



Juhl Energy, Inc.

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Ticker (Exchange)	JUHL (OTC)
Recent Price (04/13/2015)	\$0.19
52-week Range	\$0.10 – \$0.40
Shares Outstanding	~36.4 million
Market Capitalization	~\$6.9 million
Average 3-month Volume	7,669
Insider Ownership + >5%	42.5%
EPS (Year ended 12/31/2014)	(\$0.20)
Employees	56

JUHL One-Year Stock Chart



Company Description

Juhl Energy, Inc. (“Juhl Energy” or “the Company”) and its wholly-owned operating subsidiaries are engaged in the development and provision of competitive, clean energy solutions across the U.S. and Canada, with a focus on wind, solar, **biomass†**, and natural gas systems. The Company’s activities can be categorized in three areas: (1) wind farm ownership; (2) development and system sales; and (3) engineering and field services. In the past 15 years, Juhl Energy has completed 23 wind farms that generate a total of 240 **megawatts (MW)** of wind power. Another 20 projects are in development, including a wind farm at Indiana’s Purdue Energy Park and New York’s first **community wind** project, the Black Oak Wind Project. In addition, the Company has an ownership stake in multiple wind farms (approximately 25 MW) and provides operation management and maintenance services for renewable energy assets.

Key Points

- Juhl Energy’s leadership has been credited with pioneering community wind farms, developing the financial, operational, and legal structure for providing local ownership of rural wind farms.
- The Company installed the first onsite wind turbines for the North American automotive industry, which are outperforming expectations by generating over 10% of the electricity required at a Honda Transmission Manufacturing plant in Ohio.
- Juhl Energy expanded its reach into small-scale renewables with the addition of PVPower Inc.’s solar packages in early 2014, and also entered into business-to-business engineering consulting by acquiring engineering firm Power Engineers Collaborative in 2012.
- Distributed electricity generation, such as what Juhl Energy provides, is thought to be a disruptive force impacting a utility industry that has historically had only modest technology changes. In less than a decade, analysts expect global distributed generation capacity to essentially double.
- The fastest-growing source of electricity generation through 2040 is projected to be renewable energy, with solar, wind, and biomass forecasted to expand by over 140%—outperforming growth rates of all other electricity fuels, including natural gas and coal-fired generation.
- Juhl Energy reported revenues of more than \$14.1 million in 2014, a roughly 5.6% increase over revenues in 2013. At December 31, 2014, the Company had cash of over \$3.1 million.

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Executive Overview

Juhl Energy, Inc. (“Juhl Energy” or “the Company”) is a provider of competitive, clean energy solutions with a focus on wind, solar, biomass, and natural gas systems. The Company’s legacy is in the development of community wind power, which Juhl Energy’s leadership has capitalized upon in order to build a diversified business that today owns, operates, and services renewable energy assets as well as provides maintenance services and professional engineering consulting expertise for a variety of power generation projects.

Operations Overview

Juhl Energy’s niche is to target projects with an average size of \$5 million to \$20 million, where the Company can serve as either developer, servicer, or owner/operator. To date, Juhl Energy estimates that it has developed approximately \$400 million in energy assets. This work has typically included developing or acquiring community wind farms of between 5 MW and 80 MW, and more recently, onsite development of **distributed wind** and solar for industrial, military, commercial, academic, municipal, and other customers. As an example, the Company’s strategy in wind energy is to focus on medium-sized projects and not the large, utility-dominated wind farms (e.g., 100 MW – 500 MW) that have greater development risks and require more transmission capacity.

In January 2014, Juhl Energy became the first company to complete an onsite, industrial wind project for the North American automotive industry. The Company developed, installed, and now operates two, 200-foot wind turbines at Honda Transmission Manufacturing of America, Inc. in Russells Point, Ohio—one of the highest and windiest elevations in Ohio. The turbines were anticipated to supply approximately 10% of the electricity needed at the Honda plant while also offsetting the manufacturer’s CO² emissions, but after just six months of operation, were exceeding their power projections. This wind project provided 16.26% of the plant’s power in the month of April 2014 (which was the month with the highest output) and outperformed the 10% expectation in a total of four of the first six months in operation (Source: Juhl Energy’s September 10, 2014, press release). The success of this project was profiled in an April 2014 video piece for the Weather Channel (greater details on page 31).

Beyond wind power, Juhl Energy was selected as one of two lead contractors for the City of Chicago’s rooftop solar program commencing in July 2014. Over 1,000 Illinois residents indicated interest in having Juhl Energy and a team of other contractors install rooftop solar on their homes. The Company has also built an intelligent energy storage system called SolarBank® that uses solar power in conjunction with advanced battery storage. SolarBank® Energy Storage meets the needs of consumers and business owners who wish to be able to generate and store their own solar energy, allowing consumers to purchase less expensive off-peak power from utility companies while also having an onsite backup for critical loads during power outages. The SolarBank® system can be used by a wide range of customers, including homes, businesses, municipal facilities, farms, livestock buildings, and schools.

The availability of battery backup and storage for renewable energy is a key advancement believed to be driving greater adoption of distributed generation systems going forward, and could represent an expanding market for Juhl Energy. A December 2014 report from the Solar Energy Industries Association® and GTM Research found that U.S. demand for rooftop solar paired with batteries (energy storage) systems could represent a market of \$1 billion within four years, as both residential and commercial customers seek to connect “**behind the meter**” to the power grid in order to sell surplus energy to utility companies (Source: *Bloomberg*, December 18, 2014).

One of Juhl Energy’s strategies for growth is to acquire complementary, higher-margin industry service providers. In line with this approach, the Company acquired Power Engineers Collaborative (PEC) in 2012, which has been stated by Juhl Energy to have added over \$5 million in annual revenue to the Company. PEC is a full-service Midwestern engineering firm providing engineering and consulting services across the power generation industry, including for natural gas, biomass, waste-to-energy, geothermal, solar, and more. PEC targets all phases of power development from site selection, permitting, and preparation of contract documents, project budgets, and scheduling to bid evaluation, construction oversight from the home office or at the project site, commissioning, and training of operations and maintenance personnel.

Through its Juhl Energy Services subsidiary, the Company holds service contracts to perform maintenance services for approximately 70 MW of wind farms as well as asset management services for approximately 110 MW of wind farm entities. Figure 1 summarizes the Juhl Energy operating structure and lists the Company's wholly-owned subsidiaries that work in each business unit.

Figure 1

AN INTRODUCTION TO JUHL ENERGY'S THREE OPERATING SEGMENTS

Wind Farm Ownership	Development and System Sales	Engineering and Field Services
<ul style="list-style-type: none"> Acquires ownership positions in wind and other renewable assets 	<ul style="list-style-type: none"> Building distributed wind/solar Energy storage SolarBank™ / PowerBank™ 	<ul style="list-style-type: none"> Engineering and consulting services Operation and maintenance of wind farm projects

Juhl Energy's subsidiaries that manage the work within each division:

Wind Farm Ownership	Development and System Sales	Engineering and Field Services
Juhl Renewable Assets, Inc. <i>Preferred stock instrument</i>	Juhl Energy Development, Inc. Juhl Renewable Energy Systems, Inc.	Juhl Energy Services, Inc. Power Engineers Collaborative, LLC Next Generation Power Systems

Sources: Juhl Energy, Inc. and Crystal Research Associates, LLC.

Market Overview

The fastest-growing source of electricity generation is projected to be renewable energy up until the year 2040. Renewable electricity generation is projected to grow 69% by 2040 (Source: the EIA's *Annual Energy Outlook 2014*). Excluding hydropower, the use of renewable resources such as solar, wind, and biomass is projected to expand by over 140% in the next few decades—outperforming growth rates of all other electricity fuels, including natural gas- and coal-fired generation (Source: *Annual Energy Outlook 2014*). As a result, renewable energy, which currently represents approximately 12% of total electricity generation in the U.S., is forecast to power 16% of U.S. electricity production by the year 2040.

At least 29 states (and Washington D.C.) have enacted a **renewable portfolio standard (RPS)** or a renewable electricity standard (RES) requiring the state to increase its production of energy coming from renewable sources rather than fossil fuels or nuclear power. An RPS establishes a set target for the share of electricity supplied by renewable energy, and at least 17 states have RPS targets of 20% or more (Source: Union of Concerned Scientists, May 2013). There are additional factors that have contributed to the adoption of renewable power sources, including the ability to generate added revenue from renewable energy generation through tradable **renewable energy certificates (RECs)**, federal **production tax credits**, rising consumer interest in off-grid and energy storage technologies, **net metering** and peak pricing policies, and technological innovations and efficiencies that have made wind, for example, cost competitive with coal-fired generation in many regions (particularly in the Midwestern U.S., which is known for its wind resources).

In the 1990s and early 2000s, Juhl Energy capitalized on the tax incentives available for wind energy to obtain equity financing for community wind projects through the use of tax equity partners, who would partner with the local landowners on whose land the wind turbines were to be placed, in order to reap the tax benefits of holding a wind energy project on their books. Founder and CEO Dan Juhl is widely credited with pioneering a novel model of financing and structuring community wind farms. Today, as these production tax credits face expiration, Juhl Energy believes there is an opportunity for the Company to acquire operational wind farms and clean energy assets that existing tax equity owners may now be looking to dispose. This could include small wind projects that comprise only a minor portion of the seller's current business and that are located in remote regions with high operating costs, expiring equipment warranties, and/or assets that are fully depreciated. The Company estimates

that there are over 500 small wind farms under 50 MW in the U.S. that could represent acquisition opportunities, and believes that it is uniquely positioned to exercise continued value from these assets.

Shift in Power Industry to Distributed Generation

One of the key trends in energy development at present is the rise in distributed generation projects. Distributed generation usually entails small- to mid-sized wind and solar power projects that can be constructed close to the point of power consumption and thus do not require extensive new transmission networks. Distributed wind and solar are often constructed more economically and with easier permitting processes than conventional, utility-scale solar and wind farms. As an example, utility-scale wind farms might consist of between 30 and 150 turbines where each individual turbine can generate up to 3 MW of wind energy. In contrast, many of the wind projects Juhl Energy takes on are medium-sized developments in the 1 MW to 50 MW range.

