The Future of Financing Alternative Energy Equipment

EQUIPMENT LEASING & FINANCE
FOUNDATION
Your Eye On The Future

EQUIPMENT LEASING & FINANCE
FOUNDATION
Your Eye On The Future

The *premier* provider of industry research.

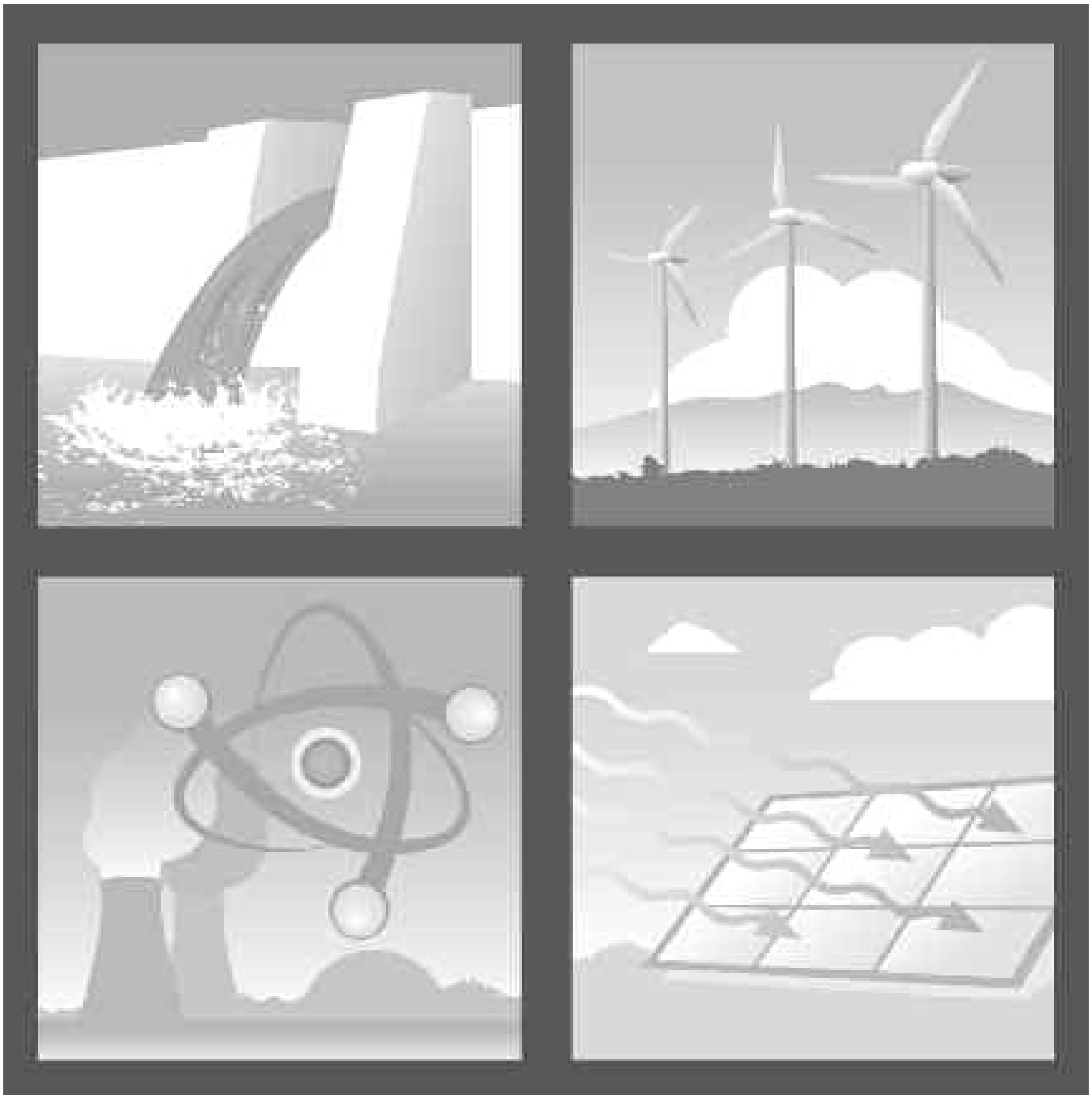
The Equipment Leasing and Finance Foundation is the only non-profit organization dedicated to providing future oriented research about the equipment lease and financing industry.

The Foundation accomplishes its mission through development of studies and reports identifying critical issues impacting the industry.

All products developed by the Foundation are donor supported. Contributions to the Foundation are tax deductible. Corporate and individual contributions are encouraged.

Equipment Leasing & Finance Foundation
1825 K Street • Suite 900
Washington, DC 20006
www.leasefoundation.org
202-238-3426
Lisa A. Levine, Executive Director, CAE

The Future of Financing Alternative Energy Equipment



Prepared by
The Alta Group, LLC
Global Financial Consultants, Glenbrook, NV
and
Gilbert E. Metcalf
Department of Economics, Tufts University

Table of Contents

EXECUTIVE SUMMARY

The financing of alternative energy equipment and projects is emerging as an important component of the equipment leasing and finance industry. This report and related survey are intended to provide the reader with a view of the current state, the business impact, and future projections for this increasingly important sector of the equipment financing industry.

For purposes of this report, we define alternative energy projects and equipment as assets, equipment, components, and related systems and infrastructure used for the generation of electrical energy from renewable or biologically based resources.[1] To bring focus to our analysis, we have further defined the scope of this report to include only the following alternative energy technologies:

- Electricity generated from biomass (agricultural and biological waste) by combustion or by gasification
- Electricity generated from the use of geothermal heat resources
- Electricity generated from solar energy by thermal heating or by photovoltaic conversion
- Electricity generated from wind energy

This report explores differences in the policy environment between Europe and the United States and identifies key policy differences that impact renewable electricity investment. Four key findings are of particular note.

1) The European experiment with feed-in tariffs and renewable portfolio standards (as described in detail in this report) suggests that feed-in tariffs may dominate RPS systems as effective policy tools to encourage investment.

2) The U.S. preference for income tax incentives has clearly not had the same simulative investment impact as feed-in tariffs have had.

3) A modest feed-in tariff for projects fueled by wind power and biomass would make these technologies cost competitive with natural gas.

4) Considerable research and technological development will be required before solar electricity can compete in the market place, regardless of the pricing support policy in place.

The report also includes the results of a survey conducted by the authors, in conjunction with the Equipment Leasing & Finance Foundation, specifically to assess the views and experience of leading participants in the equipment leasing and finance industry (the "EL&FF Survey").

The EL&FF Survey includes responses from senior executives in 33 firms which are active in the equipment leasing and finance industry, approximately 47% of them being commercial banks or other institutional lenders, 38% being independent leasing companies, and the rest being captive lessors, equipment lessees, transaction packagers, and service providers. Although 80% of respondents have invested less than $10 million in alternative energy equipment and projects, a number of companies have invested $50 million or more in these assets; and while all of the responding companies that are involved in alternative energy are active in North America, about half of them are also active in such transactions in other regions throughout the world, covering nearly every continent.

Of those respondent companies that currently have investments in alternative energy equipment or projects, 71% say they plan to continue making such investments. However, of the companies that do not

[1] This report does not address the financing of equipment or technologies for electrical energy generation from fossil fuels or from "alternative" fossil fuel derivatives such as biodiesel, petroleum blends, coal shale, liquefied or gasified coal, or oil sands.

currently have alternative energy investments on the books, only 27% say they plan to begin investing in this area.

In the area of policy, 60% of respondents favor replacing the federal electricity production tax credit (PTC) with a national renewable portfolio standard (RPS) or federal renewable energy standard (RES), requiring a certain percentage of total generating capacity to be fueled from renewable resources. Not surprisingly, however, 37% of respondents also favor extending the federal electricity PTC, or making it permanent, rather than requiring it to be re-authorized by Congress every one or two years, as at present.

Additional results of the EL&FF Survey are given in context throughout this report, and the complete responses and statistics are shown in Appendix A to this report.

It is the hope of the Equipment Leasing & Finance Foundation that this report will stimulate greater interest and involvement in this dynamic and promising area of equipment financing and will provide insight into the history, current activities, policy considerations, and future opportunities in this important field.

INTRODUCTION

Historically, participants in the equipment leasing and finance industry have adapted their skills and capabilities to new technologies and industries. Indeed, the modern equipment leasing industry originated in response to the need of businesses to acquire the newest technology of the age – digital computers. Users of mainframe computers seeking imaginative and cost effective ways of deploying these increasingly important (and at that time extraordinarily expensive) tools in their businesses first turned to the equipment manufacturers themselves, but to no avail. Commercial banks, too, were then reluctant to advance significant funding for the acquisition of large mainframe computer systems.

Into this void stepped creative entrepreneurs with new ideas about how the use of such equipment could be acquired without the concomitant current expense of an outright purchase, and the equipment leasing industry was born. New technology spurred new financing concepts, which in turn have been adapted to many other areas of business over the past 40 years.

Likewise, where rising energy costs along with energy security and climate concerns have increased national interest in and attention to renewable electricity generation (as an alternative to the burning of fossil fuels), there has been nationwide growth in the development and deployment of alternative energy generating projects and systems. And, as in years past, the equipment financing industry is actively seeking ways to provide developers, utility companies, equipment manufacturers, and end users with cost effective and efficient means for financing and acquiring these assets.

Entering into or expanding activities within the alternative energy financing sector, however, requires a certain base of knowledge and understanding of the area. The field is changing and developing quickly, and participants must be familiar with the current state of the marketplace and with the fundamental elements of financing in this important sector. To provide equipment leasing and finance professionals with the necessary background and information, the Equipment Leasing & Finance Foundation has commissioned this report to explore and explain the current state and the future of alternative energy financing.

The following pages present an overview of the alternative energy industry, describe the issues and activities that are of the greatest interest to participants in the equipment and financing sector, and offer a view of the future of financing in the area. In particular, this report:

- Briefly describes the most prevalent alternative energy technologies in use today.
- Presents various financing concepts and economic issues underlying the leasing and financing of alternative energy projects and equipment.
- Describes the overall market for alternative energy financing, both in the U.S. and internationally.
- Analyzes various current technical aspects of alternative energy financing, including accounting and income tax treatment.
- Discusses important tax and policy considerations in alternative energy financing, both in the U.S. and internationally.
- Offers a view of the future of financing for alternative energy equipment and projects.

In addition, this report presents (both in context and in summary form) the findings of the EL&FF Survey of leaders in the equipment leasing and finance industry regarding their views, experience, current interests, and expectations in alternative energy financing.

OVERVIEW OF ALTERNATIVE ENERGY GENERATION

For purposes of this report, alternative energy generation may be thought of as the conversion of natural renewable energy resources into electrical energy for use in business and residential applications. Sources of natural renewable energy are many, but this report focuses on the specific conversion technologies that are most advanced and most prevalent today – electricity generated from biomass, geothermal resources, solar power, and wind power.

BIOMASS. Waste materials produced from agricultural and natural biological processes are abundant throughout the world. These include agricultural waste materials, such as corn husks and stalks, bagasse (sugar cane or sugar beet refuse), leaf and grass cuttings, grain chaff and stalks, timber and sawmill refuse, and other crop residue, and they include biological waste materials, such as municipal solid waste, sewage sludge, animal or livestock waste and byproducts, and organic industrial waste. Although not technically "renewable" resources, these materials are important alternatives to fossil fuels in the generation of electricity and are generally referred to as renewables. In fact, biomass is currently the largest source of renewable electricity generation among non-hydropower fuels.[2] Often used in blends with fossil-based or petroleum fuels, biomass and products derived from biomass are nevertheless growing in usage throughout the world as independent sources of energy generation.

Biomass is typically used in the generation of electricity in one of two ways. It may be used, either directly or through a conversion process (e.g., through the rendering and refining of tallow from animal byproducts), as a combustion feedstock for powering boilers which then drive steam turbines and steam generators. Sophisticated industrial drying, filtering, refining, and rendering techniques are increasingly used to convert biomass waste materials into highly efficient, clean burning combustion fuels.

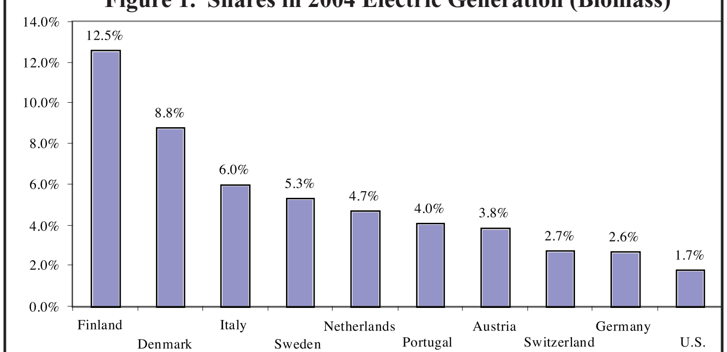
As an alternative to direct combustion, certain biological and animal waste materials may be "digested" through anaerobic processes that release methane gas, which is then used as a power plant fuel, either alone or blended with natural (petroleum) gas. Rather than burning the biomass material itself, these systems depend upon the natural bacterial and biological characteristics of the waste products to produce flammable and relatively clean burning methane gas. As either a direct fuel or through conversion to a fuel gas, the biomass material serves as a source of combustion energy that can be harnessed for the generation of electricity.

One of the principal benefits of biomass energy generation is its portability; it may be used almost anywhere in the world, since there are feedstocks available in virtually every environment, and it is readily accessible from every major population center or concentration of energy users. The energy generated from biomass is also highly dispatchable,[3] and biomass fueled plants may be scaled to suit specific power applications.

The size and overall costs of biomass energy facilities is quite variable. Many such projects, which use ag waste or industrial waste or byproducts as feedstock, are built around standard turbine generators which have been modified to operate on alternative fuels. Accordingly, the equipment pricing for such projects is similar to that for natural gas or other fossil fueled projects of comparable size and operational characteristics; only the pricing and availability of feedstock are significantly different. Few large scale generating plants using biomass have yet been brought on line,[4] although a number of projects of several Megawatts in nameplate capacity are in development throughout the U.S.

The United States has to date lagged behind many European countries in biomass generation when measured as a share of total energy generation, as shown in Figure 1. Finland is the world leader in the use of biomass fuels, followed by Denmark and Italy, and this difference suggests important policy differences between the U.S. and Europe, as discussed further in this report.

Figure 1. Shares in 2004 Electric Generation (Biomass)



Source: IEA

GEOTHERMAL RESOURCE. The use of geothermal energy from the earth to generate electricity dates from 1904, in Tuscany, Italy,[5] and its use for that purpose

[2]U.S. Department of Energy Annual Energy Outlook 2007, Report #DOE/EIA-0383 (2007).

continues to this day. As of 2003, geothermal energy accounted for approximately 0.4% of the world's total primary energy supply.[6] However, it is estimated that accessible engineered geothermal system (EGS) resource in the U.S. (at depths of 3Km to 10Km) could provide as much as 15% to 20% of total national generating capacity.[7]

Geothermal energy is found in the form of heat stored beneath the surface of the earth, usually as extremely hot liquids or hard rock formations, which may be used directly to power steam turbine generators or indirectly to heat secondary, closed-loop liquid media that in turn power steam turbines. In the U.S., geothermal resources are found primarily along the Pacific coast "ring of fire" fault line, in areas of frequent volcanic activity, and in other regions where tectonic plate activity is the highest. These include California, which has 33 geothermal power plants (producing almost 90 percent of the nation's geothermal electricity), Nevada, with 15 geothermal power plants, and Hawaii and Utah, which have one geothermal plant each.[8]

As an area of financial investment, geothermal energy generation is somewhat more limited than other technologies, primarily due to its geographical restrictions, which dictate its limited accessibility from population centers and interconnectibility with existing energy transmission facilities. Unlike wind and solar, geothermal does not suffer from intermittency problems and so does not require back-up energy sources to ensure dispatch reliability. Geothermal investment in the U.S., much like investments in other renewable energy resources, is also currently limited by the unpredictability of certain income tax and other policy incentives.[9] Such policy issues are discussed further elsewhere in this report.

SOLAR POWER. Every truly renewable energy source ultimately derives its power from the sun, and the purest means of harnessing that power is through solar energy systems. The commercial collection and use of energy directly from the sun falls generally into two categories. In a "solar thermal" energy generation system, the sun's radiant energy is used to heat a transfer medium (either water or a specialized liquid with greater thermal efficiency) which is used in turn to power a turbine generator.[10] The energy from the sun is collected using mirrors, parabolic reflectors, reflective dishes, or other such structures to concentrate it, and this concentrated energy is then directed toward a thermal transfer device, where it heats the selected transfer medium and so powers steam turbine generators. Large scale systems of this kind, known as converting solar power (CSP) plants, have been installed in the Mojave Desert of southern California (notably at the SEGS facility near Barstow, now in its ninth phase and generating more than 300Mw of solar thermal electricity[11]) and other locations with unimpeded and year-round access to direct sunlight.

