



Impact of Stimulus on Capital Structures

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The American Recovery and Reinvestment Act of 2009 and the Cash Grant Option in lieu of the Investment Tax Credit (ITC) creates a new regime for renewable energy term project financing that favors capital structures combining tax equity and non-recourse, project-level debt. Participants in project financings will need to understand this new structure and how to structure deals that efficiently meet the objectives of all parties to remain competitive.

Although the Cash Grant makes debt-only structures a viable alternative, structures with tax equity and debt create ample incremental value to justify the additional complexity and transaction costs. This value also extends to downside cases. Furthermore, the debt-only alternative imposes a cap on tax equity yields that makes tax equity-only deals uneconomical at specific yield thresholds.

Financings with tax equity and debt will require a proactive structuring and analysis approach from Sponsors that tunes this structure to the performance of individual projects. "Tax Efficiency", a measure of how efficiently a structure monetizes tax benefits, provides a useful guide in addition to traditional measures for tuning these structures and mitigating value leakage.

These conclusions are based on the findings from an analytical study of financing options further described in this article.

Context for Analysis

The current macro- and micro-economic conditions created the context for the Cash Grant and these financing considerations. In 2009, power prices dropped considerably from 2008 highs as fuel prices and demand for power diminished. Uncertainty in the global economy made cash dear. Investments abated and tax equity became scarce and expensive. Absent stimulus from Federal and State programs one would expect little investment in generation, green or not. However, the 30% Cash Grant (which doubled the benefit of PTC's under current market conditions), DOE loan guarantee, and RPS programs created stimulus to resuscitate the renewable energy industry. Digesting these changes and providing analytic data to drive financial decision making remains a challenge. For this reason, an analytic study was conducted on the implications of the Cash Grant across a wide range of financing options. This study focuses on one question: "What capital structure (debt only, tax equity only, leveraged tax equity) now produces the most value for deal participants?"

This study analyzed a set of capital structures along several dimensions, including project utilization (10.5% IRR, 12% IRR), project size (\$100M, \$10M), performance levels (P50, P99), structuring options (partnership, leases), and financing terms. Variations along each of these dimensions created a number of cases that were analyzed with a consistent set of value measures and performance indicators.

A Cap on Tax Equity Yield

The Cash Grant and DOE Loan Guarantee significantly changes the equation for tax equity investors. Sponsors lacking tax capacity now find debt-only financing viable in many situations. By more efficiently monetizing depreciation benefits, however, Tax Equity remains a relevant option. Making the choice depends primarily on the net cost of capital between debt and tax equity. The analysis quantifies a "cap" the debt-only alternative imposes on tax equity yields where tax equity-only structures become uneconomical.



The first step in the analysis compared debt-only financing (Case 1: Debt Only) with an unleveraged tax equity partnership (Case 2: Tax Equity – 50%). To find the maximum tax equity yield comparable to an 8.0% Debt Only financing, the capital contributions and after tax NPVs were held constant. The results indicated Tax Equity becomes uneconomical when their after tax yield exceeds 9.3% for this given project and structure.

Debt Only	Project	Sponsor	Lender
Net Investment on Day 1	100,000	50,000	50,000
Investment after Cash Grant	71,500	21,500	50,000
Total Profit		108,485	38,794
PreTax IRR with Tax Credits	10.5%	12.5%	8.0%
AT Yield		11.0%	5.2%
AT NPV @ 10%		2,572	
Time to Break-Even	9.8 yrs	12.2 yrs	9.0 yrs

Figure #1: Case 1 - Debt Only (10.5% Project IRR, 8% Debt)

TE Only - 50%	Project	Sponsor	Tax Equity
Net Investment on Day 1	100,000	50,000	50,000
Investment after Cash Grant	71,500	21,500	50,000
Total Profit		88,580	58,339
PreTax IRR with Tax Credits	10.5%	13.5%	8.9%
AT Yield		11.5%	9.3%
AT NPV @ 10%		2,572	
Time to Break-Even	9.8 yrs	15.7 yrs	8.3 yrs

Figure #2: Case 2 – Tax Equity Only – 50% (10.5% Project IRR)

Varying the debt (6-8%) and projects (10.5%-12% IRRs) provided tax equity yields that ranged from 7.9% to 9.3%, the tax equity caps. When Tax Equity's yields cross these caps Sponsors net cost of capital exceeds the Debt Only case.

