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## Navigant's Consulting's Report on Residential Solar Misconstrues Value of Tax Attributes

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This post is not an attempt to address the economic behavior of solar companies in setting their rates. However, it will explain how Navigant misconstrued the real-world economic value of bonus depreciation, the degree of the *fair market value step-up* in determining the purported tax benefits that Navigant is suggesting the solar companies use to pad their returns, and the omission of meaningful detail regarding the report's assumed overhead and marketing costs incurred by solar companies.

Navigant's report provided the following generally accurate overview of bonus depreciation:

> The bonus depreciation benefit has been re-introduced and is currently 50 percent through 2017, after which it is reduced to 40 percent in 2018, 30 percent in 2019, and zero percent from 2020 onward. The benefits of bonus depreciation are similar . . . for accelerated depreciation, except that they result in even greater depreciation of an asset in the first year of a capital investment. For instance, with 50 percent bonus depreciation, one can essentially depreciate an additional 50 percent of the asset's value in the first year.

However, Navigant's conclusion about the consequence of bonus depreciation on solar companies' real-world returns is flawed. Navigant wrote:

> The analysis above suggests that the combined impacts of the re-introduction of bonus depreciation and the increase of lease rates from 2015 to 2016 offer headroom for solar TPO providers to reduce lease rates and adjust to changing rate structures while still enjoying the same project returns achieved in 2015. For instance, in 2015 in UNS Electric,

> Inc.'s (UNSE) territory, SolarCity, the leading solar TPO provider, could earn a project return of 40 percent with solar TPO prices set at $0.087/kWh. With the re-introduction of bonus depreciation, this should permit SolarCity, the leading solar TPO provider in UNSE service territory, to earn 40 percent return with lease rates of about $0.075/kWh.

What Navigant ignores is that bonus depreciation is only valuable if either a solar company can use it itself (few solar companies have sufficient federal income tax liability to absorb tax benefits of the magnitude of bonus depreciation and the investment tax credit) or the solar company can entice a tax equity investor, typically a bank, to "monetize" it by providing more capital in a lease or a partnership structure than it otherwise would. Navigant acknowledges the need for tax equity investors in a footnote:

> The significant tax benefits from the lTC, accelerated, and bonus depreciation require a "tax appetite" to monetize these benefits (i.e., one must have sufficient tax liability to take advantage of these tax breaks). Thus, it is not surprising that tax equity investors (which can provide the tax appetite required) constitute a substantial portion of solar TPO providers' financing.

Implicit in this footnote is the accurate conclusion that solar companies typically lack the tax appetite to efficiently use depreciation and the investment tax credit. However, what Navigant ignores is that bonus depreciation has no value to solar companies if they cannot entice tax equity investors to monetize it. Tax equity investors are in fact quite reluctant to monetize bonus depreciation. This reluctance stems from at least two reasons. First, the partnership flip structure is the most common structure for tax equity investments in solar. As that structure involves an allocation of tax attributes that changes over the course of the transaction and the tax attributes are shared in different percentages than the distributable cash, the structure requires rigorous adherence to the maintenance of *capital account* rules in the income tax regulations.[2] Those rules include the principle that tax depreciation is an expense that reduces the partners' capital accounts. Due to the fact that bonus depreciation is so accelerated and that in a typical solar partnership the tax equity investor would only fund about half of the price of the project (i.e., its capital account is about half the initial tax basis of the project), those forces can result in the tax equity investor having a large negative capital account balance or, alternatively, that once the tax equity investor's capital account reaches zero the incremental losses are reallocated to the solar company. If the losses are reallocated to the solar company which generally does not have a tax appetite, then the losses are usually of minimal economic value.

Alternatively, one of two structuring techniques can be used to avoid the reallocation of the losses to the solar company once the tax equity investor's capital account reaches zero: (a) have the partnership incur nonrecourse debt secured by the assets of the partnership or (b) the partner with a negative capital account agrees to make a contribution to the partnership if the partnership liquidates while such partner has a negative capital account (i.e., a *deficit restoration obligation*).[3]

Unfortunately, both of those structuring techniques involve some commercial risk for the tax equity investor. Hence, tax equity investors frequently seek to manage their commercial risk exposure by not structuring their transactions with debt at the partnership level and minimizing, if not completely avoiding, the size of its deficit restoration obligation.

