



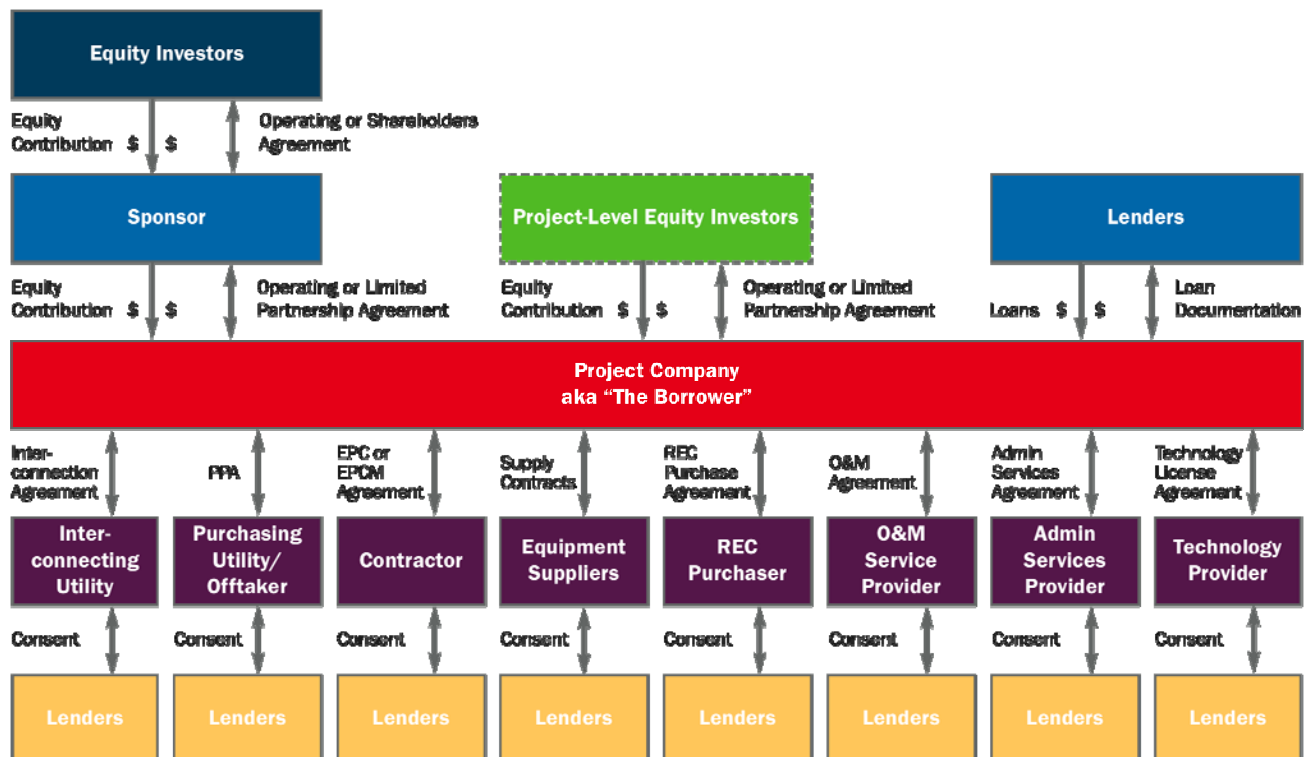
Renewable Energy Finance Fundamentals

The US Partnership for Renewable Energy Finance (US PREF) has prepared the following brief summary of the basics of renewable energy project finance. An appreciation of renewable energy finance will assist members of the policy community in designing legislation and rules that will help the US meet its goals of increasing the supply and use of renewable energy, improving energy independence, creating jobs, and fostering innovation.

