around those two questions, and they're both acceptable, yes, there is a good chance we can provide financing. But I'm not sure the market currently is getting their heads around those two questions. Is it really an investment grade off-take? And what is the true basis risk?

Kumar: I think you're absolutely right. I would say the market, though, it's a little dysfunctional. Because if you look at some of the longer-dated corporate wind PPAs, a lot of them are done by subsidiaries which aren't rated and aren't guaranteed by the parent. But banks get very comfortable and I would agree, I think those are good risks. But those aren't exactly rated counterparties either. But, then, when you come down to something like this, a virtual PPA, I want it rated.

Redinger: The banks have convinced them-

selves that those unrated counterparties are investment grade.

PFR: What is providing the comfort to the banks there?

Redinger: The banks' own expertise in analyzing financial statements, cash flow coverage, quality of management, transaction structure, willingness to repay, etc., and applying its own internal risk rating.

PFR: Is there an implied parent guarantee in any way?

Redinger: No.

Kumar: Absolutely not.

Goldstein: We haven't done a lot in that space for two reasons. One, we do look at the risk, and many of these companies are not investment grade. Or, more likely, they are investment grade but our challenge and our internal debate is, how long, if I was going to lend to them on a corporate basis, would I give them a loan?

We're very interested in looking at that. But we're looking for some sort of structure to mitigate a potential downgrade. How do I do 20 years on a PPA with a non-rated entity on an indirect basis, when I wouldn't give them that kind of term on a direct basis? So that's where we're challenged. Because I can't reconcile that. But I know that there are lenders out there who are happy to do that.

PFR: Andy, have you given credit on that basis?

Redinger: I agree with what Brian just said, absolutely. For those instances where we have financed a project with a corporate PPA, we typically don't lend out to the full tenor of the PPA and may have other structuring elements that help to de-risk the corporate off-take arrangement.

Goldstein: The other way of looking at it is the way we look at our regular PPAs or our merchant gas-fired plants. What is the marginal cost of production out of that plant and how does that compare with the alternatives available in that particular market? Or in the case

of a corporate, where they have to buy that power for somebody else.

I think when we're looking at corporates, it's a harder analysis to make. It's a lot easier when I'm looking at a greenfield gas-fired plant in a certain location. In PJM, I know what my marginal cost of production's going to be. I know what's going to drive the market price and how I compare with those factors.

Redinger: That's a good point. We do look for these contracts, especially on the community side, that they're at a discount to the regional retail rate. We then make an assessment on how much of a discount there needs to be, taking into account the length of the amortization period, third-party reports, other regional factors, etc.

PFR: You've been painting a picture of a highly competitive lending landscape. And when some lenders are being so competitive and offering things that you may not like to match, how do you remain competitive while also maintaining discipline?

Redinger: From KeyBanc Capital Markets' perspective, we are a relationship-based full-service commercial and investment bank, we take all requests into account and review all the opportunities from a credit, risk-return and relationship perspective. We take a long-term view in all our relationships and try to accommodate all the requests to the best of our abilities. The highly competitive situation we're in now is not going to last forever, so we make the decision based on multiple factors, some of which I cited previously.

Goldstein: We approach it in a very similar way to the way Andy and his team approach it. There's a lot of execution risk on the part of our sponsors. They need certainty of what we can deliver. And I think one of the things we try to do is very quickly determine what we can do and be as responsive as we possibly can.

But when we tell our sponsors that we can do this, and maybe we won't match the price but we can match all of these other aspects, they know that we will deliver that. And that's been helpful where some of the new entrants into the market are trying to win with price, but may not necessarily be able to complete



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and close that deal and execute it, or they're going to get stuck if they're under-pricing the market. Our hope is that the relationship and what we've demonstrated through our prior performance gives us an ability to continue to be competitive on reasonable terms.

Kumar: We take a slightly different approach. The reason for that, probably, is because we're offering a number of products. And so what we try to do is, because our relationships are incredibly important to us, we're very straightforward and upfront with our sponsors. And we say, "Look, this is the best we can price. And we realize that there are people that can probably do better and we would, in fact, suggest you go down the road with them. If for some reason they fall down, you can call us." Lots do. "And for some other part of your business profile, whether it's raising equity, doing a private placement, whether it's a term loan B... Consider us for that business. If you need to fill out a bank group, maybe we'll come in for a small amount. Just to support you. But we're probably not going to lead this deal for you."