To the Company's knowledge, its skill in building out energy generation sites of under 50 MW is a significant competitive advantage, as this niche is often overlooked by large developers. While mega-wind projects may benefit from greater economies of scale/reduced transactional costs, higher electrical production, and thus greater sales, Juhl Energy reports that its benefits (in addition to easier permitting) also come from receiving considerable industry attention as one of the few publicly traded players in the 1 MW to 50 MW sector as well as the opportunities for growth that are available in this sector.

Navigant Research projects annual installed capacity in the global distributed generation market to grow from 87.3 **gigawatts (GW)** in 2014 to 165.5 GW by 2023—equivalent to the doubling of current capacity in less than a decade (Source: Navigant's *Global Distributed Generation Deployment Forecast*, 3Q 2014). To this end, distributed generation has been called a "disruptive" technology for a utility sector that has historically had little competition, only modest technology changes, and predictable consumer behaviors (Source: *The Meaning of Disruption: How Should Utilities Think About Change?*, September 2, 2014). Distributed generation and other new technologies including solar, distributed energy storage, electric vehicles, and home energy management software/products are changing consumer behavior in a radical way, by giving energy choices to consumers and creating an opportunity for new entrants to challenge the utility-driven model of electricity generation and provision. The market for distributed generation technologies was estimated at approximately \$97 billion globally in 2014, with the potential to exceed \$182 billion by 2023 (Source: Navigant Research's September 4, 2014, press release).

Headquarters and Employees

Juhl Energy, Inc., which changed its name from Juhl Wind to Juhl Energy in early 2013, is a Delaware corporation headquartered in Pipestone, Minnesota. Corporate headquarters consist of 5,300 sq. ft. of space that contains production, warehousing, and administrative areas, and are considered to be "off-grid" in that they are powered solely by wind and solar energy. The Company also leases office space in Chicago, Illinois; Milwaukee, Wisconsin; Minneapolis, Minnesota; and Red Lake Falls, Minnesota. As of March 15, 2015, Juhl Energy had 56 full-time employees. From time to time, the Company also uses third-party consultants to assist in the completion of various projects.

Operating Segments/Subsidiaries

Juhl Energy, Inc. is a holding company for six operating subsidiaries. As detailed throughout this report, Juhl Energy is active in various aspects of renewable energy development, from project ownership to development and system sales to engineering and field services. These activities are managed by the Company's wholly-owned subsidiaries, which enable multiple revenue streams, as listed in Figure 2. A brief introduction to each subsidiary is provided following Figure 2, with greater details on how these business units execute Juhl Energy's strategies given in the Core Story on pages 18-41.

Figure 2
JUHL ENERGY'S WHOLLY-OWNED SUBSIDIARIES

Juhl Renewable Assets	Renewable assets ownership
Juhl Energy Development	Wind farm development
Juhl Energy Services	Wind farm management and turbine maintenance services
Juhl Renewable Energy Systems	Small-scale renewable systems
Next Generation Power Systems	Refurbished turbines and maintenance support
Power Engineers Collaborative	Engineering services

Source: Juhl Energy, Inc.

Juhl Renewable Assets, Inc.

As named, Juhl Renewable Assets is focused on investment in a broad range of renewable energy assets, though the subsidiary primarily acquires ownership positions in wind farms. Juhl Renewable Assets pursues a strategic acquisition strategy designed to enable Juhl Energy to capitalize on growth in the renewable energy and wind power markets. Accordingly, the Company focuses on acquiring assets that have the potential to generate a residual, repeatable revenue stream by considering projects that have acceptable wind resources, transmission access, and a regulatory framework for acceptable power purchase agreements (PPAs) and long-term utility agreements.

This strategy emphasizes acquisition and joint venture targets in the following categories: (1) ownership stakes in existing wind farms that fit the Company's distributed generation model and are compatible with the size of projects that Juhl Energy typically develops; and (2) specific projects where Juhl Energy and other industry partners share costs and profits. To date, Juhl Renewable Assets has an ownership position in multiple wind farms.

Juhl Energy Development, Inc.

This subsidiary focuses on development of wind farms, including construction and related services, such as those listed below (continued on page 7).

- Feasibility studies
- Project design
- Orchestrating the land rights agreements needed to place turbines on farm lands
- Assistance with environmental, zoning, and permit applications

- Agreements with utility companies
- Turbine selection and delivery
- Negotiation and execution of PPAs
- Financing consulting and assistance (equity and debt project financing services)
- Vendor coordination
- Project commissioning

Juhl Energy Services, Inc.

While Juhl Energy Development builds wind farms, Juhl Energy Services manages wind farm operations and maintenance under administrative, management, maintenance, and warranty services agreements. These services can be provided both to the community wind farms developed by the Company and to existing wind farms developed by other entities.

Juhl Energy Services also had a wholly-owned subsidiary called Juhl Tower Services that maintained equipment on cell towers. In October 2014, the Company decided to abandon its involvement with cell tower maintenance due to the difficulty in achieving profitable operations.

Juhl Renewable Energy Systems, Inc.

This entity is involved in small-scale renewable energy operations, including the design, sale, financing, installation, and service of onsite, smaller wind and solar systems. Customers for these products can range from individual consumers (e.g., farmers) to small- to medium-sized businesses to municipalities. The product line available from Juhl Renewable Energy Systems also includes SolarBank®, an onsite solar system, and PowerBank®, an onsite system for backup power.

One avenue for Juhl's sale of renewable energy systems to consumers and small businesses is through an online platform developed by Chicago, Illinois-based PVPower. Juhl Energy acquired the assets of PVPower in early 2014, and Juhl Renewable Energy Systems now distributes its solar products to consumers and small businesses through the PVPower online system (www.pvpower.com/). One benefit to this acquisition is that Juhl Energy can capitalize on PVPower's purchasing power in the solar industry to become more competitive in this space. PVPower distributes solar panels, inverters, monitors, charge controllers, solar batteries, and more through proprietary web applications that enable solar installers to plan, pitch, and purchase solar projects using PVPower's product catalog and packages.

Next Generation Power Systems

This subsidiary holds an inventory of refurbished turbine parts and periodically performs maintenance on small wind turbines that may have been previously installed by Next Generation Power Systems. Juhl Energy states that it does not expect to sell additional refurbished turbines but is periodically requested to perform work on turbines that have already been sold to customers.

Power Engineers Collaborative, LLC

Juhl Energy acquired the Midwest-based engineering firm Power Engineers Collaborative (PEC) in 2012, which expanded the Company's service offerings in several ways: 1) it provided Juhl Energy with an engineering arm capable of providing consulting, development, and engineering work under contracts for utility companies and other independent power developers; and 2) PEC brought an expertise to the Company in energy types beyond wind, including natural gas, biomass, waste-to-energy, and onsite solar. PEC's work includes helping third parties

expand, modernize, consolidate, and create new power-generation assets as well as providing engineering support to Juhl Energy's own large-scale wind and solar projects.

Juhl Energy reports that it has experienced a growth in revenues for PEC, which the Company expects to continue as it capitalizes on the synergy between PEC's professional capabilities and Juhl Energy's own history with wind farm development and construction (Source: Juhl Energy's August 4, 2014, Form 424B4 filed with the SEC). Juhl Energy's historical financial statements are provided on pages 44-47.

Growth Strategy

Juhl Energy's growth strategy emphasizes diversification and expansion into new markets. From its early strides in developing an innovative community wind power model, Juhl Energy is today involved in many different facets of the renewable energy industry. Key areas for potential future growth for Juhl Energy include the following:

- Targeted acquisitions in the clean energy sector;
- Opportunities to develop projects directly for end customers, such as large industrial electricity users and corporate clients;
- Product and service line expansion; and
- Geographic expansion.

Going forward, the Company aims to continue building a diversified business capable of generating sustainable revenue growth beyond wind farm development and construction fees. In addition to increasing its ability to grow its revenues, Juhl Energy's strategy may also reduce the Company's exposure to risks related to the wind industry, including uncertainty of federal policy regarding tax incentives, as well as allow it to capitalize on opportunities in regions with higher energy rates. Figure 3 summarizes the main areas that may help drive Juhl Energy's growth in the renewable energy market. Details are provided following the Figure.

Figure 3
GROWTH STRATEGY OVERVIEW

<ul style="list-style-type: none"> ▪ Engage in strategic acquisitions of existing small wind projects (5 to 80 MW) that can benefit from Juhl Energy's community wind model
<ul style="list-style-type: none"> ▪ Move into larger markets for onsite, municipal, and wind/solar hybrid projects
<ul style="list-style-type: none"> ▪ Grow revenue per project by providing the full range of services in-house for each phase of project development (from site selection through construction and operation)
<ul style="list-style-type: none"> ▪ Continue to expand its services business (operations and maintenance for outside projects) by developing relationships with contractors, turbine suppliers, and financing partners in the wind farm industry
<ul style="list-style-type: none"> ▪ Continue organic development in new regional markets, particularly in markets across North America with higher electric rates
<ul style="list-style-type: none"> ▪ Expand business relationships within the investment community both in the U.S. and abroad in order to assist project owners in obtaining construction financing and end project equity and debt financing
<ul style="list-style-type: none"> ▪ Encourage and create relationships as a community stakeholder

Sources: Juhl Energy, Inc. and Crystal Research Associates, LLC.

Asset Acquisition

Juhl Energy acquires and enters into strategic relationships with complementary businesses as part of its growth strategy. Notable recent relationships include the Company's 2012 acquisition of Power Engineers Collaborative, LLC, enabling the Company to provide renewable energy engineering services; 2012 joint venture with Boulder, Colorado-based 8030 Companies LLC focused on acquiring additional clean energy assets (including existing wind farms); and 2014 acquisition of assets from PVPower, Inc., enabling the online sale of small-scale solar solutions.

Juhl Energy's growth through targeted acquisitions further includes pursuing equity ownership positions in existing small- to medium-sized community wind farms (under 50 MW). Moreover, a list of the wind farms the Company has recently acquired under this strategy is provided in Figure 16 (page 28).

Going forward, Juhl Energy plans to continue to acquire or engage in joint ventures for additional wind assets as well as other complementary assets, including solar and hybrid energy projects.