Abstract

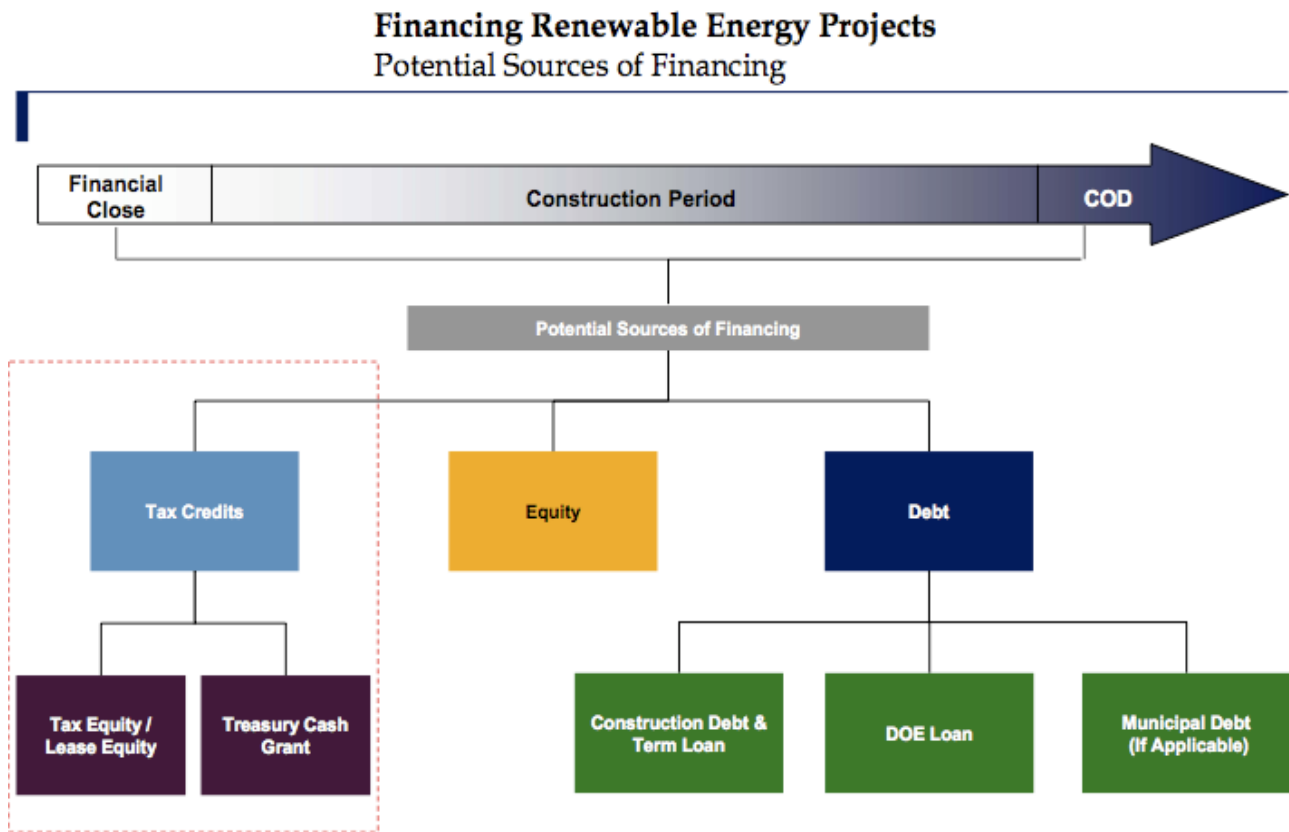
Project finance is a structure commonly employed to finance large infrastructure assets that otherwise cannot be supported on a corporate balance sheet or are more attractive assets when financed on their own. Lenders and equity sponsors provide capital for the development of a project based on the project’s specific risk profile and expected cash flows. Renewable energy assets have typically been financed using project finance and have generally involved several types of sponsors: project equity investors (often project developers), tax equity investors, and a syndicate of banks that provide project-level loans. Project-level loans are “non-recourse,” which means they are secured only by the project assets and paid off entirely by the cash flows or liquidated assets from the project. Recourse to the assets of the sponsors is shielded if the project does not meet the loan terms, and conversely, deterioration of the parent company cannot pollute the financial integrity of the project.

TYPICAL PROJECT FINANCE STRUCTURE



Source: Baker & McKenzie. Project finance can be highly complex, as this diagram illustrates. All activities center on the project company (red) which is an entity that owns all of a project's assets, legal rights, and obligations. All project agreements related to the development, construction and operation of the asset are entered into between the Project Company and external parties. For each of these agreements, Lenders (blue) will require contractual rights to the assets ("Consents") to ensure a smooth transition of ownership in the event of bankruptcy. PREF recommends Baker & McKenzie's Project "Finance Primer for Renewable Energy Projects" as an excellent, brief introduction to the subject.

Because the levelized cost (the cost over the life of the facility) of energy produced by a renewable energy facility is typically higher than that produced by a conventional generating facility, renewable energy projects require policy supports to subsidize some part of the development costs in order to attract private investment. The predominant subsidy mechanism used to date has been tax credits, allocated to a project based on its cost to build or on how much energy it produces.



Source: Bank of America Merrill Lynch. This diagram describes the basic stages of a project financing as well as the potential sources of financing. The red-outlined box shows that the elements only available at the project's commercial operation date (COD).

