

RENEWABLE ENERGY MODELING US

TAX EQUITY FLIP

(CASE STUDY)

1. CASE STUDY OVERVIEW

The date is January 25, 2016 and you work as a financial analyst at one of the renewable energy development companies in the US, which is concluding PPA negotiations for a wind power project with a large utility. You have been instructed by your managing director to build a financial model for the wind project located in Texas, United States. The model should also be able to handle solar projects if necessary. The objective is to come up with the PPA energy price, which results in an equity return of 8.5%, which will be used in negotiations with the utility.

Renewable energy projects typically employ high leverage in their capital structure and use project financing to attract debt and equity funding. In addition, renewable projects in US are eligible for tax credits and accelerated depreciation, which only investors with tax capacity can take advantage of. Therefore, the main source of initial funding will be coming from the tax equity partner, back-leverage loan and the developer (which is your company). So, the financial model has to be capable to generate the tax equity investment size based on the tax and cash benefits allocated to tax equity, construction debt size based on the project's cash flows and the developer's investment based on his required equity return.

You have recently met with several tax equity investors and lenders, which can arrange the financing for the project, and received indicative term sheets for tax equity investment, construction funding, and the back-leverage loan (refinancing facility). You have also received construction and O&M proposals.

Your company has set up a limited liability company "Wind Texas LLC" in Delaware, which will be developing and managing the project.

For your analysis, you should assume the financial close date is January 1st, 2020, and construction start date of January 1, 2019 (for the purpose of IRS), however, this is only an assumption, and you in fact should suggest what is the best construction start date for the project. The actual construction shall be complete in 12 months from the financial close date, at which time operations shall start. The model shall be based on quarterly periods.

2. TAX EQUITY TERMS

<u>General</u>	
The Company	A limited liability company organized under the laws of the state of Delaware “Wind Texas LLC”, the (the “Project Company”).
The Managing Member	Sponsor or one of its affiliates will be the Managing Member of the Company.
Manager and Operator	Sponsor or an affiliate of Sponsor will be the manager and the operator of the Project pursuant to an Operations and Maintenance Agreement (the “O&M Agreement”).
Funding Date	The date for the funding of the Project, which will occur at the substantial completion of the Project (the “Final Funding Date”).
<u>Transaction Structure</u>	
Class B Member	Sponsor or an affiliate will purchase or retain 100% of the Class B Shares of the Company.
Class A Member	The Tax Equity Investor will receive 100% of the Class A Shares of the Company upon the Final Funding Date.
Target IRR/Flip Date	An Internal Rate of Return of 6.5% (the “Target IRR”) is expected to be realized in the Base Case Model no later than 10 years following the Final Funding Date

	<p>(the “Target Flip Date”). The date upon which the Target IRR is achieved being the “Flip Date”.</p> <p>For the case of solar project the Target IRR is expected to be realized in the Base Case Model no later than 7 years following the Final Funding Date (the “Solar Project Target Flip Date”).</p>
<p>Cash Distributions and Tax Allocations Wind Project</p>	<p>Period I: Beginning at the Final Funding Date until the Target Flip Date, the Class A Member shall receive 20% of the cash items and 99% of the tax items, including the Production Tax Credits (PTC). The Class B Member shall receive 80% of the cash items and 1% of all tax items.</p> <p>Period II: Beginning after the expiration of Period I and until 35 years after the Final Funding Date, the Class A Member shall receive 5% of the cash and 5% of the tax items and the Class B Members shall receive 95% of the cash and 95% of the tax items.</p> <p>Period III: If the Target IRR has not been achieved by the Target Flip Date, then from the Target Flip Date until the Flip Date, the Class A Member shall receive 99% of the cash and tax items and the Class B Members shall receive 1% of the cash and tax items.</p> <p>Period IV: For the period after the Flip Date, the Class A Member will receive 5% of cash and tax items and the Class B Member will receive 95% of cash and tax items.</p>
<p>Cash Distributions and Tax Allocations Solar Project</p>	<p>Period I (Solar Project): Beginning at the Final Funding Date until the end of the Investment Tax Credit (“ITC”) year, the Class A Member shall receive 20% of the cash items and 99% of the tax items, including the ITC. The Class B Member</p>