The other primary means of transforming solar power into electrical energy is through photovoltaic conversion (often referred to a "solar PV" to differentiate it from solar thermal), using large arrays of photodiodes (solar cells) to convert sunlight directly into electrical energy without the need for a transfer medium such as hot water. While historically more expensive than solar thermal systems (per Kwh of energy produced), solar PV technology is continuing to advance in efficiency and cost effectiveness. As of 2005, it is estimated that approximately 479Mw of energy was generated in the U.S. using solar PV technology.[12]

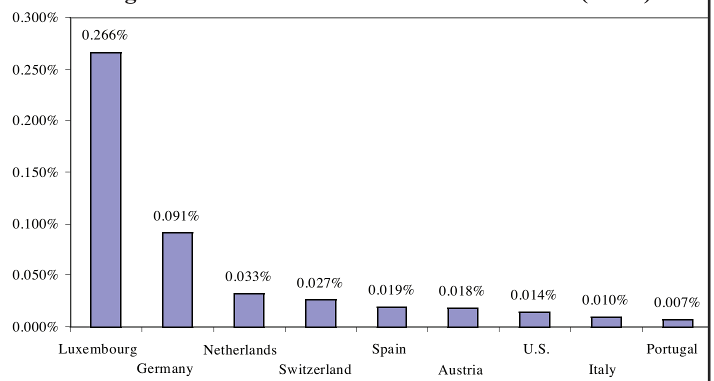
Whether as solar thermal or as solar PV, one important issue in solar energy systems is their geographical limitation to areas having unimpeded and long-term exposure to direct sunlight. Dispatchability is also a consideration with solar generation, as energy must either be stored for use during nighttime and dark periods or it must be provided from other sources.[13] Thus, most solar energy activity in the U.S. is in the desert southwest, and the economics of solar energy projects require

[2] U.S. Department of Energy Annual Energy Outlook 2007, Report #DOE/EIA-0383 (2007).
[3] In the field of electrical energy management, "dispatchability" refers to the extent to which a resource is available to a system operator or utility grid when necessary for effective load balancing.
[4] Not including plants using combinations of biomass or ethanol blended with fossil fuels.
[5] National Energy Education Development Project, *Energy Infobook* (2006).
[6] GLOBE Foundation of Canada, www.globe-net.ca/news/index.cfm?type=1&newsID=2991.
[7] Alexander Karsner, Assistant Secretary for Energy Efficiency and Renewable Energy, U.S. DOE, *The Future of Geothermal Energy,* DOE/MIT Workshop (June 7, 2007), as quoted by Reuters news agency (September 6, 2007) ("Karsner").
[8] U.S. Energy Information Administration, *Electric Power Annual 2005* (2005).
[9] Karsner, *op cit.*
[10] In smaller applications, including many residential systems, solar heat may be provided directly to an end use such as heating an interior space or heating potable water.
[11] *See* www.fplenergy.com/portfolio/solar/index.shtml ("FPL SEGS Website").
[12] International Energy Agency, Photovoltaic Power Systems Programme (www.iea-pvps.org/countries/usa/index.htm).
[13] As an example, the SEGS solar installation in southern California includes a supplementary natural gas boiler for use during cloudy or overcast weather (FPL SEGS Website).

analysis of these factors in addition to more traditional considerations inherent in equipment financing.

As with biomass, the U.S. lags behind Europe in the generation of electricity from solar energy as a percentage of total generation, as shown in Figure 2.[14] However, new state and federal incentives and initiatives, such as the Solar Task Force established by the Western Governors Association with the goal of creating 30,000Mw of "clean and diversified energy" by 2015,[15] have begun to provide greater incentives and impetus to the development of solar projects in the United States.

Figure 2. Shares in 2004 Electric Generation (Solar)

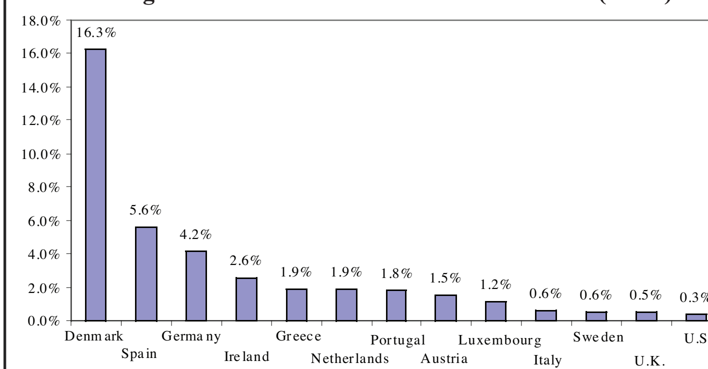


Source: IEA

WIND POWER. The generation of motive power from the movement of the wind spans millennia of human history, with windmills providing energy for pumping water, grinding grain, and many other purposes. In 1888, however, a large windmill was used for the first time to generate electricity by directly turning an electric generator, or dynamo, and producing 12Kw of electric power.[16] The modern wind energy industry has continued to develop wind turbine generators of increasingly large scale, capacity, and cost effectiveness. In the past 20 years alone, the capacity of single wind turbine generators has increased from an average rating of around 25Kw to more than 1,600Kw (1.6Mw)[17], making the installation of large "wind farms" both feasible and economically viable.

In the U.S., such large wind farms have been developed (and continue to be built) primarily in areas that feature naturally high wind velocities, such as western Texas or eastern Iowa, or that experience large temperature and pressure gradients, such as California's Tehachapi Mountains or San Gorgonio pass. It is estimated that installed windpower generating capacity in the U.S. is currently more than 12,000Mw,[18] and that figure is expected to increase as wind turbine generator efficiencies continue to improve. As with energy generated from biomass and solar (as shown in Figure 3), through 2004 the United States lagged far behind many leading European countries in its share of total generation contributed by wind power.

Figure 3. Shares in 2004 Electric Generation (Wind)



Source: IEA

However, in 2005 and 2006 the U.S. led the world in wind capacity additions, adding 2,454Mw of wind energy generating capacity, or roughly 16% of worldwide capacity additions, in 2006 alone.[19] Over the past seven years, wind power capacity has grown on average by 24% per year in the U.S. and 27% per year worldwide.[20]

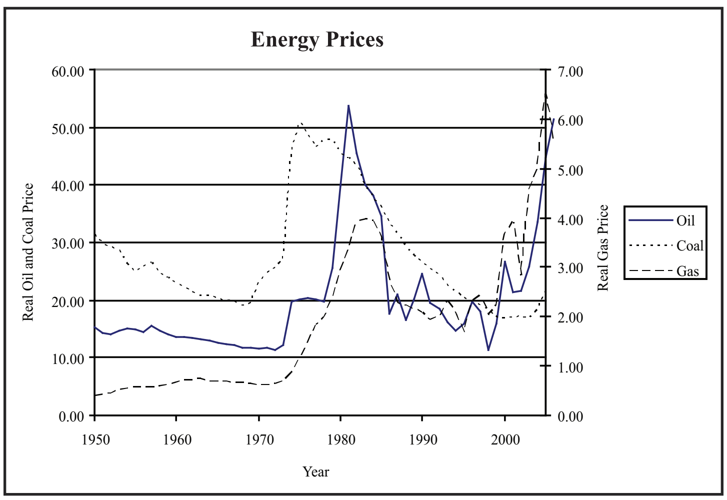
The wind, like the sun and the geothermal resource described above, can only be used to generate commercial volumes of electrical energy in selected geographical regions; wind cannot be transported to where the end user needs electricity, as biomass (or fossil fuel) can be. And wind power is not only not dispatchable, like solar energy, it is also unpredictable; even with modern forecasting and long-term wind studies, no one can be sure just when the wind will blow or at what speed. As discussed later in this report, these factors must be considered in any wind energy investment or financing opportunity.

[14]Looking beyond the EU, Japan is actually the world leader in solar capacity, with 1,132 Mw installed as of 2004. This is in contrast to 753 Mw installed in the United States in the same period.
[15]*U.S. Solar Energy Year in Review, 2006*, Solar Energy Industry Association and Prometheus Institute (2006).
[16]Danish Wind Industry Association (www.windpower.org).
[17]American Wind Energy Association (www.powerofwind.com).
[18]American Wind Energy Association (www.awea.org).
[19]*Annual Report on U.S. Wind Power Installation, Cost, and Performance Trends: 2006*, U.S. DOE Energy Efficiency and Renewable Energy (May 2007).
[20]*Ibid.*

FORCES IMPACTING THE GROWTH OF RENEWABLE ENERGY INVESTMENT

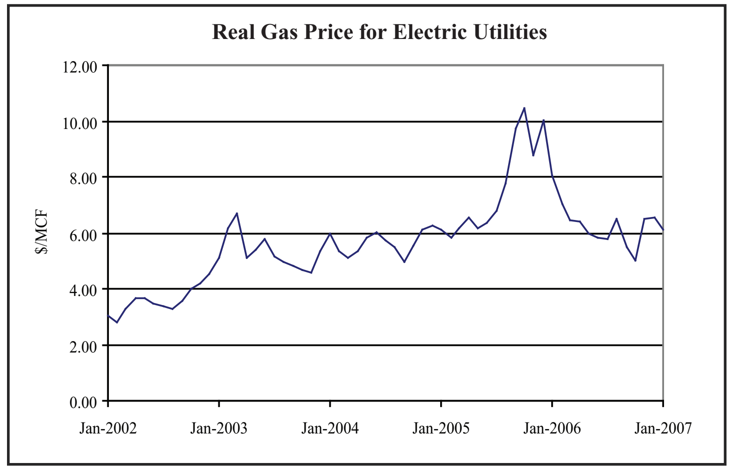
Investment in renewable energy capital for electricity production has grown dramatically in the past fifteen years. A number of factors suggest that this growth will continue over the next decade and that the prognosis for private investment is quite bright.

ENERGY PRICES. Energy prices are significantly higher today than they have been since the early 1980s, when prices hit record highs. Figure 4 shows the prices for oil, coal, and natural gas in real (year 2000) dollars since 1950. The spike in oil prices with the first oil shock in 1973 also drove up the price of crude oil and natural gas, the latter due to the deregulation of gas following the first oil shock.[21] While oil is not a significant fuel source for electricity generation, it nevertheless impacted electricity fuel prices.[22]



Current prices for natural gas and coal are near historic highs when adjusted for inflation. Figure 5 shows the monthly price for natural gas delivered to electric utilities in the past five years. Prices spiked in late 2005 and have since then fallen to levels slightly higher than in 2002 through 2004.

Whether prices will remain at these levels, go even higher, or return to historic average levels cannot be predicted with certainty. As one example of a possible price path, it is helpful to use the numbers from the Energy Information Administration's Annual Energy

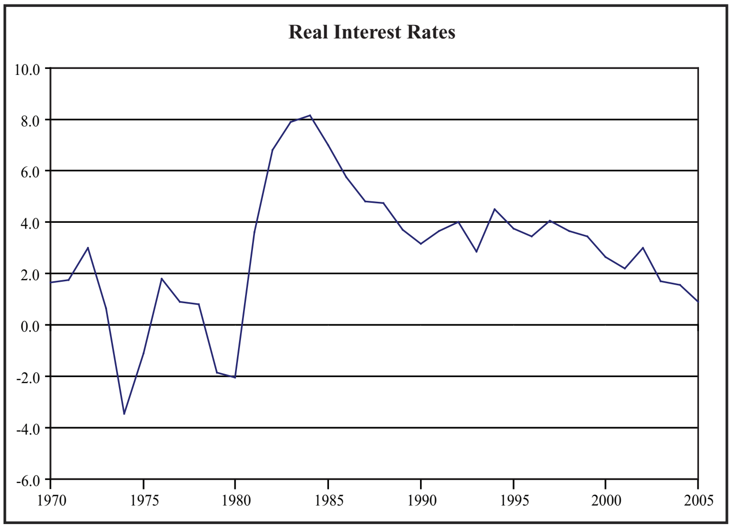


Outlook 2007. They project natural gas prices for electric utilities to fall by one percent in real terms annually between 2005 and 2030, while coal prices, in contrast, are projected to rise by 0.4% annually (in real terms) over that time period.[23]

Higher energy prices for fossil fuel-based electricity will make renewable energy sources more attractive, provided that investors believe the price increases are not simply temporary spikes that will decline in the next few years. Given the long lead time for planning, permitting, and construction of power plants, as well as the anticipated lifespan of plants, investors are not likely to respond to price increases unless they feel the increases are both substantial and long-lasting.

INTEREST RATES. Another factor favoring capital investments in the energy industry is the decline in real prevailing interest rates. Figure 6 shows the ten year Treasury rate less inflation during that year.[24] After a period of negative real interest rates during the high-inflation period of the late 1970s, real rates rose sharply as a result of the Volker disinflation, and they have slowly declined ever since. Rates peaked at about 8% p.a. and have fallen to a current rate between one and two percent. Lower interest rates make financing for all electricity generation projects more attractive by reducing the cost of funds to the investor. Recent increases in the ten-year Treasury rate to above 5%, should they persist and reflect an inflationary trend in the economy, will likely dampen the demand for investing in renewable capital.

[21] The spike in gas prices is also due in part to the fact that contract gas prices are often tied to oil prices.
[22] Oil accounts for 3% of fuel (in BTUs) used for electricity. In contrast, coal accounts for 52% and natural gas accounts for 15% of fuel for electricity. Energy Information Administration, "Annual Energy Review 2005," Washington, DC (2006) ("EIA 2005 Review").
[23] Energy Information Administration, "Annual Energy Outlook 2007," Washington, DC, Table 3 (2007) ("EIA 2007 Outlook").
[24] In general real interest rates should be constructed as the nominal rate less a measure of expected inflation. Using the actual inflation rate provides a rough measure of the expected real rate.



ENERGY SECURITY. Energy security is an increasingly important driver for government policy. In the United States, energy security issues focus primarily on oil imports. While oil is not particularly important in electricity generation, shocks to oil prices tend to affect gas and coal prices, as noted above. Moreover, as discussed in greater detail below, policy responses generally include provisions that affect electricity generation.

Renewable energy is a key component of any policy to improve U.S. energy security. In addition to avoiding reliance on fuel sources from other parts of the world, renewable energy generally is implemented at a relatively small scale, thereby reducing the risks of major terrorist attacks that could cripple the nation's energy supply infrastructure. An additional area in which energy security directly affects the renewable electricity industry is in its encouraging of a heightened awareness of coal as a domestic energy source in plentiful supply.

GLOBAL WARMING CONCERNS. Much of the policy analysis that supports renewable electricity investment in Europe has been driven by concerns over global warming. This is also true in the United States, although in this country energy security and a desire to reduce dependence on foreign oil have historically played a larger role. While the Bush Administration has opted out of the Kyoto Protocol and avoided explicit limits on greenhouse gas emissions, it has called for an 18% reduction in carbon intensity (carbon emissions per dollar of GDP) by the end of the current decade. As discussed at length elsewhere,[25] increases in energy prices and income over this decade, along with autonomous trends in intensity improvements, will mean that the Administration's goal will likely be achieved with little if any need for additional policies.[26]

FINANCING OF ALTERNATIVE ENERGY ASSETS

In many ways, the financing of alternative energy equipment and projects is quite similar to the financing of equipment and facilities in other industries. Lessors and lenders analyze and evaluate the specific criteria that are most likely to affect their ability to recover the funds advanced together with their intended rate of return, they determine the pricing and structure that must be achieved for their return on investment to be commensurate with the risks of the transaction, and they make a leasing or lending decision that reflects those analyses and determinations. Among the typical criteria considered are:

- The overall creditworthiness of the borrower or lessee.
- Other indications of the borrower's or lessee's likelihood of paying rent or repaying the advance, such as years in business, company size, industry, and credit history.
- The anticipated source of cash flow or other funding available to service the transaction.
- The income tax and accounting treatment of the transaction.
- The current and future (residual) values of the underlying equipment or assets.
- The length of the financing term.
- The yield or return requirement (hurdle rate) of the lessor or lender.

[25]See Gilbert E. Metcalf, "Energy Conservation in the United States: Understanding Its Role in Climate Policy," Medford, MA, Tufts University Department of Economics (2007).
[26]By the end of 2005, carbon intensity has fallen by 9.3% relative to 2000. EIA 2005 Review, *op. cit.*

These criteria are relied upon in evaluating and financing alternative energy equipment and projects, as well. However, among these overall issues are a number of important differences in detail that must be considered in providing financing for energy projects.

CREDIT OF THE OFFTAKER OR ENERGY PURCHASER. In many energy project financings, the ultimate credit support for the repayment of funds advanced is provided by an offtaker or buyer of the energy produced by the project, rather than by the borrower or lessee itself, usually under a long-term power purchase agreement (PPA) between the owner, lessee, or project operator and the energy offtaker. The purchaser of the energy from a project or power plant may be:

- A dedicated offtaker or energy purchaser committed by contract to pay a fixed amount for all of the generating capacity and energy from the plant under a "take-or-pay" or similar output agreement. Under this form of agreement the offtaker is required to pay a stated amount whether or not the energy is actually delivered, thus purchasing the capacity of the project in addition to the energy generated. Such an offtaker may be a public utility, an industrial facility, or an end user willing to pay for the availability of a dedicated and readily dispatchable source of energy for its own needs. Although they provide the best assurance of coverage for a financial investor, particularly with a creditworthy offtaker, take-or-pay agreements of this kind are unusual; they are typically found only in special situations requiring the dedicated availability of all of the output of a plant, and for plants utilizing highly dispatchable technologies such as ag or biowaste feedstocks.