Tax Benefits

Renewable energy projects in the United State are eligible for Federal income tax credits and accelerated depreciation, which reduce the federal income tax of the project owner.

- **Production Tax Credits (PTCs)** under Section 45 of the tax code give renewable electricity project owners a tax credit for every kilowatt-hour of electricity produced in the first 10 years of operation. The tax credit is currently 2.1 cents per kilowatt-hour of power produced for including wind, geothermal and some types of biomass and 1.1 cents for ocean energy,

qualifying hydroelectricity, and other types of biomass and energy from waste. It is indexed to inflation. The taxpayer must sell the energy to an unrelated buyer to claim the tax credit.

- **Investment Tax Credits (ITCs)** under Section 48 of the tax code give renewable energy project owners a tax credit based on the amount of capital invested in a project. The tax credit is earned when the project is placed in service. The amount is 30% of the qualifying basis for solar, fuel cells, and small wind and 10% for geothermal, microturbines, and eligible combined heat and power. (The qualifying basis is usually more than 90% of the total project costs.) Only the taxpayer who originally placed the equipment into service can claim the credit except in the case of certain leasing transactions. A portion of the tax credit is subject to recapture if the asset is sold in the first 5 years of operation.
- **Accelerated Depreciation** under the “Modified Accelerated Cost Recovery System (MACRS)” creates a tax shelter for the owners of renewable energy property. Most renewable energy assets can be depreciated over a 5-year period, which reduces the owner’s taxable income.

As part of the American Recovery and Reinvestment Act (ARRA), projects eligible for the PTC are eligible to elect to receive an ITC in lieu of the PTC. In addition, ARRA also temporarily provided the option to elect for a cash grant from the Dept. of Treasury in lieu of the ITC for projects placed in service in 2009 and 2010 or for projects that start construction in 2009 or 2010 (cannot start before 2009) that are placed in service by the end of 2012 (wind), 2016 (solar) or 2013 (all other technologies). Some projects will favor the ITC/grant approach while others will be economically better off claiming the PTC.

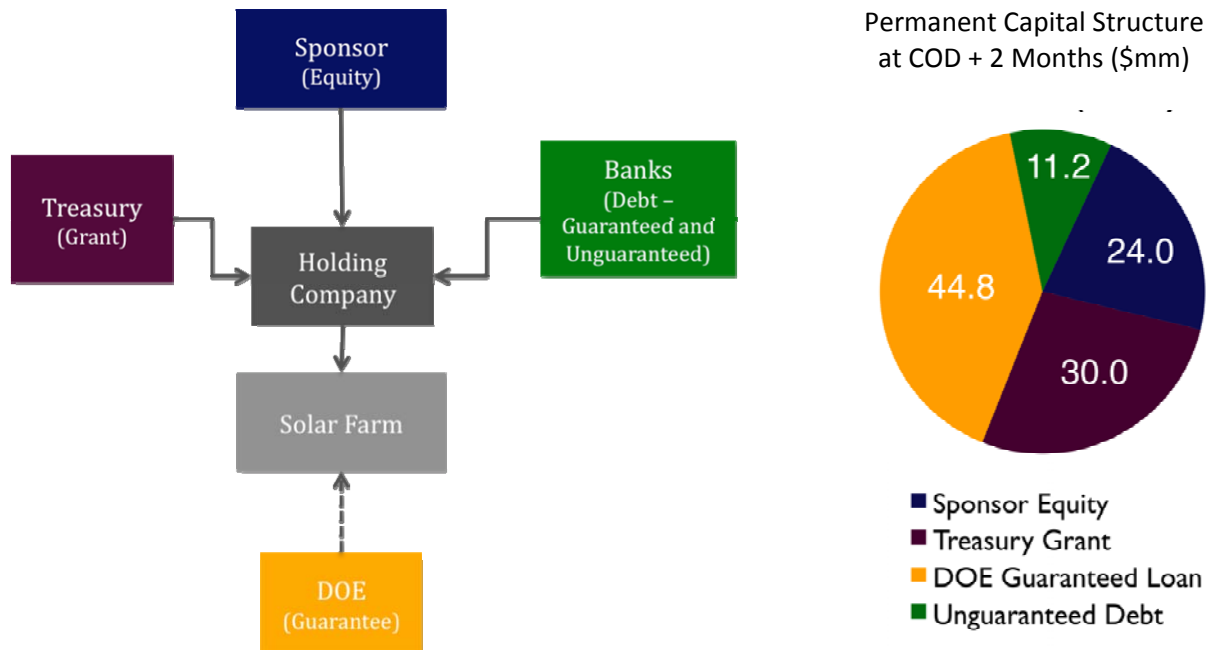
Sources of Project Capital

Equity: Project equity is supplied by project sponsors, including private equity firms or developers themselves. This is sometimes called “cash equity.”

