

RENEWABLE ENERGY COMPANIES: VALUATION DRIVERS AND TECHNIQUES

The renewable energy sector comprises a wide array of companies utilizing a diverse set of technologies to create electricity or fuels from continually replenished resources. Renewable energy includes solar power, wind power, biomass, hydropower, geothermal and biofuels. The highly experienced professionals at Cogent Valuation conducted numerous analyses of renewable energy companies (“RECs”), performing valuations on companies ranging from pre-revenue start-ups to companies generating substantial revenues. This article provides a general overview of the fundamental drivers of company value as well as the most appropriate methodologies to utilize in the valuation of RECs.

**OBSERVATIONS ON RECS**

The renewable energy industry is rapidly developing. Electricity generation from hydropower, wind, solar, and other renewable sources is projected to grow by 40% over the next five years<sup>1</sup>. By 2018, 25% of all electricity will be generated from renewable sources. In 2012, global renewable energy generation increased 8%, despite a challenging investing and economic environment. An REC’s value is a function of such factors including the stage of development of the company’s technology, the price of alternative energy sources, the price of inputs, the presence of government regulation and/or subsidies, and the return economics of the technology.

**FINANCIAL ANALYSES AND VALUATION TECHNIQUES**

In analyzing specific companies within the renewable industry, the first consideration is the development stage of the company. For mature companies with reliable revenues and stable profit margins, standard methodologies such as a comparative analysis to publicly traded companies, precedent transactions, or a discounted cash flow analysis can be utilized to value the underlying company. When screening for comparable publicly traded companies or precedent transactions, it is important to take into account the subject company’s size and the

geographic distribution of its markets. Key elements to consider when selecting multiples with which to capitalize financial metrics include the degree of leverage in the company’s capital structure, the company’s profitability metrics, and the projected growth of the company’s revenues. A discounted cash flow analysis is useful when the company’s future cash flows can be reliably forecasted. In the process of formulating or reviewing projections, one should compare the underlying company’s growth rates and profit margins to the expected growth rates and profit margins of the overall industry as well as the company’s closest competitors. If there are striking deviations in expected growth rates or profitability metrics, it is essential to determine the reasons for these deviations.

The valuation of early-stage RECs can pose additional challenges, since these companies often lack revenue and require additional years of research & development (“R&D”) before their products can be commercialized. If the subject company completed a recent round of funding through a private placement with institutional investors, one preferable methodology is the use of the “backsolve” to determine

implied equity value of the company based on the price of the company’s most recently issued series of preferred shares. If the company has not completed such a financing, it can be valued using a probability-based approach or a discounted cash flow analysis using venture capital rates of returns.

There are a number of probability-based approaches to value early stage companies, such as the Probability-Weighted-Expected-Return Method (“PWERM”) and Monte Carlo simulation. The PWERM is a forward-looking analysis of the possible future financial outcomes of the company. Each possible outcome is assigned a probability and associated equity value (equity values can be derived using comparable public companies or precedent transactions) and the value of the overall company’s equity is equal to the weighted average value of all the possible outcomes. The probabilities used in the PWERM analysis can be determined by reviewing historical outcomes of companies in a similar development stage and industry.

For many early-stage RECs, the majority of a company’s operations involve performing R&D and the

## ABOUT COGENT

Cogent Valuation, with offices in Los Angeles, Orange County, and San Francisco, is a nationally recognized firm that has provided independent valuation and financial advisory opinions in thousands of situations since 1991. Cogent utilizes proprietary research, intensive due diligence, and the experience and insights of its seasoned valuation professionals to produce thoroughly supported, well-documented opinions that adhere to the best practices for enterprise and securities valuations and financial opinions.

value of the company is the sum of the net present value (“NPV”) of all the company’s R&D projects. Since many random variables can affect the outcome of a company’s R&D projects, the calculation of the NPV of each R&D project will require the simulation of all potential risks. The Monte Carlo simulation generates scenarios for thousands of possible outcomes and the estimation of the NPV of an R&D project as the average of all of the simulated outcomes.

Discounted cash flow analysis can also be utilized in the valuation of early-stage RECs. First, cash flow projections are formulated based on the company’s baseline projections. Since the risks involved for early-stage companies are much higher than those of companies with established products and revenues, it is necessary to use risk-adjusted discount rates to discount projected cash flows. Venture capital studies, such as those published by William Sahlman<sup>2</sup> and James Plummer<sup>3</sup> examined historical private venture capital financings and the internal rates of return (“IRR”) early stage companies realized between the financing round date and the date of the respective initial public offering (“IPO”). These IRRs are then stratified based on the development stage of the company at the time of the financing round. The appropriate discount rate will correspond to the realized IRRs of companies in a similar stage of development.

#### UNIQUE REC CONSIDERATIONS

RECs often require large initial investment outlays to finance R&D activities or to purchase the costly

capital equipment necessary to start a production plant. These companies must ensure that their investments have a positive return. Often, there are government subsidies available that reduce costs or increase demand for renewables. The availability and timing of these subsidies should be taken into account when developing cash flow projections for the discounted cash flow analysis.

The second issue to review is the cost of inputs used to produce the company’s products. For example, biofuel companies’ gross margins are influenced by the price of corn, while wind power companies are influenced by the price of steel and electronic components. Large fluctuations in the price of inputs add additional volatility to the cash flow streams of the subject company.

Changes in the price of alternative energy sources can significantly impact the value of RECs. The prices of natural gas and coal are major value drivers of RECs that produce electricity from wind, solar, hydro-power, biomass, and geothermal sources. Industry metrics, such as the Levelized Cost of Energy (“LCOE”) can be used to measure the cost-effectiveness of a technology with or without subsidies. LCOE is the total cost of installing and operating a project expressed in dollars per kilowatt-hour of electricity generated by the system over its life and accounts for several factors including installation costs, financing costs, taxes, operating costs, maintenance costs, incentives, and salvage value. RECs tend to operate with high fixed costs. Scaling production often results in economies of scale and improved gross profit

margin that can make RECs economically viable even when the cost to produce a kilowatt-hour through fossil fuels does not increase.

#### CONCLUSION

Cogent Valuation has extensive experience in valuations of non-traditional solar utility solutions and the renewable energy sector. We previously valued various RECs from seed-stage ventures to well-established and profitable businesses. The appropriate valuation methodologies are selected based on the subject company’s underlying technology and stage of development. Other factors driving enterprise value include the price of competing energy sources, the price of inputs, expectations of government regulation or subsidies and the return economics of the subject company’s technology.

#### FOOTNOTES

- 1 [www.iea.org](http://www.iea.org)
- 2 Sahlman, William A., “A Method for Valuing High-Risk, Long-Term Investments - The Venture Capital Method,” Harvard Business School.
- 3 Plummer, James L., “QED Report on Venture Capital Financial Analysis,” QED Research, Inc.

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