- A dedicated purchaser of the energy produced by the project on an "as-delivered" basis, with pricing determined by contract or by market conditions. Such an offtaker may be an end user or may be a public utility company or other distributor or reseller of energy, in any case interconnected directly to the project and committed to buy the energy produced by the project, but only as and when it is actually delivered. Projects operating under this kind of PPA are quite common, and they may include base load plants or peaking plants,[27] with energy pricing determined according to a predetermined formula or by reference to market prices.

  Under certain kinds of as-delivered offtake contracts or PPAs, the purchase pricing may include both a base payment, which entitles the offtaker to a certain level or portion of the plant's capacity, and an additional payment for the energy actually delivered by the project. Typically the capacity payment is a fixed amount, similar to the payment under a take-or-pay arrangement,[28] and the energy payment is based upon market pricing or the use of a contract formula to calculate the purchase price per Kwh of energy delivered.

- An end user which is not dedicated to the project and which purchases energy only as required and as delivered through the public power grid. Such an offtaker may be an industrial user, a public utility company, a private energy reseller, an energy trader, or even an end user of the electricity produced, purchasing energy on the open market at the best pricing available from time to time. Projects which sell energy into the open market, operating without firm offtake agreements of some kind, are often referred to as "merchant" plants because they rely solely upon the marketplace to assure long-term revenues. Projects such as this must depend upon both market demand and market pricing for the sale of the energy they produce; there is no long-term contract in place for the delivery or purchase of energy and, in the case of a biofuel project, there is typically no long-term agreement for the purchase of fuel or feedstock for the plant.

The evaluation of credit support for the financing of each of these kinds of offtakers and for each specific type of project contractual structure varies greatly from a typical equipment lease or financing. In the case of a dedicated project, whether under a take-or-pay contract or a more customary as-delivered PPA, the credit of the

[27] A "base load" power plant or project delivers energy at a defined level and on a continuous basis, without regard to the demand placed on it by the energy purchaser or the public power grid. A "peaking" or "peak load" power plant delivers energy only as called upon by the energy purchaser or the public power grid to meet peak or excess demand for energy.

[28] A capacity payment may often be adjustable based upon long-term energy pricing forecasts, economic inflation rates, or other extrinsic factors, but it is typically not subject to change due to normal fluctuations in market energy pricing.

underlying energy offtaker is usually much more important than that of the actual lessee or borrower, who may be the operator or developer of the project but is usually not the ultimate source of cash flow for the project. Only in the case of a merchant plant, from which there may be multiple energy purchasers and no predetermined energy pricing, is the creditworthiness of the lessee (the actual operator of the project) as important as that of the ultimate power purchaser, since the ability of the project to generate cash flows sufficient to pay rent or repay the lender's advance cannot be determined in advance solely by a typical credit evaluation of the end user. Rather, it must be supported by the additional creditworthiness of the project operator or developer.

Perhaps not surprisingly, when asked which factors are the most important in structuring financings for alternative energy equipment or projects, respondents to the EL&FF Survey rated underlying credit support as the most important. Nearly half of them rated lessee or operator creditworthiness as 4.2 in importance,[29] the highest ranking; and the same number rated the creditworthiness of the offtaker under a PPA as 3.4, the next highest ranking.[30] As in leasing and financing of assets in any industry, a thorough and positive assessment of the obligor's ability and intention to repay the amounts advanced remains key, even when (or perhaps because) the credit evaluation is made more complicated by the underlying project structure. However, in project financings[31] it is important to distinguish between the creditworthiness of the lessee or borrower, who is a party to the lease or financing itself, and the credit of the party who is ultimately responsible for the payment of cash flows to the transaction – the energy user or offtaker – which is often not a party to the financing but only to the offtake agreement or PPA.

SOURCE OF CASH FLOW. As a corollary to the uniqueness of credit evaluation in energy projects, the lessor or lender must also consider the source of cash flow available to service an energy project financing. Unlike a more traditional long-term equipment lease or financing, a power plant financing often does not depend upon the ability of the lessee or borrower to generate cash flow through its own business or operations, independently of the utilization of the leased or collateralized equipment. Instead, the cash required for the repayment of a power plant financing is usually derived solely from the utilization and sale of energy from the power plant itself, not through independent business operations. The continuing availability and use of the lessor's or lender's primary collateral is in reality the sole source of funding for the repayment of the financing.

Therefore, the on-going maintenance, repair, management, and operation of the project take on much greater significance than they might in a conventional long-term equipment lease or other secured financing. Compared with the evaluation of a traditional lease or secured loan of equivalent size and financing structure, in an energy project financing much more attention must be paid to the qualifications, experience, and creditworthiness of the plant operator; the warranty, insurance, and other risk management elements of the equipment and the project; the environmental and public policy issues associated with the project; and other such factors that might normally not play such a prominent role in transaction evaluation.

In this context, it is also interesting to note the role of the unconditional obligation or "hell or high water" provision of a customary equipment lease agreement. While most, if not all, long-term lease agreements used to provide financing for alternative energy projects or equipment will include this important language, it is also the case that its usefulness may be tempered significantly by the underlying ability of the project to produce revenue from the sale of electricity. In many project financings, as described above, the recourse of a lessor or long-term lender is more to the cash flow generated by the sale of energy, and the resulting payments from the contracted offtakers, than to the balance sheet credit of the actual lessee or borrower. Accordingly, even though the lessor may have the usual protections provided by standard lease documentation, special attention must be paid to the project facilities, their condition, maintenance and repair, and other operational

[29]On a scale of 1 to 5, using a weighted average calculation.

[30]*See* Appendix A for more details. Given other Survey responses regarding typical transaction size and structuring, the difference in responses between lessee credit and energy offtaker credit is likely due to the differences in size, scope, and structure of particular respondents' transactions.

[31]The term "project financing" is used here to denote a transaction (sometimes called a "non-credit based financing" in which the lessor or lender looks through the actual lessee or operating company, which may be only a thinly capitalized special purpose entity, to the credit of the energy offtaker or ultimate provider of the cash flow for the transaction.

factors that may dramatically affect their on-going ability to generate cash flows and thus provide rental payments.

CURRENT AND RESIDUAL VALUES. As in any long-term equipment lease or financing, the actual market value of an energy project and its related assets, whether at inception, throughout the term, or at lease expiration, is essential to a comprehensive assessment of the transaction. However, the nature of the assets securing an energy project financing may make such valuations more difficult, and the usefulness of traditional valuation methods may depend heavily upon the type of project being financed, the type of offtake agreement it relies upon, and (in the case of biofuel projects) the availability and pricing of feedstock.

For the valuation of ancillary or add-on equipment such as energy efficiency systems,[32] or of standalone energy-related components such as turbines, generators, or boilers, there are various established industry sources and valuation services available to lessors and lenders; such equipment is regularly bought and sold, and equipment values are established through customary market mechanisms. However, for the valuation of entire alternative energy plants, particularly long-term projects having unique technological characteristics or energy pricing structures, lessors and lenders must rely upon industry experts, appraisers, and engineering firms to determine project values, both at project inception and in forecasting residual values.

In particular, merchant plants require careful consideration of current and forecast energy pricing, anticipated market demand, and assessment of both historic and potential future cash flows, all of which may affect the ultimate market value and residual value of the project. With limited or no underlying credit support and no assurance of offtake demand or pricing, merchant energy plants present significant issues and risks to project financiers in the areas of equipment valuation and disposition.

With regard to residual evaluation, one other factor making financing of alternative energy projects quite different from financing of other equipment and assets is the economic consideration that must be given to the value of the offtake agreement or PPA supporting the transaction. As discussed above, the lessor or lender in a project financing transaction must often look through the direct lessee or borrower and consider the creditworthiness of the underlying energy offtaker. In such transactions, the real value of the project may lie as much or more in the forecast project cash flows as in the value of the collateral assets themselves. Consequently, the residual value analysis must be undertaken in combination with a careful review of the terms and conditions of the PPA supporting the project.

In considering the residual value of alternative energy assets, nearly half of EL&FF Survey respondents rated residual value as "crucial" or "very important" to pricing and yield calculations, while the remaining respondents considered residual value to be "somewhat important," "not very important," or as playing no role in calculating pricing and yield. Correlating these responses with the types of transactions typically done by respondents[33] suggests that the importance of residual value in alternative energy transactions, as in leases and financing transactions for other types of equipment, depends largely upon whether or not the lessor or lender relies upon anticipated residual value in its pricing calculations.

YIELD OR RATE OF RETURN. Of course, a key element in the evaluation of any long-term lease or loan is the forecast rate of return anticipated by the lessor or other funding source to be earned on its investment in the transaction. Historically, yields on energy projects have reflected not only the underlying credit of the transaction, in the form of the applicable PPA terms and the creditworthiness of the offtaker, but also the nature and risk of the project technology and technical details. For example, fossil fueled projects utilizing advanced or relatively unproven technologies, such as coal liquification or extraction of hydrocarbons from oil sands, have carried a premium in yield over more traditional projects using proven equipment such as gas turbines.

In alternative energy projects, rates of return must be adjusted to account not only for the risk and uncertainty of various advanced technologies (e.g., next generation solar PV systems) but for the unpredict-

[32]*See* Appendix A. There are additional income tax benefits and other economic incentives both to end users and to manufacturers in this area. (*See, e.g.,* information regarding the U.S. Government's "Energy Star" program at www.energystar.gov/index.cfm?c=products.pr_tax_credits.)

[33]About half of respondents primarily invest in operating or true leases, while the other half participate primarily in Article 2A leases, capitalized leases, or secured loans.

ability of the resources supporting the project. In wind power projects, for example, the assurance of project cash flows may be greatly affected not only by the efficiency and reliability of the wind turbine generators but also by the presence, velocity, and constancy of the wind itself – the "fuel" for the project. Such factors are taken into account in alternative energy financings through adjustments in pricing that are calculated to reflect uncertainties in resource availability, environmental impact, and anticipated levels of conformity with forecast returns.

Yield in alternative energy projects may also be greatly affected by the application of various income tax and other benefits available to investors in such transactions, as described above. Because alternative energy transactions are often priced on an after-tax basis,[34] the existence and usefulness of income tax benefits may play a significant role in calculating transaction yield and pricing, and they may ultimately determine whether or not a lessor or lender will invest in a specific transaction.

Although the majority of respondents to the EL&FF Survey declined to state their specific yield requirements for alternative energy transactions, those who did respond reported target yields in the range of 6.5% p.a. to 20% p.a. return on equity. Of these respondents, the majority indicated that they price alternative energy transactions to achieve yields of 12% or higher on invested equity.[35] This finding is interesting when correlated with respondents' views as to which factors are most important in structuring an alternative energy. The factor most respondents rated the highest – higher even than "overall transaction yield" — is "overall transaction risk (underlying credit support)." When taken together, and even considering that the EL&FF Survey represents only a small sample of participants in alternative energy leasing and financing transactions, these responses indicate the expectation of equipment lessors and lenders of achieving above-market yields on investments in renewable energy projects commensurate with their assessment of project risk.

CURRENT FINANCING ACTIVITY. The EL&FF Survey found that respondents are currently active in the financing of wind, solar, biofuels, and biowaste/ag waste projects in about equal numbers.[36] In addition, some respondents are active in the financing of geothermal equipment and, to a lesser extent, hydroelectric projects.[37] When asked whether they plan to continue investing in alternative energy transactions (if they are already doing so), more than 71% of respondents answered yes; and of those, more than 90% responded that their level investment in alternative energy relative to their overall portfolio is most likely to increase.

Given the pace of growth in renewable energy projects and the related demand for related equipment, the responses to the EL&FF Survey indicate that lessors and equipment financing companies are actively engaged in pursuing opportunities in the alternative energy sector.

INCOME TAX AND ACCOUNTING TREATMENT

The U.S. Internal Revenue Code (I.R.C.) is used regularly by the federal government both to stimulate the economy and to further social programs and policies through the provision of various income tax incentives. Typical incentives include accelerated depreciation, tax credits, tax rate reductions, and enterprise zones. The alternative energy sector provides a classic example of the use of this practice, as the government has enacted various income tax provisions to spur investment in what otherwise may be economically less attractive ventures.

In general, the income tax incentives for alternative energy investments are a combination of depreciation, investment tax credits, and production credits. The broad composition of these current incentives includes:

- *Accelerated Depreciation.* Renewable electricity property, such as wind, solar, and others as described in subparagraph (B)(vi) of I.R.C. §168(e)(3), is considered to be five-year MACRS class life property for depreciation purposes, providing a shorter recovery period (and more rapid depreciation) than would otherwise be the case.

[34] *See* the details and discussions of income tax incentives elsewhere in this report.
[35] *See* Appendix A.
[36] The Survey includes ethanol and biodiesel technologies within the overall category of biofuels. See Appendix A.
[37] However, when those respondents who are not actively participating in these areas of energy financing were asked whether they have plans to become involved within the next 5 years, 63% of them answered no.

- *Production Tax Credits (PTCs).* Qualified energy resources, as defined in I.R.C. §45, including wind, closed-loop biomass, open-loop biomass, geothermal deposits, and solar projects, are allowed a 1.9¢ per Kwh production tax credit. The production tax credit is subject to a price-based phase-out and is reduced by any grants, tax-exempt bond proceeds, and subsidized energy financing amounts. This credit is subject to biennial reauthorization, with the current credit scheduled to expire at the end of 2008.[38]

- *Investment Tax Credits.* Certain investments in alternative energy projects are allowed investment tax credits under I.R.C. §48. Solar powered electricity installations are allowed a 30% investment tax credit, while geothermal facilities can claim a 10% credit. Restrictions governing interaction between the production and investment tax credits preclude taxpayers from doubling up on these income tax benefits, however.

Tax incentives are a key component of driving investment in alternate energy projects, particularly in achieving cost parity with conventional energy resources. As a comparative example of the impact of tax incentives on energy prices, Table 1 reports levelized costs[39] of electricity in cents per Kwh (measured in 2004 dollars) for a plant placed in service after January 1, 2006, so that solar power is eligible for the 30% investment tax credit under I.R.C. §48.

TABLE 1. LEVELIZED COST COMPARISON (¢/Kwh)

	(1) Current Policy Policy	(2) No Tax	(3) Level Playing Field	(4) No PTC or ITC	(5) No 5-year depreciation
Natural Gas	5.47	5.29	5.61	5.47	5.47
Biomass	5.34	4.96	5.95	5.56	5.34
Wind	5.04	4.95	6.64	5.25	5.70
Solar Thermal	10.89	13.84	18.82	14.73	12.25
Solar PV	19.93	26.64	37.39	28.22	22.99

Source: Authors' calculations (See Gilbert E. Metcalf, "Federal Tax Policy Towards Energy," Tax Policy and the Economy, 21, pp. 145-84 (2007).

Column 1 shows the levelized costs for various renewable generation resources under current policy. Under existing income tax policy, wind and biomass are cost competitive with natural gas, while the two forms of solar powered electricity generation are considerably more expensive.[40] Column 2 shows the levelized cost assuming no income tax system. Not surprisingly, the cost for gas, biomass, and wind in this case are lower; but in the absence of taxes the cost for solar energy goes up, indicating that these energy resources receive a net subsidy from the income tax system.

The figures in Column 3 compare the relative taxation of these generating resources, showing the levelized cost for each technology assuming neutral treatment of all capital types. All of the production and investment tax credits are removed, and capital is depreciated on a straight-line basis over the life of the asset. The results make clear that current income tax policy favors renewables, with a particular benefit to solar power (through the substantial investment tax credit). Compared to this level playing field scenario, it can be seen that the cost of natural gas falls by 2% under current income tax policy. In contrast, the cost of energy from biomass falls by 10%, from wind power by 24%, and from solar power by more than 40%.

The last two columns decompose existing income tax policy to illustrate which parts of current policy are actually lowering the levelized cost. For wind energy, five-year MACRS depreciation is shown to be more valuable than the electricity PTC. For solar energy, in contrast, the investment tax credit is more valuable than five-year MACRS depreciation.

One difficulty with using income tax incentives as a policy option is that many start-up firms may not be able to take advantage of the tax benefits being offered. This inability to utilize tax benefits is a function of a taxpayer's being subject to the Alternative Minimum Tax (AMT) or being in a cumulative net operating loss (NOL) position. One result of this situation, however, is the opportunity for more partnering between project sponsors or developers and outside investors, such as lessors, who have the income tax appetite for the benefits available on investments in projects such as these.

Although income tax incentives such as those discussed above provide the primary motivation for invest-

[38]The Senate Finance Committee has proposed a five-year extension as part of deliberations over the current (2007) energy legislation in Congress.

[39]A levelized cost analysis measures what price must be received for electricity sold by a generator to cover fixed and variable costs of providing the electricity, including the required return on equity for the owners. Natural gas is included in the comparison, as renewables are often viewed as a potential substitute for gas.

[40]If solar power is installed as distributed capacity, then the appropriate comparison rate is the retail rate. Residential customers pay the highest rates at an average of 9.45¢ in 2005, according to the Energy Information Administration. Even with this higher comparison rate, solar generated electricity is not cost competitive absent further incentives.

ing in alternative energy projects, the financial reporting aspects of such transactions are also very important to most equity investors. Not surprisingly, the income tax attributes are closely linked with the accounting ramifications of alternative energy transactions.