	<p>shall receive 80% of the cash items and 1% of all tax items.</p> <p>Period II (Solar Project): Beginning after the expiration of Period I until the Solar Project Target Flip Date, the Class A Member shall receive 20% of the cash and 67% of the tax items and the Class B Members shall receive 80% of the cash and 33% of the tax items.</p> <p>Period III (Solar Project): Beginning after the expiration of Period II and until 35 years after the Final Funding Date, the Class A Member shall receive 5% of the cash and 5% of the tax items and the Class B Members shall receive 95% of the cash and 95% of the tax items.</p> <p>Period IV (Solar Project): If the Target IRR has not been achieved by the Solar Project Target Flip Date, then from the Solar Project Target Flip Date until the Flip Date, the Class A Member shall receive 99% of the cash and tax items and the Class B Members shall receive 1% of the cash and tax items.</p> <p>Period V (Solar Project): For the period after the Flip Date, the Class A Member will receive 5% of cash and tax items and the Class B Member will receive 95% of cash and tax items.</p>
<p>Class A Members Funding Amount</p>	<p>The Class A Members Funding Amount shall be based on the Terms and Conditions herewith and the Texas Wind Project Base Case Model.xls (“Base Case Model”) subject to a maximum Class A Funding Amount equal to \$60 million (the “Class A Funding Commitment”).</p>
<p>Capital Accounts</p>	<p>Capital accounts will be maintained in accordance with Section 704(b) of the Internal Revenue Code of 1986, as</p>

	<p>amended from time to time, and the Treasury Regulations promulgated thereunder. The Class A Member will have a Deficit Restoration Obligation Cap of 35% (the “DRO Cap”) of its investment.</p>
<p>Purchase Option – Timing and Purchase Price</p>	<p>For a purchase price equal to the fair market value as then determined by a third-party appraiser if not mutually agreed to by the parties, the Class B Member shall have the right to elect to buy the Class A Member’s interest 1 day after the Flip Date.</p>
<p>Conditions Precedents to Funding Date (simplified)</p>	<p>The conditions precedents to the obligation of the Class A Member to fund the Class A Member Funding Amount:</p> <ol style="list-style-type: none"> 1. The independent engineer has certified the substantial completion of the project; 2. The project company has all material documents and licenses in full force and effect. 3. The project company is not in default and has not initiated a bankruptcy proceedings. 4. The project company qualifies for the tax credits and depreciation benefits.

3. CONSTRUCTION DEBT & BRIDGE LOAN

Indicative construction debt terms:

Borrower	A limited liability company organized under the laws of the state of Delaware “Wind Texas LLC”, the (the “Project Company”).
Borrowings	Borrowings are made at closing and at the end of each month to fund a maximum of 90% of the CAPEX incurred in that month. CAPEX includes all budgeted capital costs, including contingency for cost over-runs, and construction-period financing costs, excluding amounts required to pre-fund reserve account(s). Hence CAPEX is equivalent to all uses of funds currently being modeled.
Upfront fee	1.0% of the construction debt payable at financial close
Commitment fee	10 bsp on a monthly basis on the undrawn debt balance
Interest base rate	1.80% p.a. LIBOR rate, (ACT/360)
Interest margin	2.50% p.a. over base rate
Repayment	Convert to the term loan (refinancing) and / or full / partial repayment at the end of the construction period including from the proceeds from tax equity partner investment.
Shareholder’s investment	The shareholders will invest the remaining funding requirement monthly ‘pro-rata’ with the construction debt draws.

4. TERM LOAN

Indicative term loan terms:

Borrower	A special-purpose limited liability company wholly owned by the Sponsor owning equity interest in the Wind Texas LLC.
Amount	The term loan amount shall equal to the amount drawn under construction debt.
Funding date	End of the construction period.
Repayment term	15 years, payable quarterly, first interest expense payment shall be made 3 months from the funding date, and principal repayment shall be made 6 months from the funding date.
Repayment profile	Cash flow sculpted repayment profile
Interest base rate	LIBOR rate p.a., (ACT/360) 1.80% - 2020 1.85% - 2021 2.00% - 2022 2.05% - 2023 2.10% - 2024
Interest margin	2.00% p.a. over base rate
Debt sizing parameters	The term loan will be sized to achieve at least P50 debt service cover ratio of 1.30x and P99 debt service cover ratio of 1.00x.
Debt Service Reserve Account	Debt Service Reserve Account (“DSRA”) shall be set up during the repayment term to support debt service payments. Subject to adequate cash being available following payment of (senior) debt service, monies will be deposited to the DSRA to achieve a required balance equal to the next 6 months of projected senior debt service. If on any given repayment date,

	the current DSRA balance proves greater than required, monies can be released from the DSRA.
Dividend lock-up ratios	DSCR less than 1.05x, and LLCR less than 1.05x. DSRA balance is less than required.
Default ratios	DSCR less than 1.00x, LLCR less than 1.00x.

