

# **BUSINESS VALUATION OF**

## **Colusa Solar Project**

**As of**

November 1, 2017

December 22, 2017

Prepared By:  
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December 22, 2017

Ran Bujanover  
Blue Sky Utility, LLC  
PO Box 5571  
Napa, CA 94581

Dear Mr. Bujanover:

The enclosed valuation report has been developed for the use of Blue Sky Utility, LLC (the "Client" or "Blue Sky"). The report has been prepared by CliftonLarsonAllen LLP (the "Firm") and was made by and/or under the direct supervision of the undersigned.

At your request, the Firm was retained to prepare a valuation analysis to assist you in the determination of the fair market value of the enterprise value of the Colusa solar project (the "Project") on a controlling, marketable basis, as of November 1, 2017, for tax reporting and management planning purposes. The standard of value used in this report is fair market value. Fair market value represents a value at which a willing buyer and seller, neither acting under compulsion to buy or sell and both informed of all relevant facts, may conduct a transaction. No assurance can be provided that any transaction actually will take place at the values stated in this report.

It is our opinion that the fair market value of the enterprise value of the Colusa solar project on a controlling, marketable basis, as of November 1, 2017 is as follows:

**TWO MILLION NINE HUNDRED THIRTY THREE THOUSAND DOLLARS**  
**\$2,930,000**  
**(Controlling, Marketable Basis)**  
**System Size: 574 kilowatts**  
**Cost per Watt: \$5.1045**

Distribution of this letter, report and associated results, which are to be distributed only in their entirety, are intended and restricted to you and recipients that you have designated, and are solely to assist you in the determination of the fair market value of the projects for tax reporting and



management planning purposes and are valid only as of November 1, 2017. You shall indemnify and defend us from any and all liability claims which may be brought against us by any third party to whom you have provided, or consented to provide, access to our report.

The enclosed narrative report constitutes the basis upon which our opinion of value was determined. Statements of fact contained in this report are, to the best of our knowledge and belief, true and correct. No present or future environmental issues were contemplated in this valuation. However, in discussing the possibility of such environmental issues with Blue Sky, no such issues were conveyed by management. In the event that facts or other representations relied upon in the attached narrative report are revised or otherwise changed, our opinion may require updating. However, the Firm has no obligation to update this report or the conclusions contained herein for information that comes to our attention after the date of this report.

No principal or employee of the Firm has any current or contemplated future interest in Blue Sky or any other interest that might tend to prevent making a fair and unbiased valuation. Compensation to the Firm is not contingent upon the opinions or conclusions reached in this report.

Very truly yours,

A handwritten signature in black ink, appearing to read "Randie G. Dial".

Randie G. Dial, CPA/ABV/ CFF, ASA  
Principal  
Forensic and Valuation Services

A handwritten signature in black ink, appearing to read "Nate Loest".

Nate Loest, ASA  
Manager  
Forensic and Valuation Services

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## **Section I – Engagement Overview**

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- CliftonLarsonAllen LLP (the “Firm”) was retained by Blue Sky Utility, LLC, (the “Client”), to prepare a valuation of the fair market value of the enterprise value of the Colusa solar project (the “Project”) on a controlling, marketable basis, as of November 1, 2017 (the “Valuation Date”) for tax reporting and management planning purposes. As such, it should not be distributed or circulated, quoted from or cited in any manner that is not consistent with this purpose.
- This report complies with the reporting requirements set forth by the *2016-2017 Uniform Standards of Professional Appraisal Practice* (“USPAP”), for a full appraisal report; the Statement on Standards for Valuation Services, *Valuation of a Business, Business Ownership Interest, Security, or Intangible Asset*<sup>1</sup> (“SSVS No. 1”) of the American Institute of Certified Public Accountants (“AICPA”) for a Restricted Use report; the ethics and standards of the American Society of Appraisers (“ASA”); and with Internal Revenue Service’s (“IRS”) business valuation development and reporting guidelines. Supporting documentation concerning the data, reasoning, and analysis has been retained as a part of our work papers. The attached report describes the information considered, process followed, and our valuation of the fair market value of the enterprise value of the Colusa solar project. The report also sets forth all of the special considerations, assumptions, and limiting conditions relevant to the valuation.
- Our report is also in conformance with various revenue rulings, including Revenue Ruling (“Rev. Rul.”) 59-60, which outline the approaches, methods, and factors to be considered in valuing shares of capital stock in closely held corporations for federal tax purposes. Rev. Rul. 65-192 extended the concepts in Rev. Rul. 59-60 to income and other tax purposes as well as to business interests of any type.

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<sup>1</sup> Codified as VS Sections 100 and 9100 in *AICPA Professional Standards*.

- The standard of value used in this appraisal report is fair market value. Fair market value is defined as follows:
  - “The amount at which the property would change hands between a willing buyer and a willing seller when the former is not under any compulsion to buy and the latter is not under any compulsion to sell, both parties having reasonable knowledge of relevant facts.”<sup>2</sup>
  - “The price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm’s length in an open and unrestricted market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts.”<sup>3</sup>
- The premise of value is going concern. The liquidation premise of value was considered and rejected as not applicable, as the going concern value results in a higher value for the interest than the liquidation value, whether orderly or forced.
- When valuing a security interest in a business, there are three main levels of value. Discounts and premiums may be used to move from one level of value to another. The three main levels of value are as follows:
  - 1) **Control Value** - This is the control value of the entire company or a 100% controlling equity interest. It is assumed that the controlling owner has the power to sell the entire company.
  - 2) **Minority, Marketable Value** - This is the value of the shares of a company on a minority basis and as if they were freely traded on an exchange or in an active market, i.e. small blocks of shares of publicly traded stock such as Cisco, IBM, Coca-Cola, etc.
  - 3) **Minority, Non-Marketable Value** - This is the value of the shares of a company on a minority, non-marketable basis if there is no active market for the company’s securities, i.e. shares in a privately held company for which there is no publicly quoted price.
- This valuation is prepared on a controlling, marketable basis.

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<sup>2</sup> Rev. Rul. 59-60.

<sup>3</sup> The International Glossary of Business Valuation Terms has been jointly adopted by the AICPA, ASA, Canadian Institute of Chartered Business Valuators, NACVA and the IBA.

Our valuation analysis included review of Management's projections of future business operations and research of publicly traded guideline companies and corporate transactions. The following factors were considered:

- 1) The nature and history of the business.
- 2) The economic outlook in general and the conditions for the Industry.
- 3) The book value of the enterprise and its financial condition.
- 4) The earnings capacity of the business.
- 5) The Company's dividend-paying capacity
- 6) The size of the interests being valued
- 7) The market price of corporations engaged in the same or a similar line(s) of business having their stock actively traded in a free and open market, either on an exchange or over-the-counter.

In connection with this report, we have made such reviews, analyses, and inquiries as we have deemed necessary and appropriate. In addition, we have relied on the following principal sources of information:

- Management's estimate of financial positions, operation projections, income tax rate and investment tax credit;
- *2017 Valuation Handbook – Guide to Cost of Capital*, published by Duff & Phelps;
- Publicly traded guideline companies' data obtained from S&P Capital IQ database;
- *Federal Reserve statistical release, November 2017* published by The Federal Reserve System;
- *National Economic Review* provided by Mercer Capital Management, Inc. for the third quarter of 2017
- First Research Industry Profiles published by Hoover's, Inc. for "solar power generation" as of October 9, 2017;

This is not a complete list of the sources of information that were used to produce this report. This list includes the most prevalent sources to assist the reader of the report.

In all cases, we have relied upon the referenced information without independent verification. Therefore, this report is dependent upon the accuracy and completeness of the information provided to us. A material change in critical information relied upon by the Firm would be cause for a reassessment to determine the effect, if any, upon our conclusion.



Based upon the data, information, and analysis presented in the accompanying report, it is our opinion that the fair market value of the enterprise value of the Colusa solar project as of the November 1, 2017 for tax reporting and management planning purposes is **\$ 2,930,000**.

## Section II - Background

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The Colusa solar powered electric generating project located in California was constructed by Bright Power Inc. ("BPI"). The energy property is owned by Blue Sky and the electricity will be sold under the power purchase agreement ("PPA") to North State Grocery Inc. The Project includes both carport and roof mount projects with a system size of 574 kw dc. The PPA documents the terms and conditions related to the purchase of the electricity by North State Grocery Inc. from Blue Sky. The PPA is 25 year "Take or Pay" 100% offtake agreement.

Management presented calculation of residual value of the PPA and residual period encompasses the remaining life of the Project following the current PPA. Management represented after 25 years, the project may be moved and a new PPA agreement may be entered into at then current market rates for a period of 10 years. The residual period calculation in Exhibit A captures the life of the project from year 26 to year 35.

The Project uses net energy metering, or "NEM", as the billing arrangement that provides credit to customers with solar PV systems for the full retail value of the electricity their system generates. Under NEM, the customer's electric meter keeps track of how much electricity is consumed by the customer, and how much excess electricity is generated by the system and sent back into the electric utility grid. Over a 12-month period, the customer has to pay only for the net amount of electricity used from the utility over-and-above the amount of electricity generated by their solar system (in addition to monthly customer transmission, distribution, and meter service charges they incur).

When the Project places the equipment into service, the Project is entitled to receive tax credits or grants along with the state and federal depreciation deductions attributable to the energy property, which flow through to the benefit of REA as the investor-owners. Owners of energy properties may elect to claim an energy tax credit ("ETC") (also referred to as an investment tax credit or "ITC"). The federal business energy ITC is a 30% federal tax credit available for residential and commercial systems placed in service on or before December 31, 2019.

A picture of the project is included for illustration purposes.



***Economic Outlook***

In conjunction with the preparation of this valuation opinion, we have reviewed and analyzed current economic and industry conditions as of the Valuation Date. We reviewed the national economic conditions based on the *National Economic Review*<sup>4</sup>, shown in full in Exhibit D. We reviewed the regional economy using the *Beige Book*<sup>5</sup>. Economic activity continued to expand at a moderate pace. Overall, price inflation was steady. The labor market tightened further, and wage pressures grew moderately. Sales of retail goods grew modestly, and growth in the consumer and business services sectors remained strong. The energy sector saw further improvement, partly supporting output growth in manufacturing. Lending activity grew moderately.

A summary of key factors that impact power generation industry are below.

***Gross Domestic Product:***

According to advance estimates released by the Department of Commerce's Bureau of Economic Analysis (the "BEA"), Real Gross Domestic Product ("GDP"), the output of goods and services produced by labor and property located in the United States, increased at an annualized rate of 3.0% during the third quarter of 2017, despite the potentially dampening effect of several severe hurricanes. GDP growth in the first and second quarters of 2017 measured 1.2% and 3.1%, respectively.

Real GDP grew 1.5% during 2016, compared to growth of 2.6% in 2014 and 2.9% in 2015. Annualized GDP performance of 3.0 % during the third quarter of 2017 compares to economists' projections of 2.5% (Bloomberg survey) and 2.4% (Wall Street Journal Survey).

Exports increased 2.3% in the third quarter, compared to increases of 7.3% and 3.5% in the first and second quarters of 2017, respectively. Durable goods expenditures increased at an annualized rate of 8.3% over the quarter, following a decrease of 0.1% in the first quarter of 2017 and an increase of 7.6% in the second quarter of 2017. Economists expect GDP to increase at a stable rate in future years. A survey of economists conducted by The Wall Street Journal reflects an average GDP forecast of 2.7% annualized growth in the fourth quarter of 2017.

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<sup>4</sup> *National Economic Review, Third quarter of 2017*, Mercer Capital, released approximately six weeks after the close of quarter.

<sup>5</sup> *Summary of Commentary on Current Economic Conditions*, October 2017, Federal Reserve District, October 18, 2017  
{<http://www.federalreserve.gov/monetarypolicy/beigebook/default.htm> }.

***Economic Indicators***

The Conference Board (“TCB”) reported that the Leading Economic Index (“LEI”), the government’s primary forecasting gauge, decreased 0.2% in September 2017 to 128, after increases of 0.3% and 0.4% in July and August, respectively. Traditionally, the index is thought to gauge economic activity six to nine months in advance. Consecutive moves in the same direction are thought to be indicative of the general direction of the economy.

The Conference Board economists view the LEI’s recent movements as a sign of potential growth. According to the Director of Business Cycles and Growth Research at TCB, Ataman Ozyildirim, “The US LEI declined slightly in September for the first time in the last twelve months, partly a result of the temporary impact of the recent hurricanes.” He added, “The source of weakness was concentrated in labor markets and residential construction, while the majority of the LEI components continued to contribute positively. Despite September’s decline, the trend in the US LEI remains consistent with continuing solid growth in the US economy for the second half of the year.”

Six of the LEI’s ten leading economic indicators increased during September 2017, four decreased, and none remained unchanged. The interest rate spread, ISM® New Orders Index, Average Consumer Expectation for Business Conditions, Stock Prices, Leading Credit Index™ (Inverted), and Manufacturers’ New Orders for Consumer Goods and Materials increased during the month. In September 2017, the Coincident Economic Index increased 0.1% and the Lagging Economic Index decreased 0.1% from the prior month.

Over the six month period that ended September 2017, the LEI increased 1.7%, compared to 2.2% during the prior six month period.

***Industry Outlook***

The Project is an energy property which will produce electricity through the use of solar power. The facilities use either solar photovoltaic (“PV”) panels or solar thermal power stations that make use of mirrors or lenses to concentrate the sun’s energy.

For the industry, we used the “solar power generation” a *First Research Industry Profile*<sup>6</sup>, see **Appendix E**.

Companies in this industry operate solar electric power generation facilities. Major companies include diversified electric utilities and independent producers Berkshire Hathaway Energy, NextEra Energy, Pacific Gas and Electric, Southern California Edison, SunEdison, and TerraForm Power (all based in the US); as well as United Photovoltaics (Hong Kong), Enerparc (Germany), Lightsource Renewable Energy (UK), and CECEP (China). The US solar power generation industry includes about 100 establishments (single-location companies and units of multi-location companies) with combined revenue of \$430 million that provide a small but growing amount of the nation’s electricity. Overall, solar energy accounts for about 1% of the energy consumed in the US.

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<sup>6</sup> “Solar power generation,” *First Research Industry Profile*, Hoovers, Inc., as of October 9, 2017.

***Current Performance***

As with other power sources, demand for solar power is driven by residential, commercial, and industrial electricity demand, which increases with population and economic growth. Additionally, growing concern over environmental and geopolitical issues surrounding fossil fuels has boosted interest in renewable energy sources such as solar.

The profitability of individual companies is determined by government regulations and incentives, as well as technological factors. Large companies have an advantage in their ability to secure the financing necessary to build solar power generation facilities. Small companies can compete by attracting venture capital and using government subsidies. The US industry is highly concentrated: the 50 largest firms generate more than 95% of total revenue. The top 10 utilities involved in solar power generation account for about 70% of cumulative solar capacity in the US, according to the Solar Electric Power Association.

The competitive environment for solar power generation is complex, as the independent power producers and utilities that offer solar power often do so as part of a larger power portfolio; coal and natural gas continue to dominate the power generation market. As a technology, solar competes with other forms of renewable energy, such as wind power, for investment dollars.

***Strong Government Support***

Government programs that help rural businesses invest in renewable energy systems are creating new opportunities for solar companies to work with customers outside of major urban markets. In fiscal year 2016, the USDA invested more than \$300 million to support small businesses and agricultural producers in purchasing new renewable systems and making facilities more energy-efficient. The agency's Rural Energy for America Program ("Blue SkyP") provides grants for small energy projects as well as loan guarantees for larger regional initiatives. Another USDA program, the Energy Efficiency and Conservation Loan Program ("EECLP"), offers low-interest loans for solar photovoltaic and energy storage equipment, with financing arranged through electric utility cooperatives. While customers generating their own electricity on site may pose a competitive challenge to power providers in some markets, energy companies can also benefit from more robust solar grids. Solar companies may be able to sell, finance, and service equipment to businesses looking to install new systems. They could also reduce their own equipment costs by purchasing excess electricity generated by customers' on-site solar energy systems.

Increasing government support for renewable energy could help solar companies expand into new areas, decrease equipment costs, and provide financing options to a larger number of customers.

Congressional lawmakers are demanding stricter oversight of a federal green-energy tax incentive program that has provided billions of dollars in grants to solar power firms in recent years. The US Treasury Department offers companies a 30% investment tax credit based on the fair market value of new solar energy systems. The value of these systems is supposed to be calculated by independent auditors, but some legislators have claimed that the IRS does not monitor the process closely enough to prevent companies from overstating costs in order to receive larger credits. In September 2016, members of the Senate Finance Committee and the House Ways and Means Committee asked seven of the industry's largest

companies (including SolarCity, SunEdison, and NextEra Energy) to provide details about how they determine the fair market value of each system, how they use grant money, and how they transfer tax benefits to third-party investors that fund new solar projects. If investigators determine that a company has improperly received benefits under the incentive program by exaggerating the value of an energy system, the firm could be forced to repay millions of dollars to the government and investors, according to *The Wall Street Journal*.

As with other forms of alternative energy, the health of the solar industry depends on government subsidies in the US and elsewhere. Currently in the US, the ITC, state renewable portfolio standards (“RPS”), and a combination of residential and commercial tax incentives make solar energy affordable and drive the industry. The ITC currently provides 30% tax credits for eligible home and business solar projects through 2019, stepping down to 26% in 2020 and 22% in 2021. The residential credit is scheduled to drop to zero after 2023, while the commercial and utility credit will drop to a permanent 10%.

#### ***Innovative Financing Mechanisms***

Solar producers generate revenue primarily through PPA. Under PPAs, power producers sell electricity to customers at a fixed price and shoulder the burden of capital investment and maintenance costs. Companies must secure significant funding to finance large-scale solar operations. The US power production industry, which includes solar power generation, is capital-intensive: average annual revenue per employee is about \$725,000.

The US solar power generation industry has a working capital turnover ratio of more than 20%. Power generation companies have an uneven cash flow during the year due to seasonal power demands, which peak in the summer and winter.

#### ***Falling Panel Prices Spur Growth***

Advances in panel technology and market structures have made solar more affordable, leading to growth in utility-scale projects and residential installations. Utilities are pursuing innovative grid integration strategies for distributed solar facilities. Supply-side technologies include advanced inverter functionality, energy storage, and production forecasting, while customer efficiencies are provided through demand response and locational deployment strategies. Energy storage batteries allow providers to maximize benefits for commercial customers by reducing demand charges.

Information technology is used extensively for metering of electricity and remote monitoring and control of solar facilities. Smart meters utilize various communication and networking technologies to transmit data about energy consumption back to utilities. Remote monitoring software can help companies maximize production by measuring output and detecting system malfunctions.

The PV solar industry has grown steadily over the past decade, and the number of utility-scale PV projects has jumped in the last few years. In the US, more than 20 gigawatts of utility-scale PV solar capacity were in the development pipeline at the end of 2016. Growth in the sector is largely due to technological advances that are making PV cells less expensive and more efficient.



US solar-generated electricity consumption is forecast to grow at an annual compounded rate of 12% between 2017 and 2021.

### **Section III – Valuation Methodology**

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Conventional appraisal theory generally provides three approaches to value: the Asset (or Cost), Income, and Market Approaches. We have considered each of these approaches in determining the fair market value of the Project as of the Valuation Date. The following paragraphs describe these approaches and the various methodologies utilized by valuation professionals.

## Asset Approach

The Asset Approach is a method of determining a value of equity interests by restating the entity's balance sheet items to their fair market values. This approach can include the value of both tangible and intangible assets. However, this approach is often unnecessary in the valuation of a profitable operating company as a going concern, as the tangible and intangible assets are automatically included, in aggregate, in the Market and Income approaches to value.