PFR: Does your commodities division help as well?

Kumar: To the extent that we look at blended returns. If we're doing business, whether it's an advisory piece of work or commodities work or interest rate work, we may for internal purposes blend that into the return for a loan.

PFR: Andy, KeyBanc has capital markets, too...



"There's a lot of tier-two, tier-three developers out there that are under banked and present a very good opportunity."

Andy Redinger, Keybank Capital Markets

Redinger: Yes, so that's part of the equation as well for us, too. We look at the overall relationship, taking into account all of the opportunities, awarded or not, to provide traditional commercial and investment banking services including advisory and debt and equity underwriting and the historical relationship returns.

PFR: And are there also areas of the market that are under-banked? Where there are opportunities?

Redinger: For sure. Residential solar is at the top of that list. It's one of the few places in the marketplace where there's still bang for the buck. And there's others.

Goldstein: I agree. We're spending a lot more time looking at the residential solar sector.

PFR: And what do you need to do in order to get into residential solar? It's a strange combination of project finance and consumer credit.

Redinger: Exactly.

PFR: Which, I think, has put some of the banks off, because they haven't been able to bring those silos together.

Kumar: It's interesting. For Morgan Stanley, residential solar falls under securitization business, not under our project finance business. And the securitization business happens to report up to me, but we handle it in that bucket, for that reason, because we view it as really more of either a hybrid real estate or consumer credit.

Goldstein: But I think that's the challenge, and why a lot of lenders haven't naturally gravitated to it. Because they're still trying to figure out how to define it.

Redinger: And you touched on small D.G. [distributed generation]. There's a lot of tier-two, tier-three developers out there that are under banked and present a very good opportunity for a full-service commercial and investment bank like KeyBanc Capital Markets. The D.G. space is booming.

Kumar: Absolutely. I would agree with that.

And there are healthy margins there, both for the developer as well as for the lender. I think they go hand-in-hand. If the sponsor or the developer's getting squeezed, you're getting squeezed. But if they can make some money, then you can make some money.

Redinger: These Massachusetts and Connecticut programs are going to create quite a bit of business in '19 and '20, and they're all smaller D.G. Our challenge is diligencing it. With lots and lots of small sites we've got to figure out how to diligence properly and efficiently.

PFR: How do you do that?

Redinger: Carefully.

Kumar: It's incredibly human resource draining. That's the reality of it.

Redinger: And community solar can be put in the same bucket as well.

PFR: And with community solar, the big risk, I guess, is that all their subscribers opt out because it turns out they can get cheaper electricity somewhere else in the future.

Redinger: That's one of the risks, yes. You're also dealing with corporate offtakers that are, a lot of times, unrated, and in many instances a residential component is a percentage of the community solar offtake as well.

PFR: Another emerging area is battery storage, of course. Is 2019 going to be the year of battery storage?

Kumar: I don't think we're quite there yet.

Goldstein: I think the hard part is finding projects with the right characteristics that generate stable revenues that we can then leverage.

Redinger: I agree with that. We're generally fine with the technology. It's not a technology-risk issue. It's, does the project pencil out? Can the project support a battery and achieve an acceptable return on the contributed equity?

Kumar: There's only a handful of them out there.

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Northwest Ohio Wind

\$118.2 Million
Senior Secured Credit Facilities

*Mandated Lead Arranger,
Joint Bookrunner &
Depository Bank*

October 2018



Musketeer II Solar Portfolio

\$115.6 Million
Senior Secured Credit Facilities

*Coordinating Lead Arranger,
Joint Lead Arranger,
Administrative Agent &
Collateral Agent*

September 2018



CS4 Portfolio

\$192.2 Million
Senior Secured Credit Facilities

*Joint Lead Arranger,
Administrative Agent,
Collateral Agent &
Depository Bank*

July 2018



a portfolio company of



has sold its development portfolio to



Sell-Side Advisor

March 2018



has merged 29 operating
solar power projects into a
~110 MW Portfolio

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March 2018



Voyager II Wind Portfolio

\$244.3 Million
Senior Secured Credit Facilities

*Joint Lead Arranger,
Joint Bookrunner,
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"If we have a good sponsor, a long-term player who has the operations and maintenance staff, we know they're going to make sure that PPA does not go into default."