In this first step, transaction cost differences were excluded from the comparisons but were included in following steps. However, the cases in this first step provide a baseline for comparison with other capital structure options.

Best of Both Worlds

In the current market, Tax Equity Only structures may be too expensive and Debt-Only structures may require too much capital from the Sponsor. However, the analysis found debt and tax equity structures (Leveraged TE) that can achieve the best of both worlds by combining an efficient use of tax benefits with debt's low cost of capital. However, Sponsors need to find the right balance of Tax Equity and Debt for their project to derive the most value.

The second step in the analysis compared a leveraged tax equity case (Case 3: Leveraged TE) with a tax equity-only case (Case 4: TE Only – 65%). Both cases used the same Sponsor investment of 35%. However, after allocating the Cash Grant to the Sponsor, their net investment dropped to 6.5%. For the Leveraged TE case, the target tax equity flip yield was increased by 300-plus basis points over the TE Only case to account for cost differences investors may impose.



The Leveraged TE case produced compelling results for the Sponsor and Tax Equity (the best of both worlds). Sponsor NPV increased by more than \$5.2M with \$15M less capital invested. The Tax Equity achieved higher returns with less capital and minimal additional risk. Furthermore, Tax Equity receives its capital back in 3.5 years.

Leveraged TE	Project	Sponsor	Lender	Tax Equity
Net Investment on Day 1	100,000	35,000	43,000	22,000
Investment after Cash Grant	71,500	6,500	43,000	22,000
Total Profit		108,625	33,363	5,293
PreTax IRR with Tax Credits	10.5%	20.2%	8.0%	2.3%
AT Yield		17.7%	5.2%	12.8%
AT NPV @ 10%		9,730		
Time to Break-Even	9.8 yrs	7.8 yrs	9.0 yrs	3.5 yrs

Figure #3: Case 3 – Leveraged TE (10.5% Project IRR, 8% Debt)

Case 4 (TE Only – 65%) confirms there is a limit to effective Tax Equity participation. In this case, Tax Equity pre-tax IRR increased from 2.3% to 9.1% to achieve the targeted flip yield and Sponsor NPV decreased from \$9.7M to \$3.1M. This inefficiency resulted from Tax Equity receiving more cash in addition to the tax benefits.

TE Only - 65%	Project	Sponsor	Lender	Tax Equity
Net Investment on Day 1	100,000	35,000		65,000
Investment after Cash Grant	71,500	6,500		65,000
Total Profit		77,562		69,357
PreTax IRR with Tax Credits	10.5%	14.6%		9.1%
AT Yield		12.6%		9.2%
AT NPV @ 10%		3,054		
Time to Break-Even	9.8 yrs	17.0 yrs		8.2 yrs

Figure #4: Case 4 – TE Only – 65% (10.5% Project IRR)

Finding the right balance of tax equity and debt becomes the means by which Sponsors achieve higher value while meeting the needs of Tax Equity. In the “Leveraged TE” case, the 65% capital raise was split 43% debt and 22% tax equity. This ratio represents the best balance between debt and tax equity for this case. In addition to debt and tax equity rates, Sponsor and Tax Equity objectives (e.g., investment limits, flip term, cash requirements, book earnings) will influence this ratio. Analyzing these tradeoffs and negotiating effectively will require a proactive approach from Sponsors.

Tax Efficiency – the Efficient Use of Tax Benefits

When a Sponsor without tax capacity funds a project without tax equity, the Sponsor will leave value on the table regardless of the cost of capital. Sponsors can lose value even after adding Tax equity in an inefficient structure. “Tax Efficiency,” a new metric, can guide deal makers to more efficient structures.

Carrying forward depreciation when accelerated depreciation exceeds a Sponsors taxable income creates inefficiency. Offsetting taxable income with depreciation immediately offers



greater efficiency. Comparing the value of immediately utilizing the depreciation against the time value of a delay quantifies the inefficiency.

