

## *The Financial Crisis and Renewable Energy*

October 17, 2008

By: Matt Karcher

Renewable energy in the United States has experienced tremendous growth over the last several years. Indeed, the capital required to fund new wind power projects in 2007-2008 is roughly \$24 billion. The drivers in this sector are Federal tax-based incentives, which make renewable energy cost competitive with traditional fossil fuel power. Because most project developers do not have sufficient tax appetite, growth in this sector has been principally funded with capital from a group of investors that can most efficiently utilize these tax benefits ("Tax Investors"). However, the recent financial crisis is having a significant negative impact on the sector, with an increased level of uncertainty associated with Tax Investor profitability, a reduction in the amount of capital available for investment, and consolidation of participants in the market. Without the entry of new investors or a general strengthening of the economy the supply of tax equity available, at least in the short term, will likely be restricted, the cost of this capital will increase, and investment criteria and terms will be less favorable for project developers.

As a general rule renewable energy projects are more expensive to build than regular fossil-based generation, but are cheaper to operate (e.g., the fuel costs for wind and solar projects are zero). In an effort to make the industry more competitive the Federal government developed a series of tax-based incentives. These incentives include an investment-based tax credit for solar projects (the "ITC"), a production-based tax credit for wind and other qualified projects (the "PTC"), and accelerated tax depreciation (See Table 1). The former two items represent a dollar-for-dollar reduction in tax liability, while the latter is a reduction in taxable income. What they all have in common is that Tax Investors use these benefits to offset tax liability from other businesses. However, a problem occurs when these other businesses are not profitable from an income tax standpoint and therefore do not

**Table 1**  
**Federal Tax Incentives**

- **Investment Tax Credit**  
(Solar)
  - A credit equal to 30% of the qualifying equipment capital cost.
  - Realized in the year the project begins operation.
- **Production Tax Credit**  
(Wind, Biomass, Geothermal)
  - A credit for each kilowatt hour generated (varies by technology).
  - Credits generated for the first ten years of production.
- **Accelerated Tax Depreciation**  
(Solar, Wind, Biomass, Geothermal)
  - A large percentage of the project cost can be depreciated using five year MACRS.

generate tax liabilities. Simply put, as profits decrease tax-based incentives become increasing less valuable. In the renewable energy sector there have already been examples in the market of large Tax Investors acting on profitability concerns by looking for smaller investments, suspending investments until there is increased economic certainty, or potentially divesting current holdings.

A decrease in the supply of tax equity has occurred not only by direct acquisition, but also by entities leaving the sector altogether (see Table 2 for a list of past Tax Investors). Recently, the need for capital and the distressed nature of assets has led to the former (e.g. Wells Fargo's acquisition of Wachovia), while profitability

**Table 2**  
**Past Renewable Energy Tax Investors**

- Wells Fargo
- AIG
- Lehman Brothers
- Wachovia
- GE Financial Services
- Morgan Stanley
- Bank of America
- AEGON USA Realty Advisors
- Union Bank of California
- JPMorgan
- New York Life
- Prudential
- Met Life
- Northwestern Mutual

*Note, this list is not meant to be all-inclusive.*

concerns have helped drive the latter. However, the pipeline of projects under development has not had time to respond to the changes in the financing market so the supply of projects will likely exceed near term demand from Tax Investors. According to the U.S. Department of Energy 2007 Annual Report on U.S. Wind Power, at the end of 2007 there was roughly 250 gigawatts (a gigawatt is equal to one thousand megawatts) worth of capacity in the planning phase, 225 of which was wind. Not all of these projects will be completed, but to put that figure in context, roughly 7,500 – 8,000 megawatts of wind capacity is expected to be constructed in 2008 (3% of what is in the planning stage). Such a

supply-demand imbalance will lead to decreased competition among Tax Investors as there are fewer entities chasing a greater number of projects.

The recent signing of the Energy Improvement and Extension Act of 2008, as part of the larger Emergency Economic Stabilization Act, extended the placed in service date requirements for the major renewables. To qualify for tax incentives a project has to be operational prior to the specified date. While the ITC deadline was extended to the end of 2016, the PTC was only extended one year, to the end of 2009. Unless the deadline is again extended, the market is likely to see another rush of projects trying to obtain financing in the first half of 2009. This will only serve to exacerbate the supply-demand imbalance previously discussed.