Onsite Renewable Energy ("Distributed Generation") for End Customers

Juhl Energy believes that a growing niche in renewable energy development is the ability to provide onsite clean energy generation for large industrial users seeking to reduce their carbon footprint and offset their energy costs. The recently completed wind turbine project at the Honda plant in Russells Point, Ohio, is an example of the Company's effort in this area of installing wind and solar facilities for large industrial electricity users and corporate clients. Likewise, the ongoing Purdue Energy Park project represents the Company's focus on distributed generation, where power is generated at or close to where it will be consumed. While both of these use wind energy, Juhl Energy plans to pursue additional distributed generation projects that are wind/solar hybrid projects as well as wind facilities. To this end, the Company estimates that there are hundreds of manufacturing facilities similar in size to the Honda plant that Juhl Energy just successfully completed.

Expansion of Product/Service Lines

Juhl Energy plans to continue to develop diversified product offerings, including expanding its product offerings to energy-conscious consumers with the development of small-scale renewables, such as new wind turbines and solar products. In addition, the Company is exploring battery storage technologies and partnerships for storing the renewable energy produced by its medium-scale renewable energy development and owned projects, in order to use later during periods of low or no renewable energy production (e.g., no sun, no wind). Juhl Energy's research and development (R&D) efforts further include developing distributed generation facilities that allow power users to operate behind the meter and developing utility-scale battery storage capabilities.

The Company has also broadened its services, with engineering and consulting for a wide variety of renewable energy types and turbine maintenance for operational wind farms. Juhl Energy seeks to increase its revenue per project by providing the full range of services needed in each phase of project development, from site selection through construction and operation. The Company also seeks to grow its service business in the area of operations and maintenance contracts through its Juhl Energy Services subsidiary.

Geographic Expansion

Juhl Energy has a considerable presence in the Midwestern U.S., particularly in Minnesota, South Dakota, Nebraska, and Iowa. The Company is also in the process of expanding through joint ventures and acquisitions to new markets with higher electricity rates. For example, the project with Honda was in Ohio, the Purdue Energy Park project is in Indiana, the Black Oak project is in development in New York, and a project is in development in Oregon. As well, the Juhl Energy and 8030 Companies joint venture seeks to acquire clean energy assets across the U.S. and Canada.

Recent Milestones

Juhl Energy has achieved several key milestones over the past 36 months, as summarized below.

Operations

- Juhl Renewable Assets completed strategic acquisitions and ownership positions in three wind farm projects in 2011
- Launched Juhl Renewable Energy Systems, Inc. to provide smaller wind and solar systems for farming operations, small and medium-sized businesses, municipalities, public facilities, and residential applications
- Acquired certain assets of solar company PVPower, Inc., enabling the sale of solar products through the Company's Juhl Renewable Energy Systems subsidiary
- Acquired Power Engineers Collaborative, LLC, which is stated by Juhl Energy to add over \$5 million in annual revenue
- Completed a \$4 million acquisition of two operating wind farms in Iowa, bringing the Company's total owned and operated wind farm assets to over \$30 million
- Raised \$2.2 million through the offering and sale of common stock during 2014
- Improved its capital structure by repurchasing shares of preferred stock held by Vision Opportunity Master Fund, Ltd. and eliminating the quarterly dividend payments that had been due to Vision

Projects

- Provided development support services to help close and commission a new 19.5 MW wind farm at the Oak Tree Lodge ranch in Clark County, South Dakota, which is estimated to power 5,000 homes
- Entered into a co-development agreement to construct a \$40 million, 20 MW wind project at Indiana's Purdue Energy Park
- Completed installation and began operating wind turbines at one of the first major automotive plants to use onsite wind energy for its electricity, the Honda plant in Russells Point, Ohio
- Named one of two principal rooftop solar system installers for Solar Chicago
- Selected as development partner for the State of New York's first community wind project, the Black Oak Wind Project, for which construction is underway (www.blackoakwindny.com/)
- Provided renewable energy credits (RECs) from one of Juhl Energy's wind projects to the Minnesota Vikings for their 2012-2013 season, which represented 520,000 **kilowatt hours (kWh)** of renewable energy (saving over 507,500 lbs of CO₂ emissions) and made the Minnesota Vikings one of the only NFL teams to play in a 100% green-powered facility for home games

Intellectual Property

Juhl Energy does not hold patented intellectual property but does regularly require employees and consultants to sign confidentiality agreements and invention assignment agreements. Confidentiality agreements are designed to protect the proprietary aspects of the Company's technology and processes, and the invention assignment agreements require that intellectual property rights developed in the course of working with Juhl Energy stay with Juhl Energy.

The Company has only licensed its technology out to one other entity, which is using the Company's proprietary software to control the power electronics of the NextGen wind turbine unit. The license term is 20 years and there are no sublicenses allowed.

Juhl Energy holds registered trademarks for the product names SolarBank® and PowerBank®.

The Company also has proprietary software for control and operation of its smart grid SolarBank® System.

Company Leadership

Executive Management

Juhl Energy is led by individuals with considerable expertise in renewable energy and power development. Mr. Dan Juhl, founder and Chief Executive Officer (CEO) of the Company, has over 30 years of experience in the field of wind energy and has been credited with creating community wind power as a sector of the U.S. wind industry. He has been instrumental in the development of over 1,500 MW of wind generation assets. He has acted as consultant to many well-known entities, including Edison Capital, Johnson Controls, John Deere Capital, Suzlon Turbine Manufacturing, Nebraska Power, and Xcel Energy, as well as has advocated in favor of community-based energy development (C-BED) at both the state and federal level.

Likewise, Juhl Energy's president, Mr. John Mitola, is experienced in energy efficiency, demand side management, independent power development, and electric industry regulation as well as in project and corporate finance. In 2014, the Company appointed Mr. Ram Madugula as president of its engineering subsidiary, PEC. Mr. Madugula brings to the business over three decades of experience as a professional engineer in the power industry (including with combined cycle, biomass, coal, and **integrated gasification combined cycle [IGCC]** technologies) and was a former chairman of the American Society of Mechanical Engineers' (ASME) Power Division.

Figure 4 summarizes the Company's executive leadership, followed by brief biographies on pages 14-15.

Figure 4
MANAGEMENT

Juhl Energy Corporate Leadership	
Daniel J. Juhl	Chairman of the Board of Directors and Principal Executive Officer
John P. Mitola	President and Director
John Brand	Chief Financial Officer
Operating Subsidiary Management	
Corey Juhl	Vice President of Juhl Energy Development Inc. (JEDI)
Tyler Juhl	Vice President of Juhl Energy Services Inc. (JESI)
Ram Madugula, P.E.	President, Power Engineers Collaborative, LLC (PEC)
George Shibayama, P.E.	Founder and Principal, PEC
Matt Brown, P.E.	Principal and Vice President, PEC
Bryan Eskra, P.E.	Principal and Vice President, PEC
Chuck Von Drehle	Program Director, Juhl Renewable Energy Systems, Inc.

Source: Juhl Energy, Inc.

Daniel J. Juhl, Chairman of the Board of Directors and Principal Executive Officer

Mr. Juhl became chairman of the Board and principal executive officer of Juhl Energy on June 24, 2008, after having served as the founder and president of the predecessor companies since January 1989. Mr. Juhl has been involved in the wind power industry for more than 30 years. He has extensive experience in the design, manufacture, operation, and maintenance of wind turbines. Mr. Juhl has been involved in the development of approximately 1,500 megawatts of wind generation in his more than 30 years of experience in the field. He has been the principal consultant for wind energy projects to Edison Capital, John Deere Capital, Vestas, EWT, Suzlon Turbine Manufacturing, and various public and private utilities throughout the U.S. and Canada. He has appeared before numerous state and federal governmental bodies advocating wind power and community-based energy development on behalf of landowners, farmers, and ranchers. Mr. Juhl wrote the popular wind energy reference guidebook, *Harvesting Wind Energy as a Cash Crop*.

John P. Mitola, President and Director

Mr. Mitola became president and a member of the Board of Directors on June 24, 2008. He has more than 25 years of experience in the energy and environmental industries as well as in project finance, real estate development, venture capital, engineering, and construction. He has been a managing partner with Kingsdale Capital International, a private equity and capital advisory firm that specialized in merchant banking, leveraged buyouts, and corporate finance, since August 2006. From 2003 to 2009, Mr. Mitola served as Chairman of the Illinois Toll Highway Authority, one of the largest agencies in Illinois and one of the largest transportation agencies in North America with a \$600 million annual operating budget and a \$6.3 billion capital program, operating over 274 miles of roadway serving the Chicago metro region. Earlier in his career, Mr. Mitola served as vice president and general manager of Exelon Thermal Technologies, a subsidiary of Exelon Corp. that designed and built alternative energy systems in the 1990s. Prior to serving as its general manager, Mr. Mitola served in various leadership roles at Exelon Thermal Technologies from January 1990 until his move to Electric City Corp. in January 2000.

John Brand, Chief Financial Officer

Mr. Brand became chief financial officer (CFO) in January 2009. Since joining the Company, Mr. Brand has been significantly involved in over \$240 million of project financing transactions. Mr. Brand is a former certified public accountant (CPA) with 14 years of audit, tax, and consulting experience in public accounting firms, including Grant Thornton. He has significant experience in the financial management of both public and early stage high growth technology companies as well as a record of achievement in assisting the growth of emerging companies.

Operating Subsidiary Management

Corey Juhl, Vice President of Juhl Energy Development Inc. (JEDI)

Mr. Corey Juhl got his official start in the wind energy business in 2003 when he helped construct the 18 MW wind farm known as DanMar I. Today, he serves as the vice president of project development. As VP of JEDI, he has overseen the development of more than 10 wind farms since 2008. Corey Juhl is a graduate of South Dakota State University located in Brookings, South Dakota. He is the son of Juhl Energy's chairman and principal executive officer, Mr. Dan Juhl (biography provided above).

Tyler Juhl, Vice President of Juhl Energy Services Inc. (JESI)

Mr. Tyler Juhl started in the renewable energy business in 1994 by putting up wind monitoring stations and building back-up and off-grid power systems with his father, Juhl Energy's chairman, Mr. Dan Juhl. He started his commercial wind career in 2000 working on foundation, tower erection crews, and performing maintenance on his family's wind farm. In his role as vice president of JESI, Mr. Tyler Juhl oversees day-to-day wind farm operations and maintenance for the wind farms owned by Juhl Renewable Assets Inc. and for those owned by the Company's trading partners.