Further, the use of a deficit restoration obligation does not avoid the application of the *outside basis* rules that suspend losses in excess of a partner's outside basis.[4] Thus, even a deficit restoration obligation only enables the losses from the depreciation to be suspended and later offset future taxable income allocated by the partnership to the tax equity investor. The typical aversion of tax equity investors to being subordinated to nonrecourse debt combined with their hesitancy with respect to deficit restoration obligations that only suspend the losses for future use make bonus depreciation a tax attribute which often has little value in a partnership flip transaction.

Lease structures avoid the unpleasant capital account rules. Despite that, investors in those structures often frown on bonus depreciation. Any investors would prefer to maximize the value of their tax appetite by offsetting it with tax credits, because tax credits from a financial statement (i.e., GAAP) perspective result in bottom-line earnings. This benefit is in contrast to accelerated depreciation (including bonus depreciation) that for financial statement purposes results in a *deferred tax liability*. A deferred tax liability from a financial statement perspective has the benefit of being equivalent to an interest-free loan from the government based on the difference between the basis of a project as calculated under tax rules and GAAP rules; as the project is depreciated for tax and GAAP purposes, respectively, eventually the basis under each regime reaches reach zero and the "loan" is eliminated. Such deemed free debt reduces the tax equity investor's cost of capital. An interest-free loan is nice but not as nice as actual earnings resulting directly from tax credits.

The other tax dynamic that Navigant's report appears to have misunderstood is the degree to which "fair market value" is used to determine the purchase price to the tax equity

investment vehicle and accordingly that the tax attributes may exceed the cost to build the system. The report provides:

> We used a *35 percent markup on system cost* to calculate the value of the system for the purpose of ITC and system depreciation benefits. This value is also known as the fair market value (FMV). Using FMV as the basis for tax credits and depreciation benefits would effectively result in a solar TPO developer reporting a system value of $3.74-3.87/W-DC to the Internal Revenue Service, which is still lower than observed system sales prices that typically range from $4.20-$4.75. The ability of PV providers to markup cost to something more akin to a price, or system value, when calculating tax credits and depreciation is a key driver in the favorable economics for solar TPO providers. The solar TPO business model is able to maximize the benefits of these federal incentives, which are amplified considerably by the TPO's ability to use a system "value," which is higher than the system cost, as the basis for the tax credit and asset depreciation" (citation to U.S. Treasury memo from June 30, 2011 and other materials omitted) (emphasis added).

Navigant's report cites the U.S. Treasury's memo from June 30, 2011, as one of the authorities for its conclusion quoted above to use a 35 percent markup in evaluating the return levels of solar companies. However, Treasury's memo provides: "While appropriate markups are case-specific and can depend on the ultimate transaction price, the 1603 review team has found that appropriate markups typically fall in the range of *10 to 20 percent*" (emphasis added). Despite citing Treasury's memo, Navigant's report offers no reconciliation of Treasury's *10 to 20* percent to its *35* percent. Is the report suggesting that solar companies are doubling the markup provided for in the Treasury's memo? If so, how are tax equity investors and the solar companies' accountants accepting that?

Also, Navigant's report does not provide a definition of "system cost" for purposes of its *35 percent markup* calculation. "Figure 5" of the report portrays "Installed System Costs, Residential," which according to the report is comprised of the cost of solar modules, direct labor, inverter, engineering, electrical balance of system, structural balance of system and supply chain. The report determines a national average in 2015 for those costs of $2.25/watt, which would seem to suggest that "Installed System Costs" may be different than "system cost" for purposes of applicataion of the *35 percent markup*. For instance, a *35 percent* markup on the "Installed System Costs, Residential" of $2.25/watt would be only $3.04/Watt; however, the report references "a solar TPO developer reporting a system value of $3.74-$3.87/W-DC." But no detail is supplied to enable the reader to reconcile these numbers.