The concerns currently being raised relative to the financial reporting of alternative energy projects relate to accounting for leveraged leases, accounting for projects (including projects incorporating leveraged leases), determining whether a financing arrangement contains a lease, and the application of FASB Interpretation No. 46 (FIN 46). While not all of these issues are exclusively related to investments in alternative energy projects, they are affecting the financing decisions of many investors in such projects.

The leveraged lease concerns, which also are affecting other segments of the leasing and finance industry, center around the prospective changes to FAS 13 and Financial Staff Position 13-2. These two factors have made lessors wary of entering into leveraged leases due to the potential of having to redial the income allocations under a leveraged lease. This reluctance to invest in transactions using leveraged leasing has negatively affected the amount of funding available for alternative energy projects. In fact, although the respondents to the EL&FF Survey may not be representative of the leasing industry as a whole, it is interesting to note that none of them reported using leveraged leases as their primary type of equity financing in alternative energy projects.[41]

The combination of significant income tax credits, start-up or dedicated project companies, the application of AMT, and the impact of NOLs on sponsor or developer income tax appetites is also creating unique financial reporting issues, particularly as they relate to production tax credits. Equipment leasing and finance companies (and their auditors) are having to come to grips with the income allocation issues surrounding the disproportionate allocation of tax benefits and economic income between time periods under a hypothetical liquidation of book value concept. While not a permanent impediment, financial reporting issues such as these represent roadblocks to growth in the alternative energy financing segment.

POLICY ISSUES AND INVESTMENT INCENTIVES

As mentioned briefly above, when viewed from a global perspective the U.S. is in a relatively nascent stage when it comes to accepting and using alternative energy sources, although more and more consumers and businesses are touting the notion of "going green." What policies encouraging investment in renewable energy alternatives can be implemented to achieve viable non-petroleum energy sufficiency? And how will these policies impact the U.S. equipment leasing and finance industry? A look at the European alternative energy experience provides some valuable insights.

While the United States has made great strides in renewable electricity generation investment, it has been far outstripped by many European countries. As an illustration, Table 2 shows how the EU-15 as a whole, along with other selected countries, have grown their renewable generating capacity relative to the their 1990 capacity. While renewable capacity in the U.S. grew by 50% between 1990 and 2004, it grew by 750% in the EU during the same period. Even given the fact that the EU's 1990 base was lower, the EU-15 went from less than half the capacity of the U.S. to more than double its capacity over that time.

TABLE 2. NON-HYDROPOWER RENEWABLE CAPACITY GROWTH

Year	U.S.	EU-15	Denmark	Germany	Netherlands	Spain	UK
1990	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1995	1.12	1.61	2.23	2.56	2.22	2.04	3.93
2000	1.16	4.02	6.89	8.46	3.93	17.09	9.16
2004	1.50	8.58	9.86	20.12	8.46	63.63	15.24

Capacity relative to 1990.
Source: IEA

Along the same lines, the United States had an annualized growth rate in capacity between 1990 and 2004 of just under 3%, while the EU-15 as a group exhibited a growth rate of over 16% during the same period. Even though the U.S. growth rate increased in the first half of this decade, it is still far below that of the EU-15 or any of the high growth countries within the EU. Furthermore, the U.S. had a higher share of renewable energy in total capacity than the EU-15 in 1990, and yet by 2004 it was surpassed by all of the EU countries

[41]*See* Appendix A.

listed here. Table 3 compares the total renewables capacity of the U.S. to selected EU and European countries.

TABLE 3. NON-HYDROPOWER RENEWABLE CAPACITY AS A SHARE OF TOTAL CAPACITY

Year	U.S.	EU-15	Denmark	Germany	Netherlands	Spain	UK
1990	2.0%	1.2%	4.5%	1.1%	1.7%	0.3%	0.2%
1995	2.2%	1.9%	8.6%	2.5%	3.4%	0.7%	0.8%
2000	2.6%	4.2%	23.0%	7.5%	5.5%	5.1%	1.7%
2004	2.0%	8.3%	31.2%	17.0%	11.5%	13.5%	2.7%

Source: IEA and authors' calculations

There appears an even greater disparity between the U.S. and Europe when focusing on actual energy generation rather than simply installed capacity. The share of energy actually generated from renewables fell between 1990 and 1995 and has not increased appreciably since then, as can be seen in Table 4. That the share of renewables in generation is lower than the share in capacity is not surprising, given the intermittent nature of many of the renewable resources. However, the other countries listed have managed to increase their generation share from renewables in contrast to the U.S.

TABLE 4. NON-HYDROPOWER RENEWABLE GENERATION AS A SHARE OF TOTAL GENERATION

Year	U.S.	EU-15	Denmark	Germany	Netherlands	Spain	UK
1990	3.3%	0.9%	3.2%	0.9%	1.5%	0.5%	0.2%
1995	2.3%	1.6%	5.7%	1.7%	2.4%	1.0%	0.7%
2000	2.3%	2.8%	16.9%	3.4%	4.5%	3.1%	1.4%
2004	2.5%	5.4%	25.0%	6.9%	6.5%	8.1%	2.5%

Source: IEA and authors' calculations

This disparity in growth and capacity prompts an exploration of why Europe has apparently been more successful than the United States in increasing investment in alternative energy resources, including the resultant renewables capacity. One major difference between the U.S. and Europe in this regard is in the public policies being pursued to encourage and promote the development (and financing) of renewable energy projects. The U.S., on the one hand, has historically supported renewable capacity investment through the federal income tax code and through state level renewable portfolio standard (RPS) programs.

Europe, in contrast, has relied heavily on feed-in tariffs. These three instruments of energy policy have in common that they increase the revenue received by sellers of renewable electricity, the first through tax credits and the latter two through direct payments from electricity purchasers (grid operators, distributors, or resellers).[42] A key difference among these programs is the source of funds for the subsidy. For tax credits, the subsidy is paid by the broad income taxpayer base, while the subsidy in feed-in tariff and RPS programs is paid directly by the affected ratepayers. Each of these programs (feed-in tariffs, RPS programs, and income tax incentives) has different implications that affect the level of political support it is able to achieve, and therefore they all have varying degress of effectiveness in encouraging the growth and development of financeable renewable energy projects.

FEED-IN TARIFFS

Feed-in tariffs are policies that require electricity suppliers to purchase power from renewable electricity sources at given prices for a set number of years. The price is either a fixed tariff or a fixed premium above market prices. Feed-in tariffs are generally more stable over the long-run than income tax credits, as they subsidize renewable electricity production through the electricity rate base rather than through the income tax base. They also differ from tax incentives in that the value of the subsidy is not related to the income tax appetite of the equity investor or the company supplying the subsidized energy.

As of late 2006, eighteen of the twenty-five countries in the EU had some sort of feed-in tariff for renewable electricity.[43] Feed-in tariffs offer either a set price for electricity generated by the facility over a given number of years or a premium over the market price of energy. In general, utilities or other suppliers are required to purchase electricity offered by renewable energy generating plants under the fixed tariff scheme but are not obligated to do so under the premium system. Rates are typically set so that the total payment under the premium system (i.e., the energy market price plus a premium) exceeds the fixed tariff payment. One of the attractions of the feed-in tariff is that the rate set under

[42] For RPS programs, this assumes that permits or approvals are required of grid operators or distributors.
[43] Arne Klein, Anne Held, Mario Ragwitz, Gustav Resch, and Thomas Faber, "Evaluation of Different Feed-in Tariff Design Options - Best Practice Paper for the International Feed-in Cooperation," Fraunhofer ISI and Energy Economics Group, 2006 ("Klein").

the fixed tariff is generally based on the retail price, rather than the delivery price, for electric energy purchased.

Key design elements for feed-in tariff programs include:

Fixed Tariff or Premium. Most countries in Europe use a fixed tariff design along with an obligation by electricity suppliers or distributors to purchase all power offered by the renewable energy provider. A few countries, such as Spain, the Czech Republic, and Slovenia, initially offered fixed rate systems, but they are transitioning to premium systems and currently offer generating plants the option to choose either type of tariff. The advantage of the fixed rate system is that it reduces market risk to the generator and its investors, providing a guaranteed revenue stream over the life of the agreement.[44] The disadvantage is that the fixed rate approach disconnects the generator from market forces; changes in market electricity prices are not reflected in the revenue received by the renewable generating facility. In essence, the fixed tariff system transfers pricing risk to consumers while the premium system shifts more of the pricing risk to alternative energy generators.

While a fixed tariff system mandates the purchase of all electricity produced by a renewal energy plant, typically there is no guarantee of purchase under the premium approach. Because the market price offered is an average hourly price, the premium approach means that electricity distributors will have an incentive to purchase renewable electricity during periods of peak demand and concomitant higher prices.

Initial Rate and Length of Support. Most European countries offer an initial rate that is designed either to cover costs of providing the renewable electricity (plus an adequate return to owners and investors) or to match the avoided cost of the source of electricity generation displaced by the renewable source. In practice, this leads to rates that differ across power sources (e.g., wind versus solar) as well as different rates for plants that differ in size and location. In both cases, the variation in tariff is designed to reduce the inframarginal subsidy (or producer surplus) received by low-cost producers.

The benefit of a stepped tariff system is that it reduces costs to the ratepayers by reducing producer surplus. However, it also adds complexity to the system, reduces transparency, and creates the possibility of investment distortions. It might, for example, be profitable under a stepped tariff system to build two smaller units rather than one larger unit, even though the larger unit benefits from economies of scale that reduce its cost before subsidy.

Adjustments to Rates Over Time. Several European countries (e.g., France, Germany, and Italy) have tariff degression schemes in which the initial rate falls over time.[45] The degression concept is an effort to capture investment cost savings as technological development and learning-by-doing reduce the cost of renewable generated electricity. France, for example, reduces the initial rate by 2% for wind generators beginning in 2008, while Italy applies a 2% degression rate to present value from 2007 on.

Burden Sharing. A number of European countries attempt to reduce the burden of higher electricity costs resulting from feed-in tariffs by providing discounts for energy-intensive businesses. Energy intensity has been defined on the basis of energy consumption, energy consumption relative to gross value added, or voltage levels for firms.

In contrast with Europe, the United States has not implemented feed-in tariffs at any level, and there appear to be four reasons for this.[46] First, the movement towards competitive markets for retail electricity is not perceived as compatible with a feed-in tariff policy. It also is not clear at what level the tariff would be implemented and how the burden for financing the subsidy would be imposed in the U.S., although Europe has determined ways to share this burden and similar approaches could be used in this country.[47] It has also

[44]This assumes the project meets its availability and capacity factor projections and produces energy in accordance with specifications and forecast deliveries.
[45]Note that once a renewable energy generation plant is built that is subject to a feed-in tariff, its rate is locked in for the duration of the program (subject to pre-specified rate changes, as discussed above).
[46]Wilson Rickerson, Janet L. Sawin, and Robert C. Grace, "If the Shoe Fits: Using Feed-in Tariffs to Meet U.S. Renewable Electricity Targets," The Electricity Journal, 2007, 20(4), pp. 73-86 (2007).
[47]Wilson Rickerson and Robert C. Grace, "The Debate over Fixed Price Incentives for Renewable Electricity in Europe and the U.S.: Fallout and Future Directions," Washington, DC: Heinrich Boll Foundation (2007).

been suggested that regional transmission organizations (RTOs) or independent system operators (ISOs), which are federally regulated organizations that coordinate, control, and monitor the operation of the electrical power system of a particular state or region, could be the point of regulation for feed-in tariffs in the United States.[48]

Second, concerns have been raised that feed-in tariffs are more expensive than RPS systems (discussed below). The evidence to date, however, does not support this conclusion.

Third, the negative experience of U.S. utility companies with PURPA[49] and its requirement to purchase electricity at "avoided cost"[50] has made many prospective purchasers of alternative energy wary of feed-in tariffs. A major problem with PURPA pricing was its failure to predict the sharp drop in marginal pricing for new power plants as utilities shifted to natural gas in the 1980s; but providing time-limited subsidies with an annual degression, as is done in nearly all European feed-in tariff systems, addresses this problem to some extent.

Finally, it has been argued that the U.S. has already committed itself to RPS systems at the state level, and that it is simply too late to shift to an alternative system of national or statewide subsidies for the generation of energy from renewables. Nothing requires all states, however, to use the same approach to support renewable electricity production, nor does anything preclude a federal feed-in tariff from co-existing with state-level RPS programs.

RENEWABLE PORTFOLIO STANDARDS (RPS)

Renewable portfolio standards are policy measures with two components. First, quotas are set for electricity produced from renewable resources, generally as a percentage of total electricity production. These quotas must be met at a designated level, either by suppliers of electricity or by distributors. Second, generators of renewable electricity typically obtain renewable energy credits (RECs),[51] which are marketable and tradable, often throughout the United States. RECs provide evidence that a specific group or provider has achieved its renewable energy quota, and trading in RECs takes place when they are submitted to the appropriate monitoring agency and then sold, to be used to offset quota requirements for other groups or providers. The market price for RECs provides a subsidy to renewable electricity generators which, when combined with the market price received for selling electricity, offsets their higher generating costs.

In the United States, RPS programs have been enthusiastically embraced at the state level. Currently, thirty-six programs run by states, local government, or utilities operate in thirty states and the District of Columbia.[52] Of these, twenty-one states and the District of Columbia run mandatory RPS programs covering roughly 40 percent of the nation's electrical load.[53] However, although these programs have been widely embraced and promoted, it is also true that "experience with these [state level] policies remains somewhat limited; few of the states have more than five years of experience with their programs, and some of the policies have been established but have not yet taken effect."[54] For alternative energy leasing and finance companies, it remains to be seen what long-term effect such state RPS programs will have on actual transaction economics; but they indicate a clear impetus for continued growth and expansion of renewable energy projects and development.

A potential concern with a system of state-level RPS programs, however, is the difference in rules and definitions across programs that make managing RPS activities difficult for firms operating in multiple states. Differences in specifications for renewable investments across states will also make it difficult to achieve economies of scale for firms operating in many states. Finally, inefficiencies are introduced if RECs cannot be traded among different state systems.

These problems with state-level programs are eliminated if the state programs are harmonized or replaced by a federal-level program. At the federal level, a num-

[48]Steven E. Letendre, "A Quarter a Kilowatt Hour: Getting Serious About Building a Solar Energy Future," Denver CO: Presentation at Solar 2006 (2006).
[49]Public Utility Regulatory Policies Act of 1978, which forced public utility companies to buy energy from so-called qualifying facilities, primarily small non-utility generators of electricity from alternative or renewable resources.
[50]Defined as the cost a utility would have incurred had it supplied the energy itself or obtained it from another source. In practice, the price per Kwh determined by a regulatory or industry agency and based largely upon prevailing market prices for natural (petroleum) gas throughout each state or region.
[51]Also called Renewable Energy Certificates.
[52]Database of State Incentives for Renewables & Efficiency (DSIRE), www.dsireusa.org. This list is current as of September 2007.
[53]Ryan Wiser, Christopher Namovicz, Mark Gielecki, and Robert Smith, "The Experience with Renewable Portfolio Standards in the U.S.," *The Electricity Journal*, 20(4), pp. 8-20 (2007).
[54]*Ibid.*, p. 12.

ber of proposals for national RPS programs have been put forward, but none appear poised to be enacted. The proposals typically set a target of between 10 and 20 percent of electricity from renewable sources; and they differ in a variety of ways, most notably in the definition of which renewables would be included under the RPS system (e.g., whether nuclear and large-scale hydroelectric projects are included).

INCOME TAX INCENTIVES

The United States relies extensively on income tax incentives to support and promote the development of renewable electricity generation, including accelerated depreciation, electricity production tax credits (PTCs), and investment tax credits (ITCs), as discussed above. In Europe, however, only Finland and Malta rely entirely on tax incentives to encourage the production of renewable energy.[55] Other European countries use tax incentives to supplement non-tax policies, most notably feed-in tariffs. The United Kingdom, for example, supplements its green renewables and quota instruments with a Climate Change levy.

Of these three incentives, electricity production tax credits[56] have received the most attention, both for their effectiveness at stimulating investment and for the negative effects that the overriding uncertainty over their reauthorization at different times has created in the marketplace.[57] With respect to wind energy, for example, it has been said that it “is difficult to overstate the importance of the PTC to the … industry over this timeframe, as well as the negative consequences of PTC expiration for the industry in 2000, 2002, and 2004.”[58]

The electricity PTC expired first in June 1999 and was not extended until December 1999. Wind power capacity additions in the U.S. fell by over 90 percent between 1999 and 2000. Two years later, the PTC lapsed in December 2001 and was extended again in February 2002. Once more, wind power capacity additions fell from 1,696 Mw in 2001 to 410 Mw in 2002. The PTC next expired in December 2003 and was extended yet again the following October, and capacity additions in 2004 fell by three-quarters from the previous year. Finally, it is worth noting that 2005 was the first year that the PTC was extended prior to its expiration, and capacity additions actually rose in 2006 from their 2005 levels.

Another potential problem sometimes cited with regard to income tax incentives in this area concerns the inability of certain energy producers to utilize these benefits, whether as a result of the AMT liability or due to the application of cumulative net operating losses. In response to this concern, the 2004 Jobs Creation Act[59] provided some relief from the AMT for firms seeking to use production tax credits under Internal Revenue Code Section 45. Beginning in 2005, the electricity PTC may be deducted from AMT income in the first four years of operation of a qualified generating facility.