It should not be the sole appraisal approach used in assignments relating to operating companies appraised as going concerns, but may be the only appropriate method in the case of a business that is not generating positive normalized earnings.

- *Net Asset Value Method* - This method develops an indication of value by adjusting the reported book values of assets and liabilities to their fair market value.

## Income Approach

The Income Approach is a general method of determining a value indication of a business, asset, or equity interest using one or more methods wherein a value is determined by converting anticipated benefits. Depending on the nature of the business, asset, or security being appraised, as well as other factors, anticipated benefits may be reasonably represented by such items as net cash flow, dividends, and various forms of earnings. Conversion of those benefits may be accomplished by either capitalization or discounting techniques.

- *Discounted Cash Flow Method* - This method is a multi-period valuation model that converts a future series of "incomes" into value by reducing them to present worth at a rate of return (discount rate) that reflects the risk inherent therein. The "income" might be pre-tax, after-tax, debt-free, free cash flow, or some other measure deemed appropriate by and as adjusted by the valuation analyst. Future income or cash flow is determined through reasonable forecasts provided by the entity's Management.
  - These future cash flows are comprised of two components: the cash flows in the discrete projection period and the cash flows expected to be generated from the end of the discrete projection period into perpetuity (also referred to as the terminal cash flow).

- The cash flows in the discrete projection period are calculated by estimating each year's net sales, expenses, and other items such as capital expenditures and additional working capital requirements. Each year's cash flow is then discounted to the relevant valuation date at a rate of return commensurate with the risk involved in realizing those cash flows (also referred to as the discount rate).
- The terminal cash flow value represents the sum of the present value of each annual cash flow subsequent to the end of the discrete projection period. The value of the terminal cash flow may be derived using the following formula:

$$\text{Perpetuity Value} = \frac{\text{Terminal Cash Flow}}{\text{Capitalization Rate}}$$

- The capitalization rate is equal to the discount rate less the expected long-term growth rate for the cash flows.
- Because the terminal cash flow value represents the value of the future cash flows as of the end of the discrete projection period, it is necessary to calculate the present value of this amount as of the relevant valuation date, using the appropriate discount rate.
- *Capitalized Cash Flow Method* - This method considers historical "income" as an indication of future expected "income". Historical "income" is normalized to reflect future ongoing operations. Normalized income or cash flow is converted to value using a risk adjusted capitalization rate.
  - Since a single cash flow is utilized to represent future cash flows, by default, this method should only be used on mature, stable companies, where future cash flows are not anticipated to vary significantly.
  - The value derived using the capitalization method is presented in the following formula:

$$\text{Indicated Value} = \frac{\text{Ongoing Cash Flow}}{\text{Capitalization Rate}}$$

- The capitalization rate was defined earlier, under the *Discounted Cash Flow Method*. The ongoing cash flow is calculated based on reviewing historical information and estimating a future cash flow that is representative of what is expected for the entity, going forward.

## Market Approach

The Market Approach is a general method of determining a value indication using similar investments that have been sold in the market place.

It has its theoretical basis in the principle of substitution, which states that the value of an object tends to be determined by the cost of acquiring an equally desirable substitute. Market transactions in business, business ownership interests, or securities can provide objective, empirical data for developing value measures to apply in business valuation. Such comparisons provide a reasonable basis for estimation to the relative investment characteristics of the asset being valued.

Ideal guideline assets are in the same industry and use as the asset being valued, but if there is insufficient transactional evidence available in the same industry or use, it may be necessary to consider assets with an underlying similarity of relevant investment characteristics such as markets, products, growth, cyclical variability, and other salient factors. Utilizing data sourced from S&P Capital IQ, we conducted a search for companies in the Solar Power Industry. We did not rely upon this method due to the lack of publicly traded comparable companies.

## **Section IV – Application of Approaches**

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We have used the discounted cash flow (“DCF”) method under the Income Approach. The Project is in the start-up phase without any historical data, and Management expects significant growth in both revenues and profit margins in the near future before stabilization. Further, the Project has a defined life, and any type of capitalization methodology would not be appropriate. Further, the Project is relatively small and uniquely focused that a market approach would not be meaningful. Therefore, the DCF method is a reasonable method to use.

The income approach explicitly recognized that the current value of an investment is premised upon the expected receipt of future economic benefits. In the valuation of a business enterprise or equity, indications of value are developed by discounting future net cash flows available for distribution to their present worth at an interest rate that reflects both the current return requirements of the market and the risks inherent in the specific investment.

We relied on discussion with Management and industry data in determining the reasonableness of Management’s forward looking financial outlook. Management represented the solar assets generating the electricity for the project have a useful life of 35 years, a 25-year initial PPA life and an estimate 10-year residual life in a new PPA. The projections cover the projected result of the 35-year period from the date placed in service, estimated to be December 1, 2017, and represent Management’s expectations.

Page 1 and 2 of Exhibit A presents the projected income statements on a debt-free basis and the calculation of debt-free cash flow. The residual value was calculated in footnote 7 of Exhibit A, and is reflective of the estimated discounted future cash flows beyond the discrete 25-year forecast period. Management represented the terms of the PPA would be renewed for the remaining useful life of the solar panels (estimated useful life of the solar panels is 35 years).

Elements of the discounted cash flow method include items such as revenues, operating expenses, capital expenditures, working capital, taxes and discount rates. To arrive at an indication of business enterprise value, a discount rate is utilized to convert future cash flows available to the investors to their present value equivalent.

### ***Revenue***

Total revenue from PPA sales is projected to be \$169,374 in Year 1, and is expected to increase to \$302,986 in Year 25, representing a compound annual growth rate of 2.45%. Revenue increases over time due to the pricing escalators included in the PPA agreement during each year of the forecast period, which is partially offset by lower production attributed to the reduction of capacity in the energy producing assets.

### ***General and Administrative Expenses (G&A)***

Management forecasts G&A expenses to increase approximately 0.1% annually from Year 1 to Year 25. G&A expenses are mainly attributed to bill collecting, insurance and general maintenance/cleaning of the solar panels.

Per discussion with Management, once the energy property is operational, the amount of time and costs necessary to keep the property running are comparatively consistent, and the increase is driven by expected inflation.

### ***Depreciation***

Based on discussions with Management, depreciation was calculated using blended half-year 5-year MACRS (modified accelerated cost recovery system) method depreciation with 50% year one bonus depreciation and a depreciable base equal to the FMV of the Project's enterprise value, less 1/2 of the value of the ITC. Depreciation is calculated in footnote 5 of Exhibit A.

### ***Earnings before Interest and Taxes***

Subtracting operating expenses from revenue results earnings before interest and taxes ("EBIT") of negative \$1,355,829 in Year 1, changing to EBIT of \$273,637 by Year 25. Due to the accelerated depreciation noted above, the Project will incur losses before taxes in Year 1 through Year 3.

### ***Taxes and Tax Credits***

Earnings are taxed at a 35.0% tax rate as provided by Management. As stated previously, the Project will incur losses in Years 1 through 3, and Management has indicated that the tax benefit of these losses will be immediately realizable in the year of the loss, as has been reflected in the cash flow analysis.

Further, as stated previously the Project will receive an ITC based on 30% of the fair market value of the Project. This was calculated in footnote 6 of Exhibit A.

### ***Working Capital***

Changes in new working capital are also reflected in our cash flow calculation. In projecting working capital changes, we primarily relied upon industry levels and discussion with Management. As previously noted, the Company will not require significant working capital to operate the Project once the solar panels are place in operation. As such, working capital is projected to approximately 5.0% of revenue.

### ***Capital Expenditures***

Per Management, the Company will incur routine maintenance costs to operate the Project but will not incur any capital expenditures in the forecast period.

### ***Residual Value***



As stated previously, Management represented the solar assets generating the electricity for the project have a useful life of 35 years, a 25-year initial PPA life and an estimate 10-year residual life in a new PPA. The residual value was calculated in footnote 7 of Exhibit A, based on expected residual cash flows provided by Management. Given the uncertainty in timing and pricing of the residual PPA, a higher discount rate of 15.0% was utilized.

The discount rate was approximately 7.50%, calculations are provided in **Exhibit B** and were based on the following:

#### **Cost of Equity**

- The cost of equity capital was estimated using the average of buildup and capital asset pricing model (“CAPM”) methods. The inputs to the cost of equity capital using the average of buildup and CAPM methods include the risk-free rate of return, equity risk premium, beta, industry risk premium, size premium, and company specific premium. The main difference is the assessment of industry risk. The buildup method utilizes an industry risk premium and the CAPM utilizes a concluded beta considering publicly traded guideline companies to adjust the equity risk premium.
- Equity risk premium is based on total returns of large company stocks in excess of the premium the market has returned over long term government bonds.
- Selected beta is based on review and analysis of betas of publicly traded guideline companies. We use the median of selected guideline companies’ unlevered beta of 0.20, which was re-levered to 0.31 for use in the calculation.
- The cost of equity was adjusted for the small financial size of the Project based on the data presented in 2017 Valuation Handbook – Guide to Cost of Capital (Duff & Phelps, 2017). Duff & Phelps categorized companies into ten deciles based upon market capitalization and calculates the arithmetic average of the arithmetic difference between the group returns and the returns of large companies in the S&P 500 over the period 1926 to 2016. We utilize a small company additional risk premium of 5.59% corresponding to the tenth decile considering the Project’s financial size.
- The industry risk premium was based on the Project producing electricity through the use of solar power. Therefore, we considered SIC code 491 (Electric Services). An industry premium of negative 4.91% was selected, based on the data presented by Duff & Phelps’ Industry Cost of Capital book.
- The company specific discount takes into account the project’s offtaker, the offtaker’s credit rating, key person dependence, terms of the PPA, pending regulatory changes, and other relevant factors. We applied a company specific discount of 2.00% based on a review of the above risk factors.

#### **Cost of Debt**

- The cost of after-tax debt represents the average borrowing cost for the Project. The primary factors considered in estimating the Project’s cost of after-tax debt include guide companies’ average current borrowing rate, and

the effective income tax rate for the Project. The pre-tax cost of debt was based on the yield to maturity of Moody's Baa-rated Corporate Bond as of November 1, 2017 of 4.29%, which was tax affected at 35.0%. The income tax rate utilized in the analysis was provided by Management.

### **Capital Structure**

- The estimated WACC for the Project was calculated by multiplying the estimated cost of equity and the after-tax cost of debt by their respective percentages in the hypothetical capital structure. We analyzed the capital structure of publicly-traded guideline companies to assist us in the determination of the optimal capital structure for the Project. We determined that a reasonable capital structure for the Project was 55% equity and 45% debt.

## **Section V – Conclusion of Value**

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It is important to note that in the valuation of a closely held business, no single method yields an absolute answer to the valuation question. To produce a sound conclusion, the appraiser must use as many of the different methods as are appropriate under the given circumstances and for which the necessary information is available. Each method can then serve as a reasonableness check on the results of the other methods. However, as previously stated, the Project is in the start-up phase without any historical data, and Management expects significant growth in both revenues and profit margins in the near future before stabilization. The Project is expected to be profitable and a going concern, and an asset approach was not deemed appropriate. Further, the Project is relatively small and uniquely focused that a market approach was not considered to be meaningful. Therefore, we relied on the income approach in deriving our value indication for the Project.

**Based upon the data, information, and analysis presented in the accompanying report, it is our opinion that the fair market value of the enterprise value of the Colusa solar project as of the November 1, 2017 for tax reporting and management planning purposes is approximately \$2,930,000 on a controlling, marketable basis under the Income Approach. It is our understanding that the system size is 574 kilowatts, resulting in an estimate retail cost of \$5.1045 per watt.**

## **Section VI – Appendices**

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# Appendix A – Assumptions and Limiting Conditions

This valuation report has been made with the following general assumptions and limiting conditions:

1. The conclusion of value arrived herein is valid only for the stated purpose as of the Valuation Date.
2. Financial statements and other related information provided by Blue Sky Utility, LLC (the “Client” or “Blue Sky”) or its representatives, in the course of this engagement, have been accepted without any verification as fully and correctly reflecting the enterprise’s business conditions and operating results for the respective periods, except as specifically noted herein. The Firm has not audited, reviewed, or compiled the financial information provided to us and, accordingly, we express no audit opinion or any other form of assurance on this information.
3. Public information and industry and statistical information have been obtained from sources we believe to be reliable. However, we make no representation as to the accuracy or completeness of such information and have performed no procedures to corroborate the information.
4. We do not provide assurance on the achievability of the results forecasted by Blue Sky because events and circumstances frequently do not occur as expected; differences between actual and expected results may be material; and achievement of the forecasted results is dependent on actions, plans, and assumptions of Management.
5. The conclusion of value arrived at herein is based on the assumption that the current level of Management expertise and effectiveness would continue to be maintained and that the character and integrity of the enterprise through any sale, reorganization, exchange, or diminution of the owners’ participation would not be materially or significantly changed.
6. This report and the conclusion of value arrived at herein are for the exclusive use of our Client and recipients the Client has designated for the sole and specific purposes as noted herein. They may not be used for any other purpose. Furthermore, the report and conclusion of value are not intended by the author and should not be construed by the reader to be investment advice in any manner whatsoever. The conclusion of value represents the considered opinion of the Firm, based on information furnished to them by the Blue Sky and other sources. The Client shall indemnify and defend the Firm from any and all liability claims which may be brought against the Firm by any third party to whom the Client has provided, or consented to provide, access to our report.
7. Neither all nor any part of the contents of this report should be disseminated to the public through advertising media, public relations, news media, sales media, mail, direct transmittal, or any other means of communication, including but not limited to the Securities and Exchange Commission or other governmental agency or regulatory body, without the prior written consent and approval of the Firm.
8. Future services regarding the subject matter of this report, including, but not limited to testimony or attendance in court, shall not be required of the Firm nor any individuals signing or associated with this report unless previous arrangements have been made in writing.
9. The Firm is not an environmental consultant or auditor, and it takes no responsibility for any actual or potential environmental liabilities. Any person entitled to rely on this report, wishing to know whether such liabilities exist, or the scope and their effect on the value of the

## Appendix A – Assumptions and Limiting Conditions

property, is encouraged to obtain a professional environmental assessment. The Firm does not conduct or provide environmental assessments and has not performed one for Blue Sky.

10. The Firm has not determined independently whether Blue Sky is subject to any present or future liability relating to environmental matters (including, but not limited to CERCLA/Superfund liability) nor the scope of any such liabilities. The Firm's valuation takes no such liabilities into account, except as they have been reported to the Firm by Blue Sky or by an environmental consultant working with Blue Sky, and then only to the extent that the liability was reported to us in an actual or estimated dollar amount. Such matters, if any, are noted in the report. To the extent such information has been reported to us, the Firm has relied on it without verification and offers no warranty or representation as to its accuracy or completeness.
11. The Firm has not made a specific compliance survey or analysis of the Blue Sky to determine whether it is subject to, or in compliance with, the American Disabilities Act of 1990, and this valuation does not consider the effect, if any, of noncompliance.
12. To the best of our knowledge, this report does not deviate from published governmental, judicial, or accounting authority.
13. No change of any item in this appraisal report shall be made by anyone other than the Firm, and we shall have no responsibility for any such unauthorized change.
14. Unless otherwise stated, no effort has been made to determine the possible effect, if any, on the Project due to future federal, state, or local legislation, including any environmental or ecological matters or interpretations thereof.
15. If prospective financial information approved by Management has been used in our work, we have not examined or compiled the prospective financial information and therefore, do not express an audit opinion or any other form of assurance on the prospective financial information or the related assumptions. Events and circumstances frequently do not occur as expected, and there will usually be differences between prospective financial information and actual results, and those differences may be material.
16. We have conducted interviews with the current Management of Blue Sky concerning the prospective operating results of the Project.
17. Except as noted, we have relied on the representations of the owners, Management, and other third parties concerning the value and useful condition of all equipment, real estate, investments used in the business, and any other assets or liabilities, except as specifically stated to the contrary in this report. We have not attempted to confirm whether or not all assets of the business are free and clear of liens and encumbrances or that the entity has good title to all assets.
18. The approaches and methodologies used in our work did not comprise an examination in accordance with generally accepted accounting principles, the objective of which is an expression of an opinion regarding the fair presentation of financial statements or other financial information, whether historical or prospective, presented in accordance with generally accepted accounting principles. We express no opinion and accept no responsibility for the accuracy and completeness of the financial information or other data provided to us by others. We assume that the financial and other information provided to us is accurate and complete, and we have relied upon this information in performing our valuation.

## Appendix A – Assumptions and Limiting Conditions

19. The valuation may not be used in conjunction with any other appraisal or study. The value conclusion stated in this appraisal is based on the program of utilization described in the report, and may not be separated into parts. The appraisal was prepared solely for the purpose, function, and party so identified in the report. The report may not be reproduced, in whole or in part, and the findings of the report may not be utilized by a third party for any purpose, without the express written consent of the Firm.
20. Unless otherwise stated in the appraisal, the valuation of the business has not considered or incorporated the potential economic gain or loss resulting from contingent assets, liabilities, or events existing as of the Valuation Date.
21. The working papers for this engagement are being retained in our files and are available for your reference. We would be available to support our valuation conclusion should this be required. Those services would be performed for an additional fee.
22. During the course of the valuation, we have considered information provided by Management and other third parties. We believe these sources to be reliable, but no further responsibility is assumed for their accuracy.
23. Any forecasts of future events described in this report represent the general expectancy concerning such events as of the evaluation date. These future events may or may not occur as anticipated, and actual operating results may vary from those described in our report.
24. We have no responsibility or obligation to update this report for events or circumstances occurring subsequent to the date of this report.
25. Our valuation judgment shown herein, pertains only to the Project, the stated value standard (fair market value) as of the stated Valuation Date, and only for the stated valuation purpose.
26. In all matters that may be potentially challenged by a court or other party, we do not take responsibility for the degree of reasonableness of contrary positions that others may choose to take, nor for the costs or fees that may be incurred in the defense of our recommendations against challenge. We will, however, retain our supporting work papers for your matter, and will be available to assist in defending our professional positions taken, at our then current rates, plus direct expenses at actual, and according to our then current Standard Professional Agreement.
27. No third parties are intended to be benefited. An engagement for a different purpose, or under a different standard or basis of value, or for a different date of value, could result in a materially different opinion of value.
28. The Firm retains all exclusive rights to copyrights to the report and to control the issuance of copies by others, and the Client has no right of diffusion, reproduction, distribution or sale. The Client may reproduce ten copies of the report solely for its internal use. Otherwise, the Client may not reproduce the report without the prior written consent of the Firm.
29. Our report will not be used for financing or included in a private placement or other public documents, and may not be relied upon by any third parties.



## Appendix A – Assumptions and Limiting Conditions

30. The obligations of the Firm are solely corporate obligations, and no officer, director, employee, agent, contractor, shareholder, owner, or controlling person shall be subject to any personal liability whatsoever to any person, nor will any such claim be asserted by or on behalf of any other party to this agreement or any person relying on the report.
31. The Firm does not consent to be “expertised” with respect to matters involving the Securities and Exchange Commission. For purposes of this report, the foregoing sentence means that the Firm shall not be referred to by name or anonymously in any filing or document. Should you breach this stipulation and refer to the Firm by name or anonymously, you will amend such filing or document upon written request of the Firm.
32. We express no opinion for matters that require legal or other specialized expertise, investigation, or knowledge beyond that customarily employed by business appraisers.
33. Unless stated otherwise in this report, we express no opinion as to: 1) the tax consequences of any transaction which may result, 2) the effect of the tax consequences of any net value received or to be received as a result of a transaction, and 3) the possible impact on the market value resulting from any need to effect a transaction to pay taxes.
34. In all matters that may be potentially challenged by the SEC, a court, or the IRS, we do not take responsibility for the degree of reasonableness of contrary positions that others may choose to take, nor for the costs or fees that may be incurred in the defense of our recommendations against challenge(s). We will, however, retain our supporting work papers for your matter(s), and will be available to assist in active defense of our professional positions taken, at our then current rates, plus direct expenses at actual, and according to our then current standard professional agreement.