Finally, the report provides: "The cash flow streams accounted for in this analysis include: Initial capital outlay, inclusive of all system component costs, installation costs, and an allocation of overhead costs." The report provides no detail on how it determined *overhead costs*, which can be a material part of solar companies' overall costs, especially given the information technology systems necessary to bill and collect from homeowners and electronic monitoring systems for maintenance problems. Further, the report makes no reference to the substantial marketing costs that some solar companies incur to obtain their customers. Are those marketing costs imbedded in overhead costs? For the report to have creditability, it would have needed to detail the methodology of "an allocation of overhead costs."

Below are other interesting quotes from the report that are not referred to above:

- Solar TPO providers appear to be tracking utility rates and pricing accordingly, evidence by higher observed lease prices in jurisdictions with higher utility rates. These higher lease prices cannot be fully accounted for by variations in system cost, solar production, and tax rate (locational factors).
- Federal incentives such as the Investment Tax Credit (ITC), accelerated depreciation, and bonus depreciation have a significant impact on project return. The solar TPO business model is able to maximize the benefits of these federal incentives, which are amplified considerably by the TPO's ability to use a system "value," which is higher than the system cost, as the basis for the tax credit and asset depreciation.
- Navigant's research indicates that third-party providers choose to operate in jurisdictions where they can undercut utility offset rates. Further, Navigant's research found that the solar TPO pricing strategy is such that jurisdictions with higher offset rates are likely to see higher solar TPO lease prices without direct cost-causation.
- In Arizona, solar TPO leases are the dominant contract vehicle. Leases typically involve a monthly dollar payment for a minimum guaranteed solar production in kWhs. One can therefore calculate an "effective lease rate" (lease rate) on a $/kWh basis. In other jurisdictions, the contract might entail a rate directly specified on a $/kWh basis, often referred to as a power purchase agreement (PPA) rate. For simplicity, we refer throughout this document to the lease rate, as though it is analogous to a PPA rate. Residential customers usually enter 20-year lease agreements with the solar TPO provider that often include a year-one lease rate and an annual escalator.
- SolarCity reported on its Q3 2015 earnings call that in 2016 the company would focus on cost reduction and value, with less emphasis on growth. They reported that pricing

would increase in Q1 of 2016 to correspond with escalation in utility rates.

- SunRun reported on its Q3 2015 call that cost structure improvements are a primary focus. For a significant portion of their current markets, SunRun is currently pricing on a per kilowatt hour basis at 25 percent or more below utility rates, even before anticipating future increases in utility rates. They reported that because of strong consumer demand, they have begun to and will selectively raise prices.
- Navigant adjusted direct labor costs by utility service territory and, while costs may differ by as much as 30-35 percent between high cost locations in CA and low cost locations in AZ, the overall impact on the total installed system cost is relatively low, as direct labor costs only account for around 10-15 percent of the total installed system costs.
- Following the favorable bonus depreciation change, solar TPO project returns increased significantly. For example, if lease rate were held constant at $0.087/kWh, project returns increased significantly. For example, if lease rates were held constant at $0.087/kWh, project return in UNSE service territory for systems installed in 2015 would have retroactively increased from 40 percent to 60 percent. Similarly, solar TPO providers in APS's service territory experienced project return increases from 60 to 110 percent for systems installed in 2015 due solely to the re-introduction of bonus depreciation. [But see discussion above explaining that bonus depreciation is difficult, if not impossible, for solar companies to capture value from.]
- Simultaneously, UNSE customers have seen increases in lease rates from 2015 to 2016. [C]ustomers have seen a 9 percent increase in solar TPO lease rates, representing a further project return increase from 60 percent in 2015 to 80 percent in 2016.

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[1] I.R.C. § 168(k).

[2] *See,* generally, Treas. Reg. § 1.704-1(b). Failure to comply with these rules could result in the IRS and the courts ignoring the stipulated allocation of the tax attributes and instead requiring the partners to share the tax attributes in accordance with each "partner's interest in the partnership" (PIP). PIP is a subjective and vague concept the application of which could mean the tax equity investor is allocated less than the 99% of the investment tax credit that it is expecting. *See* Treas. Reg. § 1.704-1(b)(3).

[3] For a discussion of the commercial law ramifications of a deficit restoration obligation, *see* Burton & Fet, *Commercial Aspects of Deficit Restoration Obligations in Partnership and LLC Transactions*, Project Perspectives 20 (Winter 2013).

[4] *See* I.R.C. § 704(d).

## Categories

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