The U.S. Congress has also addressed the related issue of the inability of certain not-for-profit generating utilities, notably electric cooperatives, to utilize the electricity PTC. As part of the 2005 EPAct,[60] Congress created the Clean Renewable Energy Bond (CREB) program, under which an electric cooperative or a lender to a cooperative may issue project development tax credit bonds for the funding of certain renewable resource generation facilities, including wind, biomass, geothermal, solar, and others.[61] In lieu of the issuer paying interest on the CREBs, under this program the federal government provides an income tax credit to the bondholders.[62] The bondholders may in turn apply these credits against their own income tax liabilities, thus receiving an incentive similar to the electricity PTC for participating in the financing of new projects for electric coops.[63] During the first round of CREB tax credit allocations (scheduled for 2008), the I.R.S. approved the awarding of 610 projects, ranging in size from $23,000 to $3.2 million for governmental projects and from $120,000 to $31 million for rural electric coopera-

[55]Malta does allow a fixed feed-in tariff for small solar (i.e., below 3.7Kw peak) (European Commission, "Malta - Renewable Energy Fact Sheet," ec.europa.eu/energy/energy_policy/doc/factsheets/renewables/renewables_be_en.pdf) (June 12, 2007).
[56]The U.S. Internal Revenue Code provides for production tax credits with respect to a variety of technologies and industries. The focus here is on the PTC available to a producer of electricity from certain renewable resources (the “electricity PTC”).
[57]Production tax credits operate similarly to premium feed-in tariffs, a key difference being the source of funding for the tax credits and the political nature of their funding process.
[58]Wiser, *et al., op. cit.*, p. 5.
[59]American Jobs Creation Act of 2004 (P.L. 108-357).
[60]Energy Policy Act of 2005 (P.L. 109-058).
[61]House Ways and Means Committee, Large Public Power Council comments for the record (waysandmeans.house.gov/hearings.asp?formmode=printfriendly&id=4857) (March 30, 2006).
[62]The “rate” of the tax credit is determined by the U.S. Treasury at a level that permits the issuance of the CREBs without discount and without interest cost to the issuer.
[63]National Rural Electric Cooperative Association, Fast Facts (March 3, 2006).

tives,[64] providing substantial subsidized financing opportunities for investments in not-for-profit renewable energy generation.

In reality, whatever the specific mechanism, when an appropriate ownership and financing structure can be implemented for the development of a qualified renewable energy generating project, outside investors such as lessors can take long-term equity positions in such projects so as to fully utilize the available income tax incentives, and indeed they are doing so. Among respondents to the EL&FF Survey for this report, two-thirds indicated that they price their investments in alternative energy projects on the basis of after-tax yield or rate of return; and more than 69% of respondents said they consider the income tax treatment or various income tax benefits when investing in alternative energy projects.[65]

POLICY SUMMARY AND ANALYSIS

Based on the foregoing discussion, the primary question facing the U.S. alternative energy industry, and the investment community seeking to participate in the industry, is which public policy program, if any, will provide the most effective growth within the industry and contribute the most to future opportunities for lessors and lenders.

Feed-in tariffs have proven to be a popular policy instrument for the encouragement of investment in renewable electricity generation in Europe. As of late 2006, eighteen European countries had some form of a feed-in tariff in place. The share of non-hydropower renewables in electricity generation for the EU-15 countries in 2004 was 5.4%, in contrast to only a 2.5% share in the U.S. The use of feed-in tariffs in Europe stands in sharp contrast to the use of quotas and green certificates in the U.S., as implemented primarily through state and local RPS programs. The view in Europe is that feed-in tariffs have been very successful at stimulating renewable investment. To quote from a recent EU study, "… all countries with an effectiveness higher than the EU average [for wind] use feed-in tariffs. This type of system currently has the best performance for wind energy."[66]

To illustrate how a feed-in tariff would affect the relative costs of generating renewable electricity, we computed levelized costs for various power sources where expensing or feed-in tariffs are offered as substitutes to the existing incentive programs (Table 5).

TABLE 5. Alternative Incentive Programs

	Current Policy (1)	Expensing Only (2)	FIT[67] 25% (3)	FIT 50% (4)	FIT 75% (5)
Natural Gas	5.47	5.47	5.47	5.47	5.47
Biomass	5.34	4.99	5.10	4.24	3.27
Wind	5.04	4.89	4.79	3.94	2.96
Solar Thermal	10.89	13.66	14.27	13.42	12.45
Solar PV	19.93	25.82	27.76	26.91	25.94

Source: Authors' calculations.

The first policy option is to eliminate the production and investment tax credits and allow investors to expense their investments. This policy change favors biomass and wind. It adversely affects solar generated electricity, raising the cost of solar electricity by roughly one-third.

One difficulty with this policy option is that many start-up firms may not be able to take advantage of the income tax shield offered by expensing. Indeed, as argued above, many investors are likely not receiving the full value of the production and investment tax credits because they are either in a loss or AMT status. Moving to expensing would likely exacerbate this problem.

Another option is to replace the various income tax incentives with a renewable portfolio standard. For solar power to become cost-competitive with other alternatives, an RPS policy would have to require enough solar power to drive the price of green certificates for solar over 9¢ for solar thermal and 23¢ for solar PV (see column (4) of Table 1 above). It appears that minimal to no limits would be required for wind and biomass to continue to be cost competitive with gas.[68]

[64] "Clean Renewable Energy Bond Volume Cap Allocation Information," IRS News Release IR-2006-181 (November 20, 2006). Unfortunately, although legislation has been introduced to extend it, the CREB program is scheduled to expire in 2008, along with the electricity PTC, thus continuing the on-again, off-again cycle of federal government energy tax incentive programs.

[65] *See* Appendix A for further details on Survey responses in this area.

[66] European Commission, "The Support of Electricity from Renewable Energy Sources," Communication From the Commission, 2005, Brussels, p. 6 (2005) ("EC Study").

[67] Feed-In Tariff.

[68] This assumes that gas is the marginal fuel source displaced by wind and biomass. An analysis by the Energy Information Administration ("Analysis of Alternative Extensions of the Existing Production Tax Credit for Wind Generator," Washington, DC: EIA (2007) suggests that large-scale expansion of wind would also replace coal over time. If prospective investors are choosing between coal and renewable projects, then positive green certificate prices would be required to achieve the desired expansion in wind.

A third option, which would take the place of production and/or investment tax credits, is a European-style feed-in tariff. For purposes of illustration, a ten-year fixed tariff that is set in nominal terms is modeled. Because electricity prices exhibit volatility and a trend in nominal terms, the feed-in tariff becomes less valuable over time.[69] The expected present discounted value of the revenue stream from the feed-in tariff lowers the levelized cost of the project. Three policy scenarios are considered here, each using a different amount by which the rate guarantee exceeds current electricity prices. The first feed-in tariff scenario sets the rate guarantee at 25% above current prices. At the 2005 average generation price of 5.4¢ per Kwh, this would be a guarantee of 6.8¢ per Kwh. Even at a rate guarantee that only exceeds current prices by 25%, wind and biomass producers would be better off than with the current production tax credits. However, solar generation is disadvantaged by this policy change.

Break-even rate guarantees can be computed for the different renewable electricity sources, making generators indifferent between production or investment tax credits, on the one hand, and feed-in tariffs on the other.[70] The break-even guarantee for biomass is 7% over current prices and 17% over current prices for wind. For an electricity price of 5.4¢, this translates to a fixed tariff rate of 5.8¢ per Kwh for biomass and 6.3¢ per Kwh for wind. The break-even rate for solar thermal is 119%, or 11.8¢ per Kwh given an electricity price of 5.4¢ per Kwh. Solar PV requires a rate guarantee that is 237% greater than existing prices, or 18.2¢ per Kwh delivered to obtain the same benefits received using the investment tax credit.

Proponents of RPS programs argue that certificate trading creates an efficient market to deliver renewable energy at a least-cost premium. On the other hand, the stability of costs under a fixed price feed-in tariff reduces risk for investors. The European Commission has concluded that RPS programs are riskier than feed-in tariffs on the basis of the higher premiums paid per Kwh of electricity delivered under RPS programs than under feed-in tariffs,[71] and a similar conclusion was reached by the recent Stern review.[72]

The income tax incentives used in the U.S. have not been proven to be as effective in stimulating development and financing of alternative energy as the European options. In this regard, it is important to stress the politics of the authorization process, which has historically been "stop and go" for electricity production tax credits in the U.S. Clarity and predictability in the policy environment is very important for the long-range planning that must go into any large-scale investment project, such as the construction of electric generating capital and any associated transmission and distribution capital. For example, lead times for the purchase and delivery of modern, high capacity wind turbine generators often exceed the authorization period of the electricity PTC, contributing to the reluctance of lessors and other funding sources to commit to long-term financing of large wind farms; and the impact is also severe for biomass and geothermal projects, which often require development, permitting, and construction times in excess of two years. Respondents to the EL&FF Survey expressed just such concerns, with 60% of those familiar with the electricity PTC indicating that the current pattern of two year authorizations had caused delays or extensions in project planning or financing (34%), had lead to their inability to participate in certain projects or transactions (13%), or had created difficulty in ordering or acquiring equipment for projects or transactions (13%).[73]

What do these policy considerations mean for the future of investments in alternative energy projects in the United States? On the surface, the data would suggest the inefficacy of income tax incentives relative to feed-in tariffs, as it is clear that Europe has been quite successful in spurring renewable electricity capital investment in this area. European countries have shown very high growth rates and in the process have become world leaders in generating renewable energy from wind and solar resources.

This result may not be due solely to the efficacy of

[69]Electricity prices are modeled as having no expected trend in real terms, based on assumptions used by the EIA (EIA 2007 Outlook, *op. cit.*), and a standard deviation of 5% is used for the log of price. The value of feed-in tariffs is not appreciably affected by the volatility of prices over reasonable ranges. The value of the feed-in tariff is calculated as the expected present discounted value of the subsidy paid to generators using an 8% nominal discount rate, and expected values are computed using Monte Carlo methods with 5,000 replications.

[70]It is important to stress that this modeling assumes that firms receive the full benefit of the income tax credits. As noted above, this does not occur for all firms. They would, however, receive the full benefit of the feed-in tariff regardless of tax status.

[71]EC Study, *op. cit.*

[72]Nicholas Stern, *The Economics of Climate Change*, Cambridge: Cambridge University Press (2007).

[73]*See* Appendix A. The stop and start nature of two-year authorization cycles also contributes to supply shortages and price spikes, as surges in ordering outpace the industry's capacity to supply key capital components (*e.g.,* wind turbines).

feed-in tariffs, however, as there is enormous political will in the European community to use renewable resources for the generation of electrical energy. This political will is exemplified by the political parties, known as "Greens," which have a specific environmental agenda, which have a strong role in European governments, and which, accordingly, are able to exert more influence on public policy than environmental groups in the U.S. are able to do. Also compounding this effect is the on-again, off-again nature of U.S. electricity production tax credits, with their traditional two-year authorization cycle in Congress.

The European experiment with feed-in tariffs and renewable portfolio standards also suggests that feed-in tariffs may dominate RPS systems as effective policy tools to encourage investment. Moreover, while some countries have experimented with feed-in tariff premiums in place of fixed tariffs, the greater predictability of fixed tariffs makes these more attractive policy choices and it appears that Europe is converging on this policy approach.

Given the political realities in the United States, however, even though some support for a national program of feed-in tariffs or direct subsidies for producers of electricity from renewable resources appears to be emerging, the implementation of such a large scale program seems unlikely in the near term. Rather, even though it may prove to be less effective in stimulating the level of development and generating capacity seen in Europe, a national RPS program may ultimately be implemented to accomplish similar goals. Although such a program will not provide direct economic incentives to equipment lessors and lenders, it is expected to have the effect of spurring significant growth in the renewable energy industry, which in turn will provide expanded opportunities for long-term financing of equipment and projects throughout the U.S. When taken together with the income tax benefits and other incentives described above, these expanded opportunities should bode well for those equipment lessors and lenders who intend to participate in this important industry sector.

THE FUTURE OF ALTERNATIVE ENERGY FINANCING

As technological advances, together with governmental subsidies and economic support, reduce the generation cost of renewable and alternative energy relative to the cost of fossil fuel and other traditional energy generation technologies, the opportunity for financing alternative energy projects is expected to increase. As shown in Table 5 above, and as discussed in the context of income tax issues, the costs of generating electricity from wind, biomass, and even geothermal resources are currently quite competitive with the costs of fossil fuel generation.

Given the expanding development of renewable energy projects in the U.S. and internationally, particularly in wind power and biomass fuels, the current outlook for opportunities in long-term leasing and financing of equipment and projects is strong. The respondents to the EL&FF Survey who are already investing in renewable energy projects and equipment indicate that they intend to continue doing so; indeed, over 90% of those companies say they are most likely to increase their level of investment in alternative energy financing.

However, whether this growth in investment will continue at its current pace may depend to a great extent upon the continuation of governmental support for renewables, so that energy produced from renewable resources will remain price competitive with energy from traditional power resources. The cost of petroleum exploration, drilling equipment, steam turbines, and other requirements for traditional energy generation will continue to rise, and it is expected that the cost per Kilowatt of renewable energy capacity will continue to fall, or at least rise at a lower relative rate, due to continuing advances in engineering, design, and technology. These trends would appear to indicate that alternative and renewable energy generating projects and equipment will continue to provide financing opportunities for the foreseeable future. These opportunities will be on an international scale, too, as the respondents to the EL&FF Survey indicate; one half of those who are active in alternative energy in North America are also involved in other countries, on nearly every continent throughout the world.

This optimistic view of the growth opportunities in renewable energy is not to minimize some impediments to continued rapid growth, however. As in many areas of business, positive and rapid growth brings its own unique difficulties. Demand for wind turbine generators (WTGs), for example, has increased worldwide, and supplies are scarce. WTGs of ever increasing capacity require much larger blades, more sophisticated control systems, more massive towers, and more complex technology. Lead times for delivery of large capacity WTGs often exceed two years, making project planning and financing commitments more difficult to assess and confirm.

In addition, as discussed in the overview section above, some of the best and most reliable renewable energy resources, including solar power, wind power, and geothermal resources, are typically not found near the population centers where large amounts of green energy are most needed. Thus, a major investment in long-haul transmission capacity will be required for the delivery of electricity from alternative energy generating facilities to public power grids serving metropolitan areas; and the cost of such high voltage transmission lines is extraordinarily high.[74] Although an increasing number of proposals are being offered for the construction of merchant transmission facilities,[75] the implementation of adequate long-haul transmission capacity for the transportation of energy from the growing number of wind, solar, and other remote renewable energy generation projects remains an expensive and elusive goal.

Finally, there is the matter of tax and other incentives to developing renewable energy generation capacity in the U.S. While it is clear that government subsidies in the form of income tax benefits and other direct incentives have contributed significantly to the competitiveness of renewable energy pricing and therefore to the growth and development of renewable energy projects throughout the country, and while respondents to the EL&FF Survey indicate that these incentives have consequently stimulated the current level of interest in leasing and financing for alternative energy projects and equipment, it not so clear what incentives or subsidies, if any, will be most effective in spurring long-term growth in the alternative energy sector and its related financing opportunities. As discussed above, there are alternatives to income tax benefits, including RPS programs, tradable RECs, and buy-side subsidies such as feed-in tariffs, that are shown to be quite effective in allocating the risk and cost of new alternative energy developments and have demonstrated their effectiveness in Europe and in specific programs and projects throughout the U.S. Ultimately, the implementation of such programs will depend upon the political will of those responsible for establishing them and upon their acceptance by the stakeholders involved, including project developers, equipment manufacturers, utility companies, offtakers and energy end users, and, of course, leasing and finance companies who will provide the long-term funding necessary to bring them to fruition.

Overall, the respondents to the EL&FF Survey express a degree of optimism in the future of alternative energy financing. Those who have been and are involved in financing renewable energy equipment and projects indicate overwhelmingly their intention to continue doing so, and to increase their level of financing activity in this sector. As for the 61% of respondents who report that they are not yet actively engaged in alternative energy financing, their comments indicate that even they are anticipating a role in this growing area ("It should be a growing market" and "Perceived as a growing need which will require financing").

Taken all together, the signals indicate that opportunities in leasing and financing of alternative energy equipment and projects will continue to grow with the expansion of the renewable energy marketplace. The U.S. and other countries will increasingly demand environmentally sound solutions to the insatiable worldwide appetite for electrical energy. Over the long term, fossil fuel resources will become scarcer and more expensive to extract, refine, and deliver, while renewable energy science and technology will continue to advance; and the cost of generating and delivering a Kilowatt-hour of electricity from natural renewable resources will continue to decline. Meanwhile, developers and sponsors of renewable energy projects will

[74] For example, a new 700 mile extra-high voltage electric transmission network has recently been proposed for the upper Michigan peninsula at a cost of approximately $3.7 million per mile. ("AEP, ITC Complete Extra-High Voltage Transmission Study," AEP press release, September 14, 2007).