## Appendix B – Valuation Representation/Certification

We represent/certify that, to the best of our knowledge and belief:

1. The statements of fact contained in this detailed appraisal report are true and correct.
2. The reported analyses, opinions, and conclusions of value are limited only by the reported assumptions and limiting conditions and is our personal, impartial, unbiased, objective professional analyses, opinions, and conclusions.
3. We have no present or prospective/contemplated financial or other interest in the business or property that is the subject of this report, and we have no personal financial or other interest or bias with respect to the property or the parties involved.
4. Our engagement in this assignment was not contingent upon developing or reporting predetermined results.
5. Our compensation for completing this assignment is fee-based and is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of Blue Sky Utility, LLC, the outcome of the valuation, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
6. The economic and industry data included in the valuation report have been obtained from various printed or electronic reference sources that the valuation analysts believe to be reliable. The valuation analysts have not performed any corroborating procedures to substantiate that data.
7. Our analyses, opinions, conclusions, and this detailed/comprehensive appraisal report were developed in conformity with the 2008 American Institute of Certified Public Accountants Statement on Standards for Valuation Services, *Valuation of a Business, Business Ownership Interest, Security, or Intangible Asset* (codified as VS Sections 100 and 9100 in *AICPA Professional Standards*) and the *2016-2017 Uniform Standards of Professional Appraisal Practice* as promulgated by the Appraisal Foundation.
8. The parties for which the information and use of the valuation report is restricted to are identified in this report; the valuation report is not intended to be and should not be used by anyone other than such parties.
9. We have no obligation to update the report or the opinion of value for information that comes to our attention after the date of the report.
10. Meng Yang provided significant business and/or intangible asset appraisal assistance to the persons signing this certification.
11. We are valuator who regularly perform fair market value determinations. Our background, experience, education, and professional association memberships (and activities) are presented in **Appendix B** and demonstrate our qualifications to perform these valuations.
12. We understand that if this appraisal is used in connection with a return or claim for refund, and a substantial or gross valuation misstatement occurs from the concluded appraised business value, either known, or reasonably should have known at the time of the valuation, we may be subject to a civil penalty under Section 6695A, under IRS Notice 2006-96.

## Appendix B – Valuation Representation/Certification

13. We confirm that we have not been barred from presenting evidence or testimony by the Office of Professional Responsibility.
14. The Firm has performed prior services for Blue Sky Utility, LLC within the three year period immediately preceding acceptance of this valuation/appraisal assignment.

A handwritten signature in black ink, appearing to read "Randie G. Dial".

Randie G. Dial, CPA/ABV/CFF, ASA  
Principal

A handwritten signature in black ink, appearing to read "Nate Loest".

Nate Loest, ASA  
Manager

## Appendix C – Qualifications of Valuation Analysts

## Randie G. Dial, CPA/ABV/CFF, ASA

### CliftonLarsonAllen LLP

Managing Principal  
Indianapolis, Indiana

317-569-6212  
randie.dial@CLAconnect.com



### Profile

Randie Dial has over 17 years of experience in providing valuation, forensic accounting and financial modeling services to a variety of publicly-traded and privately-held companies. Randie performs valuations of businesses and intangible assets for a variety of purposes including financial reporting, tax, merger and acquisitions, private equity investment, and capital budgeting.

Randie speaks nationally on valuation topics to professional and industry organizations and has authored several articles for professional journals. Randie currently serves as the Chairman of the American Institute of Certified Public Accountants (AICPA) Business Valuation Committee. Randie is a graduate of Ball State University with a degree in Accounting. Randie is an Accredited Senior Appraiser (ASA) by the American Society of Appraisers. He is also a licensed CPA and is Accredited in Business Valuation (ABV) and Certified in Financial Forensics (CFF) by the AICPA.

### Experience serving clients

- Randie has over seventeen years experience in providing valuation, forensic accounting and financial modeling services to a variety of publicly-traded and privately-held companies
- Randie has industry niche experience with financial institutions
- He performs valuation projects for numerous purposes, including
  - Financial reporting
  - Tax, merger and acquisitions
  - Private equity investment

### Education/professional involvement

- Bachelor of Science, Accounting, Ball State University
- Member, American Institute of Certified Public Accountants
  - Member AICPA Business Valuation Committee, 2009-2011
  - Chairman, AICPA Business Valuation Committee 2013-2016
  - Member AICPA Business Valuation Standards Subcommittee, 2007-2011



- Member AICPA Forensic Valuation Executive Committee 2012-2013
- Member, 2011, 2012 and 2013 AICPA National Forensic Valuation Services Conference Committees
- Chairman 2014-2015 AICPA National Forensic Valuation Services Conference Committees
- Member, Indiana CPA Society, 1998-current
- Member, American Society of Appraisers
  - President, Indiana Chapter, May 2002-May 2003
  - Indiana State Director, May 2003-2004
  - International Board of Examiners , Winter 2004-current
- Member, American Institute of Certified Public Accounts, 2001-current
- Board Member, Institute of Management Accountants, 2001 - 2002
- Member, Indiana Association for Corporate Renewal, 2000-2003
- Member, Venture Club of Indiana, 2000-2007
- Member, Techpoint, 2005-2007

### **Presentations**

- “Business Valuations: Uses, Methods, Discounts & More” Union Federal Bank Seminar, Springfield, Ohio, November 9, 2000.
- “Valuing a Manufacturing Company: Uses, Methods, Discounts & More” Indiana Manufacturers Association, Indianapolis, Indiana, March 21, 2001.
- “Forensic Accounting and Damage Calculations” Ball State University Accounting Club, Muncie, Indiana, March 29, 2001.
- “Case Law Updates on Valuations, Damages and Forensic Accounting” Allen County Bar Association, Fort Wayne, Indiana, August 3, 2001.
- “Personal Goodwill and Pass-Through Entities in Marital Dissolution” Bingham McHale Matrimonial Group Presentation, Indianapolis, Indiana, August 27, 2002.
- “Tax Returns And Personal Financial Statements in Indiana: Evaluating Cash Flow and Debt Paying Ability” Lorman Education Services, Indianapolis, Indiana December 12, 2002.
- “Business Valuations: Uses, Methods, Discounts & More” Institute of Management Accountants, Indianapolis, Indiana December 19, 2002.
- “Valuation and Measurement of Personal Goodwill in Marital Dissolution” Illinois CPA Society Consulting Services Litigation Support Special Interest Group, Chicago, Illinois September 19, 2003.
- “Valuation Issues Explored: Thrive: Annual Clifton Gunderson Valuation Conference, August 25, 2005.
- “An overview of SFAS 141, 142, and 123(r),” Indiana Institute of Management Accountants, May 2006.
- “An Overview of Financial Reporting Valuations,” Indiana CPA Society, June 2006.
- “Implications of the New AICPA Valuation Standards,” The Practical Accountant Webinar, April, 2008.
- “Valuation of a Veterinary Practice,” Clifton Gunderson, June 19, 2008.
- “SSVS No. 1 – Overview and Lessons Learned,” Strafford Publishing Webinar, July 31, 2008.



- “Working with the Business Valuation Standards: Putting the New AICPA Statement of Standards for Valuation Services to Practice,” CCH Audio Seminars September 16, 2008.
- “Working with the Auditor – Ensuring a Smooth Review,” AICPA Business Valuation Conference, San Francisco, California November 16, 2009.
- “Application of the AICPA Valuation Standard SSVS1,” AICPA Business Valuation Conference, San Francisco, California November 17, 2009.
- “Look Before you Merge – Accounting and Valuation Issues for Credit Unions,” Clifton Gunderson National Webcast, April 14, 2010.
- “Look Before you Merge – Accounting and Valuation Issues for Credit Unions,” National Association of Credit Union Supervisory & Audit Committee Conference, Baltimore, Maryland June 11, 2010.
- “Look Before you Merge – Accounting and Valuation Issues for Credit Unions.” Texas Credit Union League Conference for Human Resources and Auditing, San Antonio, Texas June 22, 2010.
- “Look Before you Merge – Accounting and Valuation Issues for Credit Unions,” Clifton Gunderson National Webcast, September 1, 2010.
- “Look Before you Merge – Accounting and Valuation Issues for Credit Unions.” National Association of State Credit Union Supervisors Conference, San Antonio, Texas September 30, 2010.
- “Standards & Compliance with SSVS When the Budget is an Issue,” AICPA National Business Valuation Conference, Washington DC, November 8, 2010.
- “Non-Big 4 Perspective on How to Get through a Big 4 SAS Review,” AICPA National Business Valuation Conference, Washington DC, November 8, 2010.
- “Topic 350 - Intangibles, Goodwill and Other (SFAS 142 and 144),” AICPA National Business Valuation Conference, Washington DC, November 8, 2010.
- “Estate & Gift Tax Reform 2010,” INCPAS Financial Services Conference, Indianapolis, IN, December 10, 2010.
- “Merger Madness – Is your Credit Union Prepared?” CUNA CFO Council Conference, San Diego, CA, May 16, 2011.
- “The Not So New Business Valuation Standards,” AICPA Web Series Webinar, June 2, 2011.
- “Tips on how to get through a SAS Review,” Arizona CPA Society Valuation Conference, October 6, 2011.
- “The Not So New Business Valuation Standards,” Louisiana CPA Society Valuation Conference, October 27, 2011.
- “Betting on the Future: The Outlook for the Business Valuation Profession” Panel, AICPA Business Valuation Conference, Las Vegas, NV, November 6, 2011 (Keynote Session).
- “Valuation of Customer Relationships,” AICPA Business Valuation Conference, Las Vegas, NV, November 6, 2011.
- “Application of the Discounted Cash Flow Method – Best Practices,” AICPA Business Valuation Conference, Las Vegas, NV, November 6, 2011
- “Emerging CPA Workshop for Rising Forensic and Business Valuation Professionals,” AICPA Forensic Valuation Services Conference, Orlando, FL, November 10, 2012
- “Discounted Cash Flow – Practical Applications,” Louisiana CPA Society Valuation Conference, October 24, 2013
- “Emerging CPA Workshop for Rising Forensic and Business Valuation Professionals,” AICPA Forensic Valuation Services Conference, Las Vegas, NV, November 9, 2013
- “Market Approach: Researching Your Way to a Sound Defensible Conclusion,” AICPA Forensic Valuation Services Conference, Las Vegas, NV, November 12, 2013



## ***Publications***

- “Valuing Potentially high-growth companies,” *Valuation Strategies*, March/April, 2002.
- “Business Valuation Issues in a Divorce Setting,” *Divorce Litigation*, July 2002.
- “The Comparable Transaction Method,” *Valuation Strategies*, May/June 2004.
- “The Valuation of Noncompetes,” *Valuation Strategies*, July/August 2005.
- “Implementing the AICPA Business Valuation Standards,” *CPA Focus*, July/August 2007.
- “Suggested Guidelines for How to Implement SSVS1 in Your BV Practice,” *Journal of Accountancy*, September, 2007.
- “CFO Focus: ASC 805 Implications”, *CU Management*, October 2012-Vol: 35 No. 10
- “Q&A – Trends in Business Valuation,” *Journal of Accountancy*, November, 2013.





**Nathan Loest, ASA, Manager**

**CliftonLarsonAllen LLP**

Manager  
Milwaukee, WI

414-238-6764  
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**Profile**

Nate Loest is a manager with CliftonLarsonAllen LLP and has 10 years of experience in providing consulting services including valuation of business enterprises; capital stock; debt securities; and intangible assets consisting of trademarks, patents, customer relationships, distribution networks, contractual agreements and other intellectual property.

**Experience serving clients**

Nate has managed and assisted in valuation engagements for purposes involving tax planning, solvency opinions, fairness opinions, financial reporting, purchase price allocation, litigation and equity positions resulting from mergers and acquisitions.

**Education/professional involvement**

Nate graduated from Marquette University with a bachelor of science in business administration, majoring in finance and accounting. He is a member of the American Society of Appraisers.



## Appendix D – Economic Outlook

## THE NATIONAL ECONOMIC REVIEW

### Third Quarter 2017

#### General Economic Overview

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#### Gross Domestic Product

According to advance estimates released by the Department of Commerce's Bureau of Economic Analysis (the "BEA"), Real Gross Domestic Product ("GDP"), the output of goods and services produced by labor and property located in the United States, increased at an annualized rate of 3.0% during the third quarter of 2017, despite the potentially dampening effect of several severe hurricanes. GDP growth in the first and second quarters of 2017 measured 1.2% and 3.1%, respectively.<sup>1</sup> The following table summarizes the change in individual components of GDP during the third quarter of 2017.

Real Gross Domestic Product		
Quarterly Change: Third Quarter 2017		
Increase Attributable to Gains in:	Unchanged	Increase Offset by Decreases in:
Personal Consumption Expenditures		Residential Fixed Investment
Private Inventory Investment		State and Local Government Spending
Nonresidential Fixed Investment		
Exports		
Federal Government Spending		
Imports (Decreased, subtracted from the national income and product accounts)		

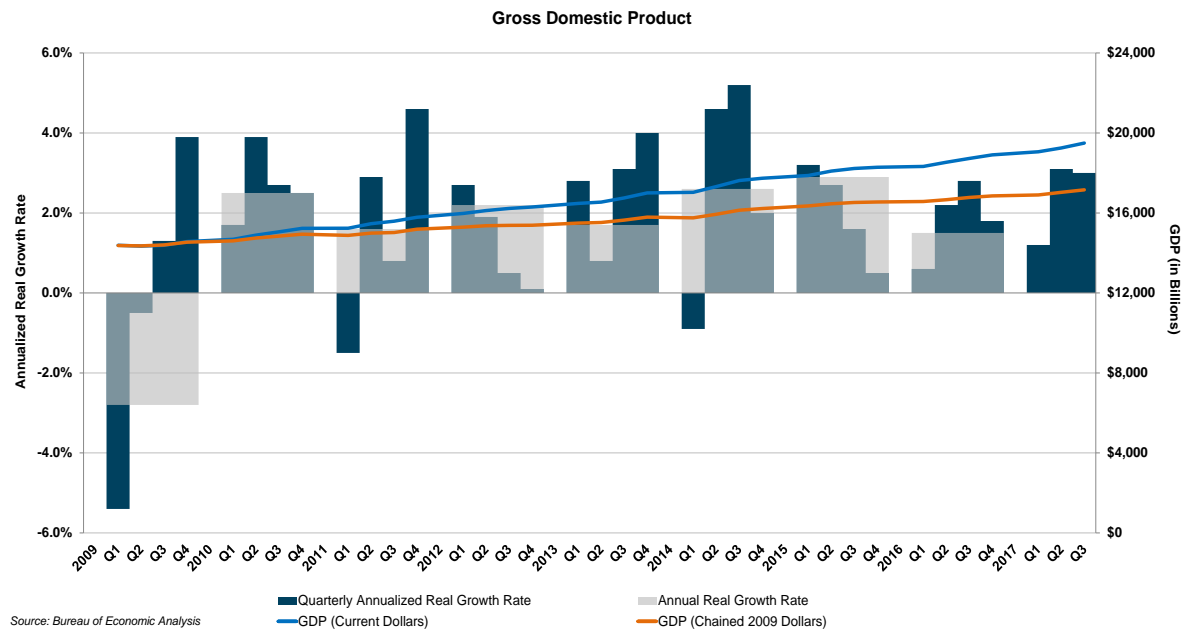
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<sup>1</sup> Revisions to the GDP calculation resulted in the BEA releasing revised GDP estimated for 2014 through the first quarter of 2017. As a result, numbers presented throughout this edition of the NER may differ slightly from previous publications. Additionally, the BEA intends to revise further its GDP calculations beginning in 2018 in order to remove seasonal quirks that impact first quarter data. It is expected that all "residual seasonality" will be removed after 2018.

## THE NATIONAL ECONOMIC REVIEW Third Quarter 2017

Real GDP grew 1.5% during 2016, compared to growth of 2.6% in 2014 and 2.9% in 2015. Annualized GDP growth of 3.0% during the third quarter of 2017 compares to economists' projections of 2.5% and 2.4% (*Bloomberg Survey* and *Wall Street Journal Survey*, respectively).

Exports increased 2.3% in the third quarter, compared to increases of 7.3% and 3.5% in the first and second quarters of 2017, respectively. Durable goods expenditures increased at an annualized rate of 8.3% over the quarter, following a decrease of 0.1% in the first quarter of 2017 and an increase of 7.6% in the second quarter of 2017. Economists expect GDP to increase at a stable rate in future years. A survey of economists conducted by *The Wall Street Journal* reflects an average GDP forecast of 2.7% annualized growth in the fourth quarter of 2017.



## THE NATIONAL ECONOMIC REVIEW

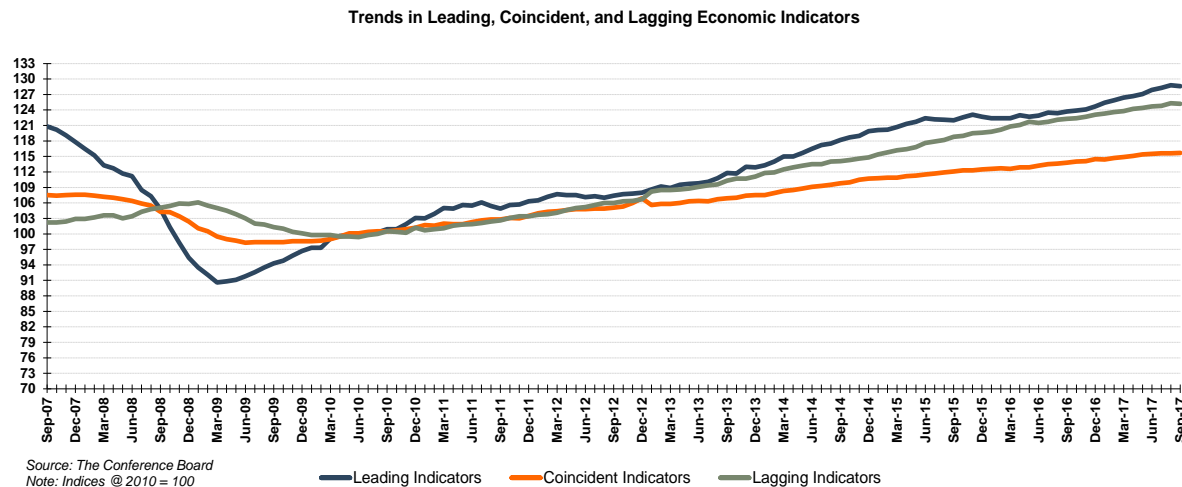
### Third Quarter 2017

#### Economic Indicators

The Conference Board (“TCB”) reported that the Leading Economic Index (“LEI”), the government’s primary forecasting gauge, declined in September 2017, the first decline in twelve months. The following table summarizes changes during the third quarter to the economic indices tracked by the Conference Board.

Conference Board Economic Indicators					
	July	August	September	Six Month Ending March 2017	Six Months Ending Sept. 2017
<b>Leading Economic Index</b>	0.3%	0.4%	-0.2%	2.2%	1.7%
<b>Coincident Economic Index</b>	0.1%	0.0%	0.1%	1.0%	0.7%
<b>Lagging Economic Index</b>	0.1%	0.4%	-0.1%	1.2%	1.1%

Traditionally, the LEI is thought to gauge economic activity six to nine months in advance. Consecutive moves in the same direction are thought to be indicative of the general direction of the economy.