The Tax Efficiency metric ranges on a scale from 0% to 100%. 100% indicates that a structure utilizes all of the tax benefits. Values less than 100% indicate the relative inefficiency of a structure. However, a high efficiency rating by itself may obscure other issues like when a high cost of funds drags down Sponsor value. On the other hand, a low Tax Efficiency always indicates value is being left on the table.

Tax Efficiency of Cases

	Debt Only	TE Only at 65%	Debt & TE
Incremental Tax Benefits Realized	0	6,080	9,658
Available Tax Benefits*	10,994	6,436	10,269
Tax Efficiency	0.0%	94.5%	94.1%

* Difference in NPV of a self-sheltering project and a project that can fully utilize benefits.

Figure #5: Tax Efficiency

As expected, the Debt Only case has a 0% Tax Efficiency (see Figure #5) as all tax benefits are being self sheltered and tax benefits go unutilized in the first six years (see Figure #6). Yet, this still remains a viable transaction because of the Cash Grant.

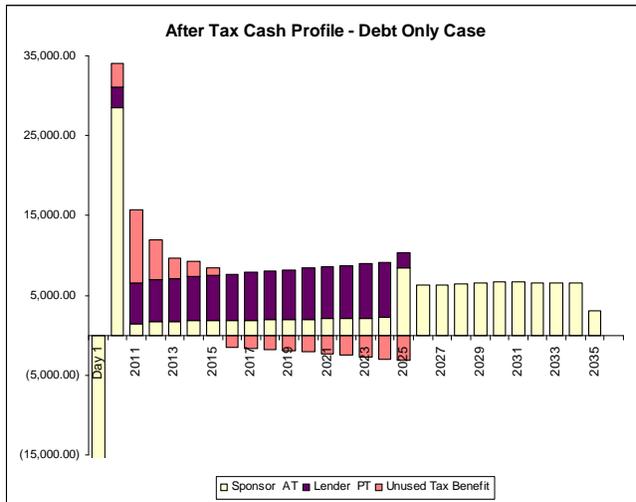


Figure #6: Tax Efficiency – Debt Only case

In contrast the Leveraged Tax Equity case has a 94% Tax Efficiency. Figure 7 illustrates that only a limited amount of tax benefits go unused in years 3 through 6. The high Tax Efficiency and the incremental tax benefits created by the non-recourse deductions explain the additional value created by this case over the Debt Only case.

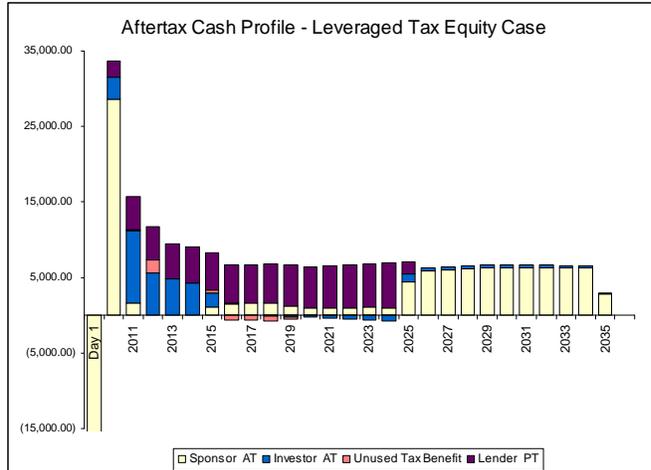


Figure #7: Tax Efficiency – Debt Only case

Project Size Matters

So far, we have assumed no transaction costs in the cases. To analyze the impact of transaction costs, we added plausible transactions costs to a variety of structures for the original \$100M project and a proportional \$10M project. Transaction expenses were estimated for illustrative purposes only: Base expense is 1% for Debt Only, \$500K additional for Tax Equity Only, and \$750K additional for a Leverage Tax Equity structure.