Ram Madugula, P.E., President, Power Engineers Collaborative, LLC (PEC)

Mr. Madugula is PEC president with over 30 years of professional experience in the power industry. He is responsible for business development, execution of projects, and well as administrative oversight at PEC. Mr. Madugula has also been vice president at Sargent & Lundy LLC and was responsible for design projects associated with combined cycles, biomass, coal, and IGCC technologies. The scope of work in the group included engineering work by all disciplines (mechanical, structural, civil, electrical, instrumentation, and controls), quality control, equipment procurement, cost control, and contract administration. He has experience with EPC and multi-contract projects. Mr. Madugula is an active member of ASME and was the chairman of ASME's Power Division and Combined Cycle Committees. He received a Bachelor's degree in mechanical engineering from the University of Illinois in Chicago and a Master's in Mechanical Engineering from the Illinois Institute of Technology.

George Shibayama, P.E., Founder and Principal, PEC

Mr. Shibayama has more than 38 years of experience in the power industry, with a background in the engineering, procurement, and construction of both nuclear and fossil fuel generating facilities.

Matt Brown, P.E., Principal and Vice President, PEC

Mr. Brown has more than 40 years of experience in the building systems engineering and power engineering industries. His background includes extensive experience in refrigeration, nuclear, fossil fuel, and cogeneration facilities. Prior to joining PEC, he served in various senior leadership roles at firms that include Fluor Corporation and Sargent & Lundy.

Bryan Eskra, P.E., Principal and Vice President, PEC

Mr. Eskra has more than 40 years of experience in the power industry, with a background in utility operations and design engineering, OEM design and development, and large project delivery. Earlier in his career, he served in various engineering and project management roles at MWH Global, Harza Engineering Company, and Siemens Power Corporation.

Chuck Von Drehle, Program Manager, Juhl Renewable Energy Systems, Inc.

Mr. Von Drehle joined the Company as a result of the PVPower acquisition in 2014. At PVPower, he oversaw the daily operations of the PVPower wholesale distribution business. With more than eight years in the solar business industry, he has worked on over 2 MW of solar projects.

Board of Directors

The Board of Directors oversees the conduct of and supervises the Company's management. Figure 5 provides a summary of Board members, followed by brief biographies.

Figure 5
BOARD OF DIRECTORS

Daniel J. Juhl	Chairman of the Board of Directors and Principal Executive Officer
James W. Beck	Director
Edward C. Hurley, J.D.	Director
John P. Mitola	President and Director
Chuck Templeton	Director

Advisors

General Wesley K. Clark (ret.)	Senior Advisor to the Board
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Source: Juhl Energy, Inc.

Daniel J. Juhl, Chairman of the Board of Directors and Principal Executive Officer

Biography on page 14.

James W. Beck, Director

Mr. Beck became a director of Juhl Energy in November 2009, and has been a member of the Company's audit committee since November 2009 of which he currently serves as chair. He is also a member of the Company's compensation committee and nominations and corporate governance committee. Mr. Beck is a major shareholder of Intepro, a company engaged in the development of software for vertical markets having to meet requirements for regulatory compliance, and is a co-owner of EMC, LLC, a firm engaged in the engineering, design, and implementation of energy-efficient lighting systems in industrial and commercial applications throughout North America for new construction and retrofit markets. Mr. Beck has previously been involved with companies engaged in the evaluation and implementation of energy usage, alternative energy sources, electrical continuation, and energy conservation. Mr. Beck earned a B.S. in business from the University of Minnesota. He serves as a member of the Board of Directors of AIA Insurance Services in Lewiston, Idaho, serves as a member of the Advisory Committee of Summit Academy in Minneapolis, Minnesota, and is involved in various other community and civic activities.

Edward C. Hurley, J.D., Director

Mr. Hurley became a director of Juhl Energy in July 2008 following the Company's reverse public offering transaction, and has been a member of the audit committee since November 2009. Mr. Hurley also serves on the nominations and governance committee and chairs the compensation committee. Mr. Hurley is a partner with Foley & Lardner LLP where he is a member of the Energy Industry Team, focusing his practice on public utility regulation, a position he has held since May 2010. Mr. Hurley dedicated over 16 years of his career at the Illinois Commerce Commission (ICC) where he served as the agency's chairman, as well as a commissioner and an administrative law judge. During his tenure at the ICC, Mr. Hurley was involved in resolving complex issues impacting Illinois businesses governed by the ICC, including the deregulation of the electric energy markets, the process for procurement of electricity by electric utilities, and mergers and acquisitions of telecommunications, electric, and natural gas utilities. He also served as the Special Director of the Office of Emergency Energy Assistance for the State of Illinois, being responsible for the successful implementation of the "Keep Warm Illinois" and "Keep Cool Illinois" Campaigns that were driven by anticipated increases in the costs of natural gas and electricity. Mr. Hurley also has been involved in regulatory issues at a national level. While at the ICC, Mr. Hurley was active in the National Association of Regulatory Utility Commissioners, where he served on the Board of

Directors as well as the Water Committee. In these roles, Mr. Hurley gained a national perspective regarding the regulatory requirements imposed upon utilities operating in newly competitive markets. He continues to be an active participant, as well as a guest speaker, at numerous conferences relating to issues impacting businesses that operate in regulated industries, including energy, telecommunications, and investor-owned water systems. Also, Mr. Hurley has been a member of the National Coal Council since 2004. Prior to joining Foley, Mr. Hurley was of counsel with Chico & Nunes, P.C. He began his career representing clients in litigation in private practice and as an Illinois Assistant Attorney General. Mr. Hurley received a J.D. from John Marshall Law School in 1980 and a B.S.B.A. from Marquette University in 1976.

John P. Mitola, President and Director

Biography on page 14.

Chuck Templeton, Director

Mr. Templeton is currently the managing director of Impact Engine, Inc., a venture accelerator for entrepreneurs seeking to address environmental issues or societal challenges, and also serves as a director of Auctions By Cellular, LLC and a director of Getable, Inc. Mr. Templeton was a founder of OpenTable.com, where, while CEO, he recruited and hired the first management team, obtained and allocated company resources, led the business and product strategy, and carefully crafted a highly dedicated culture. From November 2007 to June 2013, Mr. Templeton served as a director of GrubHub, Inc. Mr. Templeton also served as a director of TaskRabbit, Inc. from August 2012 to April 2014 and as a director of I-Go Cars from February 2010 to February 2013. Mr. Templeton also served a director of PVPower, Inc. (n/k/a PVP Wind-Up, Inc.), the assets of which were purchased by the Company pursuant to an Asset Purchase Agreement effective February 5, 2014.

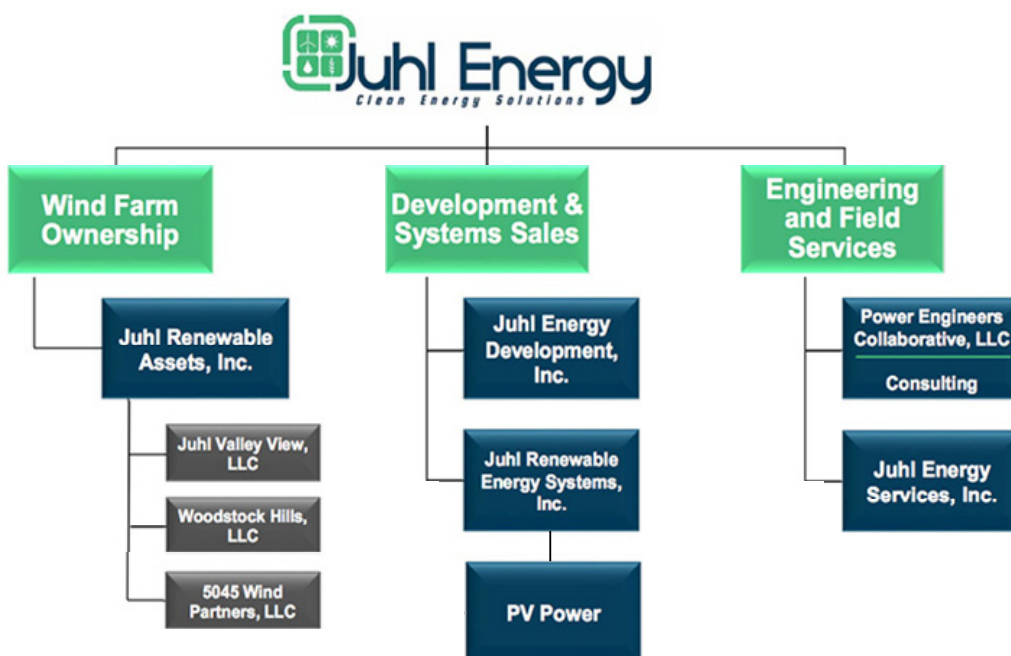
General Wesley K. Clark (ret.), Senior Advisor to the Board

General Clark became a senior advisor to Juhl Energy's Board in April 2014 after serving on the Board of Directors since January 2009. He is a businessman, educator, writer, and commentator. General Clark serves as chairman and CEO of Wesley K. Clark & Associates, a strategic consulting firm. He also serves on numerous corporate boards and has authored three books and serves as a member of the Clinton Global Initiative's Energy & Climate Change Advisory Board, and ACORE's Advisory Board. General Clark retired as a four-star general after 38 years in the U.S. Army. He graduated first in his class at West Point and completed degrees in philosophy, politics, and economics at Oxford University (B.A. and M.A.) as a Rhodes Scholar. While serving in Vietnam, he commanded an infantry company in combat, where he was severely wounded and evacuated home on a stretcher. He later commanded at the battalion, brigade, and division level, and served in a number of significant staff positions, including service as the Director Strategic Plans and Policy (J-5). In his last assignment as Supreme Allied Commander Europe, he led NATO forces to victory in Operation Allied Force, saving 1.5 million Albanians from ethnic cleansing. His awards include the Presidential Medal of Freedom, Defense Distinguished Service Medal (five awards), Silver star, Bronze star, Purple Heart, honorary knighthoods from the British and Dutch governments, and numerous other awards from other governments, including award of Commander of the Legion of Honor (France).

Core Story

Juhl Energy, Inc. (“Juhl Energy” or “the Company”) and its operating subsidiaries are engaged in the development and provision of competitive, clean energy solutions. The Company is active in multiple aspects of the electricity generation market, including development of medium-scale wind farms and community wind projects as well in distributed generation technologies and projects using onsite wind, solar, and biomass renewable energy. Pages 19-25 detail relevant market sectors, dynamics, and trends potentially affecting the business of Juhl Energy, followed by a description on pages 26-39 of the Company’s work in wind farm ownership, development and system sales, and engineering and field services, as summarized in Figure 6.