## THE NATIONAL ECONOMIC REVIEW

### Third Quarter 2017

Overall, the Conference Board economists view the LEI's recent movements as a sign of potential growth, despite the September decline. According to the Director of Business Cycles and Growth Research at TCB, Ataman Ozyildirim, "The US LEI declined slightly in September for the first time in the last twelve months, partly a result of the temporary impact of the recent hurricanes." He added, "The source of weakness was concentrated in labor markets and residential construction, while the majority of the LEI components continued to contribute positively. Despite September's decline, the trend in the US LEI remains consistent with continuing solid growth in the US economy for the second half of the year." Six of the LEI's ten leading economic indicators increased during September 2017, four decreased, and none remained unchanged. The following table shows the changes among the indicators. Over the six month period that ended September 2017, the LEI increased 1.7%, compared to 2.2% during the prior six month period.

Leading Economic Indicators		
Monthly Change - September 2017		
Increased	Unchanged	Decreased
ISM® New Orders Index		Average Weekly Initial Claims for Unemployment Insurance (Inverted)
Interest Rate Spread		Building Permits
Leading Credit Index™ (Inverted)		Average Weekly Manufacturing Hours
Stock Prices		Manufacturers' New Orders for Nondefense Capital Goods Excluding Aircraft
Average Consumer Expectations for Business Conditions		
Manufacturers' New Orders for Consumer Goods and Materials		

### Historical Business Cycle and Fiscal Situation

In September 2010, the Business Cycle Dating Committee of the National Bureau of Economic Research ("NBER") determined that the contraction that began in December 2007 had ended in June 2009. The following table provides perspective concerning NBER business cycles dating from the Great Depression to the

## THE NATIONAL ECONOMIC REVIEW

### Third Quarter 2017

present. (The contraction period measures from the peak to the trough. The expansion period measures from the previous trough to the peak.) The 2008/2009 contraction represented the longest of 13 contractions subsequent to the Great Depression. September 2017 marks 99 months (over eight years) of expansion since the June 2009 trough. No economic expansion in U.S. history has lasted more than ten years.

NBER Business Cycle Reference Dates (1929 - June 2009)			
Month & Year of Economic		Duration in Months of	
Peak	Trough	Contraction	Prior Expansion
August 1929	March 1933	43	21
May 1937	June 1938	13	50
February 1945	October 1945	8	80
November 1948	October 1949	11	37
July 1953	May 1954	10	45
August 1957	April 1958	8	39
April 1960	February 1961	10	24
December 1969	November 1970	11	106
November 1973	March 1975	16	36
January 1980	July 1980	6	58
July 1981	November 1982	16	12
July 1990	March 1991	8	92
March 2001	November 2001	8	120
December 2007	June 2009	18	73

A series of debt ceiling crises and budget battles has impacted the economy during the last several years. Through actions such as the Budget Control Act of 2011, the Supercommittee tasked with budget deficit reduction, and the 16-day government shutdown in October 2013, government fiscal policy has influenced economic performance. According to a report released by the White House in November 2013, the shutdown resulted in an estimated minimum of \$2 billion in lost economic output. Further potential shutdowns have been avoided through the passing of budgets or continuing resolutions. Budget battles were largely insignificant through most of 2016. In May 2017, President Trump's proposed budget included cuts to both lower tax rates and cut welfare programs. In September 2017, Senate Republicans reached a deal that would allow for tax cuts over the coming decade, even though the House budget does not allow for the size of tax cuts authorized by the Senate. A government shutdown seemed unlikely as the third quarter drew to a close.

The proposed budget by President Trump also relied on the repeal of the Affordable Care Act (the "ACA," also known as "Obamacare") to generate expense savings. In June 2017, Republican leaders proposed a bill that would repeal major parts of the ACA and cut funding for Medicaid. In September 2017, Senate Republicans canceled a vote on the bill, effectively tabling Republican efforts to repeal the ACA until at least 2018. Instead, Republicans pledged to focus on an

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overhaul of the tax code.

The Congressional Budget Office (the “CBO”) announced a \$668 billion budget deficit during fiscal 2017, which was \$82 billion more than the deficit in fiscal 2016. However, after accounting for the impact of payment and receipt timing, the CBO estimated that the deficit would have been roughly \$121 billion during fiscal 2017. The CBO estimated that outlays (adjusted for timing shifts) were 3% higher during fiscal 2017 compared to the prior year, while receipts increased 1% over the same period.

International trade is also currently in a state of uncertainty. Fulfilling a campaign promise, President Donald Trump formally withdrew from the Trans-Pacific Partnership (the “TPP”) in January 2017. While the U.S. maintains trade treaties with several countries that were involved with the TPP, further deals are likely needed to boost imports to the region. President Trump largely backed away from campaign promises to rewrite or eliminate the North American Free Trade Agreement (also known as “NAFTA”). Instead of seeking a full repeal, the Trump administration has shifted its focus to modernizing the trade deal, including its treatment of state-owned enterprises, and intellectual property rights. Negotiations began in the third quarter of 2017 and have drawn on language from the TPP to address e-commerce and small business regulation. As of the end of the quarter, the current debates focuses on the handling of trade disputes and the rules of origin impacting tariffs. Negotiations are expected to continue throughout the fourth quarter of 2017.

### ***Consumer Spending and Inflation***

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#### **Inflation**

According to the Bureau of Labor Statistics (“BLS”), the Consumer Price Index (“CPI”) increased 0.5% in September 2017 (on a seasonally adjusted basis), following increases of 0.1% and 0.4% in July and August, respectively. The unadjusted CPI stood at 246.8 (CPI-U all urban consumers, 1982-1984 = 100). The CPI increased 2.2% over the previous twelve months on an unadjusted basis. The Core CPI, which excludes food and energy prices, increased 0.1% in September, following increases of 0.1% and 0.2% in July and August, respectively. The Core CPI increased 1.7% on an unadjusted basis over the previous twelve months. Gasolines prices jumped as a result of Hurricane Harvey while other price increases remained limited.

The Producer Price Index (“PPI”) is generally recognized as predictive of near-term consumer inflation. The PPI for total final demand (seasonally adjusted), increased 0.4% in September 2017, following a decrease of 0.1% in July and an increase of 0.2% in August. The PPI for final demand excluding foods, energy, and trade increased 0.2% in September on a seasonally adjusted basis, and after no change in July and an increase of 0.2% in August. On an unadjusted basis, the twelve-month change in the final demand PPI was an increase of 2.6% through September 2017. The unadjusted PPI for final demand excluding foods, energy, and trade increased 2.1% in the last twelve months.



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#### **Oil and Gasoline**

During a November 2016 meeting, the Organization of Petroleum Exporting Countries (“OPEC”) instituted production cuts for the first time in eight years. OPEC and eleven other oil-production countries (including Russia) ultimately reduced output by 1.8 million barrels a day. In May 2017, OPEC extended output cuts, with plans of continuing output reduction for nine or twelve months. OPEC’s stated goal was keeping the price of oil above \$50 per barrel and aimed to bring stocks down to 2.7 billion barrels. By June 2017, the price of crude oil had fallen to pre-agreement levels. Libya and Nigeria, exempt from cuts, had increased crude production, and Russia is unlikely to maintain production cuts in future months. The reduced production of OPEC countries had been largely offset by North American shale oil production. Output fell in August for the first time since March, and by September 2017, crude inventories had fallen, even though several member countries were producing at higher-than-agreed-upon levels. The current agreement expires in March 2018, and OPEC members are already discussing renewal terms.

Ongoing oil prices remain below normal levels, but exploration and production activities have recovered significantly from their low in May 2016. The Baker Hughes North American (U.S.) total oil rig count was stable during the third quarter of 2017 and increased 80% over rig counts twelve months ago. West Texas Intermediate (“WTI”) crude traded on the New York Mercantile Exchange (“NYMEX”) rose to \$51.67 per barrel near the end of the quarter, and Brent Light Crude Oil (“LCO”) ended the quarter at \$57.54 per barrel. This represents oil’s first quarterly price gain during 2017.

In addition to OPEC limitations, Hurricane Harvey in August damaged refineries in Texas, temporarily increasing fuel prices. At the end of the quarter, three refineries remained closed. Overall refinery operations increased 10% in the last week of September on a week over week basis. Gradually increasing production was leading to lower gasoline prices at the end of the month.

#### **Retail Sales and Personal Consumption**

According to the Census Bureau of the U.S. Department of Commerce, the advance estimates of U.S. retail and food service sales (adjusted for seasonal, holiday, and trading-day differences) for September 2017 increased 1.6% from the previous month and increased 4.4% relative to September 2016. Core retail and food service sales (which exclude motor vehicles & parts) increased 1.0% relative to the previous month and increased 4.6% relative to September 2016. In the third quarter of 2017, retail and food service sales increased 0.9% relative to the second quarter of 2017 and were 3.9% above the level observed in the third quarter of 2016.

Personal consumption spending represents approximately 70% of total economic activity and is a primary component of overall economic growth. Real personal consumption spending increased 2.4% in the third quarter of 2017, following increases of 1.9% and 3.3% in the first and second quarters, respectively. According to the Bureau of Economic Analysis, durable goods purchases increased 8.3% in the third quarter of 2017, following a decrease of 0.1% in the first quarter and an increase of 7.6% in the second quarter.

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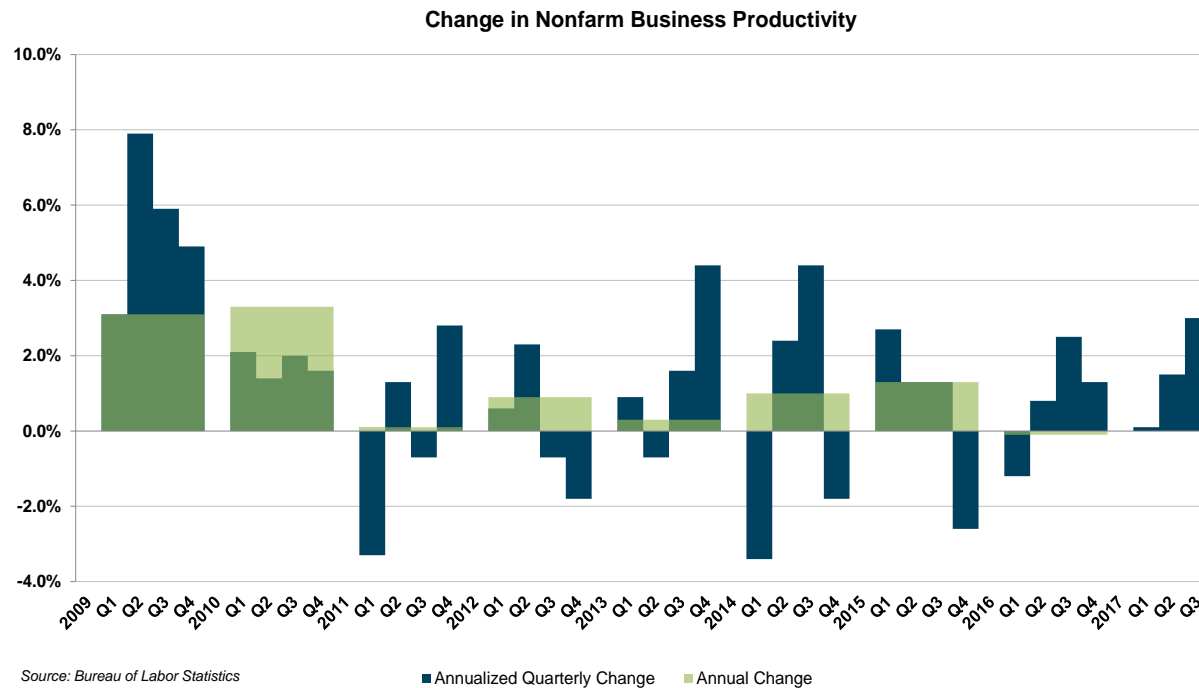
### *Business and Manufacturing Productivity*

According to the BLS, seasonally adjusted nonfarm business productivity (as measured by the hourly output of all persons) increased at an annual rate of 3.0% in the third quarter of 2017. The productivity increase in the third quarter follows a decrease of 0.8% in the first quarter and an increase of 1.4% in the second quarter. Productivity increased 1.5% in the third quarter of 2017 relative to the third quarter of 2016. The following table summarizes the changes in individual components of productivity during the third quarter of 2017.

<b>Nonfarm Business Productivity</b>		
<b>Quarterly Change: Third Quarter 2017</b>		
<b>Increase Attributable to Gains in:</b>	<b>Unchanged</b>	<b>Increase Offset by Decreases in:</b>
Labor Productivity		
Output		
Hours Worked		
Hourly Compensation		
Real Hourly Compensation		
Unit Labor Costs		

Productivity increased 3.6% for the business sector (inclusive of farming activity) in the third quarter of 2017. Manufacturing productivity decreased 5.0% during the quarter.

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### ***Industrial Production and Capacity Utilization***

According to the Federal Reserve, seasonally adjusted industrial production increased 0.3% in September 2017, following decreases of 0.1% and 0.7% in July and August, respectively. Overall industrial production during the third quarter decreased at an annualized rate of 1.5%. This decrease follows increases of 1.5% and 5.6% in the first and second quarters, respectively. During the third quarter of 2017, manufacturing output decreased at an annualized rate of 2.2%, following increases of 2.3% and 2.5% in the first and second quarters, respectively. Mining output increased at an annualized rate of 6.3% during the third quarter of 2017.

Seasonally adjusted capacity utilization was 76.0% in September 2017, after measures of 76.5% and 75.8% in July and August, respectively. Capacity utilization in September was 3.3 percentage points below the long-run average. Capacity utilization in September 2016 was 75.6%. September 2017's overall capacity was unchanged relative to September 2016. Capacity utilization for the third quarter measured 76.1%, up from 75.8% and 76.6% in the first and second quarters, respectively.

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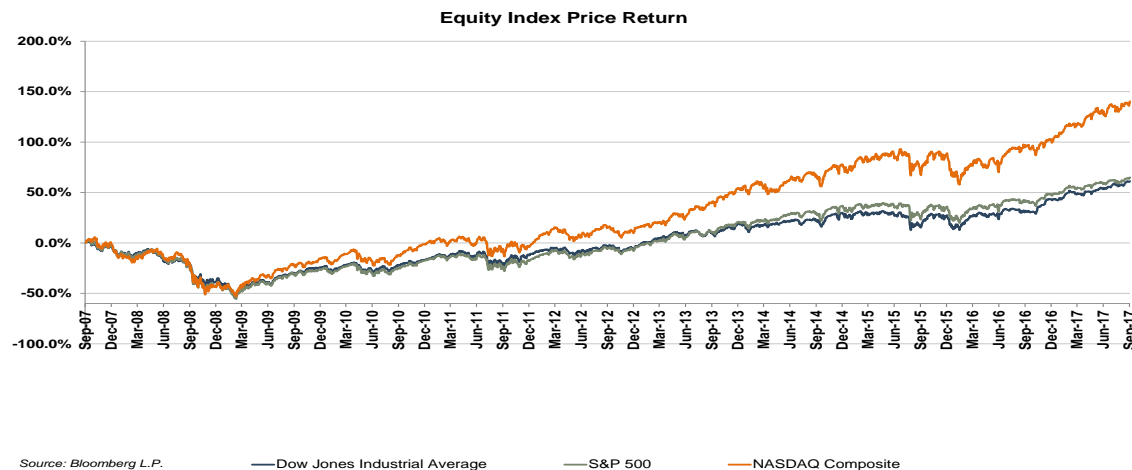
### Third Quarter 2017

#### The Financial Markets

The stock market generally experienced gains during the third quarter of 2017. Although hurricanes disrupted normal economic activity, all four major indices experienced quarterly gains of 4.0% or greater during the third quarter.

- » The Dow Jones Industrial Average ended the third quarter of 2017 at 22,405, up 4.9% for the quarter, following gains of 4.6% and 3.3% in the first and second quarters, respectively. The Dow was up 13.4% during 2016.
- » The S&P 500 Index increased 4.0% during the third quarter to close at 2,519, following gains of 5.5% and 2.6% in first and second quarters, respectively. The S&P 500 was up 9.5% in 2016.
- » The NASDAQ Composite Index increased 5.8% during the third quarter to close at 6,496, following gains of 9.8% and 3.9% in the first and second quarters of 2017, respectively. During 2016, the NASDAQ rose 7.5%.
- » The broad market Wilshire 5000 Index closed at 26,233, a gain of 4.0% over the quarter, following gains of 5.1% and 2.5% in the first and second quarters, respectively. The Wilshire 5000 index was up 10.7% during 2016.

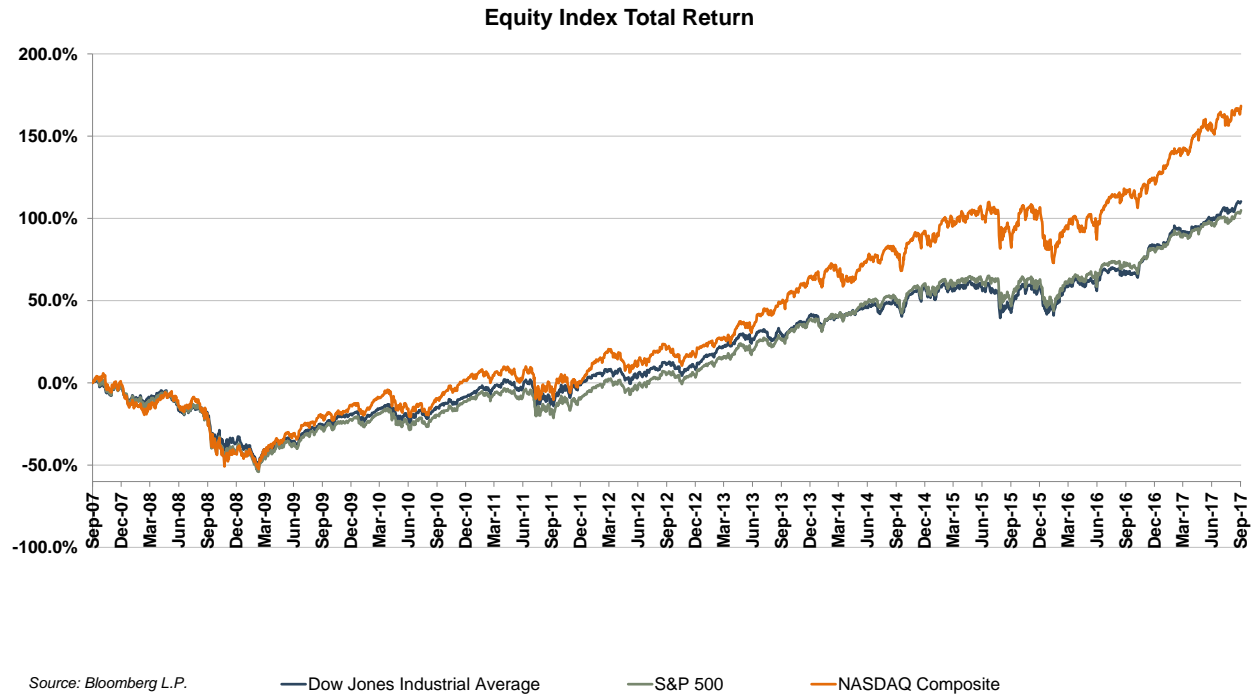
The following chart shows the relative price performance of the Dow Jones Industrial Average, S&P 500, and NASDAQ Composite Indices.