[75] Like a merchant power plant, a merchant transmission line is built by private developers on spec, and capacity on the line is sold at market rates to generators, distributors, and resellers who interconnect with the line. The only operating merchant transmission project in the U.S. at present is the Cross Sound Cable from Long Island, New York, to New Haven, Connecticut (www.crosssoundcable.com).

continue to require creative and cost effective financing solutions for the construction of state-of-the-art generating plants.

There will of course be obstacles and competitive pressures to overcome as opportunities present themselves in this financing sector, notably the near term price competition from fossil fuels, including natural gas and coal. Historically, these resources have proven to be the most efficient and reliable sources of power for the generation of electricity; and in the near term they will continue to force the development of renewable energy generation, still in its infancy, to be financially supported and subsidized until it becomes price competitive on its own. During this period of renewables technology growth and advancement, the industry will rely on such support from government and other sources; and during this period the equipment leasing and finance opportunities will also depend, directly (through such mechanisms as the electricity PTC) or indirectly (through an RPS or feed-in tariff structure) on such support.

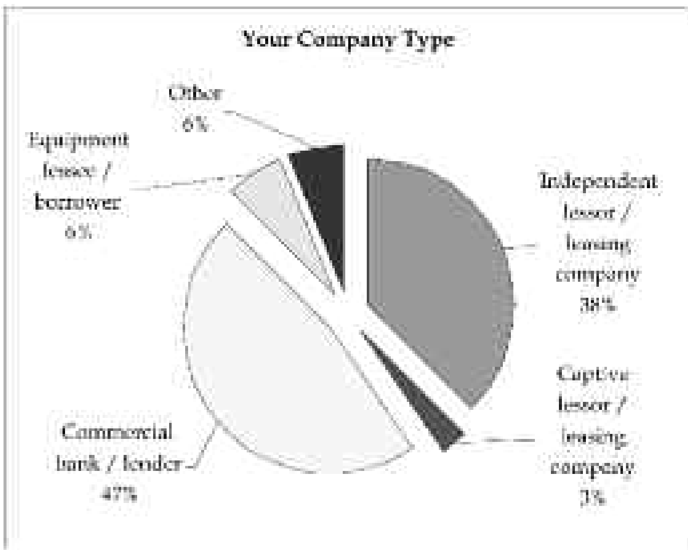
As expressed by the equipment leasing and finance executives who participated in the EL&FF Survey, the opportunities are available to invest in renewable energy generation equipment and projects and to do so at a competitive rate of return, both in the near term and the long term. The specific details and structuring of such opportunities may change significantly in the near future, but the long term outlook appears bright.

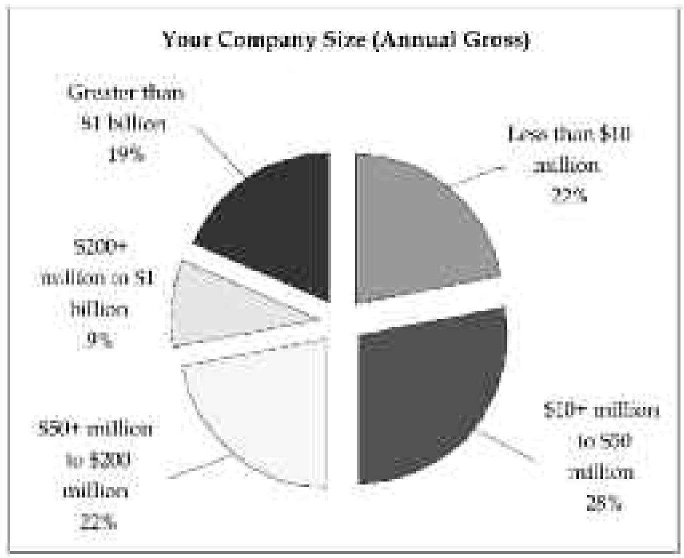
APPENDIX A

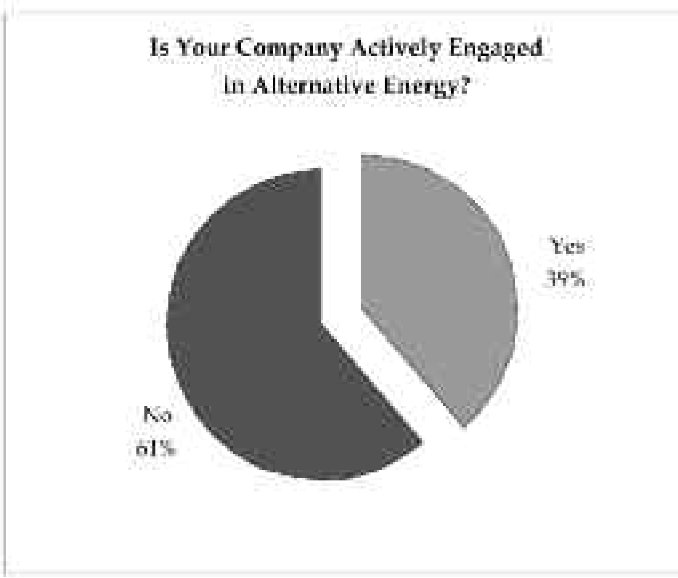
Equipment Leasing & Finance Foundation
Alternative Energy Survey

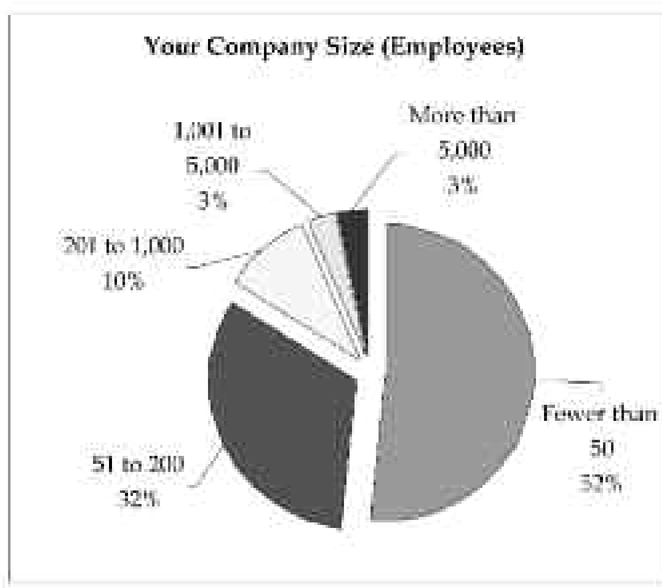
Following are results from the EL&FF Survey conducted during August and September 2007. Thirty-three companies responded to the survey questionnaire, all of whom are active participants in the equipment leasing and finance industry.

PART 1 -- OVERVIEW AND SUMMARY QUESTIONS

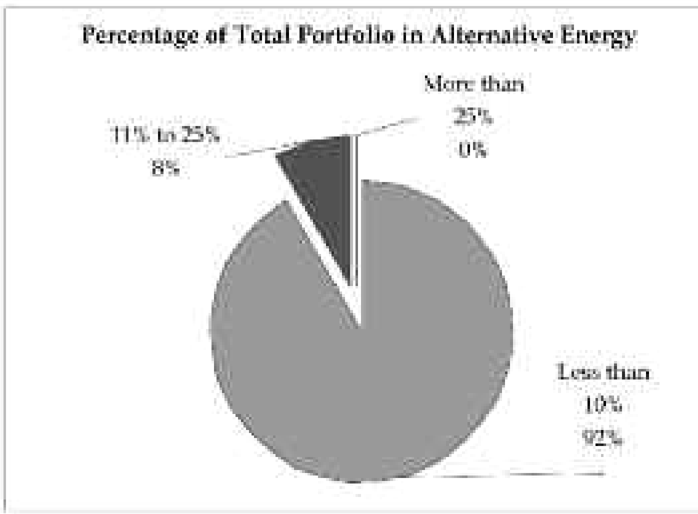


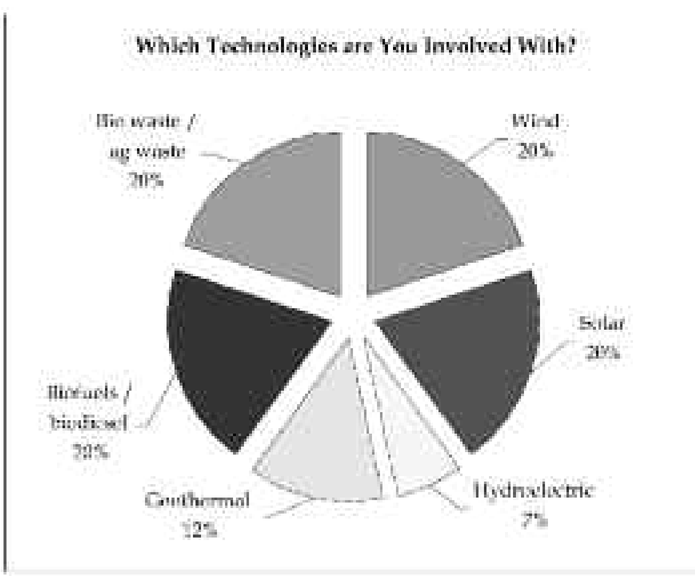


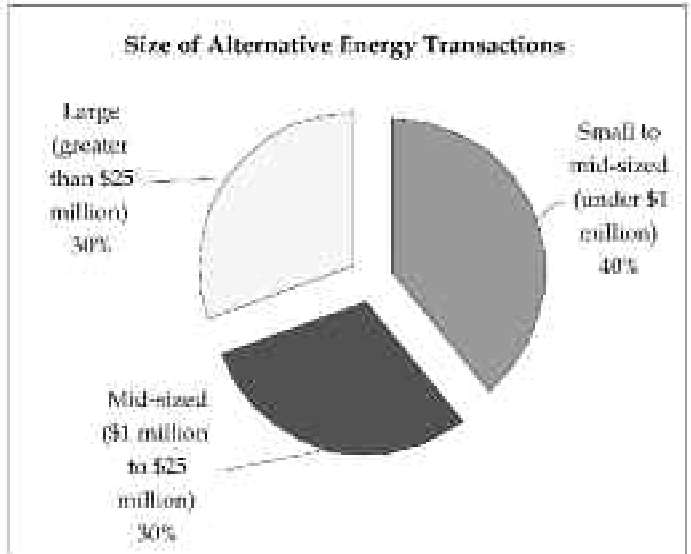


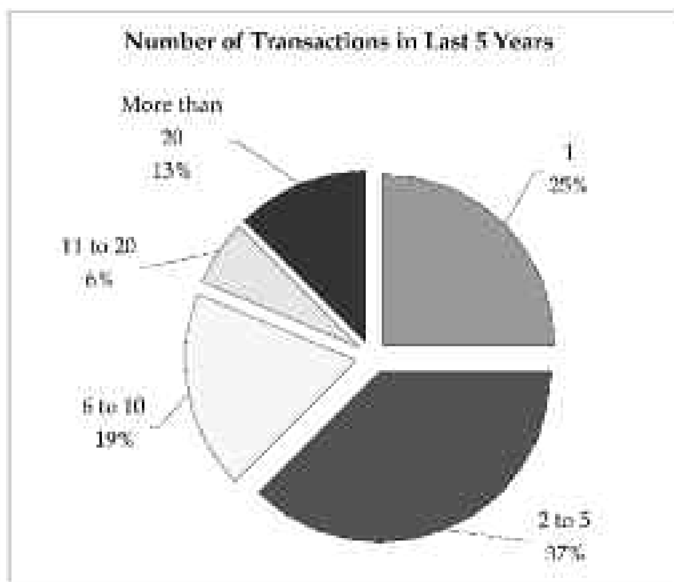


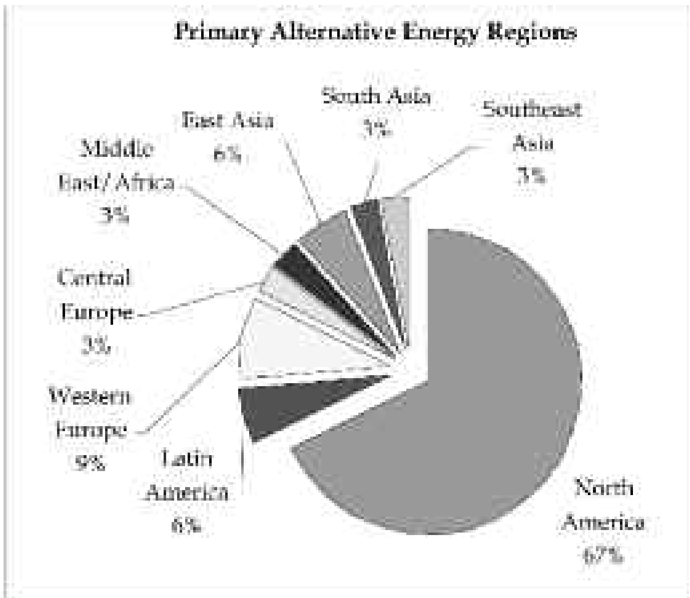

Size of Your Investment in Alternative Energy
More than $200 million 8%
$50 million to $199,999 12%
$10 million to $49,999 0%
Less than $10 million 80%

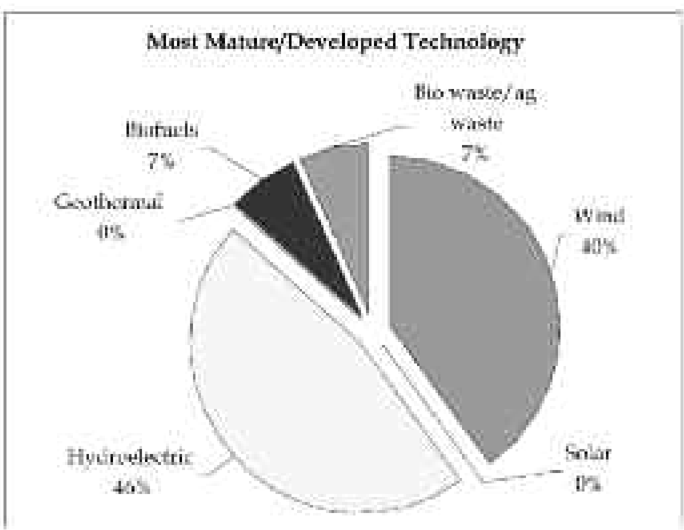

Percentage of Total Portfolio in Alternative Energy
More than 25% 0%
11% to 25% 8%
Less than 10% 92%

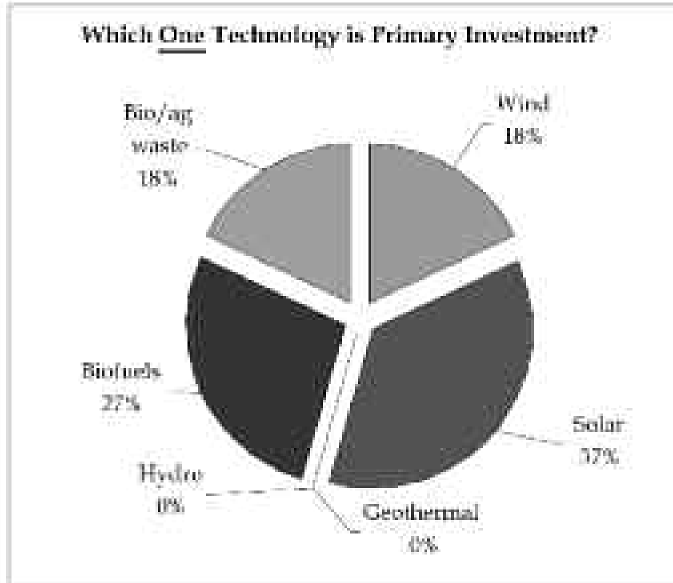

Which Technologies are You Involved With?
Bio waste / ag waste 20%
Wind 20%
Solar 20%
Biofuels / biodiesel 20%
Geothermal 12%
Hydroelectric 7%

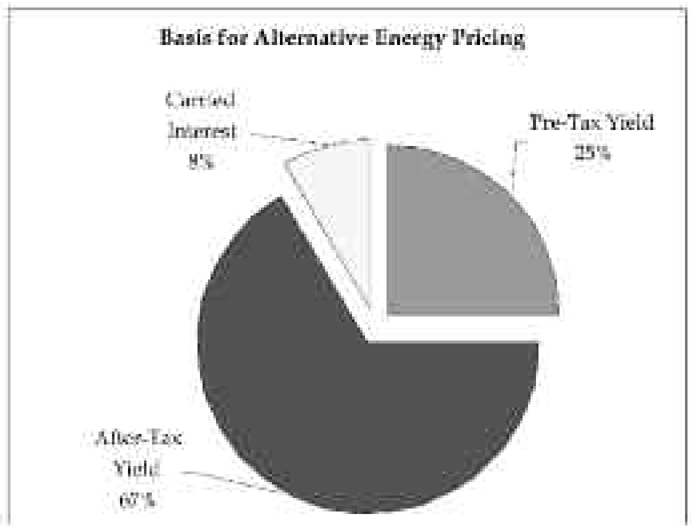

Size of Alternative Energy Transactions
Large (greater than $25 million) 30%
Small to mid-sized (under $1 million) 40%
Mid-sized ($1 million to $25 million) 30%