Structured Equity: Some renewable energy projects are owned by utilities and other taxpaying entities that can efficiently use the tax benefits from their investments. However many project developers do not have taxable income because they run losses in the early years or are owned by foreign companies that do not pay US income taxes, so they are not able to immediately or efficiently capture the full amount of tax benefits available for large projects. Project sponsors have the ability to carry forward the tax benefits for up to 20 years but this deferral greatly reduces their value, even assuming the sponsor eventually generates enough taxable income to use them up. To overcome this, developers partner with relatively passive structured equity or “tax equity” investors who can more efficiently use the federal tax benefits generated by their projects. A tax equity investor contributes a capital investment and in return secures tax benefits and a return on investment from the project. Tax equity investors traditionally have been banks, insurance companies, and other financial institutions that have a large, predictable tax liability, an appetite for project risk, and a levered balance sheet that allows them to offer competitive pricing.

Debt: Project debt is supplied by a bank or group of banks (“syndicate”) that lend against the expected cash flows from the project. Larger projects can also raise debt by issuing bonds to institutional investors instead of obtaining a bank loan. These loans vary by the tenor (the term of the loan), whether the government is guaranteeing the loan, the certainty of the cash flows from the project, and the rates that banks are charging to borrow money. Until recently renewable energy projects rarely used debt financing because the lower cost of the debt capital was not sufficient to offset the higher return that tax equity investors required in return for the increased risk that results from leverage. Instead, many project sponsors borrowed against their earnings from the projects at a corporate level. With the reduced need for tax equity, due to the Treasury grant in lieu of the PTC and ITC and the launch of the DOE loan guarantee program, many sponsors are seeking project-level debt for their renewable energy projects.

SIMPLIFIED RENEWABLE ENERGY PROJECT STRUCTURE



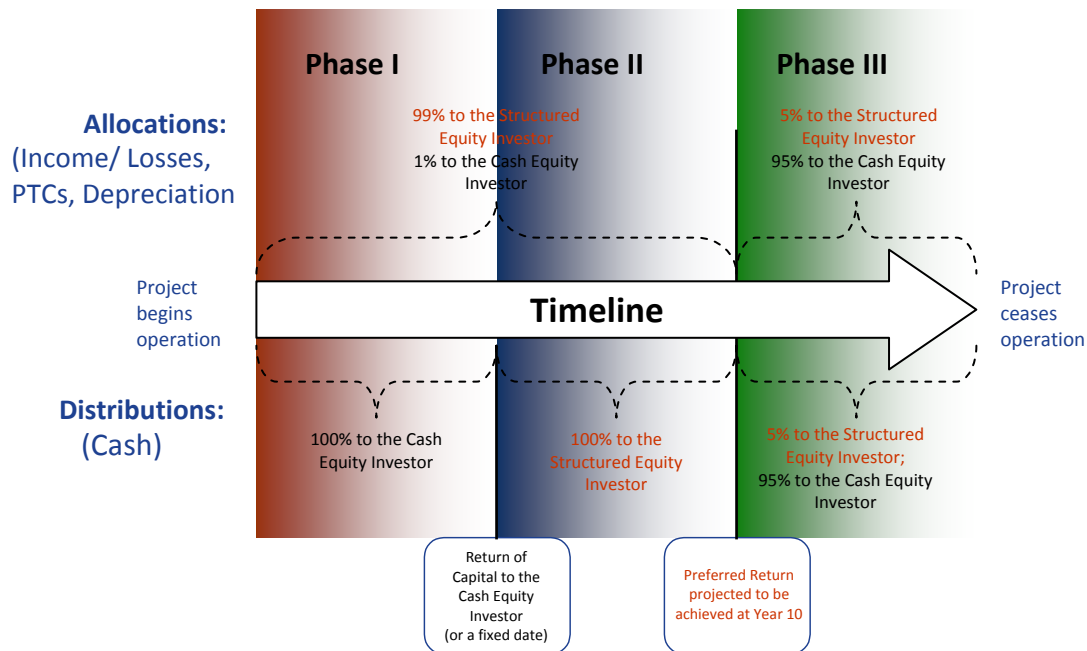
Source: Bank of America Merrill Lynch. This diagram describes a potential finance structure under the Section 1705 loan guarantee program and Section 1603 tax grant program for a 25MW solar project costing \$100 million. It reflects the structure two months after the project's commercial operation date (COD).