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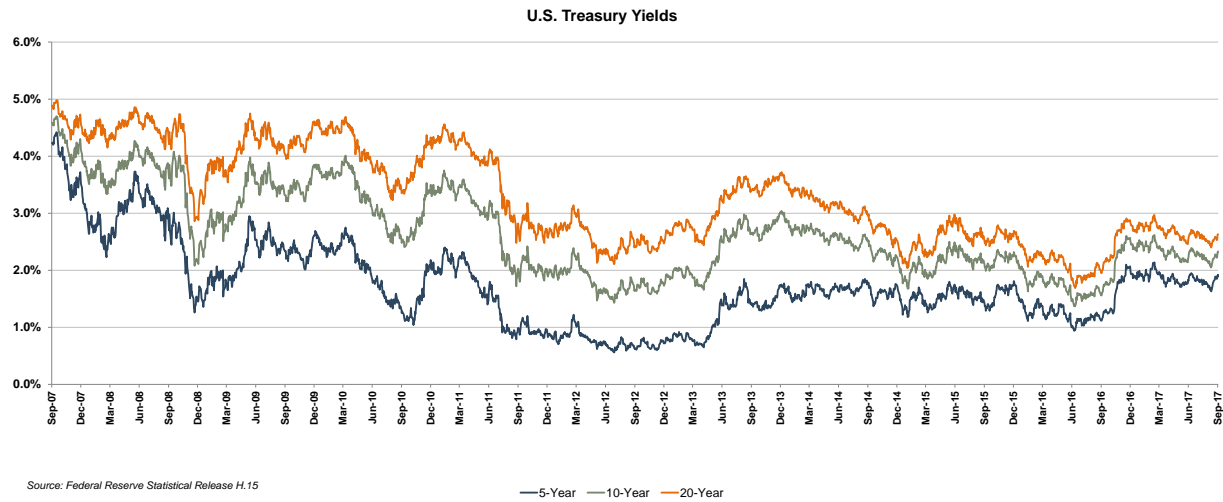
### Third Quarter 2017

The following chart shows the relative total return performance (which includes reinvested dividends) of the Dow Jones Industrial Average, S&P 500, and NASDAQ Composite Indices.

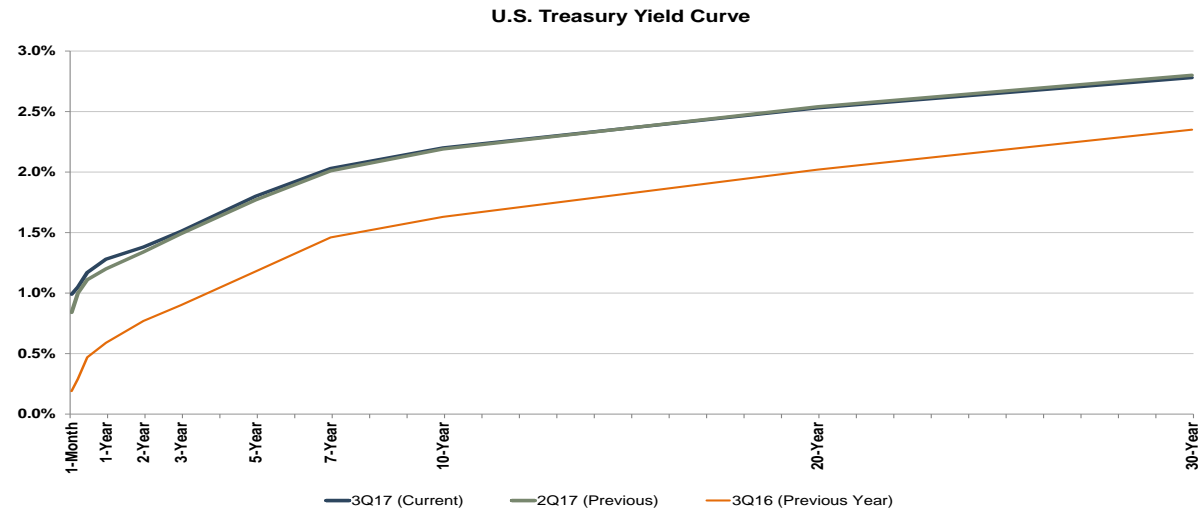


Shorter term yields increased during the second quarter of 2017, but Treasuries with maturities greater than three years experienced falling yields relative to the first quarter of 2017. Bond prices fell slightly relative to the second quarter, resulting in rising yields. Although yields at the end of the third quarter were largely similar to the yields during the second quarter, they were significantly higher relative to the third quarter of 2016. Bond prices are negatively correlated with their respective yields. Bond prices can shift abruptly due to investor reactions to major variances in reported economic data versus market expectations (e.g., expected inflation, growth, monetary policy, and other Federal Reserve actions).

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Economists surveyed by *The Wall Street Journal* anticipate yields to rise steadily over the next several years.

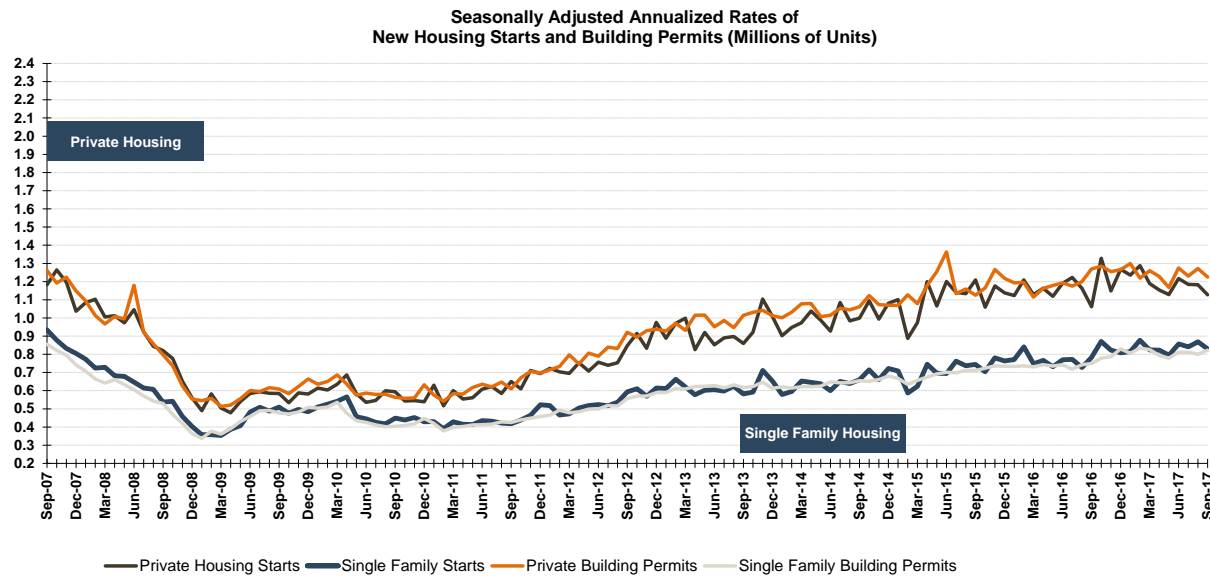


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#### Housing Market

Home building activity has traditionally been a primary driver of overall economic activity because new home construction stimulates a broad range of industrial, commercial, and consumer spending and investment. According to the U.S. Census Bureau, new privately owned housing starts were at a seasonally adjusted annualized rate of 1,127,000 units in September 2017, 4.7% below the revised August rate of 1,183,000 units but 6.1% above the September 2016 rate. The seasonally adjusted annual rate of private housing units authorized by building permits (considered the best indicator of future housing starts) was 1,215,000 units in September 2017, 4.5% below the revised August estimate of 1,272,000 and 4.3% below the September 2016 rate.



Source: U.S. Census Bureau

Note: Permits at a given date are generally a leading indicator of future starts. Beginning with January 2004, building permit data reflects the change to the 20,000 place series.

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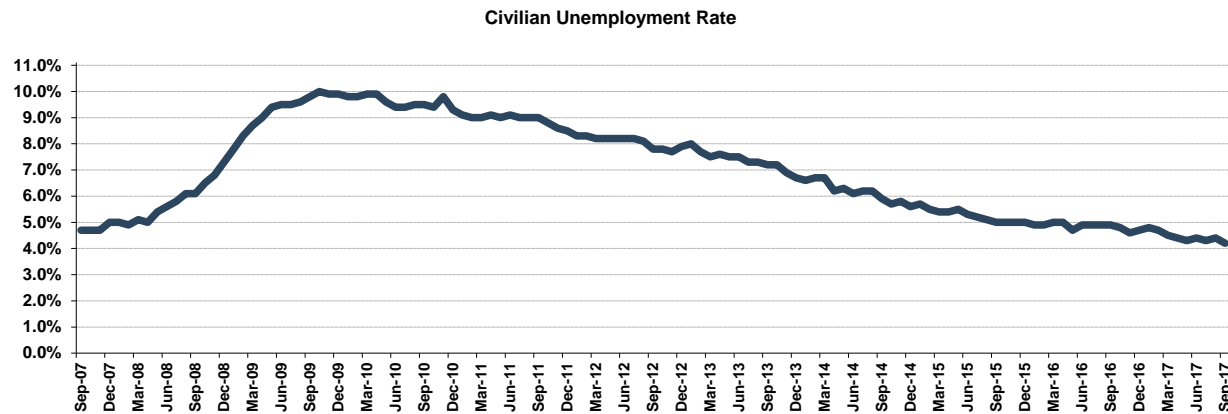
### Third Quarter 2017

According to the National Association of Realtors (“NAR”), existing-home sales (at a seasonally adjusted annual rate) totaled 5.39 million in September 2017, 0.7% above the August level of 5.35 million, but 1.5% below the September 2016 level. September’s rate of home sales is the slowest over the past year and was likely impacted by hurricane activity. First-time home buyers purchased 29% of existing homes. Housing inventory stood at 1.90 million existing homes, representing 4.2 months of supply at the current sales pace, and is down from 4.5 months in September 2016. Properties stayed on the market an average of 34 days in September 2017, up from 30 days in August but down from 39 days in September 2016. The national median existing-home price increased 4.2% relative to September 2016. Distressed sales, which include foreclosures and short sales, accounted for approximately 4% of sales in September 2017, unchanged from both the prior month and September 2016.

### ***Unemployment and Payroll Jobs***

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According to the BLS, the unemployment rate (U-3) was 4.2% in September 2017, compared to 4.3% in July and 4.4% in August. The BLS does not believe that hurricane activity impacted unemployment data. September’s unemployment rate is the lowest rate observed since February 2001. The underemployment rate (U-6), which includes workers who are involuntarily working part-time positions, fell to 8.3%, compared to 8.6% in both July and August. Economists surveyed by *The Wall Street Journal* anticipate unemployment rates of 4.2% and 4.1% in December 2017 and June 2018, respectively.



Source: Bureau of Labor Statistics



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In September 2017, the labor force participation rate stood at 63.1% (relative to mid- to high- 60s prior to the recession). Excluding the recent trend, the last time the labor force participation rate was lower than its current level was 1978. The number of nonfarm payroll jobs decreased by 33,000 in September 2017, though the BLS indicated that hurricane activity may have led to underestimation of payroll employment. September's loss follows increases of 138,000 and 169,000 jobs in July and August, respectively. September 2017 is the first payroll employment loss in seven years. The steady growth of the labor force has largely offset payroll gains, keeping the labor force participation rate low despite years of payroll growth since the end of the Great Recession. Population growth adds approximately 112,000 individuals to the workforce per month. Economists surveyed by *The Wall Street Journal* anticipate payroll gains of approximately 165,000 jobs per month over the next year.

#### ***Monetary Policy and Interest rates***

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The Federal Reserve's Open Market Committee ("FOMC") lowered its target for the federal funds rate to a range of 0% to 0.25% during the fourth quarter of 2008 in an effort to stimulate the economy throughout the Great Recession. Target rates were held steady during 2009 and remained unchanged for several years. The accommodative monetary policy actions used to keep interest rates low included the purchase of agency mortgage-backed securities and long-term Treasury securities. These asset purchases were reduced by \$10 billion (in aggregate) per month beginning in January 2014, and the asset purchase program was officially terminated in October 2014. In December 2015, the FOMC increased the target range for the federal funds rate for the first time since the start of the Great Recession. The FOMC increased the range again in December 2016 and March 2017. In June 2017, the

FOMC increased the target federal funds rate to a range of 1.0% to 1.25%, based on employment gains, inflation rates, household spending, and business investment. The FOMC elected to maintain this range at their September 2017 meeting, citing hurricane disruptions weighing down expected moderate growth. The FOMC noted that exports and business investment are both strong, while inflation declined since its prior meeting. The FOMC does not believe that the shortfall in inflation implies any economic concerns. While the FOMC is expected to raise the target range again in December, some experts are concerned that lower-than-expected inflation may delay the FOMC's actions.

The following was excerpted from the Federal Reserve's September 20<sup>th</sup> press release:

*In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at 1 to 1-1/4 percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.*

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*In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.*

The FOMC also announced its intention to reduce the size of its balance sheet beginning in October 2017:

*The Committee intends to gradually reduce the Federal Reserve's securities holdings by decreasing its reinvestment of the principal payments it receives from securities held in the System Open Market Account. Specifically, such payments will be reinvested only to the extent that they exceed gradually rising caps.*

- *For payments of principal that the Federal Reserve receives from maturing Treasury securities, the Committee anticipates that the cap will be \$6 billion per month initially and will increase in steps of \$6 billion at three-month intervals over 12 months until it reaches \$30 billion per month.*
- *For payments of principal that the Federal Reserve receives from its holdings of agency debt and mortgage-backed securities, the Committee anticipates that the cap will be \$4 billion per month initially and will increase in steps of \$4 billion at three-month intervals over 12 months until it reaches \$20 billion per month.*
- *The Committee also anticipates that the caps will remain in place once they reach their respective maximums so that the Federal Reserve's securities holdings will continue to decline in a gradual and predictable manner until the Committee judges that the Federal Reserve is holding no more securities than necessary to implement monetary policy efficiently and effectively.*

The FOMC continues:

*The Committee affirms that changing the target range for the federal funds rate is its primary means of adjusting the stance of monetary policy. However, the Committee would be prepared to resume reinvestment of principal payments received on securities held by the Federal Reserve if a material deterioration in the economic outlook were to warrant a sizable reduction in the Committee's target for the federal funds rate. Moreover, the Committee would be prepared to use its full range of tools, including altering the size and composition of its balance sheet, if future economic conditions were to warrant a more accommodative monetary policy than can be achieved solely by reducing the federal funds rate.*

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#### ***Summary and Outlook***

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The Great Recession reached its official end in mid-2009, and the subsequent period of expansion has been characterized by slow gains. The housing market has largely recovered, although future interest rate increases could slow future home sales. Growth in the economy remains modest. Equity markets have experienced significant growth over the past several months. The unemployment rate has remained stable for several months and the recent loss of payroll jobs is not expected to continue. Labor force participation remains low but has been stable for several months. Economic growth is expected to remain positive, though rising interest rates may dampen future growth. Inflation rates remain lower than expected and may interfere with the Federal Reserve's plans to increase interest rates. Hurricanes and adverse weather disrupted many economic activities in the third quarter. GDP growth expectations from private economists surveyed by *The Wall Street Journal* are on the order of 2.7% and 2.4% for the fourth quarter of 2017 and the first quarter of 2018, respectively, and 2.3% for all of 2017. This compares to annual GDP growth of 2.6%, 2.9%, and 1.5% in 2014, 2015, and 2016, respectively. The Federal Reserve is planning to reduce its balance sheet at a steady and predictable rate. Many aspects of the future economy remain uncertain, including future inflation and GDP performance.

## Appendix E - Industry Outlook

**Power Generation Industry, October 9, 2017<sup>7</sup>**

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<sup>7</sup> Solar Power Generation Industry, *First Research Industry Profile*, Hoover's Inc., October 9, 2017.

INDUSTRY PROFILE

# Solar Power Generation

10.9.2017

NAICS CODES: 221114

SIC CODES: 4911

## Industry Overview

Companies in this industry operate solar electric power generation facilities. Major companies include diversified electric utilities and independent producers Berkshire Hathaway Energy, NextEra Energy, Pacific Gas and Electric, Southern California Edison, SunEdison, and TerraForm Power (all based in the US); as well as United Photovoltaics (Hong Kong), Enerparc (Germany), Lightsource Renewable Energy (UK), and CECEP (China).

Europe is the most advanced market for solar energy generation, though Asia is gaining quickly. China leads the world in installed solar energy capacity, followed by Germany, Japan, the US, and Italy. China also dominates manufacturing of photovoltaic (PV) cells, the leading technology used to produce solar power, accounting for about two-thirds of global production.

The US solar power generation industry includes about 100 establishments (single-location companies and units of multi-location companies) with combined revenue of \$430 million that provide a small but growing amount of the nation's electricity. Overall, solar energy accounts for about 1% of the energy consumed in the US.

## Competitive Landscape

As with other power sources, demand for solar power is driven by residential, commercial, and industrial electricity demand, which increases with population and **economic growth**. Additionally, growing concern over environmental and geopolitical issues surrounding fossil fuels has boosted interest in renewable energy sources such as solar.

The profitability of individual companies is determined by government regulations and incentives, as well as technological factors. Large companies have an advantage in their ability to secure the financing necessary to build solar power generation facilities. Small companies can compete by attracting **venture capital** and using government subsidies. The US industry is **highly concentrated**: the 50 largest firms generate more than 95% of total revenue. The top 10 utilities involved in solar power generation account for about 70% of cumulative solar capacity in the US, according to the Solar Electric Power Association.

The competitive environment for solar power generation is complex, as the independent power producers and utilities that offer solar power often do so as part of a larger **power portfolio**; coal and natural gas continue to dominate the power generation market. As a technology, solar competes with other forms of renewable energy, such as wind power, for investment dollars.

## Products, Operations & Technology

Solar producers use two technologies to convert energy from the sun into electricity: **photovoltaic (PV) power** and **concentrated solar power (CSP)**. PV accounts for about 90% of US solar energy capacity, CSP for about 10%. PV cells convert solar energy directly into electricity, while CSP devices concentrate energy from the sun's rays to heat a receiver to high temperatures. This heat is transformed first into mechanical energy (by turbines or other engines) and then into electricity.

PV devices have solar cells made from semiconducting materials such as **silicon**. Individual cells, which are typically 6.5-inch squares, generate about 3 to 5 watts of electricity each hour in full sunlight, and the average 60-cell grid generates about 265 watts per hour. These cells are combined into packaged, weather-proof modules, thousands of which are connected to form a solar plant array. PV devices convert **sunlight** directly into electricity, but an inverter must be used to convert the direct current (DC) produced by the solar cells into alternating current (AC) used by the **utility grid**; some amount of energy is lost during this process.

CSP plants utilize heat from **solar thermal collectors**. Power plant-grade collectors typically take the form of **parabolic troughs**, **solar dishes**, or **solar towers**. The collectors use long, parabolic reflectors that tilt with the

sun as it moves across the sky. The reflectors focus sun rays on a receiver pipe filled with fluid. The heated fluid is used to produce steam, which in turn powers turbines just as in a fossil fuel or nuclear-powered system.

In recent years, the economics of large-scale solar power generation have turned decidedly in favor of PV technology. CSP systems once were less expensive than PV, but the cost of PV devices has dropped considerably. PV panels also produce power more efficiently. CSP systems require mechanical generators, which necessitate cooling systems. PV systems can be installed more quickly and require less space than a CSP plant, minimizing their **environmental impact**.