Goldstein: Or is there a particular market, like the deal that **Macquarie Capital** was in the market with? Those have underlying contractual arrangements in California that provide certainty around those cash flows. That's a very straightforward financing to get your hands around. Yes, you've got a lot of small ones, and you're back to the complexity of the due diligence, but you know that we can get our hands around whether or not the technology is going to work. Warranties around that. The continued O&M by the sponsor. Again, it gets back to which sponsor. But then we know what the cash flows are.

Redinger: Where we'll see a lot of battery storage activity in '19 and '20 is in Massachusetts. Under the SMART program the incentives appear high enough that the program will support battery storage.

PFR: Stand-alone?

Redinger: Stand-alone, yes.

PFR: Because the California utilities have been handing out a lot of contracts for battery storage projects. I don't know if you've been looking at any of them?

Redinger: Not specifically, but I assume those contracts are above market or being subsidized in another way, given the current price of power in California.

PFR: But say that contract is there and the cost has been passed onto the ratepayer or whomever, then it's project financeable?

Kumar: By and large, yes. But I don't think 2019 is the year of the battery. I'd say 2020 or 2021 would be the year of the battery. I don't think there's enough out there right now.

Redinger: In Massachusetts, though, there's the 1.6 GW SMART program that provides fixed-base compensation rates and several rate adders including an energy storage adder to qualified generators. We expect to start seeing solar-plus-storage opportunities in '19 out of this program where, in many instances, the overall return on investment is sufficient to attract enough capital to build the projects.

PFR: How does commercially integrating a battery storage system into a solar project affect the financing?

Goldstein: We have focused and been on a couple of projects. Specifically, some of these PPAs require a certain amount of battery operation through pushing the peak into the late afternoon, early evening. And therefore, in order to ensure there's no termination of the PPA, they need to maintain a certain capacity on that battery storage system. Our initial review of those early projects was really focused on how do we know we're going to get that four megawatt-hours of support. And what we've done is lean on the sponsors. If we have a good sponsor, a long-term player who has the operations and maintenance staff, we know they're going to make sure that PPA does not go into default.

Redinger: A lot of sponsors are also the wrap-

ping the battery with an acceptable counterparty to take that risk on.

Goldstein: That's fair.

PFR: So maybe 2019 is not the year of battery storage. Will it be the year of offshore wind in the U.S.?

Kumar: It might. At least one or two of those projects will probably come to market and the scale is so large that if two of them come to market, that's going to dwarf onshore wind.

Redinger: It's **Deepwater Wind**. Deepwater's projects are going to be the first out of the door. And then everyone else will follow in '22, '23 and '24. You can see the pipeline.

Kumar: That's probably \$4 billion to \$5 billion. You weigh that against onshore wind...

PFR: Will they be able to find enough tax equity?

Kumar: That's the challenge.

Redinger: Well, it's not finding enough. It's also dealing with long-term construction cycles. More than one year. So finding tax equity that will commit that far in advance, that's more the challenge than, can you find enough?

PFR: That's going to be the learning curve for tax equity?

Kumar: I think it's not going to be a tax equity issue because I don't think tax equity is going to commit that far out. I think it'll be a sponsor risk.

Goldstein: I think that's a fair comment.

Kumar: You need large sponsors who are like, you know what? I'll bear that risk of them coming in or not. That's my cost-of-capital issue.

PFR: So they won't need a commitment? They will assume that tax equity will come in once the project is nearly completed?

Kumar: That's my calculation.

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Redinger: And that's how the first project was done.

Kumar: Which is why, among many reasons, for offshore wind, you need very well capitalized sponsors.

PFR: And then, assuming that they also want to lever it up with debt, debt will be there for those projects?

Kumar: That's not the problem.

Redinger: Debt's not the problem anywhere.

PFR: What about a construction loan for offshore wind?

Redinger: It's available, absolutely.