The history of short-term PTC extensions has created a cyclical pattern in wind project development, in particular. In years where the PTC deadline was set to expire developers rushed to get projects financed and constructed. If the PTC was not extended prior to its expiration date, development of projects that could not be constructed in time was slowed or stopped. Once the PTC was extended development began again. This stop-start nature of the tax credit has kept some

developers, investors and even equipment suppliers from making a long-term investment in the sector.

A lack of competition among Tax Investors will increase the cost of financing and require projects to have fewer risks. Marginal projects will not be financed in favor of projects with higher returns, long-term power purchase agreements with credit worthy counterparties, and employing proven technology. In the recent past, projects with merchant risk (i.e. no power purchase agreement), quasi-merchant (i.e. short-term financial hedge), or using technology without a long-term operating history were able to secure financing. These types of projects will be increasingly difficult to finance in the current environment, if they can be financed at all.

Market consolidation, combined with a recent tax accounting change, may serve to further limit investor tax appetite. Previously, when one bank acquired another, there were limitations as to how quickly the acquiring bank could recognize the losses associated with the bad loans it received from the bank it acquired. Usually these losses were recognized over a relatively long period of time, reducing the impact on the acquiring bank's taxable income. However, a recent IRS guidance (Notice 2008-83) lifts the limitation on the acquiring bank's recognition of the losses, so all of the losses can now be used immediately to offset income, subject to some restrictions. This could mean a significant reduction in tax liability for banks that are investing, or may have otherwise invested, in renewable projects. Without taxable income to offset, the tax-based incentives renewable energy projects are less attractive.

In addition, the general tightening of the credit markets has served to decrease the amount of capital that investors have available. As the amount of capital contracts, internal demand and alternative investments compete for funding. For example, affordable housing is a tax-based investment commonly seen as an alternative to renewable energy. In the last six months equity returns in the affordable housing market have increased steadily as the early phases of the financial crisis were being felt. These projects are perceived as less risky than PTC-based projects, as the credits are not based on production. So, as the returns for alternative investments rise, pricing for renewable energy projects will increase due to competition. It is interesting to note that the financing trends in affordable housing, because it is an alternative tax-based investment, may serve as an example of what is to come in renewable energy.

The trouble for renewable energy financing is not limited to just Tax Investors. The financial crisis has also hit the debt markets as well. Project developers have tapped the capital markets for products such as project construction and term debt, and turbine loans. This space has largely been dominated by European banks that have a history investing in renewable technologies. However, the supply of debt is tightening as the current financial crisis has impacted not only American institutions, but European ones as well (e.g. Fortis and Dexia). Lending criteria will certainly tighten for construction and term loans, but the biggest impact may be seen in the availability of turbine loans. These loans are riskier as repayment is based largely on the developer's ability to complete a project. As tax equity

becomes scarce and fewer projects are completed, the risk for this type of loan increases.

While the current financial crisis will be difficult for project developers there may be a longer-term growth opportunity for well positioned companies. Those with a pipeline of financeable projects will be able to find capital, albeit more expensive. There may be the potential to find some assets at a discounted price, as undercapitalized developers look to realize value. Also, as the supply of projects adjusts to reduced demand from tax equity, there will likely be some downward pressure of component costs (e.g. wind turbines and solar panels). This will drive the negative impacts of the financial crisis up the value chain to equipment companies, construction companies, etc.

Overall, in the short-term tax equity financing for renewable energy project is likely to be severely constrained. In response, the pace of projects in development pipeline will start to slow. The recent financial crisis has reduced the number of Tax Investors and the remaining capital is becoming increasingly more expensive. Indeed, upward price pressure is already evident in the wind market, with Tax Investor required rates of return increasing sharply (up to 25+%) in recent months. Increased returns may attract new investors, but this may be muted by larger economic concerns. Uncertainty surrounding both current and future profitability impacts the value of tax incentives, and ultimately the decision to invest in renewable energy projects.

*Matt Karcher is the Founder and Principal of Deacon Harbor Financial, L.P., a consulting firm providing financial advisory and analytical services to clients in the renewable and alternative energy sectors. Mr. Karcher has over thirteen years of project financing experience in the merchant and regulated energy sectors, focused on project and corporate level debt and equity transactions. He can be reached by phone at 214.335.1040 or via e-mail at [karcher@deaconharbor.com](mailto:karcher@deaconharbor.com). For more information on Deacon Harbor Financial please visit [www.deaconharbor.com](http://www.deaconharbor.com).*

*This newsletter is intended as an informational source for clients and friends of Deacon Harbor Financial, L.P. The content should not be construed as professional advice and readers should not take any specific action based on this publication. Copyright © 2008 Deacon Harbor Financial L.P.*