In addition to running **central generation** solar plants, some solar power producers also use **distributed generation**. Distributed generation places the power generation equipment close to where the power is used, as with PV panels installed on the roof of a business or home. With **net metering**, utilities measure both power consumption and generation, charging customers for usage and crediting them for any excess that is generated and fed back into the grid. Using another distributed generation model, **aggregated distribution**, providers gather electricity from several small to mid-size arrays and sell it in large-scale amounts.

### Technology

Advances in panel technology and market structures have made solar more affordable, leading to growth in **utility-scale projects** and residential installations. Utilities are pursuing innovative grid integration strategies for distributed solar facilities. Supply-side technologies include advanced inverter functionality, energy storage, and production forecasting, while customer efficiencies are provided through demand response and locational deployment strategies. **Energy storage batteries** allow providers to maximize benefits for commercial customers by reducing demand charges.

Information technology is used extensively for metering of electricity and **remote monitoring** and control of solar facilities. Smart meters utilize various communication and networking technologies to transmit data about energy consumption back to utilities. Remote monitoring software can help companies maximize production by measuring output and detecting system malfunctions.

### Sales & Marketing

Solar power generation companies sell to **power brokers and distribution utilities**. In deregulated states, power generators may market directly to end consumers (residential and commercial) and bill for usage through the local electric power distributor. A growing number of utilities own their own solar electricity production facilities, though more commonly they purchase solar energy from **independent power producers (IPP)**.

IPPs primarily sell electricity to wholesale customers through **long-term power supply** or service load agreements. In deregulated markets, retail customers purchase energy services monthly or through multi-year contracts, though some large industrial users require customized solutions. Retail energy rates are market-based, and not subject to traditional cost-of-service regulation by public utility commissions.

In **distributed generation** environments, commercial and residential customers who own solar panels are interconnected with utility grids to buy or sell excess electricity. To increase profitability in these models, some utilities provide financing options for rooftop systems. Utilities also operate **community solar farms**, where businesses and residents own shares in or subscribe to output from a multi-panel solar installation.

Price rates, energy savings, and **environmental sustainability** are the primary marketing focus in the solar industry. Companies tout the benefits of solar via print, broadcast, and TV advertising. Some companies also promote ancillary services such as program design management, testing and certification, and viability assessments. As solar power achieves price parity with fossil fuel-generated energy, solar technologies are becoming **cost-competitive**.

### Finance & Regulation

Solar producers generate revenue primarily through **power purchase agreements (PPA)**. Under PPAs, power producers sell electricity to customers at a fixed price and shoulder the burden of capital investment and maintenance costs. Companies must secure significant funding to finance large-scale solar operations. The US power production industry, which includes solar power generation, is **capital-intensive**: average annual revenue per employee is about \$725,000.

A number of government programs and incentives have been created to encourage adoption of alternative energy sources, chief among them **solar investment tax credits (ITC)**. Designed to encourage residents and businesses to invest in solar energy, these incentives will provide 30% tax credits through 2019. The credits step down to 26% in 2020 and 22% in 2021, and after 2023, the residential credit will drop to zero while the commercial and utility credit will drop to a permanent 10%.

The US solar power generation industry has a working capital turnover ratio of more than 20%. Power generation companies have an **uneven cash flow** during the year due to seasonal power demands, which peak in the summer and winter.

### Working Capital Turnover by Company Size

The working capital turnover ratio, also known as working capital to sales, is a measure of how efficiently a company uses its capital to generate sales. Companies should be compared to others in their industry.



Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available at [www.microbilt.com](http://www.microbilt.com).

### Regulation

In the US, power plant operators are subject to regulation by various federal agencies, including the **Federal Energy Regulatory Commission (FERC)**, as well as state regulatory authorities. FERC oversees and regulates the interstate transmission and wholesale sales of power. The FERC also encourages competition in regional wholesale electric markets, which are controlled by regional transmission system operators.

State authorities oversee industry structure and regulation within state boundaries. Companies must gain approval and licensure from state public utility commissions (PUCs) to construct and operate new power plants. Most states have **Renewable Portfolio Standard (RPS)** regulations that obligate energy providers to generate some portion of their electricity from renewable energy standards.

### International Insights

Worldwide photovoltaic solar capacity, which totaled about 230 gigawatts in 2015, is increasing rapidly from year to year. Europe is the most advanced market for solar energy generation, though Asia is gaining quickly. **China** leads the world in installed solar energy capacity, followed by Germany, Japan, the US, and Italy, according to the Renewable Energy Policy Network for the 21st Century (REN21). Major international companies include diversified electric utilities and power producers United Photovoltaics (Hong Kong), Enerparc (Germany), Lightsource Renewable Energy (UK), and CECEP (China), EDF Renewable Energy (France), and RTR Energy (Italy).

As in the US, the global solar market still relies heavily on **government incentives** and subsidies. Europe's lead in solar energy generation has largely resulted from Feed-in Tariffs (FiTs). Designed to encourage the use of technologies such as solar, FiTs require utilities to purchase electricity generated from renewable resources at above-market rates under a long-term contract. While FiTs have proven to be an effective tool for increasing solar capacity, the system leaves European solar energy providers vulnerable to **government cutbacks**. Countries including Spain and Italy have scaled back FiT payments in the past due to budget constraints and other factors.

The Middle East and North Africa region represents a possible growth market for solar. While fossil fuels are prevalent in the area, solar power has become more **cost-competitive**, and the region includes some of the sunniest countries in the world, such as Chad, Egypt, Niger, Sudan, and the United Arab Emirates. Other countries and regions being targeted for industry expansion include Australia, India, South Africa, South America, and Southeast Asia.

China dominates manufacturing of **photovoltaic (PV)** cells, the leading technology used to produce solar power, accounting for about two-thirds of global production, according to GTM Research.

## Regional Highlights

In the US, solar plants can be located virtually anywhere, but the climate of the Southwest makes the region the nation's best location for large solar facilities. [California](#) is the top state in terms of solar PV capacity, according to Solar Energy Industries Association and GTM Research. Other leaders include [North Carolina](#), [Arizona](#), [New Jersey](#), [Nevada](#), and [Massachusetts](#).

## Human Resources

Due to the specialized training requirements, average **hourly wages** for the US electric power generation industry as a whole are significantly higher than the national average. Injury rates in the industry are about 60% below the national average.

Employment related to solar energy has risen steadily over the past several years, according to The Solar Foundation. Companies in the solar power generation industry have helped fund solar studies programs at some universities.

### Industry Employment Growth Bureau of Labor Statistics



## Industry Growth Rating



**Demand:** Population and economic growth drive electricity production  
**Requires** government support and technological expertise  
**Risk:** Shifts in government support and weak adoption

## Call Prep Questions

### Conversation Starters

**What technologies will allow solar electricity generation to become cost-competitive with fossil fuels?**  
Despite increased funding and rapidly evolving technology, solar energy accounts for about 1% of the energy consumed in the US today.

**How do government subsidies impact the company's projects?**  
As with other forms of alternative energy, the health of the solar industry depends on government subsidies in the US and elsewhere.

**What challenges has the company faced in securing land for solar projects?**  
Solar electricity facilities, and CSP plants in particular, require large tracts of land.

**How have environmental and geopolitical issues affected demand in the industry?**  
Growing concern over climate change and the US's dependency on foreign oil are driving interest in solar energy development.

**What opportunities does the company see in combining solar technology with coal-fired power plants?**  
Though solar energy is widely viewed as an alternative to fossil fuels, some in the industry see cost-cutting



potential in combining solar technology with traditional power sources.

**How might Feed-in Tariffs spark growth in the US solar market?**

Long popular in countries such as Germany and the UK, Feed-in Tariffs (FiTs) are not yet an industry driver in the US.

## **Quarterly Industry Update**

**How has the availability of imported solar panels affected the company's growth?**

A recent ruling by the US International Trade Commission that low-cost solar panels from China and other countries have hurt American manufacturers could lead to new tariffs on imports.

## **Operations, Products, and Facilities**

**Does the company utilize concentrated solar power (CSP) or photovoltaic power (PV) plants?**

Concentrated solar power and photovoltaic power are the primary solar technologies used to generate electricity.

**Does the company operate a centralized plant or utilize a distributed model?**

Distributed generation places the power generation equipment with the customer; aggregated distribution gather electricity from several small to mid-size arrays and sell it in large-scale amounts.

**How does the company use information technology to maximize efficiency?**

Information technology is used extensively for metering of electricity and remote monitoring and control of solar facilities.

## **Customers, Marketing, Pricing, Competition**

**Does the company sell solar electricity to end-use customers or supply it to a utility?**

Under power purchase agreements (PPAs), some producers fund and maintain solar power facilities and sell electricity to utilities at a fixed price under long-term contracts.

**Is the company's power portfolio exclusively solar?**

Independent power producers and utilities that offer solar power often do so as part of a larger power portfolio that includes fossil fuels.

**What is the company's long-term outlook for solar power pricing relative to fossil fuels?**

While solar power has yet to achieve price parity with fossil fuel-generated energy, many expect solar technologies to be cost-competitive in the near future.

## **Regulations, R&D, Imports and Exports**

**What regulatory challenges does the company faced?**

Power plant operators are subject to regulation by various federal agencies, including the Federal Energy Regulatory Commission (FERC), as well as state regulatory authorities.

**What technologies has the company explored for storing solar-generated power?**

A number of technologies for storing solar energy have been developed, including thermal systems that store heat in salt and other media.

## **Organization and Management**

**How does the company minimize turnover of key technical staff?**

Many of the positions in the solar power generation industry require engineering expertise and other specialized training.

**How has industry growth affected the company's recruiting methods?**

Employment has risen steadily across the solar industry over the past several years, according to the Solar Energy Industries Association.

## **Financial Analysis**

**How does the company finance new solar facilities?**

Substantial capital investments are necessary to build solar power generation facilities.

**How might widespread adoption of feed-in tariffs (FiTs) affect the US solar market?**

FiTs require utilities to purchase electricity generated by consumers at above-market rates under a long-term contract.

**What role, if any, do power purchase agreements play in the company's growth strategy?**

Power purchase agreements encourage customers' use of renewable energy sources by removing the burden of capital investment and maintenance costs.

## Business and Technology Strategies

### How much potential does the company see in combining solar power generation with fossil-fuel plants?

Current projects are exploring the cost-cutting potential in combining solar technology with traditional power sources.

### What is the company's outlook for utility-side solar generation?

Utility-scale solar power generation is steadily increasing and is a key driver of industry growth.

## Quarterly Industry Update

### 10.9.2017

**Challenge: US Rules Cheap Imports Hurt US Solar Industry** - A recent ruling by the US International Trade Commission that low-cost solar panels from China and other countries have hurt American manufacturers could lead to new tariffs on imports. The USITC decision has garnered mixed responses from industry players. Suniva Inc. and SolarWorld Americas brought the case to the USITC, saying imports have substantially damaged their business. (Suniva has declared bankruptcy, while SolarWorld recently laid off three-quarters of its workforce.) Meanwhile, Solar Energy Industries Association (SEIA), the main trade group for the US solar industry, called the USITC vote disappointing, saying that any new tariffs could lead to rising prices and a decline in solar installations. Lower costs of solar panels have helped spur growth in the US solar industry.

**Industry Impact** - Solar companies in the US may need to prepare for new tariffs on solar panel imports, which could be imposed in early 2018.

### 7.10.2017

**Trend: Small Businesses Begin to See Solar Investment Opportunities** - Most private investment in alternative power generation assets has come from giant corporations, but now smaller companies are finding it easier to buy in. Major companies such as Wal-Mart and Facebook formed the Renewable Energy Buyers Alliance to share expertise with companies new to the green power purchasing experience, and other organizations are working to make the process more understandable for small to mid-sized businesses, according to *The Wall Street Journal*. Small entities are also beginning to team up to gain purchasing power; for instance, a consortium involving MIT and two nearby entities contracted for about 60 MW from a local solar farm at rates more favorable than the university could have secured on its own. Solar installation costs have dropped more than 60% since 2012, allowing mid-sized businesses such as REI to install on-site solar panels at large facilities such as distribution centers. However, due to the long-term commitments required for solar panel installation or power purchasing agreements, many small to mid-sized firms continue to face challenges in securing green energy.

**Industry Impact** - Solar power producers will likely increase marketing efforts aimed at small and mid-sized business customers in the coming years.

### 4.10.2017

**Trend: Rising Investment in Solar Capacity** - Solar installations played a major role in new power capacity during 2016, both in the US and internationally, as affordability improvements fueled new investment in the market. Utility-scale projects made solar the leading new power capacity source in the US for the first time, according to the Solar Energy Industries Association (SEIA). The organization expects the cumulative US solar market to nearly triple in size over the next five years, though a slight decline is expected in 2017. The average price for a solar photovoltaic system in the US dropped nearly 20% during 2016. Globally, the addition of 71 GW of solar capacity pushed solar ahead of wind as the top source of renewable energy installations for the first time since 2013, according to the International Renewable Energy Agency (IREA). Solar growth was strongest in Asia, with 50 GW of new capacity led by 34 GW in China. Following China, the largest solar additions were in the US (11 GW), Japan (8 GW), and India (4 GW).

**Industry Impact** - Solar power producers should continue to see interest from investors due to system cost declines, infrastructure improvements, and the renewable energy goals of local and national governments.

### 1.9.2017

**Opportunity: Federal Grants Support Rural Solar Projects** - Government programs that help rural businesses invest in renewable energy systems are creating new opportunities for solar companies to work with customers outside of major urban markets. In fiscal year 2016, the USDA invested more than \$300 million to support small businesses and agricultural producers in purchasing new renewable systems and making facilities more energy-efficient. The agency's Rural Energy for America Program (REAP) provides grants for small energy projects as well as loan guarantees for larger regional initiatives. Another USDA program, the Energy Efficiency and

Conservation Loan Program (EECLP), offers low-interest loans for solar photovoltaic and energy storage equipment, with financing arranged through electric utility cooperatives. While customers generating their own electricity on site may pose a competitive challenge to power providers in some markets, energy companies can also benefit from more robust solar grids. Solar companies may be able to sell, finance, and service equipment to businesses looking to install new systems. They could also reduce their own equipment costs by purchasing excess electricity generated by customers' on-site solar energy systems.

**Industry Impact** - Increasing government support for renewable energy could help solar companies expand into new areas, decrease equipment costs, and provide financing options to a larger number of customers.

## Industry Indicators

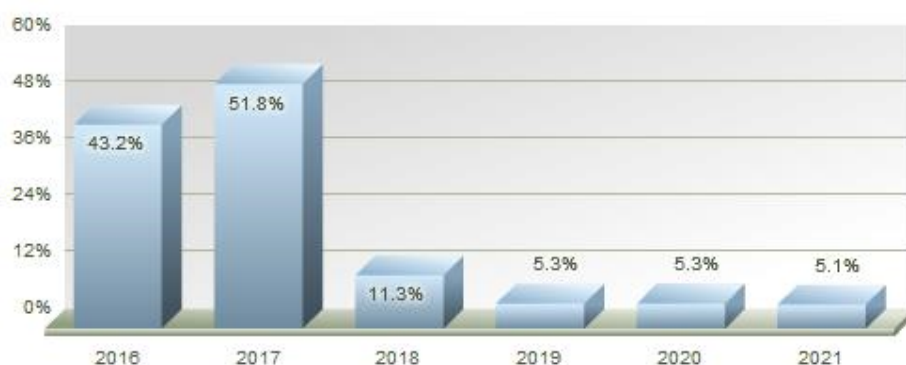
US corporate profits, an indicator of the ability of corporations to invest in alternative energy sources, rose 7.0% in the second quarter of 2017 compared to the same period in 2016.

The bank prime loan rate, an indicator of solar power facilities' cost to finance construction, renovation, and other capital projects, was 4.25% as of the week ending November 14, 2017, up from a rate of 3.5% the same week in 2016.

The value of US nonresidential construction spending, an indicator for potential energy demand, dropped 0.5% year-to-date in September 2017 compared to the same period in 2016.

## Industry Forecast

US solar-generated electricity consumption is forecast to grow at an annual compounded rate of 7% between 2017 and 2021. Data Published: September 2017



First Research forecasts are based on INFORUM forecasts that are licensed from the Interindustry Economic Research Fund, Inc. (IERF) in College Park, MD. INFORUM's "interindustry-macro" approach to modeling the economy captures the links between industries and the aggregate economy. [Forecast FAQs](#)

## Companies

Company	Country	Sales
<a href="#">Solarcity Corporation</a>	United States	\$730.34M
<a href="#">Terraform Power, Inc.</a>	United States	\$654.56M
<a href="#">Sunrun Inc.</a>	United States	\$453.90M
<a href="#">Oci Enterprises Inc.</a>	United States	\$251.80M
<a href="#">Sunrun Installation Services Inc.</a>	United States	\$134.56M

Oci Solar Power LLC	United States	\$44.01M
Darlington Community School District	United States	\$31.78M
Solar Mod Systems, Inc	United States	\$21.00M
RE Barren Ridge 1 LLC	United States	\$19.25M
Cypress Creek Holdings, LLC	United States	\$19.11M
Renewable Energy Partners, Inc	United States	\$11.00M
Innovative Power Systems, Inc.	United States	\$9.69M
8point3 Energy Partners LP	United States	\$9.23M
Oci Solar Tre LLC	United States	\$6.70M
Oci Alamo 9 LLC	United States	\$5.90M
Oci Alamo 8 LLC	United States	\$5.90M
POWER INSTALLS LIMITED LIABILITY COMPANY	United States	\$5.81M
Vivopower USA LLC	United States	\$5.79M
Excelsior Energy Capital LP	United States	\$4.50M
Oci Alamo 6 LLC	United States	\$4.38M
CMI ELECTRIC, INC.	United States	\$3.50M
Ideal Energy, Inc.	United States	\$3.40M
SAFE WAY ELECTRIC CO	United States	\$3.25M
Dfw Solar Electric LLC	United States	\$3.14M
Solar Warehouse, Inc.	United States	\$3.00M
CB Solar, Inc.	United States	\$2.90M
Scatec Solar North America, Inc.	United States	\$2.89M
Solar Ev Systems LLC	United States	\$2.24M
Arcane System Technology, Inc.	United States	\$2.07M
Westport MA 1 LLC	United States	\$2.03M

## Industry Drivers

Changes in the economic environment that may positively or negatively affect industry growth.

Data provided by First Research analysts and reviewed annually



**Energy Prices** Change in crude oil and related energy prices



**Technology Innovation** Advances in science and technology, including information technology



**Government Regulations** Changes in federal, state, or local government regulations or business-related policies

## Critical Issues

**Marketability** - Despite increased funding and rapidly evolving technology, solar energy accounts for about 1% of the energy consumed in the US today. Fossil fuels, by contrast, account for about two-thirds of US energy consumption. Even among renewable energy sources, solar power trails hydropower, wind, and biomass. While interest in solar energy has greatly increased in the last decade, the technology has yet to significantly alter energy consumption in the US. However, the industry is expanding rapidly as solar energy becomes more cost-competitive with energy generated from fossil fuels.

**Dependence on Government Subsidies** - As with other forms of alternative energy, the health of the solar industry depends on government subsidies in the US and elsewhere. Currently in the US, the investment tax credit (ITC), state renewable portfolio standards (RPS), and a combination of residential and commercial tax incentives make solar energy affordable and drive the industry. The ITC currently provides 30% tax credits for eligible home and business solar projects through 2019, stepping down to 26% in 2020 and 22% in 2021. The residential credit is scheduled to drop to zero after 2023, while the commercial and utility credit will drop to a permanent 10%.