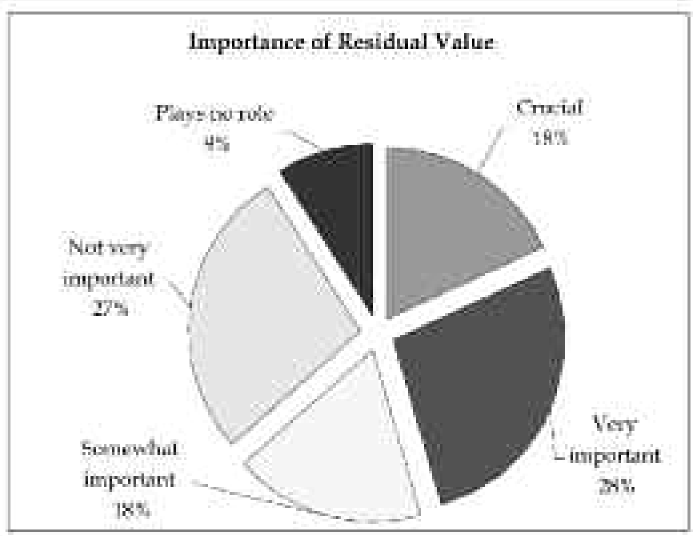

Number of Transactions in Last 5 Years
More than 20 13%
1 25%
11 to 20 6%
6 to 10 19%
2 to 5 37%

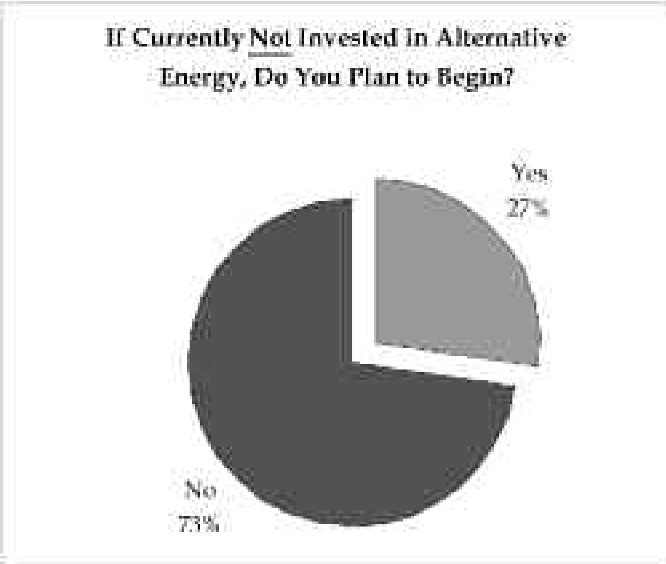

Primary Alternative Energy Regions
South Asia 3%
East Asia 6%
Southeast Asia 3%
Middle East/Africa 3%
Central Europe 3%
Western Europe 9%
Latin America 6%
North America 67%

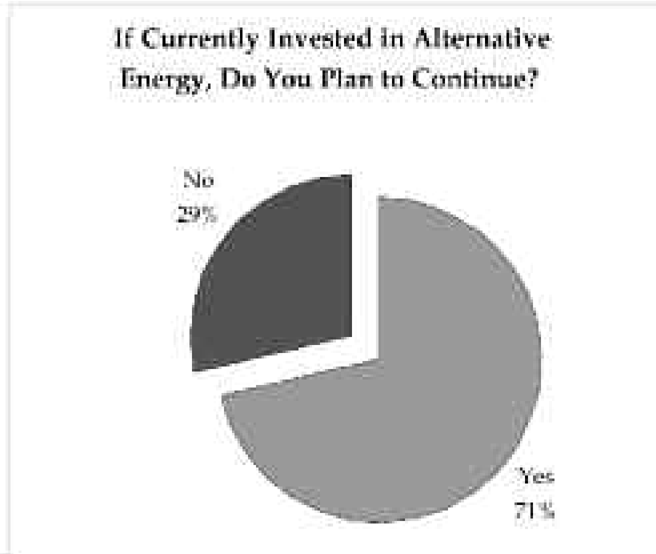

Most Mature/Developed Technology
Bio waste/ag waste 7%
Biofuels 7%
Geothermal 0%
Wind 40%
Hydroelectric 46%
Solar 0%

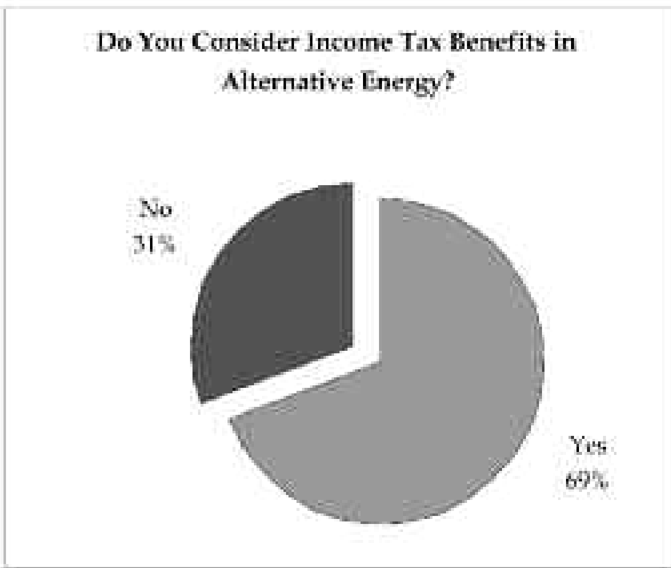

Which One Technology is Primary Investment?
Bio/ag waste 18%
Wind 18%
Biofuels 27%
Solar 37%
Hydro 0%
Geothermal 0%

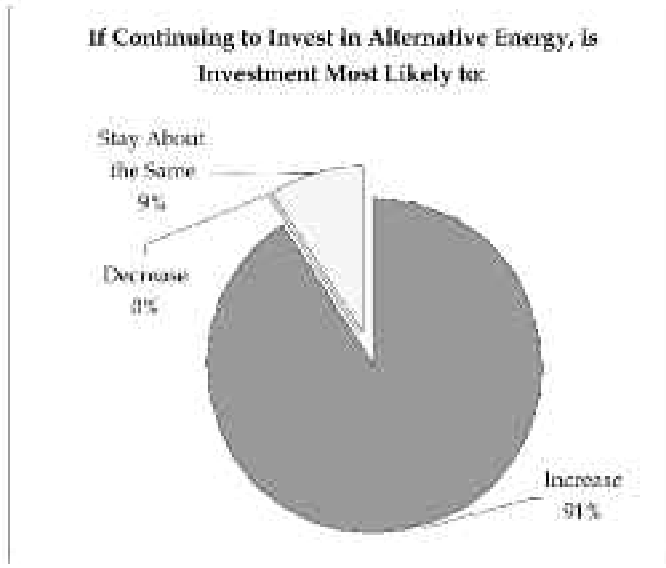

Basis for Alternative Energy Pricing
Carried Interest 8%
Pre-Tax Yield 25%
After-Tax Yield 67%

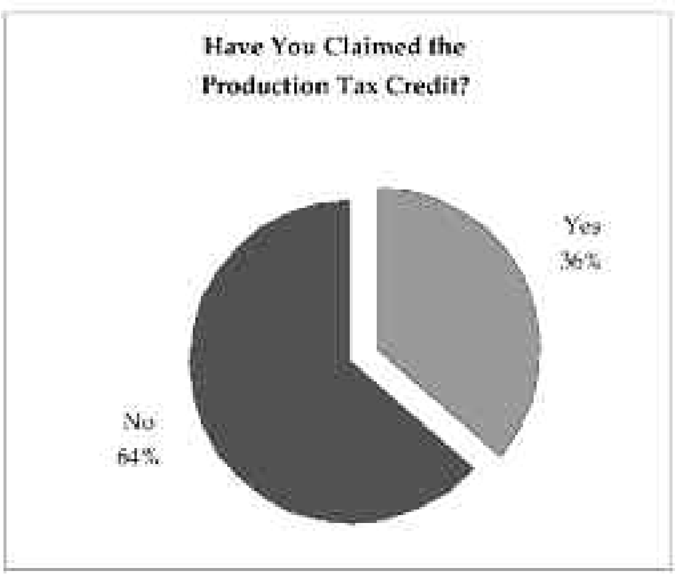

Importance of Residual Value
Plays no role 9%
Crucial 18%
Not very important 27%
Somewhat important 18%
Very important 28%

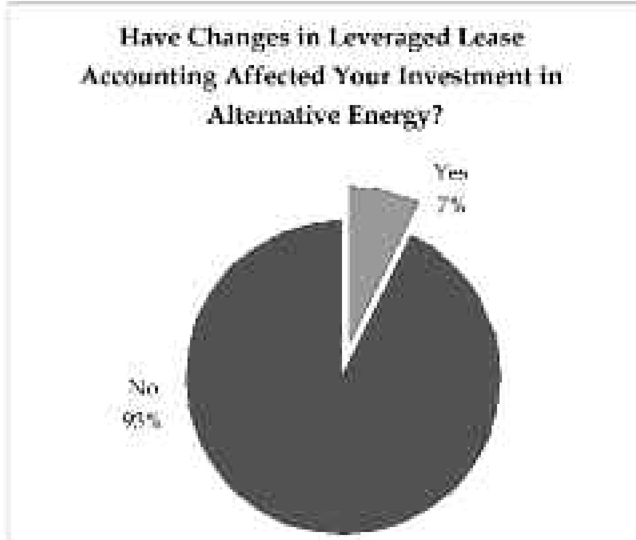

If Currently Not Invested in Alternative Energy, Do You Plan to Begin?
Yes 27%
No 73%

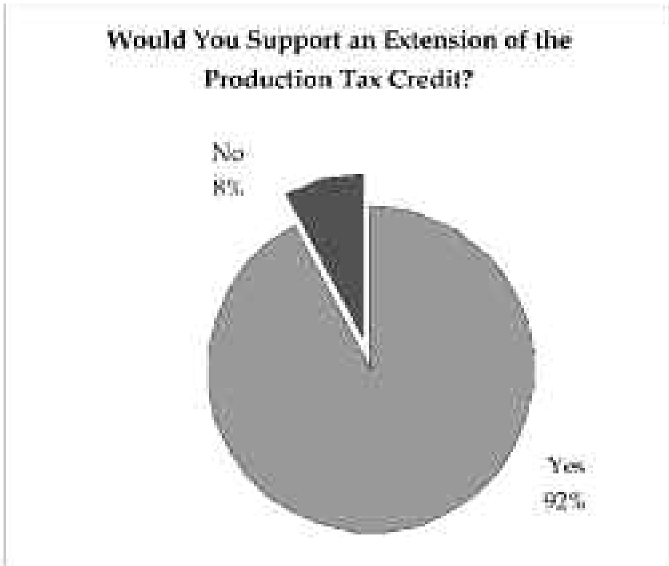

If Currently Invested in Alternative Energy, Do You Plan to Continue?
No 29%
Yes 71%

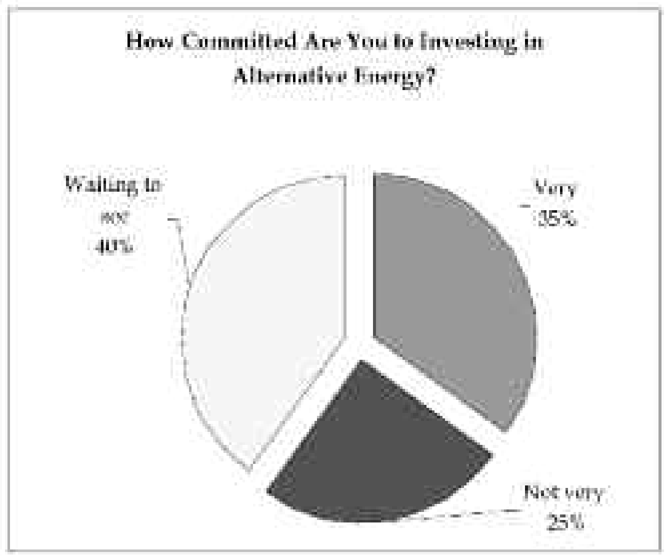

Do You Consider Income Tax Benefits in Alternative Energy?
No 31%
Yes 69%

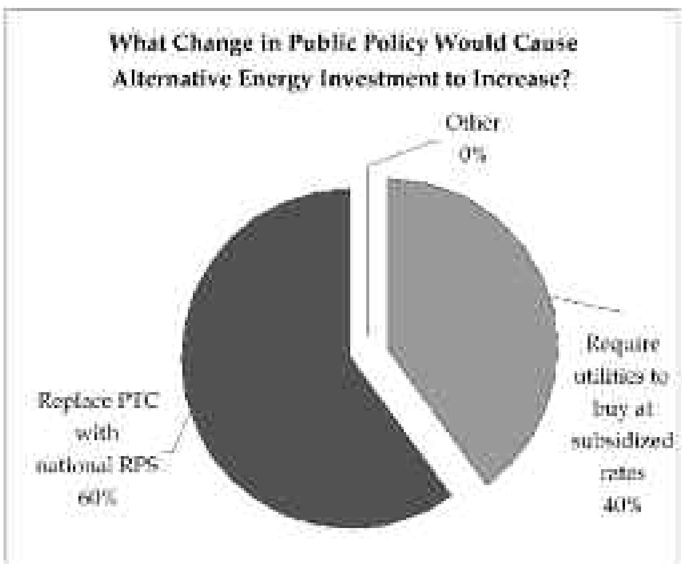

If Continuing to Invest in Alternative Energy, is Investment Most Likely to:
Stay About the Same 9%
Decrease 0%
Increase 91%

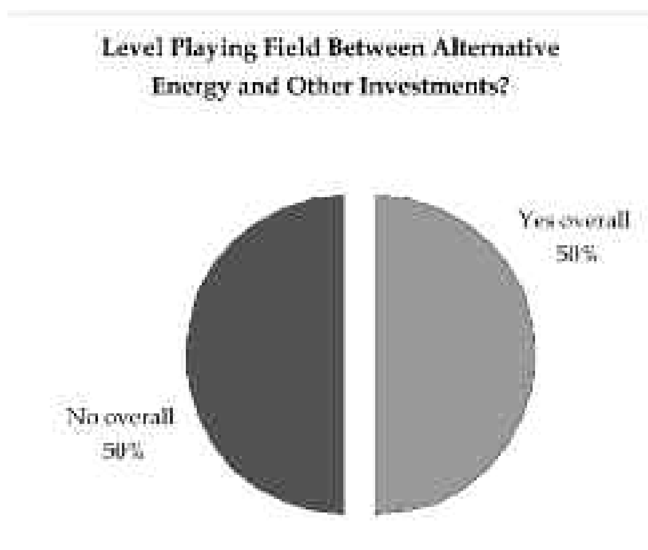

Have You Claimed the Production Tax Credit?
Yes 36%
No 64%


Have Changes in Leveraged Lease Accounting Affected Your Investment in Alternative Energy?
Yes
7%
No
93%


Would You Support an Extension of the Production Tax Credit?
No
8%
Yes
92%


How Committed Are You to Investing in Alternative Energy?
Waiting to see
40%
Very
35%
Not very
25%


What Change in Public Policy Would Cause Alternative Energy Investment to Increase?
Other
0%
Require utilities to buy at subsidized rates
40%
Replace PTC with national RPS
60%


Level Playing Field Between Alternative Energy and Other Investments?
Yes overall
50%
No overall
50%

APPENDIX A

Equipment Leasing & Finance Foundation
Alternative Energy Survey

PART 2 -- EXPOSITORY AND ELABORATIVE QUESTIONS

If not actively engaged in alternative energy, are you planning to be within the next 5 years?		
	Responses	
a. Yes	36.8%	7
b. No	63.2%	12
Why? (please specify)		9
	answered question	19
	skipped question	14

Why? (please specify)
It should be a growing market.
Expect a lot of new profitable business in that area.
Unsure - not given it much thought yet.
Depends on what the collateral is.
Not currently a competency we have in the company. As the market develops, we may elect to enter in those areas that are small ticket in nature.
If appropriate opportunity presents itself
?
?
Perceived as growing need which will require financing

Which of the following most closely describes the type of financial structure your company has primarily participated in for financing alternative energy equipment or projects?		
	Responses	
a. Single investor finance lease (Article 2A)	5.3%	1
b. Single investor operating/true	31.6%	6
c. Single investor capitalized lease	5.3%	1
d. Single investor secured loan/debt/syndication	15.8%	3
e. Leveraged lease (as equity)	0.0%	0
f. Leveraged lease (as debt)	5.3%	1
h. No particular primary structure	21.1%	4
Other (please specify)		3
	answered question	17
	skipped question	16

Which of the following most closely describes the type of financial structure your company has primarily participated in for financing alternative energy equipment or projects?
Other (please specify)
Not really doing any -
It is not a single formula. It varies depending on the kw hour cost we are trying to obtain. In most cases the transactions are 10-15 years and require all the tax advantages that we can build into the structure to be competitive.
Projects

Which of the following most closely describes the source of credit support your company has primarily relied upon for financing alternative energy equipment or projects?