Project Equity Structures

Unlike home mortgages, credit cards, and other common forms of finance, renewable energy project financings are highly customized. Most project equity investments (including tax equity) are financed using either a lease or a partnership structure. Leases and partnerships provide an efficient mechanism to transfer tax benefits to the equity investor.

Partnerships: In this approach, the project is owned by a partnership between the sponsor and the equity investor. Each contributes a portion of the capital to the project. Accounting rules and the US tax code allow cash and accounting income to be shared differently among the partners; tax credits must have the same allocation as the income. The sharing can change (“flip”) over time; for example investors usually receive a much smaller share of the cash and income after reaching a pre-determined return on their initial investment. This flexibility allows the investor to claim the tax credits and the use losses from depreciation to reduce their taxes even as the sponsor receives cash.

SIMPLIFIED PARTNERSHIP EQUITY STRUCTURE



Source: GE Energy Financial Service

Leases: A sponsor can also transfer tax benefits to a financial institution by selling them the project and leasing it back. The new owner can claim the tax credits and depreciation benefits. This transaction must be completed within three months after the project is placed in service. Leases have mostly been used for solar power projects. Wind, and other technologies could not use leases because the PTC is only earned when the owner sells renewable power to an unrelated entity; in the case of a lease the owner and the seller of the power are different entities so neither can claim the PTC. The ability to elect an ITC or cash grant removes this barrier.

Types of Project Debt

Debt finance can be raised either at the project (operating company) level or the corporate (holding company) level. It is also important to distinguish between construction debt and permanent (“term”) debt.

Project-level debt: Project-level lenders must be paid before any funds are paid to the project equity owners, making it the most “senior” element in the capital structure. These lenders’ claim is secured by a lien on the project itself as collateral. Thus, this debt is often called “senior secured” debt. Project-level debt can also be raised in a lease, making it a “levered lease”.

Holding company debt: Project sponsors can borrow against the cash they expect to receive from the projects they own. Utilities and other large sponsors can borrow more cheaply at the corporate level while smaller sponsors borrow against only the cash flow from one or more projects. This is attractive to sponsors because the tax equity investor is not liable for the loan so it does not affect the preferred return paid to the equity investor.

Construction debt: Project equity investors and term lenders generally prefer to avoid construction risk. Equity investors also do not want to fund an investment before it is in operation and producing income. As

a result, sponsors sometimes arrange a bank loan to fund the construction phase of their project. Project investors and term lenders repay (“take out”) the construction loan when construction is completed. Takeout financing must be committed before a sponsor can obtain construction financing.

Loan guarantees: US Government loan guarantees are a new feature of the renewable energy project finance landscape. The Department of Energy loan guarantee program will guarantee a loan for up to 80% of the cost of a project. Projects using unproven (“innovative”) technology compete to receive a loan directly from the US government because project finance lenders avoid technology risk. Projects with proven (“commercial”) technology can receive a guarantee for 80% of the amount of a loan from banks or bond investors, with the lenders taking the risk on the remaining 20% of the loan. Guarantees are available for project-level debt or holding company-level debt.

How Public Policy Affects Project Finance

Public policy has a pervasive affect on project financing in a myriad of ways. Because private sector financing is generally built around the concept of “Risk-Adjusted Return on Investment (ROI)”, policy can affect the components of this. For illustration:

- A PTC encourages investment in high quality, reliable, long-life equipment because the investor benefits from the production of electric energy over a ten-year period
- An ITC directly enhances ROI by providing a 30% return in the first year
- A loan guarantee substitutes the credit worthiness of government in place of the credit worthiness of the project or sponsor, thus meeting lenders’ needs for assurance of repayment of the loan
- A Renewable Portfolio Standard (RPS) is a long-term commitment of government to renewable energy, giving the private sector confidence to invest in building companies and professional staffs, to raise capital resources, and to make renewable energy a mainstream business

ABOUT US PREF

The objective of the US Partnership for Renewable Energy Finance (US PREF) is to unlock private capital flows to new, large-scale and distributed renewable energy projects in the United States. To achieve this objective, a balanced and credible group of highly experienced renewable energy financiers from financial institutions, investors, professional services firms, utilities and others, working with leading non-government organizations, have convened as US PREF. US PREF, founded in 2009 with support from the consulting firm Green Order, is a program of the American Council On Renewable Energy (ACORE), a Washington, DC - based 501 (c)(3) non-profit organization whose mission is to bring renewable energy into the mainstream of the US economy and lifestyle through research, education, convening, and communications.