5. PROJECT CONSTRUCTION COSTS

For the case of the wind project, the wind turbines will be supplied under the turbine supply agreement, and the remaining equipment and construction will be carried under the balance of plant contract.

The total amount of the turbine supply agreement is US\$78 million.

The total amount of the balance of plant contract is US\$14 million. The construction part is US\$10.5 million, and the substation and interconnection equipment is US\$12 million.

The project will also incur development costs, which is estimated at US\$5 million.

For the case of the solar project, the solar module supply contract's value is US\$60 million, BOP is US\$7.5 million, the substation and interconnection equipment is US\$5.5 million, and the project development is US\$3.5 million.

Note that the final construction and equipment cost of the project should incorporate a 10% contingency, in case things do not go as planned.

6. ENERGY GENERATION AND REVENUE

Project technical details:

	Wind	Solar
Rated capacity	90 MW	75 MW
P50 capacity factor	35%	25%
P99 capacity factor	28%	21%
Curtailment reduction	5%	5%
Degradation rate p.a.	0%	0.5%

Energy generation seasonality:

	Wind	Solar
Q1	30%	22%
Q2	22%	27%
Q3	23%	28%
Q4	25%	23%

The wind project should have an initial PPA price of \$30 per MWh and a merchant energy price of \$35 per MWh.

Both the PPA price and merchant price shall be escalated at 1.5% per annum, and escalation should begin from the second operations year.

The PPA term shall be 25 years.

The PPA price shall be optimized to achieve the sponsor's required hurdle rate when the model is ready for the optimization.

Both PPA and merchant energy sales terms are 30 days.

7. OPERATING COST

The project's operating costs are divided into variable and fixed costs. Variable costs are O&M variable costs, land royalty, and insurance during operations, and the fixed costs are O&M fixed costs, and administration costs.

	Wind	Solar
O&M variable costs	\$2.5 / MWh	\$1.5 / MWh
Land royalty	1.5% of revenue	1.5% of revenue
Insurance during operations	0.5% of revenue	0.5% of revenue
O&M fixed costs	\$675,000	\$400,000
Administration	\$175,000	\$115,000

The fixed costs shall be escalated at 1.5% per annum, and escalation should begin from the second operations year.

The operating costs payment term is customary 30 days.

8. FIXED ASSET DEPRECIATION

Depreciation of the construction and equipment costs shall be over 10 years.

The equipment supply agreement shall cover all of the required wind turbine / solar panel maintenance.

9. TAXES

The corporate tax rate is 21%.

Accelerated depreciation shall be calculated as per the following 5 year MACRS schedule:

Year	%
1	20.0%
2	32.0%
3	19.2%
4	11.5%
5	11.5%
6	5.8%

10. TAX CREDITS

For the purpose of modeling tax credits, you should assume that the project construction starts in January 2019 as defined by the IRS.

Full Production Tax Credit (PTC) amount is 2.5 cents per kWh, and you have to select the appropriate PTC number from the table below based on the year of construction start.

Construction start year	% of full PTC that the project can claim
2018	60%
2019	40%
2020	60%

For modeling the Investment Tax Credit (ITC), you should exclude the financing costs from the project CAPEX, and only 80% of the balance will be eligible for ITC.

Full ITC rate of 30% should be applied to the costs eligible for ITC since the project began construction in 2019.

The PP&E value for the tax purpose has to be reduced by 50% of the ITC amount when ITC is elected.

10. INVESTMENT RETURNS

Shareholders will invest in the project pro-rata to construction debt draws in the form of equity investments. You need to carry out internal rate of return (IRR) analysis of the project and model the sponsor's equity return. The required rate of return is 8.5% for this type of project.

11. MODEL OPTIMIZATION

You have to optimize your model with regards to the sponsor's required rate of return of 8.5%. Note that the model should be used to evaluate the transaction structure proposed by the potential tax equity partner with respect to the tax efficiency, its impact on the project's PPA price, developer's IRR, and equity investment.

Your senior management is looking for insights into how the deal structure affects the tax efficiency, the PPA price, developer's IRR, and equity investment, so these insights can be used in negotiations with the tax equity partner.

You should also run sensitivities on the project construction start date, and different PTC values that the project will be eligible for, dependent on the construction start date.