	Responses	
a. Underlying credit of lessee or operator of equipment or project (borrower credit)	47.1%	8
b. Underlying credit of power offtaker under a PPA (project credit)	17.6%	3
c. Credit of guarantor or other third party to the transaction	17.6%	3
d. Letter of credit, insurance policy, or other institutional credit source	0.0%	0
Other (please specify)		3
answered question		15
skipped question		18

Other (please specify)
N/A
It is a combination of underlying lessee, power supplier and the manufacturer of the panels.
Project finance underwriting

In structuring financings for alternative energy equipment or projects, which factors does your company generally consider to be the most important? Please rank in order from 5 (most important) to 1 (least important).

	5 - Most Important	4 - Somewhat Important	3 - N/A	2 - Not Very Important	1 - Least Important	Rating Average	Responses
a. Overall transaction yield	3	5	3	0	1	3.8	12
b. Overall transaction risk (technology)	3	3	3	3	1	3.3	13
c. Overall transaction risk (underlying credit support)	9	2	0	0	1	4.5	12
d. Overall transaction risk (income tax treatment)	3	0	4	3	2	2.9	12
e. Length of financing term	3	1	1	4	4	2.6	13
answered question							14

In structuring financings for alternative energy equipment or projects, which factors does your company generally consider to be the most important? Please rank in order from 5 (most important) to 1 (least important).	
skipped question	19

What rate of return/yield (in % p.a.) does your company target in pricing an investment in alternative energy projects or investments?	
	Responses
	9
answered question	9
skipped question	24
Responses	
na	
12%	
20% on any equity	
18% ROE	
12% IRR	
20	
risk sensitive but above commercial	
Varies depending on credit and term. 5-8% is the range after tax	
6.5%	

In general, how does your company calculate or determine pricing or yield for investments in alternative energy equipment or projects?		
	Responses	
a. Simple discounting of rentals/cash flows with no other considerations	10.0%	1
b. Discounting of rentals/cash flows plus residual value with no other considerations	10.0%	1
c. Discounting of rentals/cash flows together with normal equipment depreciation	10.0%	1
d. Discounting of rentals/cash flows together with equipment depreciation and other special income tax benefits	10.0%	1
e. MISF method using SuperTrump, ABC, or other similar pricing program	50.0%	5
f. Credit scoring method similar to other that used in other transactions	0.0%	0
Other (please specify)		1
answered question		10
skipped question		23
Other (please specify)		
all of the above		

Which federal income tax provisions does your company consider to be most important (whether positive or negative) in making an investment in alternative energy equipment or projects? Please list the choices in order of 5 (most important) to 1 (least important).

	5 - Most Important	4 - Somewhat Important	3 - N/A	2 - Not Very Important	1 - Least Important	Rating Average	Responses
a. Accelerated depreciation/cost recovery allowance (I.R.C. §167 and related)	3	3	0	0	0	4.5	6
b. Current deduction of certain transaction expenses	0	0	2	2	2	2.0	6
c. Amortization of certain transaction expenses	0	0	0	1	1	1.5	2
d. Renewal energy production tax credit (I.R.C. §45 and related)	1	2	1	0	0	4.0	4
e. Other income tax credits unique to your company or the specific technology	2	2	1	0	0	4.2	5
f. Alternative Minimum Tax	1	0	0	4	1	2.3	6
Other (please specify)							3
						answered question	7
						skipped question	26

Other (please specify)
all of the above
Most critical in Solar is the 30% Federal Tax credit in addition to state and utility incentives. They vary by location.
Other state tax credits/benefits

If you have not claimed the electricity PTC, why not? (Check all that apply.)

	Responses	
a. Problem with passive ownership rules	11.1%	1
b. Problem with transaction structuring	11.1%	1
c. Advice of legal counsel or accountants	0.0%	0
d. Insufficient income tax appetite	0.0%	0
e. Don't know	44.4%	4
Other (please specify)		3
answered question		6

If you have not claimed the electricity PTC, why not? (Check all that apply.)	
skipped question	27
Other (please specify)	
we are a packager	
has not been available	
don't have any	

The electricity PTC has typically been authorized only for two years at a time. What, if any, effect has this limitation had on your company's investments in alternative energy equipment or projects? (Check all that apply.)		
	Responses	
a. Delays in project planning or financing	26.7%	4
b. Inability to participate in certain projects or transactions	13.3%	2
c. Difficulty in ordering or acquiring equipment for projects or transactions	13.3%	2
e. No effect	40.0%	6
Other (please specify)		1
answered question		11
skipped question		22
Other (please specify)		
Extended		

Which, if any, of the following changes in policy regarding the electricity PTC would your company support? (Check all that apply.)		
	Responses	
a. Assignability of PTC	30.4%	7
b. Claiming of PTC against ordinary income	30.4%	7
c. Claiming of PTC by passive investors	21.7%	5
d. Using RPS instead of PTC or ITC as a policy for encouraging investment in alternative energy	4.3%	1
e. Replacing PTC with expensing of investment in alternative energy	13.0%	3
Other (please specify)		0
answered question		11
skipped question		22

What changes, if any, in the federal tax law would be most likely to cause your company's investment in alternative energy to increase?		
	Responses	
a. Extending or making permanent the electricity PTC	37.0%	10
b. Allowing the electricity PTC to be claimed by or assigned to passive investors	18.5%	5
c. Allowing expensing of all or a substantial portion of investment in alternative energy	18.5%	5
d. Lengthening the period for which the electricity PTC can be used against corporate	14.8%	4
AMT liability	11.1%	3
Other Tax Law Changes		0
	answered question	14
	skipped question	19

What changes, if any, in accounting rules or standards would be most likely to cause your company's investment in alternative energy to increase or decrease (specify which)?	
	Responses
	3
answered question	3
skipped question	30
Responses	
na	
none	
Shorten the MACRS perhaps. Extending the tax credit is important. A standardized REC program is very important. It's all over the board and hard to track per state.	

In structuring financings for alternative energy equipment or projects, which factors does your company generally consider to be the greatest areas of risk? Please rank in order from 5 (greatest risk) to 1 (least risk).							
answer options	5 - Greatest Risk	4 - Very Much Risk	3 - N/A	2 - Some Risk	1 - Least Risk	Rating Average	Responses
a. Type of technology itself	3	3	0	2	3	3.1	11
b. Creditworthiness of lessee or operator of the equipment or project	7	3	0	1	1	4.2	12
c. Creditworthiness of power offtaker under a	2	5	3	0	2	3.4	12

In structuring financings for alternative energy equipment or projects, which factors does your company generally consider to be the greatest areas of risk? Please rank in order from 5 (greatest risk) to 1 (least risk).							
PPA							
d. Capability or reliability of third party project operator	1	3	0	3	3	2.6	10
e. Reliability or longevity of alternative energy equipment	1	0	4	1	3	2.4	9
f. Warranty support from manufacturer of alternative	1	1	1	3	2	2.5	8
g. Treatment of investment for income tax purposes	1	0	2	2	1	2.7	6
Other (please specify)							3
						answered question	14
						skipped question	19

Other (please specify)
Not really doing any
Depends on the project
Output forecasts

If your company has invested in only one particular technology, what factors caused your company to limit its investment to one particular technology? List in order of 5 (most important factor) to 1 (least important factor).							
answer options	5 - Most Important	4 - Somewhat Important	3 - N/A	2 - Not Very Important	1 - Least Important	Rating Average	Responses
a. Better overall rate of return/yield	1	1	0	3	0	3.0	5
b. Lower technology risk	2	0	2	0	0	4.0	4
c. Lower overall risk	1	2	0	1	0	3.8	4
d. Better income tax treatment	0	1	0	0	2	2.0	3
e. Corporate policy/directive	1	0	0	0	2	2.3	3
f. Geographical considerations	1	0	2	0	0	3.7	3
Other (please specify)							1
						answered question	6
						skipped question	27

Other (please specify)
We entered into a vendor partnership with a major solar vendor and have focused first on being successful in that arena prior to expanding our resources in various emerging markets

Any other comments?	
	Responses
	3
answered question	3
skipped question	30
Responses	
no	
none	
The most critical piece is the Federal Tax credit. Without this becoming permanent or long term, it will kill off the solar market. It is only through these incentives which subsidize this market place do these deals make sense for an end user by providing cost savings. Additionally, it would really enhance financings if there was a system to transfer REC's from one state to another. A national standard REC vs. a state adjusted one would alleviate a lot of confusion. This would allow lenders to invest in deals on a national basis vs. advantages of one state over another. Thank you for doing the study. It is very timely and provides strong focus on this emerging market which continues to change and mold based on customer, vendor, installer, lender and investor demands as well as tax codes that are in flux.	

APPENDIX B

Additional References

Carlson, Curtis P., "The Corporate Alternative Minimum Tax Aggregate Historical Trends," Washington, DC: Department of the Treasury Office of Tax Analysis (2005).

Deutch, John, and Moniz, Ernest J., eds. *The Future of Nuclear Power*. Cambridge, MA: Massachusetts Institute of Technology (2003).

Energy Information Administration, "Analysis of Alternative Extensions of the Existing Production Tax Credit for Wind Generator," Washington, DC: EIA (2007).

Energy Information Administration, "Annual Energy Outlook 2007," Washington, DC: EIA (2007).

Energy Information Administration, "Annual Energy Review 2005," Washington, DC: Energy Information Administration (2006).

Energy Information Administration, "Emissions of Greenhouse Gases in the U.S. 2005," Washington, DC: U.S. Department of Energy (2006).

European Commission, "Belgium - Renewable Energy Fact Sheet," http://ec.europa.eu/energy/energy_policy/doc/factsheets/renewables/renewables_be_en.pdf (June 11, 2007).

European Commission, "Finland - Renewable Energy Fact Sheet," http://ec.europa.eu/energy/energy_policy/doc/factsheets/renewables/renewables_be_en.pdf (June 12, 2007).

Letendre, Steven E., "A Quarter a Kilowatt Hour: Getting Serious About Building a Solar Energy Future," Denver CO: Presentation at Solar 2006 (2006).

Menanteau, Philippe; Finon, Dominique; and Lamy, Marie-Laure, "Prices Versus Quantities: Choosing Policies for Promoting the Development of Renewable Energy." Energy Policy, 2003, 31(3), pp. 799-812.

Metcalf, Gilbert E., "Energy Conservation in the U.S.: Understanding Its Role in Climate Policy," Medford, MA: Tufts University Department of Economics (2007).

Metcalf, Gilbert E., "Federal Tax Policy Towards Energy." *Tax Policy and the Economy*, 21, pp. 145-84 (2007).

Ministry of Trade and Industry. "Tax Subsidies," http://www.ktm.fi/index.phtml?l=en&s=195 (June 12, 2007).

Sekar, Ram C.; Parsons, John E.; Herzog, Howard J.; and Jacoby, Henry D., "*Future* Carbon Regulations and *Current* Investments in Alternative Coal-Fired Power Plant Designs," *Joint Program Report*. Cambridge, MA: MIT Joint Program on the Science and Policy of Global Change (2005).

The Royal Academy of Engineering, "The Costs of Generating Electricity," London: The Royal Academy of Engineering (2004).

Toke, Dave, "Are Green Electricity Certificates the Way Forward for Renewable Energy? An Evaluation of the UK's Renewables Obligation in the Context of International Comparisons." *Environment and Planning C: Government and Policy*, 23(3), pp. 361-74 (2005).

Tolley, George, and Jones, Donald, "The Economic Future of Nuclear Power," Chicago: University of Chicago (2004).

U.S. Energy Information Administration, "Assumptions to the Annual Energy Outlook 2006," Washington, DC: Energy Information Administration (2006).

Wiser, Ryan, "Wind Power and the Production Tax Credit: An Overview of Research Results," Washington, DC: Testimony before the Senate Finance Committee (2007).

About the Researchers

Paul Bent, the principal author of this report, is a Principal of The Alta Group, an international consultancy specializing in equipment leasing and finance, where his focus is on financial structuring, transactions, and analysis. Since 1984, as CEO of GoodSmith & Co., a boutique investment banking firm, he has participated in the financing of wind power, geothermal energy, hydroelectric generation, and biomass projects throughout the world. Mr. Bent has also worked as a computer scientist and specialist in real-time computer simulations. He is licensed as an attorney at law in the state of California and frequently provides private arbitration and dispute resolution services in commercial finance and leasing.

Gilbert E. Metcalf is a Professor of Economics at Tufts University and a Research Associate at the National Bureau of Economic Research. He recently served as chair of the Department of Economics. Metcalf has taught at Princeton University and the Kennedy School of Government at Harvard University and has been a Visiting Scholar at the Joint Program on the Science and Policy of Global Change at MIT. He has served as a consultant to various organizations including the Chinese Ministry of Finance, the U.S. Department of the Treasury, and Argonne National Laboratory. Metcalf's primary research area is applied public finance with particular interests in energy taxation and investment, tax incidence, and the economics of energy markets. He has published papers in numerous academic journals, has edited two books, and has contributed chapters to several books on tax policy. Metcalf received a B.A. in Mathematics from Amherst College, an M.S. in Agricultural and Resource Economics from the University of Massachusetts Amherst, and a Ph.D. in Economics from Harvard University.

Acknowledgments

The Equipment Leasing & Finance Foundation would like to acknowledge the assistance, time and knowledge of the following, in the preparation of this report:

Energy Steering Committee

CHIP CARSTENSEN
SVP
GE CAPITAL MARKETS

TODD R. COLES
TROUTMAN SANDERS LLP

MR. CHRISTOPHER J. CONDON
President
DOVER MANAGEMENT GROUP, INC.

TIMOTHY S. HOWELL
Managing Director, Renewable Energy
GE ENERGY FINANCIAL SERVICES

BROOKS KLIMLEY
President
CIT - ENERGY

MR. MICHAEL A. LEICHTLING, ESQ.
Partner
TROUTMAN SANDERS LLP

B. FORREST TAYLOR
Vice President
CIT – DIVERSIFIED INDUSTRIES

The authors wish to acknowledge the important contributions to this report of Samuel M. Ray and Shawn D. Halladay, Principals of The Alta Group, LLC, and of Lisa A. Levine, Executive Director, and the staff of the Equipment Leasing & Finance Foundation.

EQUIPMENT LEASING & FINANCE
FOUNDATION
Your Eye On The Future

Future Focused Research for the Equipment Finance Industry

Presented by the Source for Independent, Unbiased and Reliable Study

The Equipment Leasing & Finance Foundation

The Equipment Leasing & Finance Foundation, established in 1989 by the Equipment Leasing Association, is dedicated to providing future-oriented, in-depth, independent research about and for the equipment finance industry. Information involving the markets, the future of the industry and the methods of successful organizations are researched to provide studies that include invaluable information for developing strategic direction within your organization.

Your Eye on the Future

The Foundation partners with corporate and individual sponsors, academic institutions and industry experts to develop comprehensive empirical research that brings the future into focus for industry members. The Foundation provides academic research, case studies and analyses for industry leaders, analysts and others interested in the equipment finance industry.

The Foundation's resources are available electronically or in hard copy, at no cost to Foundation donors and for a fee to non-donors. The Foundation website is updated weekly. For more information, please visit www.leasefoundation.org

Resources available from the Foundation include the following research and emerging issues (check the website for a complete listing):

Resources: Research Studies and White Papers

- US Equipment Finance Market Study
- Propensity to Finance Equipment – Characteristics of the Finance Decision
- Business Differentiation: What makes Select Leasing Companies Outperform Their Peers?
- Annual State of the Industry Report
- Evolution of the Paperless Transaction and its Impact on the Equipment Finance Industry
- Indicators for Success Study
- Credit Risk: Contract Characteristics for Success Study
- Study on Leasing Decisions of Small Firms

Resources: Identification of Emerging Issues

- Annual Industry Future Council Report
- Identifying Factors For Success In the China
- Renewable Energy Trends and the Impact on the Equipment Finance Market
- Long-Term Trends in Health Care and Implications for the Leasing Industry
- Why Diversity Ensures Success
- Forecasting Quality: An Executive Guide to Company Evaluation...and so much more!

Journal of Equipment Lease Financing

Published three times per year and distributed electronically, the Journal of Equipment Lease Financing is the only peer-reviewed publication in the equipment finance industry. Since its debut in 1980, the Journal features detailed technical articles authored by academics and industry experts and includes Foundation-commissioned research and articles. Journal articles are available for download through the Foundation website. Subscriptions are available at www.leasefoundation.org

Web Based Seminars

Many of the Foundation studies are also presented as web seminars to allow for direct interaction, in-depth conversation and question and answer sessions with the researchers and industry experts involved in the studies. Please visit the Foundation website for details on upcoming webinars at www.leasefoundation.org

Donor Support and Awards Program

The Foundation is funded entirely through corporate and individual donations. Corporate and individual donations provide the funds necessary to develop key resources and trend analyses necessary to meet daily business challenges. Corporate and individual donors are acknowledged publicly and in print. Major giving levels participate in a distinguished awards presentation. Giving levels range from $100 to $50,000+ per year. For information on becoming a donor and to see a list of current donors, please visit, www.leasefoundation.org/donors

1825 K Street NW • Suite 900 • Washington, DC 20006 • Phone: 202-238-3400 • Fax: 202-238-3401 • www.leasefoundation.org

EQUIPMENT LEASING & FINANCE
FOUNDATION
Your Eye On The Future

1825 K Street NW
Suite 900
Washington, DC 20006

P 202.238.3400
D 202.238.3426
www.leasefoundation.org