## Business Challenges

**Land Use** - Solar electricity facilities, and CSP plants in particular, require large tracts of land. Due to climatic requirements, solar plants in the US are concentrated in the Southwest where water resources are scarce. Solar energy providers may be challenged with opposition from environmentalists concerned with their ecological impact. Some solar projects have also met with resistance from local residents concerned with property values and light and air pollution. As the industry expands, such opposition could increase.

**Energy Storage** - Unlike plants fueled by fossil fuels, which can be run continuously, solar plants are dependent on the sun to maintain production. Overcoming this limitation requires efficient energy storage. A number of technologies for storing solar energy have been developed, including thermal systems that store heat in salt, lithium ion batteries, and other media.

## Business Trends

**Large-Scale Solar** - Large-scale solar installations are responsible for significant industry growth. The total generating capacity of utility-scale installations in the US increased 40% in 2015, adding about 3.5 GW to the grid nationwide, according to Smart Electric Power Alliance. The average capacity of a utility-scale system in the US is about 9 MW, compared to about 6 kilowatts for residential systems and 88 kilowatts for nonresidential systems.

**Photovoltaics Boom** - The photovoltaic (PV) solar industry has grown steadily over the past decade, and the number of utility-scale PV projects has jumped in the last few years. In the US, more than 20 gigawatts of utility-scale PV solar capacity were in the development pipeline at the end of 2016. Growth in the sector is largely due to technological advances that are making PV cells less expensive and more efficient.

**Community Solar Farms Growing in Popularity** - A growing number of utilities are adding community solar programs. Utilities that offer community solar programs allow customers to own shares in or subscribe to output from a multi-panel solar installation. The solar farms are attractive to customers who can't own or lease individual rooftop solar panels. They typically produce about 1 MW of electricity but sometimes have a capacity of more than 5 MW, which is considered utility-scale.

## Industry Opportunities

**Climate Change, Energy Independence** - Growing concern over climate change and the US's dependency on foreign oil are driving interest in solar energy development. The burning of fossil fuels increases production of greenhouse gases that are widely believed to contribute to global warming. US anti-terrorism efforts and the country's military involvement in the Middle East has heightened concerns about importing oil from that region. Industry associations and power providers in the industry have seized on these issues to promote solar.

**Power Plant Integration** - Though solar energy is widely viewed as an alternative to fossil fuels, some in the

industry see cost-cutting potential in combining solar technology with traditional power sources. The Energy Department's Pacific Northwest National Laboratory (PNNL) developed a solar-fossil hybrid power system that converts natural gas and sunlight into a more energy-rich fuel called syngas. Through the system, hybrid solar-gas power plants use about 20% less natural gas to produce the same amount of electricity, while also lowering the plant's greenhouse gas emissions.

**Feed-in Tariffs** - Long popular in countries such as Germany and the UK, Feed-in Tariffs (FiTs) are not yet an industry driver in the US. FiTs require utilities to purchase electricity generated by consumers at above-market rates under a long-term contract. The system is similar to net metering, though the incentive to generate solar energy is greater because homeowners are paid more under a FiT system. Because FiTs can have the effect of raising overall utility rates, they have met with some opposition, but more widespread implementation of FiT programs could spur significant growth in solar electricity generation.

## Executive Insight

### Chief Executive Officer - CEO

#### Achieving Cost Competitiveness

Growing concern over climate change drives interest in solar energy development, but solar energy only accounts for about 1% of the energy consumed in the US today. The price of solar electricity relative to fossil fuels is the largest challenge to the industry.

#### Leveraging Government Subsidies

Until solar-powered electricity generation becomes more affordable, companies must rely on government programs to encourage adoption of solar technologies. Issues driving such legislation include energy independence.

### Chief Financial Officer - CFO

#### Managing Power Purchase Agreements

Under PPAs, power producers fund and maintain solar power facilities and sell electricity to customers at a fixed price under long-term contracts. Such agreements encourage customers' use of renewable energy sources, but the burden of capital investment and maintenance costs then falls to power producers.

#### Utilizing Loan Guarantees

In the US, several federal programs offer loan guarantees that support the development of green technologies. Agencies including the Department of Energy and the USDA provide low-interest loans to help utilities and small businesses install new solar energy systems.

### Chief Information Officer - CIO

#### Monitoring Solar Technology Developments

Concentrated solar power (CSP) and photovoltaic (PV) power are the primary technologies behind solar electricity generation. While CSP is more established for utility-scale projects, large PV deployments have increased in recent years as the technology has become more affordable.

#### Leveraging New Collection and Distribution Models

Net metering lets utilities measure both power consumption and generation, charging customers for usage and crediting them for any excess that is generated and fed back into the grid. Aggregated distribution gathers electricity from several small to mid-size arrays for sale in large-scale amounts.

### Human Resources - HR

#### Competing for Workers

As the solar power generation industry grows, competition for workers intensifies. Some companies in the solar power generation industry have helped fund university-level solar studies programs.

#### Retaining Qualified Personnel

Many of the positions in the solar power generation industry require engineering expertise and other specialized training. Companies must retain qualified workers to ensure success.

### VP Sales/Marketing - Sales

#### Marketing Solar as a Necessity

Growing concern over climate change and the US' dependency on foreign oil are driving interest in solar energy development. Industry associations and power providers in the industry have seized on these issues to promote



solar.

### **Selling Ancillary Services**

As the solar power generation industry grows and becomes more competitive, companies may increasingly look to services for marketing and revenue opportunities. Some companies promote ancillary services such as program design management, testing and certification, and viability assessments.

## **Executive Conversation Starters**

### **Chief Executive Officer - CEO**

#### **What is the company's strategy for making solar electricity competitive with fossil fuels?**

The cost of producing electricity from natural gas, coal, and atomic plants is significantly lower than that of solar power generation. However, solar energy costs are steadily declining while gas and coal plant operating costs are going up.

#### **What new government programs might encourage growth in the industry?**

Currently, the investment tax credit (ITC), state renewable portfolio standards (RPS), and a combination of residential and commercial tax incentives make solar energy affordable and drive the industry.

### **Chief Financial Officer - CFO**

#### **What challenges does the company face in funding its solar operations?**

Solar power producers must secure significant funding to finance large-scale solar operations.

#### **How might the company benefit from government loan guarantee programs?**

In the US, several federal programs offer loan guarantees that support the development of green technologies.

### **Chief Information Officer - CIO**

#### **What is the company's long-term outlook for concentrated solar power versus photovoltaic systems?**

While CSP is more established for utility-scale projects, large PV deployments have increased in recent years.

#### **What new models for power collection and distribution has the company explored?**

Net metering credits customers for excess power that they generate and feed back into the grid; aggregated distribution gathers electricity from several small to mid-size arrays for sale in large-scale amounts.

### **Human Resources - HR**

#### **How have the company's hiring practices changed as the industry has matured?**

Employment has risen steadily across the solar industry over the past several years, according to the Solar Energy Industries Association.

#### **In addition to salary, what types of compensation does the company use to attract qualified personnel?**

Average hourly wages for the electric power generation industry as a whole are significantly higher than the national average.

### **VP Sales/Marketing - Sales**

#### **What is the company doing to communicate the benefits of solar energy?**

Growing concern over climate change and the US' dependency on foreign oil are driving interest in solar energy development.

#### **What types of solar-related services does the company offer?**

Solar-related services include program design management, testing and certification, and viability assessments.

## **Financial Information**

### **COMPANY BENCHMARK TRENDS**

#### **Quick Ratio by Company Size**

The quick ratio, also known as the acid test ratio, measures a company's ability to meet short-term obligations with liquid assets. The higher the ratio, the better; a number below 1 signals financial distress. Use the quick ratio to determine if companies in an industry are typically able to pay off their current liabilities.



Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available at [www.microbilt.com](http://www.microbilt.com).

#### Current Liabilities to Net Worth by Company Size

The ratio of current liabilities to net worth, also called current liabilities to equity, indicates the amount due creditors within a year as a percentage of stockholders' equity in a company. A high ratio (above 80 percent) can indicate trouble.



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#### COMPANY BENCHMARK INFORMATION

NAICS: 221114

Data Period: 2015

Last Update September 2017

Table Data Format

Mean



<b>Company Size</b>	All	Large	Medium	Small
<b>Size by Revenue</b>		Over \$50M	\$5M - \$50M	Under \$5M
<b>Company Count</b>	61	8	6	47

Income Statement				
<b>Net Sales</b>	100%	100%	100%	100%
<b>Gross Margin</b>	46.2%	46.2%	43.6%	50.6%
<b>Officer Compensation</b>	0.6%	0.6%	1.2%	2.8%
<b>Advertising &amp; Sales</b>	0.1%	0.1%	0.1%	0.1%
<b>Other Operating Expenses</b>	18.5%	18.5%	16.9%	22.7%
<b>Operating Expenses</b>	19.2%	19.2%	18.2%	25.5%
<b>Operating Income</b>	27.0%	27.1%	25.4%	25.1%
<b>Net Income</b>	14.4%	14.5%	13.5%	13.3%

Balance Sheet				
<b>Cash</b>	9.8%	9.7%	10.8%	11.0%
<b>Accounts Receivable</b>	2.6%	2.6%	3.0%	3.6%
<b>Inventory</b>	2.8%	2.9%	2.4%	2.4%
<b>Total Current Assets</b>	20.5%	20.5%	20.4%	21.3%
<b>Property, Plant &amp; Equipment</b>	31.7%	31.7%	31.9%	28.3%
<b>Other Non-Current Assets</b>	47.8%	47.8%	47.7%	50.4%
<b>Total Assets</b>	100.0%	100.0%	100.0%	100.0%
<b>Accounts Payable</b>	5.2%	5.2%	5.4%	5.1%
<b>Total Current Liabilities</b>	12.4%	12.4%	13.4%	13.7%
<b>Total Long Term Liabilities</b>	47.2%	47.6%	40.3%	43.6%
<b>Net Worth</b>	40.4%	40.1%	46.3%	42.8%

Financial Ratios (Click on any ratio for comprehensive definitions)				
<b>Quick Ratio</b>	1.05	1.05	1.06	1.10
<b>Current Ratio</b>	1.65	1.66	1.52	1.56
<b>Current Liabilities to Net Worth</b>	30.8%	30.8%	28.9%	31.9%
<b>Current Liabilities to Inventory</b>	x4.37	x4.30	x5.56	x5.64
<b>Total Debt to Net Worth</b>	x1.48	x1.49	x1.16	x1.34
<b>Fixed Assets to Net Worth</b>	x0.79	x0.79	x0.69	x0.66
<b>Days Accounts Receivable</b>	21	21	24	28
<b>Inventory Turnover</b>	x8.69	x8.60	x10.74	x9.42

<b>Total Assets to Sales</b>	262.3%	262.3%	262.3%	262.3%
<b>Working Capital to Sales</b>	21.1%	21.2%	18.4%	20.0%
<b>Accounts Payable to Sales</b>	11.3%	11.3%	11.9%	11.2%
<b>Pre-Tax Return on Sales</b>	23.3%	23.4%	21.8%	21.5%
<b>Pre-Tax Return on Assets</b>	8.9%	8.9%	8.3%	8.2%
<b>Pre-Tax Return on Net Worth</b>	22.0%	22.2%	18.0%	19.1%
<b>Interest Coverage</b>	x4.27	x4.25	x4.60	x4.32
<b>EBITDA to Sales</b>	28.4%	28.4%	26.8%	27.0%
<b>Capital Expenditures to Sales</b>	30.3%	30.3%	29.7%	27.8%

Financial industry data provided by MicroBilt Corporation collected from 32 different data sources and represents financial performance of over 4.5 million privately held businesses and detailed industry financial benchmarks of companies in over 900 industries (SIC and NAICS). More data available at [www.microbilt.com](http://www.microbilt.com).

## ECONOMIC STATISTICS AND INFORMATION

### Index of Industrial Production - Federal Reserve Board



## VALUATION MULTIPLES

No valuation multiples available for this industry.

## Industry Websites

### American Solar Energy Society (ASES)

Issues, jobs, and news for solar advocates and professionals.

### National Renewable Energy Laboratory

Federal laboratory dedicated to renewable energy research.

### pv magazine

Trade publication covering the international photovoltaics (PV) market.

### Smart Electric Power Alliance (SEPA)

Solar industry organization focused on electric utilities.

### Solar Energy Industries Association (SEIA)

Issues, news, and industry data.

### US Department of Energy: Solar Powering America

Solar technology and market information.

### US Energy Information Administration - Renewable & Alternative Fuels

Reports covering renewable energy sources, including solar.

## Glossary of Acronyms

**CSP** - concentrated solar power

**FERC** - Federal Energy Regulatory Commission

**FiT** - Feed-in Tariff

**GW** - gigawatt

**IPP** - independent power producers

**ITC** - Investment Tax Credit

**MW** - megawatt

**PPA** - power purchase agreement

**PV** - photovoltaic

**RPS** - renewable portfolio standard

**SEIA** - Solar Energy Industries Association

**SEPA** - Solar Electric Power Association

# Appendix F - Income Approach

## Discounted Cash Flow Method

In estimating the fair market value of the Project, we used the discounted cash flow (“DCF”) method under the Income Approach. The DCF method estimates the value of a company by discounting forecasted cash flows to their present value based on a risk-adjusted discount rate. Applying a DCF model to the Project requires the following steps:

1. **Estimate the subject company’s forecasted cash flow to a period where the annual growth rate is expected to stabilize.** Generally, Management is the best source for a company’s forecasted cash flow. These forecasts are reviewed for their reasonableness and in the context of their assumed market share, the assumed size of the market, and the assumed growth rate of the cash flows and the growth rate of the market as a whole. Management’s forecast is adjusted as necessary based on fundamental, industry, and economic factors.
2. **Determine the appropriate risk-adjusted discount rate to apply to the forecasted cash flow.** The discount rate is used to compute the present value of the subject company’s cash flows over the life of the forecast and into perpetuity (i.e., a terminal period). The appraiser develops the discount rate in the context of the rates of return earned by alternative market investments with varying degrees of market-perceived risk. After ascertaining the rates of return earned by market securities (e.g., treasury bills, corporate stock, etc.), the appraiser, using his or her judgment as well as various financial modeling techniques, estimates the market required rate of return for the subject company. The estimated rate of return is the investment return demanded by third-party investors for investing in the subject company. One of the many factors used in estimating the appropriate discount rate is the appraiser’s confidence (which is a proxy for the market’s confidence) in the subject company’s forecasted cash flows.
3. **Estimate the “terminal value” of the company at the end of the forecast period.** At some point in time, the subject company’s cash flow growth rate will stabilize. As the subject company (and possibly the industry) matures, the annual growth rate in its cash flow will begin to decline. Ultimately, and given a certain share of the entire market, the subject company’s cash flow cannot grow faster than the growth rate of the market unless it begins to acquire additional market share through mergers and/or acquisitions of competitors. Using the DCF method, the subject company’s cash flows are forecasted for each year up to the point at which they are expected to stabilize at an estimated annual growth rate. At the point where the subject company’s cash flow growth rate is expected to stabilize, the appraiser estimates the subject company’s fair market value using a single-period valuation model. The estimate of fair market value at the end of the forecast period is the subject company’s “terminal value.”
4. **Discount the forecasted cash flows (including the estimated terminal value) to their present values.** Applying the risk-adjusted discount rate, the appraiser calculates the present values (as of the date of valuation) of the subject company’s forecasted cash flows and terminal value.

## Appendix F - Income Approach

5. **Sum the calculated present values.** The sum of the present values of the forecasted cash flows and terminal value equals the fair market value of the subject company. This calculated fair market value assumes “normal” working capital balances and zero non-operating assets or liabilities. If the company has “excess” working capital and/or non-operating assets, they are added to the calculated fair market value. If the company requires an infusion of additional working capital and/or has non-operating liabilities, they are deducted from the calculated fair value.

### *Step 1 – Forecasted Cash Flow*

**Exhibit A** presents the forecasted income statements for the Project for Year 1 through Year 36 were provided to us by Management, a 25-year initial PPA life and an estimate 10-year residual life in a new PPA. Since the projects start in the middle of the year, partial periods are used for the beginning and ending of the PPA agreements.

The Firm did not perform any attestation services regarding this forecast. However, as part of a valuation analysis, the appraisers must evaluate whether Management has the ability to make reasonably accurate forecasts. We have concluded the forecast provided by Management appears to be reasonable based on this analysis and the Industry’s growth expectations.

Blue Sky’s Management believes that the forecasted cash flow levels are achievable based on the Project’s historical results and the reasonableness of the following assumptions:

1. **Total Revenues.** Total revenue from PPA sales is projected to be \$169,374 in Year 1, and is expected to increase to \$302,986 in Year 25, representing a compound annual growth rate of 2.45%. Revenue increases over time due to the pricing escalators included in the PPA agreement during each year of the forecast period, which is partially offset by lower production attributed to the reduction of capacity in the energy producing assets.
2. **Earnings before Interest and Taxes.** Subtracting operating expenses from revenue results EBIT of negative \$1,355,829 in Year 1, changing to EBIT of \$273,637 by Year 25. Due to the accelerated depreciation noted above, the Project will incur losses before taxes in Year 1 through Year 3 and generate profit margins over 88% from Year 2 to 25.
3. **Depreciation and Capital Expenditures.** Based on discussions with Management, depreciation was calculated using blended half-year 5-year MACRS (modified accelerated cost recovery system) method depreciation with 50% year one bonus depreciation and a depreciable base equal to the FMV of the business enterprise value, less 1/2 of the value of the energy tax credit. Depreciation is calculated in footnote 5 of Exhibit A. Per Management, the Company will incur routine maintenance costs to operate the Project but will not incur any capital expenditures in the forecast period.

## Appendix F - Income Approach

4. **Increase in Working Capital.** Changes in new working capital are also reflected in our cash flow calculation. In projecting working capital changes, we primarily relied upon industry levels and discussion with Management. As previously noted, the Company will not require significant working capital to operate the Project once the solar panels are placed in operation. As such, working capital is projected to approximately 5% of revenue.

### **Step 2 – Discount Rate**

A weighted-average cost of capital (“WACC”) rate is used in the DCF method to calculate the present value of a stream of net free cash flows. The computation of the discount rate requires the following steps:

- Calculate a WACC;

The steps in calculating the Project’s estimated weighted-average cost of capital are as follows:

- Estimate the Project’s cost of equity (i.e., discount rate).
- Estimate the Project’s after-tax cost of debt.
- Determine the appropriate percentage of equity and percentage of debt in the Project’s capital structure.
- Multiply the calculated cost of equity by the percentage of equity in the capital structure representative of the market.
- Multiply the Project’s estimated after-tax cost of debt by the percentage of debt in the capital structure representative of the market.
- Sum the products of the above two computations.

### **Cost of Equity**

The cost of equity was estimated using the buildup and capital asset pricing model (“CAPM”) method based on data as provided in Duff & Phelps, LLC’s 2017 Valuation Handbook – *Guide to Cost of Capital* (“Handbook”), of which an average was taken to determine the cost of equity. Mathematically, the average buildup and CAPM method is based on the following equation:

$$E(R_i) = \text{Average}\{ (R_f + RP_m + RP_s + RP_{u1} + RP_{u2}) + (R_f + \beta(RP_m) + RP_s + RP_{u2}) \}$$

where:

- |          |   |   |
|----------|---|---|
| $E(R_i)$ | = | Expected total rate of return on security $i$ ;                                   |
| $R_f$    | = | Rate of income return available on a risk-free security as of the valuation date; |

## Appendix F - Income Approach

$\beta$	=	Beta statistic
$RP_m$	=	Historical premium over income returns of risk-free securities earned by equity securities
$RP_s$	=	Historical premium over total returns of equity securities earned by smallest (in terms of market capitalization) equity securities;
$RP_u$	=	Additional risk premium attributable to the specific entity or industry.