Figure 6
JUHL ENERGY’S SPECIALTIES



Source: Juhl Energy, Inc.

Market Dynamics

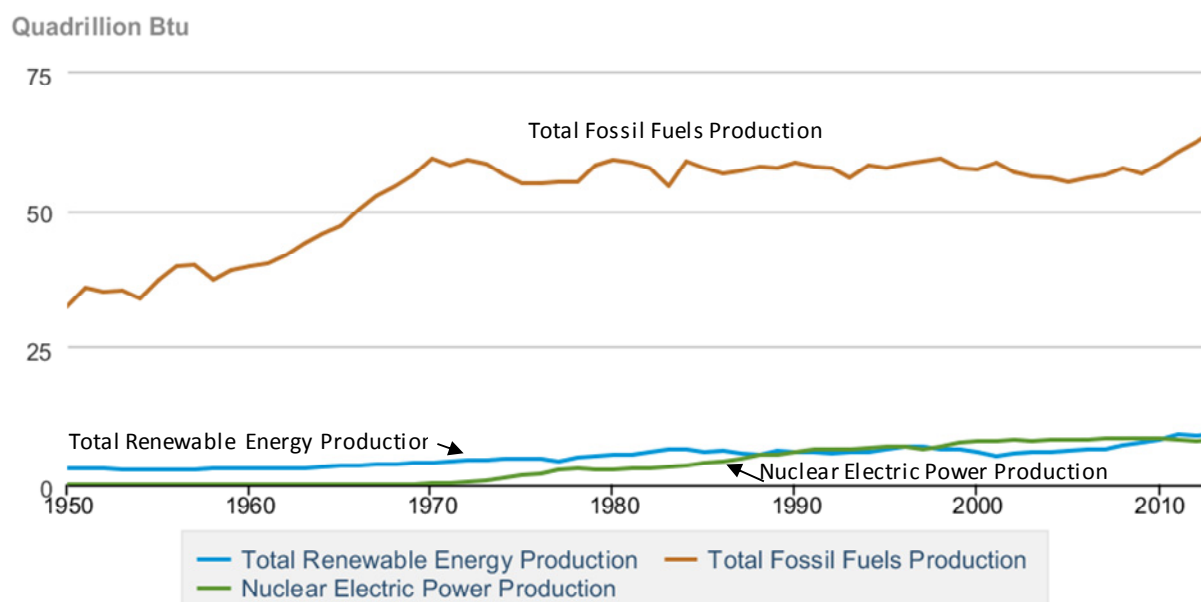
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FUELS USED IN ELECTRICITY GENERATION

In 2013, the U.S. produced enough energy to satisfy approximately 84% of energy demand (Source: U.S. Energy Information Administration [EIA]). The bulk of the energy produced in the U.S. is derived from fossil fuels, which include petroleum, natural gas, and coal. Fossil fuels are non-renewable, meaning that their reserves deplete faster than they are created, such that once the coal or crude oil is mined and extracted, it would take millions of years for new reserves to form. The burning, or combustion, of fossil fuels is also associated with the emission of known air pollutants and environmentally harmful **greenhouse gases**, specifically carbon dioxide (CO₂). As of 2012, the process of creating electricity was responsible for generating 32% of the U.S. greenhouse gas emissions, and included in that figure, approximately 39% of the U.S.'s energy-related CO₂ emissions (Sources: the EIA and the U.S. Environmental Protection Agency [EPA]). (Other causes of CO₂ emissions are using fossil fuels in the transportation sector and the direct use of these fuels in homes, commercial buildings, and industry.)

As shown in Figure 7, from the early 2000s to date, renewable energy production has jumped due to both the federal government and a great number of state governments nationwide emphasizing renewable energy policies. Such policies, which are described on pages 21-22, include tax credits, renewable portfolio standards (RPS), and the emergence of financing and net metering/buyback frameworks that have encouraged the adoption of solar, wind, hydro, and biomass systems.

Figure 7
PRIMARY U.S. ENERGY PRODUCTION BY SOURCE (1950-2013)

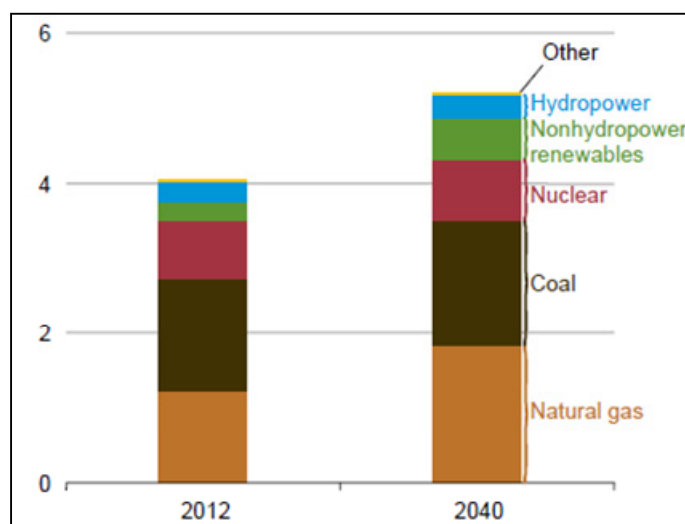


Source: U.S. Energy Information Administration.

Fossil fuels remain an essential component to the U.S. energy mix; however, the fastest-growing source of electricity generation through the year 2040 is projected to be renewable energy (as shown in Figure 8). Renewable electricity generation is projected to grow by 69% by 2040 (Source: the EIA's *Annual Energy Outlook 2014*). Excluding hydropower, the use of renewable resources such as solar, wind, and biomass is projected to expand by over 140% in the next few decades—outperforming growth rates of all other electricity fuels, including natural gas- and coal-fired generation (Source: *Annual Energy Outlook 2014*). As a result, renewable energy, which currently represents approximately 12% of total electricity generation in the U.S., is forecast to power 16% of U.S. electricity production by the year 2040.

Figure 8

TOTAL U.S. ELECTRICITY GENERATION BY ENERGY SOURCE, 2012 AND 2040 (ESTIMATED), IN BILLION KILOWATT HOURS



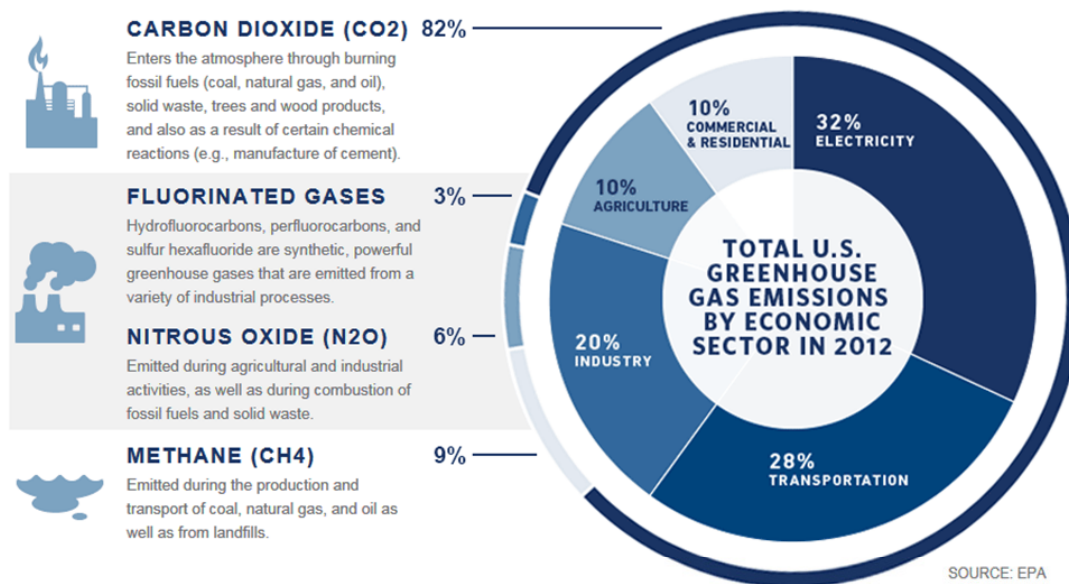
Source: Figure IF7-1 from the U.S. Energy Information Administration's *Annual Energy Outlook 2014*, page IF-41.

Additionally, natural gas presently accounts for roughly 30% of domestic U.S. energy production (Source: the EIA's *Monthly Energy Review*, May 2014). Juhl Energy today provides a full range of clean energy solutions with a focus on wind, solar, biomass, and natural gas systems. Natural gas, though not renewable, is considered a cleaner energy because it is believed to emit up to 50% less CO₂ than coal when burned. Many view natural gas as a “transition fuel” between coal and renewable energy because it is an environmentally preferable option to coal and the U.S. has considerable domestic natural gas resources; however, it is not as clean as using solar or wind power to generate electricity. Both renewable energy and natural gas help to aid the security of the U.S.’s energy supply as they can be produced domestically.

Figure 9

ELECTRICITY GENERATION IS A SIGNIFICANT CAUSE OF CO₂ POLLUTION

U.S. GREENHOUSE GAS POLLUTION INCLUDES:



Source: U.S. Environmental Protection Agency.

POLICIES AND INCENTIVES FOR CLEAN AND RENEWABLE ENERGY GENERATION

Renewable Portfolio Standards (RPS)

There are currently at least 29 states plus the District of Columbia that have enacted a renewable portfolio standard (RPS) or a renewable electricity standard (RES). RPS regulations require states to increase their production of energy coming from renewable sources rather than fossil fuels and nuclear power, but the implementation varies from state to state with regard to what percentage of energy production should be renewable, by when, using what technologies, and what is the penalty for noncompliance. For example, in Minnesota, where Juhl Energy is headquartered, the state's RPS requires that public utilities must obtain or generate at least 25% of their retail electricity sales from renewable sources by the end of 2025 and an additional 1.5% must come from solar power specifically (with a set amount also required to stem from photovoltaic systems under 20 KW). Private utilities must also meet the 25% by 2025 standard for renewable electricity generation but do not have the added 1.5% solar requirement. Xcel Energy has been given a more aggressive timetable for its Minnesota operations, which include reaching 30% renewable electricity sales by 2020 as well as 1.5% from solar power by 2020. Statewide, Minnesota is working to generate at least 10% of its electricity sales from solar by 2030. Wind energy is a major focus area as well. At least 24% of Xcel Energy's 31.5% RPS requirement in Minnesota must come from wind power (Source: DSIRE™). In Iowa, where Juhl Energy's two most recently acquired wind farms are located, more than 20% of the state's electricity is generated with wind power (Source: the Union of Concerned Scientists' *How Renewable Electricity Standards Deliver Economic Benefits*, May 2013).

