Renewable Energy Projects for Government Agencies and Businesses

Part One of Two

SP&H has assisted clients with successful energy plan implementation, due diligence, life-cycle analysis, and financial incentives (Part One). We also help clients understand financing structures and financial feasibility analysis as well as other quantitative benefits (Part Two, next issue).

In a July 28, 2010 article of the Financial Times Ms. Jane Lubchenco, the administrator of NOAA (US National Oceanic and Atmospheric Administration) states, "the average temperature in the world has increased by 0.56 degrees Celsius (or 1 degree Fahrenheit) over the past 50 years. The rise may seem small but it has already altered our planet…glaciers and sea ice are melting, heavy rainfall is intensifying, and heat waves are more common."

One of the foremost concerns worldwide is reducing carbon emissions. Growing concerns about climate change have forced many municipalities and businesses to carefully examine their energy source dependency. In recent years, technological advances in renewable energy have allowed such technologies as solar photovoltaic ("PV") systems to become more efficient and affordable. Government agencies and businesses have been making significant capital expenditures in the implementation of renewable energy projects. Some economists have coined this implementation the next industrial revolution. Renewable energy projects represent a paradigm shift in energy consumption planning for any organization. This article focuses on the implementation of one such example: a PV system in Southern California by a non-profit organization, such as a municipality. However, in general these analyses can be applied to businesses as well as other renewable energy or hybrid systems.

Federal and State incentives along with a number of different financing structures can help make the implementation of renewable energy systems feasible.

SUCCESSFUL ENERGY PLAN IMPLEMENTATION

The following major steps need to be taken when putting together a successful energy consumption strategy:

1. Assessing energy consumption under the existing overall infrastructure, such as building insulation, equipment age, and types of light bulbs, just to name a few. This is called a demand side audit.
2. Implementing the necessary changes, as a result of the demand side audit, to minimize energy consumption and make the overall infrastructure most efficient.
3. Installing efficient and cost effective renewable energy central plants, including PV systems.
4. Continuously monitoring energy consumption levels and patterns.
5. Developing a curriculum program and ongoing training around the implementation and operation of a renewable energy central plant.

DUE DILIGENCE

Conducting proper due diligence is essential to evaluate installation, maintenance and contractual obligations. Due diligence procedures entail various analyses of proposed PV systems as follows:

1. Engineering analyses of design proposals, installation sites, and ongoing maintenance.
2. Financial analyses of a PV system's implementation costs, financing costs, operating costs, and maintenance costs.
3. Legal analyses of proposed contracts between a non-profit organization, the PV system installer, and the investor who becomes the owner once the PV system is energized.
4. Project management and analyses from the perspective of the non-profit organization.

LIFE-CYCLE FINANCIAL ANALYSIS OF A PV SYSTEM

The life-cycle analysis must encompass all cash flows during the life of a PV system, from the preliminary design stage through the removal of the PV system once it ceases operations.

Several different designs may be presented from the original preliminary design to the ultimate one that meets an organization's current and anticipated near future energy needs.

Considerations important to this analysis include:

1. A PV system may be fully financed or upfront capital investment may be required.
2. Applications for all available incentives, both federal and state.
3. Structuring a power purchase agreement ("PPA") or an equipment lease agreement with a third party that commences once the PV system is energized.
4. Maintenance of the PV system, along with production guarantees from the maintenance provider, for a negotiated time period, usually of 20 years or less.
5. Current energy costs escalated periodically to reflect expected energy costs could be used as the baseline for calculating savings during the life of the PV system.
6. Once the PV system stops operating, it has to be replaced or removed, also known as decommissioning costs.

It is important to note that maintenance costs are relatively minimal since the PV panels are usually guaranteed for 20 years, and the inverters are guaranteed for 10 years. A PV system could operate for as many as 25 to 40 years.

FINANCIAL INCENTIVES

Monetary incentives are available from both federal and state programs to assist with the cost of installing PV systems. Federal incentives are provided by the National Energy Policy Act of 2005, while state incentives are usually provided through the local utility company servicing the area and the California Public Utility Commission ("CPUC").

Federal incentives include an Investment Tax Credit ("ITC") or a Treasury Cash Grant ("TCG") equal to 30% of eligible costs.[1] Another incentive comes from the IRS's Modified Accelerated Cost Recovery System, under which businesses can recover investments in solar, wind, and geothermal property placed in service after 1986 over a five-year schedule of depreciation deductions.[2] Since the economic life of such property is 25 to 40 years, this incentive allows for relatively rapid recovery of deductable depreciation of an investment compared to the expected economic life of the property installed.

The California Solar Initiative ("CSI"), which is regulated by the CPUC, offers an incentive to further reduce the cost of installing PV systems. The CSI is a performance based incentive ("PBI") that is calculated based on projected kilowatt hours produced by a PV system. Different PV system size limits exist under each utility company. In addition, the CSI is composed of a number of declining steps, where the PBI rebate rate decreases as the number of MW installed increases by certain increments.

Incentives may change considerably over time. It is important to keep abreast of changes in incentives and formation of new incentives. Information on all federal and state incentive programs around the country is available at the Database of State Incentives for Renewables and Efficiency, www.dsireuse.org.

CONCLUSION TO PART ONE

This in depth analysis, planning and implementation of a renewable energy project requires the expertise and experience of a dedicated team of professionals. Working in conjunction with a team of energy consultants, Sanli Pastore & Hill has assisted clients with successful energy plan implementation, due diligence, life-cycle analysis and review of financial incentives. SP&H has extensive experience in complex financial modeling and analysis of a wide variety of client needs. Stay tuned for Part Two, which will discuss financing structures and financial feasibility analysis as well as other quantitative benefits

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Mr. Thomas E. Pastore is Chief Executive Officer and co-founder of Sanli Pastore & Hill, Inc. Mr. Pastore is an Accredited Senior Appraiser (ASA), Business Valuation Discipline, of the American Society of Appraisers, a Chartered Financial Analyst (CFA) Charterholder, a Certified Management Accountant (CMA), and received his Masters in Business Administration (MBA). He has valued over 2,000 businesses during his career, including numerous energy and clean technology companies. He regularly testifies in court as an expert witness. Mr. Pastore frequently speaks on business valuation to professional organizations.

1 www.GoSolarCalifornia.ca.gov

2 www.IRS.gov