The appropriate {discount} rate components included in the buildup method computation for Blue Sky are as follows and are shown on **Exhibit B**:

- **Risk-free rate ( $R_f$ ).** All other components of the buildup or CAPM method are built upon the risk-free rate of return. In financial theory, the risk-free rate is that rate of return, at the Valuation Date, which could be earned by an investor with no risk of default. The rate of return for long-term government bonds is commonly used as a proxy for the risk free component. According to the Federal Reserve Statistical Release, as of November 1, 2017, the yield to maturity for a treasury bond with 20-years left to maturity was 2.63%
- **Equity Risk Premium ( $RP_m$ ).** Investors of equity securities expect returns on their investment to come in two forms: 1) dividend payments during the holding period and 2) capital appreciation during the holding period. Compared to receiving the returns earned on government securities, these equity returns are riskier. In general, investors demand higher rates of return to compensate them for assuming greater degrees of risk. These “equity risk premiums” can be observed in the public marketplace by comparing the historical total returns earned by equity securities to the historical returns earned by long-term government bonds. This component of the cost of equity is the difference between the historical *total* returns of large publicly-traded stocks and the historical *income* returns of long-term government securities (i.e., risk-free rates of return). Data published in the Handbook estimates this equity risk premium at 5.97%.
- **Equity Risk Premium Adjusted for Size.** As discussed above, “equity risk premiums” can be observed in the public marketplace by comparing the historical total returns earned by equity securities to the historical returns earned by long-term government bonds. Utilizing lookup data from the Handbook, the size adjusted equity risk premium for the Project suggests an adjusted equity risk premium of 5.59% as reasonable. This premium includes the risk premium attributable to entity size, which was a separate component under the buildup method for estimating the equity discount rate. Based on statistics as provided in the Handbook, empirical evidence suggests that the actual returns for smaller companies generally exceed the returns for larger companies. Therefore, for a company of the approximate size of Blue Sky, the data indicates that an additional risk premium of approximately 5.59% is required. The 5.59% small stock size premium is the {10<sup>th</sup> decile} size premium (return in excess of CAPM).
- **X Beta ( $\beta$ ).** Beta is a statistic that measures the sensitivity of a security’s excess total returns to the excess total returns of the market. Excess total returns are defined as a security’s total returns less the risk-free rate of return. A beta factor of 1.0 indicates that the excess total returns for a specific investment, move in tandem with the market. For example, if the excess total returns of the market decline by 10%, the excess total returns of the security decline by 10%; or if the market’s excess total returns increase by 5%, the excess total returns

## Appendix F - Income Approach

of the security also increase by 5%. A beta factor of 2.00 indicates that the investment's excess total returns move with the market, but at a factor of 2.00. Using the previous example, should the excess total returns of the market increase by 5%, the security's excess total returns would increase by 10% (a factor of 2.00).

By multiplying the equity risk premium (in this case, 5.97%) by a beta factor, the analyst is able to calculate the expected excess total returns for equity securities in the Solar Energy Generation industry. Summing the risk-free rate of return and the expected excess total returns yields the expected total return for equity securities in the Solar Energy Generation industry.

Based on an analysis of publicly-traded guideline companies' betas, we determined that the appropriate beta factor is approximately 0.31. See **Exhibit B1** for our calculations. Multiplying the equity risk premium by the estimated beta statistic resulted in a beta-adjusted equity risk premium of 1.86%.

- **Industry Specific Premium ( $RP_{u1}$ ).** The cost of equity was also adjusted for industry specific risk. The Project is energy properties which will produce electricity through the use of solar power. Therefore, we considered SIC code 491 (Electric Services). Based on the data presented by Duff & Phelps' Industry Cost of Capital book, we chose an industry premium of negative 4.91%.
- **Company Specific Discount ( $RP_{u2}$ ).** Companies typically have additional risk factors which must be considered in the estimation of cost of capital. These additional risk factors relate to the additional risk of a company versus the rates already included in the buildup and CAPM methods, and specific risks of investing in the business including the Project's concentration of offtaker, the offtaker's credit rating, key person dependence, terms of the PPA, pending regulatory changes, terms of the PPA, and other relevant factors. Given these and other issues addressed in the report, we have included an additional discount of 2.00% to take into account the specific risk factors.

Summing the above components of the buildup and CAPM methods, and taking an average of the two indications resulted in an indicated cost of equity of 11.68%.

### Cost of Debt

The cost of after-tax debt represents the average borrowing cost for the Project. The primary factors considered in estimating the Project's cost of after-tax debt include guide companies' average current borrowing rate, and the effective income tax rate for the Project. The pre-tax cost of debt was based on the yield to maturity of Moody's Baa-rated Corporate Bond as of November 1, 2017 of 4.29%, which was tax affected at 35%. The result is the net cost of debt, net of estimated tax benefit of approximately 2.79%.



## Appendix F - Income Approach

### **Weighted Average Cost of Capital**

The estimated WACC for the Project was calculated by multiplying the estimated cost of equity and the after-tax cost of debt by their respective percentages in the hypothetical capital structure. Determining the Project's WACC requires estimating a reasonable, hypothetical capital structure reflecting estimated capital required, the advantages of financial leverage, and the Project's capacity for carrying long-term debt, rather than its existing capital structure.

A reasonable hypothetical capital structure would include an appropriate amount of debt because of its inherent lower cost of capital than equity capital and the enhancements to return on equity. Based primarily on the selected guideline company group, we determined that a reasonable capital structure for the Project was 55% equity and 45% debt. Based on the aforementioned costs and weightings for equity and debt, the Project's WACC was estimated to be approximately 7.50%. See **Exhibit B** for details.

### ***Step 3 – Residual Value***

Management represented the solar assets generating the electricity for the Project have a useful life of 35 years, a 25-year initial PPA life and an estimate 10-year residual life in a new PPA. The residual value was calculated in footnote 7 of Exhibit A, based on expected residual cash flows provided by Management. Given the uncertainty in timing and pricing of the residual PPA, a higher discount rate of 15.0% was utilized.

Based on this analysis, the estimated residual value for the Project was approximately \$32,010.

### ***Step 4 – Discount Present Value***

**Exhibit A** presents our calculation of the present value of the Project's forecasted cash flow as of November 1, 2017. The forecasted cash flows for fiscal years 2017 through 2042 were converted into present values using the 7.50% discount rate.

### ***Step 5 – Present Value***

The sum of present values of the net free net cash flows and the residual value results in the indicated value of the enterprise value of the Project as of November 1, 2017 on a control, marketable basis of \$2,930,000.

### ***Conclusion***

Therefore, the resulting value of the Project on a controlling, marketable basis using the DCF method as of November 1, 2017 was estimated to be \$2,930,000 as shown on **Exhibit A**.

## **Section VII - Exhibits**

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Colusa Solar Project

Tax Reporting and Management Planning Purposes  
Discounted Cash Flow Method (1)  
As of November 1, 2017

Exhibit A

Assumptions

(2) Discount rate	7.50%
(3) Working capital as a % of revenue	5.00%
(4) Income tax rate	35.00%

Discounted Cash Flows and Business Enterprise Value

Page 1 of 2

	Forecasted														
	1 Year 1	2 Year 2	3 Year 3	4 Year 4	5 Year 5	6 Year 6	7 Year 7	8 Year 8	9 Year 9	10 Year 10	11 Year 11	12 Year 12	13 Year 13	14 Year 14	15 Year 15
Revenue	\$ 169,374	\$ 173,583	\$ 177,892	\$ 182,304	\$ 186,819	\$ 191,442	\$ 196,174	\$ 201,018	\$ 205,976	\$ 211,050	\$ 216,243	\$ 221,559	\$ 226,998	\$ 232,564	\$ 238,260
% Annual Revenue Growth		2.49%	2.48%	2.48%	2.48%	2.47%	2.47%	2.47%	2.47%	2.46%	2.46%	2.46%	2.46%	2.45%	2.45%
General and Administrative Expenses	20,010	20,317	20,630	20,949	21,275	21,607	21,946	22,292	22,645	23,004	23,371	23,745	24,127	24,517	24,917
EBITDA	149,364	153,266	157,262	161,354	165,544	169,835	174,228	178,726	183,331	188,046	192,872	197,813	202,871	208,048	213,346
% of Revenue	88.2%	88.3%	88.4%	88.5%	88.6%	88.7%	88.8%	88.9%	89.0%	89.1%	89.2%	89.3%	89.4%	89.5%	89.5%
(5) Less: Depreciation	1,505,193	401,385	240,831	144,499	144,499	72,249	-	-	-	-	-	-	-	-	-
EBIT	(1,355,829)	(248,118)	(83,569)	16,856	21,046	97,586	174,228	178,726	183,331	188,046	192,872	197,813	202,871	208,048	213,346
% of Revenue	-800.5%	-142.9%	-47.0%	9.2%	11.3%	51.0%	88.8%	88.9%	89.0%	89.1%	89.2%	89.3%	89.4%	89.5%	89.5%
Less: Income Taxes	(474,540)	(86,841)	(29,249)	5,899	7,366	34,155	60,980	62,554	64,166	65,816	67,505	69,235	71,005	72,817	74,671
Invested capital net income	(881,289)	(161,277)	(54,320)	10,956	13,680	63,431	113,248	116,172	119,165	122,230	125,367	128,578	131,866	135,231	138,675
Plus: Depreciation	1,505,193	401,385	240,831	144,499	144,499	72,249	-	-	-	-	-	-	-	-	-
Less: Incremental pre-debt working capital @ 5.00%	8,469	210	215	221	226	231	237	242	248	254	260	266	272	278	285
Less: Capital Expenditures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Free cash flow	615,436	239,897	186,296	155,234	157,953	135,449	113,012	115,930	118,917	121,976	125,107	128,313	131,594	134,953	138,390
Discount periods	0.58	1.58	2.58	3.58	4.58	5.58	6.58	7.58	8.58	9.58	10.58	11.58	12.58	13.58	14.58
Present value factor	0.96	0.89	0.83	0.77	0.72	0.67	0.62	0.58	0.54	0.50	0.47	0.43	0.40	0.37	0.35
Present value of discrete annual cash flow	590,012	213,942	154,548	119,795	113,389	90,451	70,202	66,991	63,923	60,993	58,194	55,521	52,968	50,530	48,202
Total present value of discrete annual cash flows	\$ 2,055,555														
(6) Energy Tax Credit	842,689														
(7) Residual Value	\$ 32,010														
Indicated Business Enterprise Value	\$ 2,930,254														
Business Enterprise Value (Rounded)	\$ 2,930,000														
System Size	574.0														
Retail Cost per Watt	\$ 5.1045														

Notes:

Source: Forecast and related assumptions were provided by Management.

- (1) Projections, income tax rate and investment tax credit information provided by Management. Management represented 100% of the tax credits will be received/realized.  
(2) See Exhibit B1  
(3) Assumption provided by management, which is comparable to guideline companies' ratio.  
(4) Provided by Management  
(5) Per discussions with Management. Blended MACRS depreciation with 50% year one bonus depreciation and a depreciable base equal to the FMV of the business enterprise value, less 1/2 of the value of the energy tax credit. Depreciation is calculated as follow:

Depreciable Base	2,508,656						Depreciation Bonus	50%
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
MACRS %	60.00%	16.00%	9.60%	5.76%	5.76%	2.88%		
Depreciation	1,505,193	401,385	240,831	144,499	144,499	72,249		

- (6) The U.S. Treasury Department offers an energy tax credit based on 30% of the fair market value of new solar energy system. This was calculated as 30% of the fair market value of the business enterprise value, using an iterative process.

Business Enterprise Value	2,930,000
Tax Credit %	30%
Tax Credit	879,000
Present value factor	0.96
	842,689

- (7) Residual value is derived from an project life of 35 years as provided by Management, considering a 10-year contract renewal. Given the uncertain of a new contract, the terms, and other factors, a discount rate of 15.00% was utilized.

	Year 26	Year 27	Year 28	Year 29	Year 30	Year 31	Year 32	Year 33	Year 34	Year 35
Free cash flow	181,930	186,458	191,088	195,825	200,669	205,623	210,689	215,870	221,167	226,584
% Annual Growth		2.49%	2.48%	2.48%	2.47%	2.47%	2.46%	2.46%	2.45%	2.45%
Discount periods	25.58	26.58	27.58	28.58	29.58	30.58	31.58	32.58	33.58	34.58
Present value factor	15% 0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Present value of discrete annual cash flow	5,094	4,540	4,046	3,605	3,212	2,862	2,550	2,272	2,024	1,803

Colusa Solar Project

Tax Reporting and Management Planning Purposes  
Discounted Cash Flow Method (1)  
As of November 1, 2017

Exhibit A

Assumptions

(2) Discount rate	7.50%
(3) Working capital as a % of revenue	5.00%
(4) Income tax rate	35.00%

Discounted Cash Flows and Business Enterprise Value

Page 2 of 2

	Forecasted									
	16	17	18	19	20	21	22	23	24	25
	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25
Revenue	\$ 244,088	\$ 250,052	\$ 256,154	\$ 262,397	\$ 268,794	\$ 275,318	\$ 282,002	\$ 288,839	\$ 295,833	\$ 302,986
% Annual Revenue Growth	2.45%	2.44%	2.44%	2.44%	2.43%	2.43%	2.43%	2.42%	2.42%	2.42%
General and Administrative Expenses	25,319	25,732	26,153	26,583	27,022	27,469	27,925	28,390	28,865	29,349
EBITDA	218,770	224,320	230,001	235,814	241,762	247,849	254,077	260,449	266,968	273,637
% of Revenue	89.6%	89.7%	89.8%	89.9%	89.9%	90.0%	90.1%	90.2%	90.2%	90.3%
Less: Depreciation	-	-	-	-	-	-	-	-	-	-
EBIT	218,770	224,320	230,001	235,814	241,762	247,849	254,077	260,449	266,968	273,637
% of Revenue	89.6%	89.7%	89.8%	89.9%	89.9%	90.0%	90.1%	90.2%	90.2%	90.3%
Less: Income Taxes	76,569	78,512	80,500	82,535	84,617	86,747	88,927	91,157	93,439	95,773
Invested capital net income	142,200	145,808	149,500	153,279	157,145	161,102	165,150	169,292	173,529	177,864
Plus: Depreciation	-	-	-	-	-	-	-	-	-	-
Less: Incremental pre-debt working capital @ 5.00%	291	298	305	312	319	327	335	343	351	360
Less: Capital Expenditures	-	-	-	-	-	-	-	-	-	-
Free cash flow	141,909	145,510	149,195	152,967	156,826	160,775	164,815	168,949	173,178	177,505
Discount periods	15.58	16.58	17.58	18.58	19.58	20.58	21.58	22.58	23.58	24.58
Present value factor	0.32	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.18	0.17
Present value of discrete annual cash flow	45,979	43,857	41,830	39,895	38,048	36,285	34,602	32,995	31,461	29,997

## Colusa Solar Project

Tax Reporting and Management Planning Purposes  
Cost of Capital - Calculation of Weighted Average Cost of Capital  
As of November 1, 2017

Exhibit B1

Cost of Equity			Weighted Average Cost of Capital		
	Buildup	CAPM			
(1) Risk free rate	2.63%	2.63%	Cost of equity	11.68%	
			(9) Multiply by: equity percentage	55.00%	
			Equity rate of weighted average cost of capital		6.42%
(2) Add: Equity risk premium	5.97%		Cost of debt	2.79%	
Add: Equity risk premium:			(9) Multiply by: debt percentage	45.00%	
(2) .Equity risk premium		5.97%	Debt rate of weighted average cost of capital		1.25%
(3) Times: Selected beta		0.31			
Beta - adjusted equity risk premium		1.86%	<b>Weighted Average Cost of Capital</b>		7.68%
			<b>Rounded</b>	<b>7.50%</b>	
(4) Add: Size premium	5.59%	5.59%			
(5) Less: Industry premium	-4.91%				
(6) Add: Specific risk factors	2.00%	2.00%			
Estimated Cost of equity	11.28%	12.08%			
<b>Selected Cost of Equity</b>	<b>11.68%</b>				
Cost of Debt					
(7) Net cash flow debt discount rate (Pre-Tax)		4.29%			
(8) <b>Estimated After-Tax Cost of Debt</b>		<b>2.79%</b>			

### Notes:

- (1) Long-term government bonds and notes with 20 years to maturity, as of November 01, 2017. Source: Federal Reserve Statistical Release
- (2) The equity risk premium is based on total returns of large company stocks in excess of CAPM, less total returns of long-term government bonds, arithmetic average. Source: 2017 Valuation Handbook: Guide to Cost of Capital: Market Results through 2016. Hoboken: John Wiley, 2017. ("Valuation Handbook")
- (3) Estimated based upon review and analysis of betas of publicly traded guideline companies. See Exhibit B2 and the report for details.
- (4) The 5.59% size premium is from the Valuation Handbook for the 10th decile.
- (5) Duff & Phelps - 2017 Industry Cost of Capital book (SIC 491 - Electric Services)
- (6) Risks considered development of the project, production expectations, and uncertain over the length of the contracted PPA term
- (7) Based on the yield to maturity of Moody's Baa-rated Corporate Bond
- (8) Pre-tax cost of debt multiplied by 1 - tax rate of 35.00%.
- (9) Assumes Debt to Equity Ratio of 45.00% debt and 55.00% equity. Please see Exhibit B2.

## Colusa Solar Project

### Tax Reporting and Management Planning Purposes Calculation of Re-Levered Beta As of November 1, 2017

Exhibit B2

#### Calculation of Re-Levered Beta

Guideline Companies		Beta	Tax Rate	Debt/Capital	Unlevered Beta	Market Capitalization Data in \$Millions
1	NEXTERA ENERGY, INC.	0.15	31.03%	34.65%	0.11	\$ 72,727
2	NRG ENERGY, INC.	1.39	2.22%	78.12%	0.31	7,914
3	VISTRA ENERGY CORP.	-0.25		73.40%		8,394
4	PINNACLE WEST CAPITAL CORPORATION	-0.01	33.81%	32.67%		9,842
5	GREAT PLAINS ENERGY INCORPORATED	0.05	43.50%	42.06%	0.04	7,036
6	HAWAIIAN ELECTRIC INDUSTRIES, INC.	0.29	36.31%	36.10%	0.21	3,930
7	PORTLAND GENERAL ELECTRIC COMPANY	-0.11	23.47%	38.68%		4,204
8	PNM RESOURCES, INC.	-0.03	33.86%	46.70%		3,412
9	IDACORP, INC.	0.09	15.81%	30.44%	0.06	4,635
10	NRG YIELD, INC.	1.97	9.84%	78.14%	0.47	1,820
11	EL PASO ELECTRIC COMPANY	0.29	31.97%	40.31%	0.20	2,339
12	ORMAT TECHNOLOGIES, INC.	1.38	26.91%	28.42%	1.07	3,227
13	TERRAFORM POWER, INC.	1.34		66.98%		1,233
14	PATTERN ENERGY GROUP INC.	0.95		46.66%		2,013
15	8POINT3 ENERGY PARTNERS LP	0.83	84.68%	43.43%	0.74	426
16	U.S. GEOTHERMAL INC.	0.06	20.83%	58.65%	0.03	74
Average				48.50%	0.32	
Median				42.74%	0.20	
		<b>SELECTED</b>		<b>45.00%</b>	<b>0.20</b>	
				Unlevered Beta	0.20	
				Tax Rate	35.00%	
				Debt/Equity	81.82%	
				<b>Re-Levered Beta</b>	<b>0.31</b>	

#### Notes:

Source: S&P Capital IQ database.