At least 17 states have RPS targets of at least 20% or higher (Source: Union of Concerned Scientists, May 2013). For greater details on state-by-state regulations and incentives, refer to the Database of State Incentives for Renewables & Efficiency, or DSIRE™, operated and funded by the N.C. Solar Center at North Carolina State University, with support from the Interstate Renewable Energy Council, Inc. and U.S. Department of Energy: <http://www.dsireusa.org/>.

Renewable Energy Certificates (RECs)

The U.S. EIA states that most states are currently meeting or exceeding their RPS targets through either qualified generation or purchasing renewable energy certificates ([RECs] also known as renewable energy credits). An REC represents 1 **megawatt hour (MWh)** of electricity generated from a renewable source, and can be traded and sold separately from the physical renewable electricity. As such, the purchase and tracking of RECs representing the benefits of renewable energy (reduced air/water pollution, reduced CO₂ and other greenhouse gas emissions, and increased use of domestic energy production) helps retail electricity suppliers show compliance with RPS legislation, and also provides an additional source of revenue for the producers of renewable energy, such as Juhl Energy. For example, the wind farms owned by Juhl Energy generate income both from the sale of electricity as well as from the trading of RECs. Juhl Energy has previously sold RECs to the Minnesota Vikings football team, as noted on page 11.

Production Tax Credits

A major stimulus driving demand for renewable energy projects over the past few decades have been federal production tax credits (most recently, \$0.023 per KWh generated from wind, geothermal, and closed-loop biomass systems and \$0.011 per KWh from other eligible renewable technologies). These tax credits generally applied to the first 10 years of operation for renewable energy generation projects that were under construction prior to the end of 2014. Though now expired, demand for wind energy developments and consumer-owned renewable energy projects commencing development in 2015 or later will likely continue and may even increase going forward (in line with the EIA's growth forecasts for renewable electricity generation) due to increasing demand for electricity from alternative energy sources and the emergence of more competitive technologies.

Moreover with these tax credits facing expiration, Juhl Energy believes there is an opportunity for the Company to acquire operational wind farms and clean energy assets that existing owners may now be looking to dispose of. This could include small wind projects that comprise only a minor portion of the seller's current business and that are located in remote regions with high operating costs or expiring equipment warranties. In some cases, the assets are fully depreciated (as an accelerated depreciation life of only five years is applicable to wind energy equipment) and the tax credits are expiring, motivating asset owners even more to sell off these small wind farms. Juhl Energy believes that, with its expertise in wind farm development, ownership, and maintenance, it will likely be able to generate value from these projects in a way that the prior owner could not. The Company estimates that there are over 500 small wind farms under 50 MW in the U.S. that could represent acquisition opportunities as a result of the aforementioned conditions. Potential sellers of such projects could include large entities such as GE, Alliant, Duke Energy, Edison Mission, and Exelon (Source: Juhl Energy's Corporate Presentation).

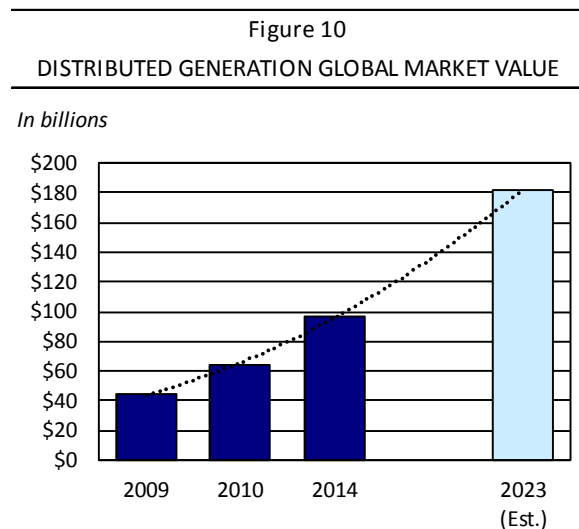
THE RISE IN DISTRIBUTED GENERATION

One of the key trends in energy development at present is the rise in distributed generation projects. Distributed generation usually entails smaller wind and solar power projects that can be constructed closer to the point of power consumption. This comprises both onsite distributed generation, which generally produces only enough electricity to power that particular location (e.g., wind turbines installed at the Honda transmission plant in Ohio; rooftop solar), and wholesale distributed generation, such as solar farms between 1 MW and 20 MW. A solar farm under 20 MW, for instance, is larger than the solar panels installed onsite for residential or small business users but smaller than the large, central station solar plants often built in the American southwest (Source: the Solar Energy Industries Association®). Because of their moderate size, wholesale distributed generation projects still achieve economies of scale in order to produce enough electricity to sell on the wholesale market but can also be located closer to the point of load demand, reducing the need to build out considerable transmission networks for transmitting the generated electricity long distances. As such, distributed generation projects are often constructed more economically and with simpler permitting processes than conventional solar and wind farms.

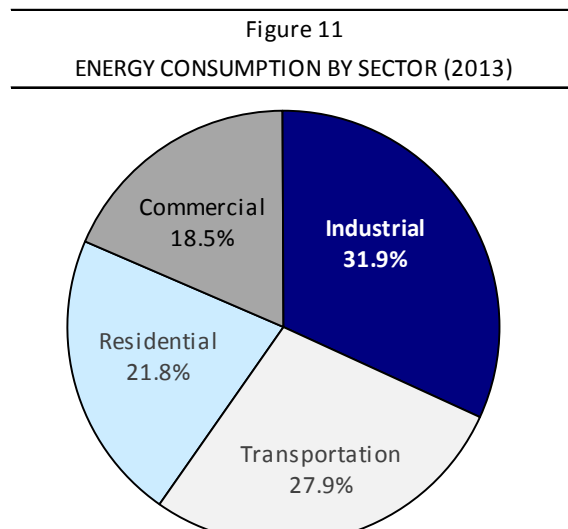
Navigant Research projects annual installed capacity in the global distributed generation market to grow from 87.3 GW in 2014 to 165.5 GW by 2023—equivalent to the doubling of current capacity in less than a decade (Source: Navigant’s *Global Distributed Generation Deployment Forecast*, 3Q 2014). To this end, distributed generation has been called a “disruptive” technology for a utility sector that has historically had little competition, only modest technology changes, and predictable consumer behaviors (Source: *The Meaning of Disruption: How Should Utilities Think About Change?*, September 2, 2014). Distributed generation and other new technologies including solar, distributed energy storage, electric vehicles, and home energy management software/products are changing consumer behavior in a radical way, by giving energy choices to consumers and creating an opportunity for new entrants to challenge the utility-driven model of electricity generation and provision. Adoption of distributed power generation is being driven by a number of factors, including but not limited to, the following:

- Cost reductions and increasing technical capabilities as a result of public and private investment in new business models and third-party owned systems for distributed generation;
- Government incentives; and
- Rising interest in replacing fossil fuel energy sources.

Forecasts from BCC Research estimated the global market value for distributed generation technologies at approximately \$141 billion in 2015, which could represent a compound annual growth rate of 17.1% over 2010, when this market was valued at \$64 billion worldwide, as shown in Figure 10 (Source: BCC Research’s *The Global Market for Distributed Energy Generation*, October 2011). More recent estimates of the market value for distributed generation technologies estimated revenue in this industry at \$97 billion globally as of 2014, with the potential to exceed \$182 billion by 2023 (Source: Navigant Research’s September 4, 2014, press release).



Sources: BCC Research (October 2011); Navigant Research (September 2014); and Crystal Research Associates, LLC.



Sources: U.S. Energy Information Administration and Crystal Research Associates, LLC.

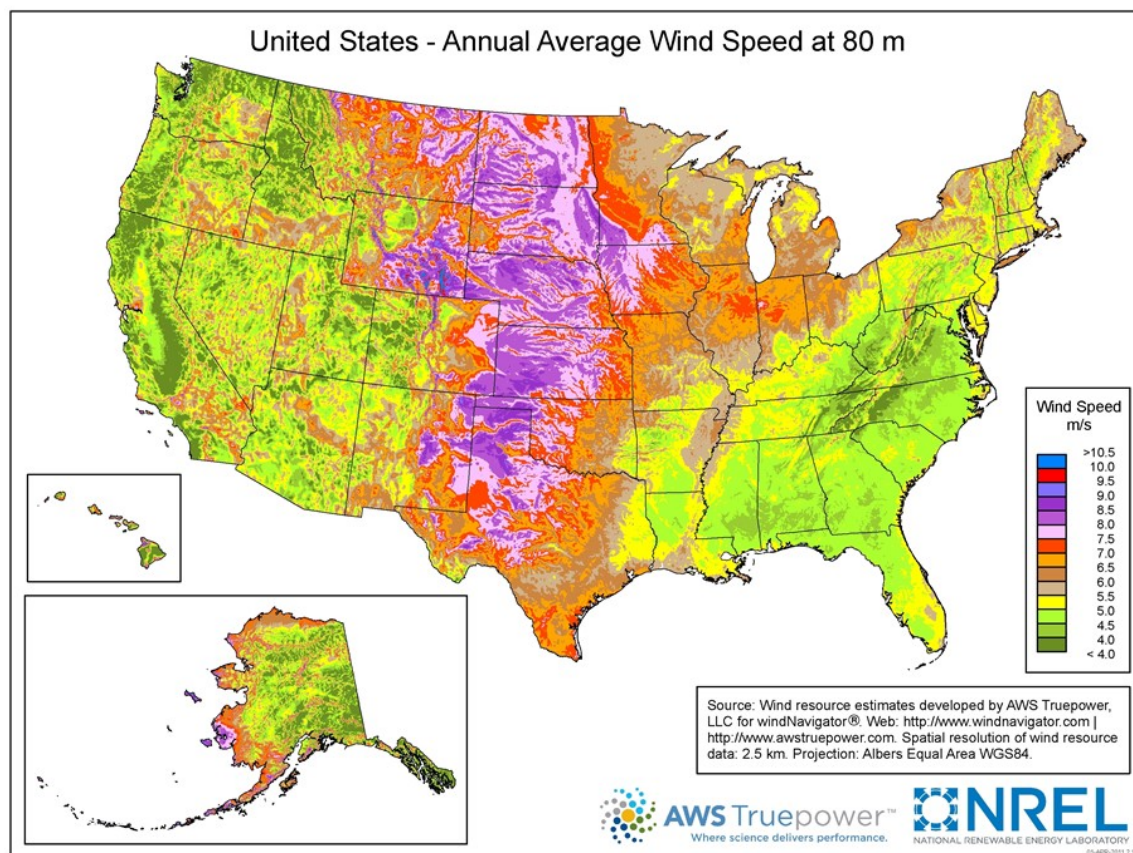
To address changing market dynamics in favor of distributed generation, Juhl Energy has been pursuing the development of wind/solar hybrid distributed generation projects, onsite wind turbines for manufacturers seeking to reduce their carbon footprint and meet some of their own electricity demand, and the development and sale of small-scale renewable systems for wind and solar. As shown in Figure 11, large industrial and commercial energy users account for roughly 50% of the U.S. energy consumption. As these users seek to become more energy independent, while saving money and meeting emissions targets, Juhl Energy could see growing demand for its products and services given the Company’s experience in the onsite and distributed generation market.