\$100 Million Project	Sponsor NPV	Transaction Cost	Net Sponsor NPV*	Net NPV as %
Debt Only	2,572	1,000	1,572	1.6%
TE only at 50%	2,572	1,500	1,072	1.1%
TE only at 65%	3,054	1,500	1,554	1.6%
TE and Debt	9,730	1,750	7,980	8.0%

\$10 Million Project	Sponsor NPV	Transaction Cost	Net Sponsor NPV*	Net NPV as %
Debt Only	257	100	157	1.6%
TE only at 50%	257	600	(343)	-3.4%
TE only at 65%	305	600	(295)	-2.9%
TE and Debt	973	850	123	1.2%

* For simplicity, tax affect of transaction expense is not considered in this analysis

Figure #8: Transaction Cost Analysis

The analysis indicates transaction costs negate the benefits of Tax Equity in smaller projects, especially with relatively low NPV. A Sponsor for a small project will likely opt for Debt Only. However, as transaction costs decline with greater standardization, smaller projects will have the flexibility to consider more tax efficient structures.

Downside Risk



The downside analysis further supports the case for Leveraged TE (see Figure 9). In the Leveraged TE case, Tax Equity attains the targeted flip yield in all downside cases, albeit at later dates. However, in the P99 scenario for the Tax Equity Only at 65% case, the tax investor never attains the targeted flip yield. For the Sponsor, the Leveraged TE provides the best NPV scenarios even though the P99 scenario produces a negative NPV (project IRR is below 10% but is still profitable). In all cases a conservative coverage ratio enables repayment of debt.

	Proj 10.5% IRR 8% Debt		Proj 12% IRR 6% Debt	
Leveraged TE	P50	P99	P50	P99
TE Flip Yield	12.1%	12.1%	11.0%	11.0%
TE Flip Term	4.8 Yrs	21.5 Yrs	3.2 Yrs	13.2 Yrs
TE Full Term Yield	12.8%	12.4%	13.3%	12.3%
Sponsor AT NPV	9,730	(3,662)	17,404	4,512
Sponsor Profit	108,625	18,495	151,471	90,253
Debt Avg Life	9.7 Yrs	9.7 Yrs	6.4 Yrs	6.4 Yrs

TE Only - 65%	P50	P99	P50	P99
TE Flip Yield	9.1%	8.3%	8.0%	8.0%
TE Flip Term	16.6 Yrs	25.6 Yrs	12.4 Yrs	18.7 Yrs
TE Full Term Yield	9.2%	8.3%	8.4%	8.1%
Sponsor AT NPV	3,054	(4,566)	10,931	(143)
Sponsor Profit	77,561	(3,072)	129,017	49,136

Debt Only	P50	P99	P50	P99
Sponsor AT NPV	2,572	(11,795)	11,375	(3,723)
Sponsor Profit	108,484	55,824	154,818	96,630
Debt Avg Life	9.7 Yrs	9.7 Yrs	6.4 Yrs	6.4 Yrs

Figure #9: Downside Risk Analysis

Partnerships and Leases

Lease structures offer a viable alternative to partnership flip structures analyzed. Our prior analyses on lease structures concluded:

- Both Partnership and Leases can be structured to produce comparable results at the P50 level. Trade-offs in after-tax IRR and NPV exist.
- Leases, however, have greater downside (P99 scenario) and EBO risk (buy-back exposure).
- Leases are inherently 100% tax efficient.

Additional details on Partnership vs. Leases and the Cash Grant study can be found at <http://www.advantageforanalysts.com>.

Conclusion

Although Renewable Energy industry benefits from the Cash Grant, this stimulus program introduces a number of questions on which capital structures create the most value. The analysis evaluated numerous cases and concluded:

- Debt-only financing offers Sponsors a viable option while capping tax equity yields.



- The market will favor Leveraged Tax Equity transactions as combining Tax Equity and Debt produces substantially greater value for all deal participants.
- The right balance of tax equity and debt generates higher value in Leveraged Tax Equity structures.

Effective negotiations will require Sponsors to explore these complex structures proactively.

About Advantage for Analysts, Inc.

Advantage for Analysts, Inc. ("Advantage") provides modeling and analytic solutions based on expert services and an advanced modeling technology. Advantage helps leaders in the renewable energy industry structure, analyze and track lease and partnership financings based on PTCs, ITCs and Cash Grants. Babcock & Brown originally developed the Advantage technology in 1999 to enable innovation, increase transparency, and manage complexity. Advantage has been operating independently since 2004. For additional details on this article please visit Advantage at <http://www.advantageforanalysts.com>.

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