

CEPP FINANCE BASICS

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1. INTRODUCTION

If you want to develop a renewable energy project, finance is going to be important. You have to invest, and likely borrow, a lot of money up front, and then receive your “returns” over 20 years or more. You need to satisfy yourself, your lender and potential investors that project returns will be sufficient to justify building it.

From CEPP’s perspective, we want to ensure that projects have a reasonable chance of being built, and one of the biggest hurdles for many projects is obtaining the money necessary to develop and build your project. At this early stage, we ask “is the financing plan realistic?” It doesn’t have to be well developed at all. But if the applicant says they’ll be contributing \$200,000 and it appears they have no money, that’s a problem!

2. FINANCIAL TERMS

- Time value of money – a dollar today is worth more than a dollar in the future
 - Need to translate future cash flows into present-day dollars
 - Discount rate
 - the rate used to convert (or “discount”) future cash flows in order to obtain their present value.
 - should be equal to the cost of capital for the project, i.e. the average cost of debt and equity.
 - For example, if the project is to be financed 40% equity and 60% debt, and equity investors demand a return of 15% and lenders an interest rate of 8%, then:

$$\begin{aligned} & \text{average cost of capital for the project} \\ & = 40\% \text{ of } 15\% + 60\% \text{ of } 8\% \\ & = 6\% + 4.8\% \\ & = 10.8\%. \end{aligned}$$

So the discount rate should be roughly 10.8%, or say 11%, as discount rates are usually round numbers.

- Income – revenues minus expenses
 - Net operating income
 - operating revenue minus operating expenses
 - before debt payments
- Equity – money contributed by owners / investors
 - Required rate of return
 - return required by investors
 - depends on cost of capital of investors and risk premium of the investment (more risk = higher required rate of return)

- Debt – borrowed money
 - Recourse / Non-recourse
 - “Recourse” loans
 - lender “has recourse to” all of borrowers’ assets, i.e. can seize all of borrowers’ assets
 - almost all loans are “recourse”
 - “Non-recourse” loans
 - lender only has recourse to specific assets, e.g. the project itself (called “project finance”)
 - only available for larger projects (say over \$10 million) because of large administrative / legal burden
 - Project finance
 - Debt where the lender has recourse only to the project and its cash flows, i.e. non-recourse
 - Collateral – items of value that lender will have access to if you default on the loan, e.g. real estate, investments, the project itself
 - Priority – the ranking of creditors / lenders, i.e. if there isn’t enough money to pay off all creditors, who gets paid first, second, etc?
 - Debt ratio
 - Percentage of project costs financed by debt
 - Debt service
 - The total payments to be made under the loan
 - Includes both interest and principal repayment
 - Amortization period
 - In calculating the Debt Service, it is the length of time from the start of the loan until it is fully paid off
 - The shorter the amortization period, the higher the Debt Service
 - Debt Service Coverage Ratio (DSCR)
 - Ratio of net operating income to debt service
 - Used by lenders to measure the risk the project won’t be able to cover it’s debt payments
 - A DSCR of 2.0 means debt service can be covered even if operating income falls by 50%
 - Higher DSCR required for higher risk projects
 - Project lenders are very focused on DSCR and set minimum DSCR for various types of projects
 - Term sheet
 - document issued by lender prior to loan approval that lists the terms and requirements for them to make the loan
 - gives some indication of willingness of lender to make the loan

- Financial leverage
 - Using debt to increase the return to equity investors
 - Requires a positive spread between the project returns and the debt interest rate
 - If project return is 12% and debt interest rate is 7%, there is a 5% spread
 - Size of spread is indication of how much interest rates can rise without destroying the financial viability of a project
- Financial Statements – provide financial picture of an organization
 - Balance sheet
 - financial snapshot at a single point in time
 - shows value of assets, liabilities and equity
 - Income statement
 - Shows revenues and expenses for a given period of time
- Rate of return – a measure of the profitability of a project or investment. Terms used may vary from person to person
 - Return before debt – an unlevered (before debt) rate of return on the project as a whole
 - Return after debt – a levered (after debt) rate of return, i.e. the return on equity
 - Return on Investment (ROI)
 - The first year income divided by the cost of the project (before or after debt)
 - Useful where income is relatively stable, but ignores cash flows after the first year
 - Internal Rate of Return
 - The discount rate that equates cash outflows and inflows over the project life
 - Measures the rate of return over the life of the project
 - Generally the best measure of return for an investment, but ignores the size of an investment and assumes you can re-invest at the same rate
 - Problematic when cash flows alternate between outflows and inflows
 - RETScreen generates the IRR equity and IRR assets
 - IRR equity – after debt
 - IRR assets – project cost before debt compared to income after debt (by setting debt ratio to zero, gives IRR before debt)
 - Payback
 - How many years it will take to earn back your initial investment
 - Handy touchstone for profitability but ignores anything that happens after that point
 - Net present value (NPV)
 - Using a given Discount Rate, NPV = the value of cash inflows discounted to the beginning of the project, minus the cost of the project
 - Focuses on the opportunity cost of capital
 - Comparing the NPV to project cost is a useful ratio to indicate profitability (RETScreen calls this the Benefit Cost Ratio)

- Risk
 - More risk = higher risk premium, i.e. investors will demand a higher expected rate of return. Also, lenders will require a higher Debt Service Coverage Ratio and will charge a higher rate of interest.
 - Financing risk
 - Risk that you won't be able to obtain financing on viable terms
 - Management risk
 - Risk that project won't be effectively managed
 - Development risk
 - Risk that problems will be encountered during development, e.g. inability to obtain regulatory approvals, site control, grid access, etc.
 - Construction risk
 - Risk that there will be construction delays, cost overruns, or that the construction will be flawed
 - Operating risk
 - Risk that operating income will fall below expectations
 - Includes risk that wind won't blow, sun won't shine, biofuel won't be available
 - Interest rate risk
 - Risk that rising interest rates will negatively impact the project
 - Calculating the IRR before debt will allow you to measure the spread between project return and cost of debt, and to see how high interest rates can go before financial leverage becomes negative