OUTLOOK FOR WIND AND SOLAR

Market for Wind Energy

As shown in Figure 12, the Midwestern U.S. is optimal for developing wind resources, with average annual wind speeds among the highest in the nation. Juhl Energy targets its wind power projects to regions with notable wind resource potential. Due in part to favorable wind and environmental conditions across large portions of the U.S. as well as to a number of governmental incentives for wind power (production tax credits for projects started through the end of 2014, an accelerated five-year depreciation available for equipment, renewable energy credits, stimulus money, and RPS policies, etcetera), the U.S. wind market has grown considerably. From 2009 through 2013, wind energy accounted for 31% of new electricity generating capacity, leading to a total installed wind capacity of 61,327 MW as of the first quarter 2014—enough to power 15.5 million American homes (Source: the American Wind Energy Association).

Figure 12
WIND SPEED MAP

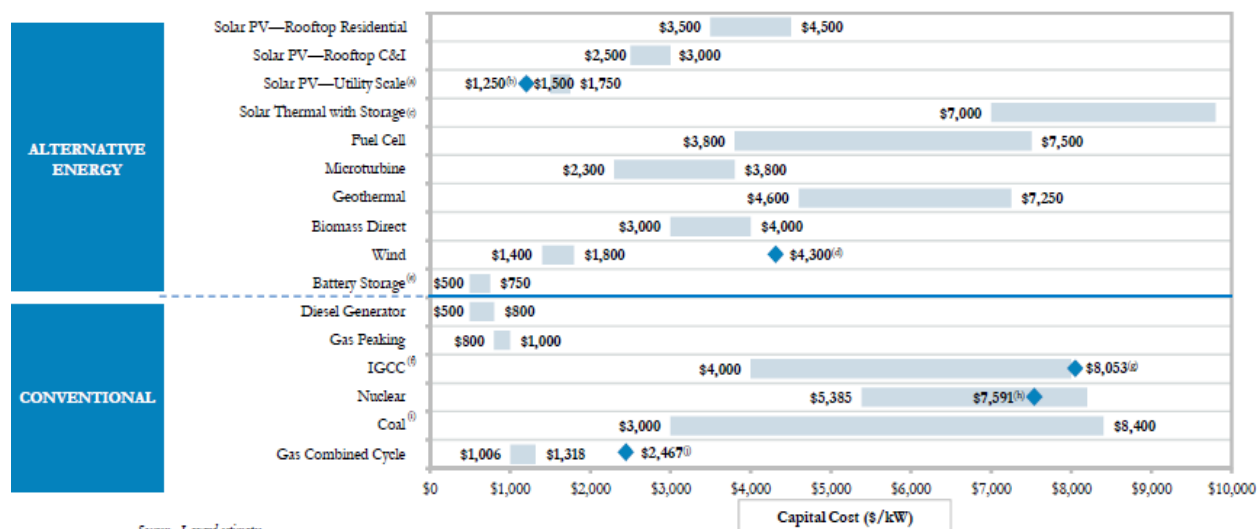


Source: the National Renewable Energy Laboratory (<http://www.nrel.gov/gis/wind.html>).

The largest state markets for distributed wind capacity cumulative since 2003 (wind turbines constructed close to the point of use of the generated electricity whether grid-connected or off-grid) are Texas, Minnesota, and Iowa, though 36 states now have documented distributed wind capacity (Source: the U.S. Department of Energy's 2013 *Distributed Wind Market Report*, August 2014). The market for both grid-connected and off-grid distributed wind has typically been composed of power needed for remote, off-grid homes; onsite alternative and backup power systems for grid-connected homes and businesses; remote oil and gas operations; telecommunications facilities; schools; farms; rural water supplies; military sites; and connections for distribution lines serving local loads.

One important factor fueling adoption of wind energy in the U.S. and globally is that, over time, wind power has come to offer one of the lowest installation and capital cost profiles relative to competing renewable energy sources, as illustrated in Figure 13. It cost roughly 40 cents per KWh to generate electricity from a wind turbine in the early 1980s versus only 6 to 11 cents per KWh today as a result of technological and efficiency improvements (Source: Center for Climate and Energy Solutions). In some regions, wind can also be cost competitive to traditional power generation, based on estimates from the Center for Climate and Energy Solutions that the levelized cost of electricity generation from new coal-fired plants can range from 6.4 to 9.5 cents per KWh.

Figure 13
WIND ENERGY CAN BE COST COMPETITIVE



Source: Lazard's Levelized Cost of Energy Analysis — Version 8.0, September 2014.

Though a recent reduction in federal incentives has dampened the domestic wind market, opportunities in this sector persist due to rising consumer interest in distributed wind technologies fueled by a growth in demand for electric vehicles, advances in smart grids, and expanding utility involvement in distributed energy resources (Source: 2013 Distributed Wind Market Report). Going forward, the International Energy Agency has forecasted that global installed wind capacity could quintuple in size by 2035, with the U.S. as one of the world's leading suppliers of wind power. Companies in this market will likely need to be skilled at overcoming permitting barriers as well as be able to provide financing or have relationships with third-party financing sources.

Expanding U.S. Solar Market

Due to public policies such as a solar investment tax credit, net-metering mandates, and various state RPS requirements, solar power is experiencing dramatic growth in the U.S. Installation of photovoltaic capacity in the third quarter 2014 was up 41% over the third quarter 2013, making it the second-best quarter ever for solar installation in the U.S. (Source: the Solar Energy Industries Association® and GTM Research's *U.S. Solar Market Insight Report*, December 9, 2014). On an annual basis, new solar generating capacity in 2014 is expected to exceed 2013 levels by an estimated 36%. The majority of this growth traditionally comes from utility-scale photovoltaic installations, but recent trends have shown that the U.S. residential market is proving to be a reliable solar market even in the absence of state incentives. The *U.S. Solar Market Insight Report* notes that residential solar has had market growth in 18 of the past 19 quarters, with a total of 300 MW installed in the third quarter 2014. For comparison, utility-scale projects accounted for 825 MW of new capacity in the same quarter. Rooftop solar programs, such as the one Juhl Energy is pioneering with Solar Chicago (detailed on page 36), help to drive the residential solar market, which is on track to be the largest sector of the U.S. solar industry by 2017 (Source: the Solar Energy Industries Association®, December 9, 2014).

Wind Farm Ownership

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Wind Farms Where Juhl Energy has an Ownership Stake.....	28

Juhl Energy has considerable expertise in the wind power development business. Over the past several decades, the Company has been focused on building 5 MW to 80 MW grid-connected wind farms with a novel ownership structure that serves local communities, the land owners (farmers/ranchers), environmentally conscious investors, and Juhl Energy. The Company's Juhl Renewable Assets, Inc. subsidiary today holds Juhl Energy's ownership positions in these wind farms and targets the acquisition of further ownership positions in additional wind and other renewable energy assets. The subsidiary's assets have been valued at approximately \$30 million (Source: Juhl Energy's Corporate Presentation).

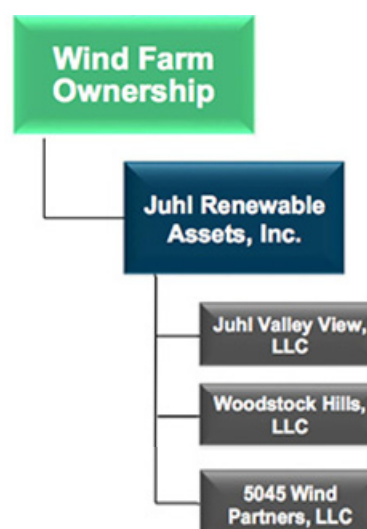
FINANCING COMMUNITY WIND POWER

Juhl Energy founder Dan Juhl pioneered a "community wind power" model where wind energy systems are developed through partnerships with the landowners on whose land wind turbines are installed. Land is a critical resource for wind energy, as 1 acre of land is required per 50 acres of wind resource captured. In a community wind ownership model, the landowners, who are often farmers and ranchers, are typically able to own a portion of the long-term equity in wind farms on their land via a limited liability company set up to extend ownership over the wind resource to the local stakeholders. Juhl Energy estimates that the annual net income generated from land used for farming or grazing can be more than doubled when it is also used to harvest wind.

In this way, community wind power is a specialized sector of the wind energy industry that differs from large, utility-owned wind farms. Community wind does usually sell its produced power to utility companies, though it can be challenging to obtain such contracts.

Juhl Energy's roots in community wind date back to the 1980s/1990s when founder Dan Juhl established Juhl Energy's predecessor company, DanMar, which used the community wind model to construct a wind farm in Marshall, Minnesota, that was believed to be the first of its kind (Source: *Wind Systems Magazine*, November 2013). Nearly two dozen community wind projects later, Mr. Juhl and his family took their company public as Juhl Wind, Inc. in 2008. From there, it has evolved into today's diversified Juhl Energy, Inc. While developing community wind projects, DanMar had to simultaneously develop the financial, legal, and operational structure for these projects through which there could be local ownership of medium- to large-scale energy generation assets. Part of the novelty of DanMar's approach was bringing in a tax equity player to partner with the local investors and capitalize on the tax breaks available to wind and renewable energy at the time. Essentially, the company was able to bring in roughly 50% of the money needed to develop the community wind project in equity, mostly through the tax credit player which was usually large utilities, and then use debt financing through a regional bank for the balance.