PFR: Including a bridge to tax equity when there's no commitment?

Kumar: No. It'll be a sponsor equity backstop which will replace it.

Goldstein: That's right.

Kumar: No lender is going to take a view on another third party coming in a year from now.

PFR: We just have time left to make some general predictions for 2019. We had about \$25 billion of project finance deal volume in power and renewables in 2018, down from about \$35 billion in 2017. Do we think it's going to surge in 2019? Or do we think it's going to be more the same that we've seen in the last year or so?

Redinger: We do expect to close more wind and solar transactions in 2019 than 2018 but, given margin compression, we are expecting only a flat to slightly up year in project finance revenue. We do expect to have increased revenue from our advisory practice as we are projecting a busy year from an M&A perspective. We also are looking for increased revenues from private placements, driven largely by the increased renewable M&A activity, especially with IOUs. Lastly, we are still seeing wind business, but a lot of the wind getting built is getting financed on the balance sheets of larger corporations. It's

not project financed.

PFR: What about thermal?

Redinger: We dipped our toe in the water late in the cycle. We're monitoring it. Our strategy is we're going to wait until the first round comes up for refinancing, which is in a couple, three years. I think there will be an opportunity there to play in a lot of different ways. I think a lot of the initial projects in PJM, their modeling was fairly aggressive. So instead of jumping in so late in the game, we're going to wait until the next part of the cycle happens. Some of you might have a better view on Texas on thermal.

Kumar: I think it's not out of the question. Prices have already moved up dramatically, granted from a very low base, so I think you could see some activity there. Every two months you hear about another retirement. There was one announced just a few days ago. So I think you could see some new-build activity in Texas. That being said, people did it and got burnt horribly. But there is a need for capacity there. I think there are some PJM projects that are on the development path. And I think there's scattered projects throughout the U.S.

I would say that volume would be flat to last year. I think the big outlier is offshore wind. A couple of those that are supposed to come along this year could change the number.

Goldstein: I totally agree with that assessment. I think there's also another factor playing into why overall volumes, depending upon how offshore wind progresses, will be flat. And that's because, as we look at more and more of these distributed generation portfolios, they tend to be smaller deals. We're not doing the 250 MW utility-scale solar plant anymore. We're doing 100 MW, 75 MW. And that makes sense, because these projects are being located where they add the most value to the offtaker, and, hopefully, as a result, provide the best returns for the sponsors.

But it's also a function that, as the capital cost for this technology continues to decline, you can now deploy it in much smaller scale and still be economically competitive.

I think that's going to be a bit of a challenge in terms of higher volumes for '19 unless we

end up with a lot more merchant development.

Kumar: I would also make the comment that EPC pricing, because of the [steel] tariffs, is going to start moving up. You haven't seen it yet, but I think in '19 you will absolutely see it.

Goldstein: I think that's a very good point. I think what we're seeing on the renewable side with the tariffs is people trying to absorb the cost, because it's so competitive out there. And the question is, can it continue to go down anymore?

Redinger: Yes, EPC pricing has come down unbelievably over the last couple of years.

Kumar: In wind, as power prices and REC [renewable energy credit] prices have come down, it's really the OEM [original equipment manufacturer] that's bearing 99% of it. I just don't think that that's possible anymore. Especially with tariffs now.

I've seen it in other projects, not in the power space but more in the midstream space, where EPC quotes are coming in materially higher.

Redinger: The only respite is maybe M&A activity. I do expect that to be higher in '19. That and private equity raises. I think on the D.G. front, there is a number of under-capitalized developers that need to raise equity.

Many utilities are also starting to show more interest in the sector. There seems to be an increased number of utilities that are actively looking to buy renewable assets and/or possibly add that capability to their repertoire. We experienced a marked increase over the last year in the number of conversations in and around the renewable sector with our many utility relationships.

So you have a new buyer universe that really hasn't played all that aggressively up to this point. They're turning on. You have many small developers that are under-capitalized saying we need access to attractively priced capital.

Kumar: And, at the same time, you do have other utilities that are also divesting. **Sempra Energy** is a good example. So I would say that the M&A theme, in one way, shape or form, will be another story of 2019. ■