Figure 14
WIND FARM OWNERSHIP



Source: Juhl Energy, Inc.

Figure 15

LAND USED SIMULTANEOUSLY FOR HARVESTING WIND AND GRAZING LIVESTOCK

Woodstock Hills Wind Farm



Source: Power Engineers Collaborative (<http://www.pecllc.com/about-us.html>).

This model now serves Juhl Energy in another way: as many of the under-50 MW community wind farms (for which the Company believes there are hundreds across the U.S.) come off of their tax credit periods—in that their production tax credits and accelerated depreciation benefits have all been exercised—the original tax equity investors may now be looking to sell their stakes in these wind farms. According to Juhl Energy, many of the large investors (utility companies, banks, and so on) really only got into the community wind business for the tax credits and, with those exhausted, these projects are no longer worth the effort for large conglomerates to hold. Juhl Energy has been capitalizing on this dynamic by buying these assets where feasible in order to exercise their value, being that the Company is well suited to managing the operations and maintenance of remote power generation assets. Juhl Energy understands how to navigate local politics and regulations surrounding these assets, and moreover, believes that with the expertise of Dan Juhl and his team, the Company can pick select wind farms that are undervalued by the tax equity player, purchase them cheaply, operate them, and create a long-term revenue stream for Juhl Energy.

Creating Opportunities for Individual Investors

To Juhl Energy's knowledge, it is among the only wind companies in the U.S. to allow individuals to invest directly in renewable energy projects alongside the Company, which is done through the Juhl Renewable Assets subsidiary (Source: *Wind Systems Magazine*, November 2013). Juhl Renewable Assets leverages the Company's commitment to owning and operating cash-generating assets with a preferred stock financing instrument. Juhl Renewable Assets' preferred stock was established in 2011 and has since funded multiple wind farm projects—currently providing a 9% annual dividend yield to investors for the past 13 consecutive quarters. By enabling investors to make renewable energy investments alongside an established owner/operator like Juhl Energy, the Company believes that it has achieved a certain “democratization” of capital in the renewable energy and utility infrastructure asset class, in that individuals are able to participate in a market that has been historically controlled by a handful of institutions (Source: Juhl Energy's April 7, 2014, press release). In addition, the Juhl Renewable Assets preferred stock aids the Company's growth plans by providing supplemental funding for both asset acquisitions and asset development projects.

WIND FARMS WHERE JUHL ENERGY HAS AN OWNERSHIP STAKE

Figure 16 summarizes the wind farms where Juhl Energy currently has an ownership position through the Juhl Renewable Assets subsidiary. The two most recently acquired wind farms are both located in Iowa, which were acquired for approximately \$4 million in August 2014. Going forward, the Company seeks to continue to add small- and medium-sized projects to its portfolio over the next several years with a goal of reaching up to 200 MW of capacity, which could represent energy production assets with an initial installed cost of approximately \$400 million (Source: Juhl Energy's August 13, 2014, press release).

Figure 16
WIND FARMS WHERE JUHL ENERGY HAS AN OWNERSHIP POSITION



Valley View Wind Farm	Woodstock Hills Wind Farm
<p>Chandler, MN</p> <ul style="list-style-type: none"> 10 MW using 5 Gamesa G87, 2 MW turbines Enough energy to power ~6,000 homes/year Output sold to Xcel Energy under 20-year PPA Operation start: December 2011 PPA expiration: 2031 Juhl's stake: 36.6% interest + 13.9% voting power through a voting trust with three other investors 	<p>Woodstock, MN</p> <ul style="list-style-type: none"> 10.2 MW using 17 Vestas V44, 600 KW turbines Enough energy to power ~4,500 homes/year Output sold to Xcel Energy under 30-year PPA Operation start: May 2004 PPA expiration: 2034 Juhl's stake: 99.9%
Iowa Wind Farm	Iowa Wind Farm
<p>Manly, IA</p> <ul style="list-style-type: none"> 1.62 MW using a GE XLE wind turbine Operation start: 2011 Output sold to Interstate Power & Light PPA expiration: 2021 Juhl's stake: 100% 	<p>Kensett, IA</p> <ul style="list-style-type: none"> 1.62 MW using a GE XLE wind turbine Operation start: 2011 Output sold to Interstate Power & Light PPA expiration: 2021 Juhl's stake: 100%

Sources: Juhl Energy, Inc. and Crystal Research Associates, LLC.

Development and System Sales

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As shown in Figure 17, Juhl Energy's development and system sales work is accomplished through the activities of Juhl Energy Development, Inc., Juhl Renewable Energy Systems, Inc., and PVPower, Inc. Juhl Energy Development is the Company's core development segment providing construction and a variety of other services to the renewable energy sector. Juhl Renewable Energy Systems and its subsidiary, PVPower, distribute small-scale renewable energy solutions related primarily to wind and solar power.

WIND POWER PROJECTS

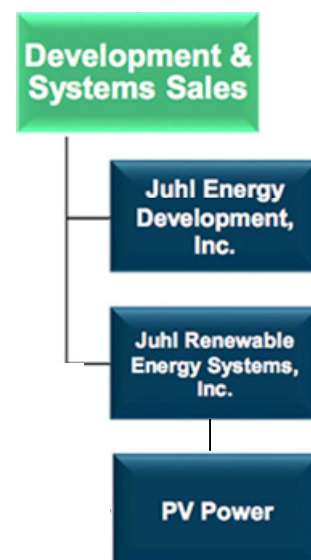
In the past 15 years, Juhl Energy has completed 23 wind farms across the Midwestern U.S. that generate a total of 240 MW of wind power, which the Company states have an estimated value of over \$500 million. Figure 18 (page 30) lists the Company's completed projects.

Juhl Energy is further working on another 20 projects that are in various stages of development. These 20 projects in development could ultimately provide approximately 295 MW of additional electricity generating capacity if fully constructed (with an anticipated value of over \$550 million according to the Company). These projects are located across the U.S. and Canada. Fifteen projects are in early stage development (e.g., feasibility analyses) and five (for a total of 89 MW) are being actively built by Juhl Energy.

Skill in Medium-Sized Projects

Many of the wind energy projects Juhl Energy takes on are medium-sized developments in the 1 MW to 50 MW range. This is in contrast to both small wind and utility-scale wind projects. Utility-scale wind farms, which are typically larger than Juhl Energy's, usually consist of between 30 and 150 turbines where each individual turbine can generate up to 3 MW of wind energy. "Small wind" denotes the category of wind turbines commonly installed for residential uses, farms, businesses, or schools, where the generation capacity is 100 KW or less per turbine

Figure 17
DEVELOPMENT AND SYSTEM SALES



Source: Juhl Energy, Inc.

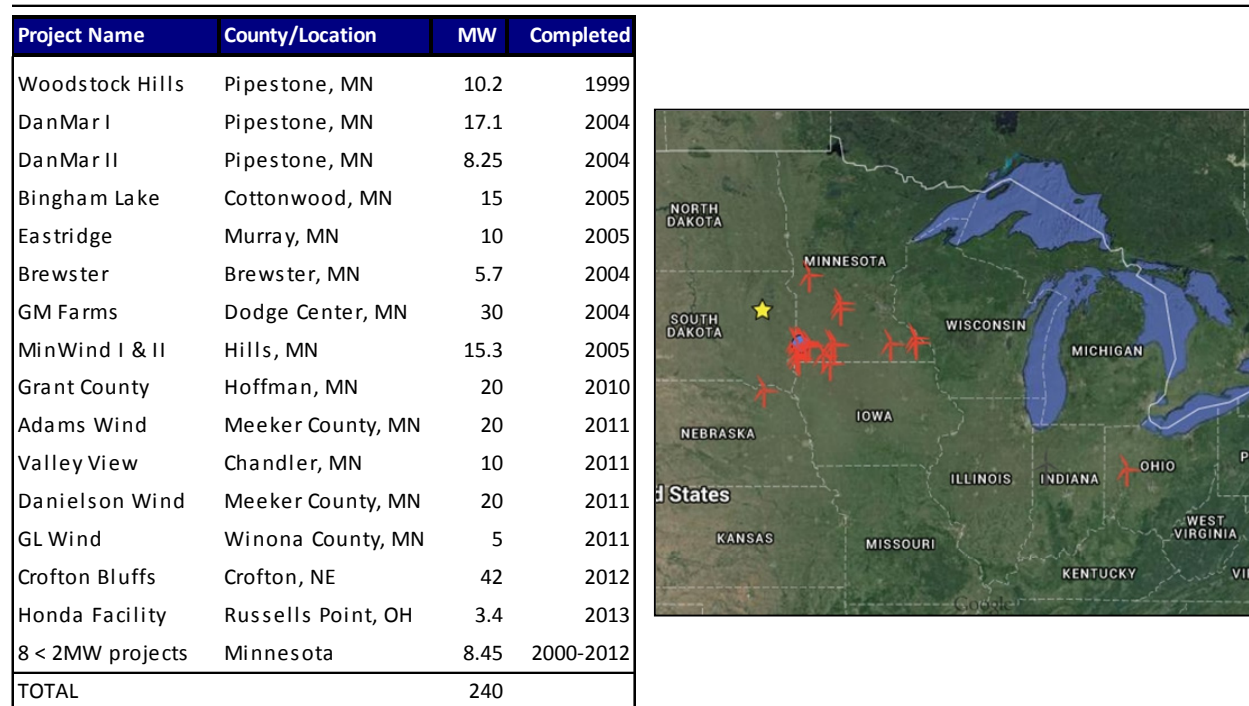
(Sources: the Center for Climate and Energy Solutions and the National Renewable Energy Laboratory). Juhl Energy's emphasis on medium-sized distributed energy projects versus large wind farms constructed and managed by utility-based conglomerates is believed to offer the following benefits:

- Lower installation costs;
- A quicker construction timeframe;
- Simpler land aggregation (as less land is required versus mega projects);
- Less expensive power transmission;
- Easier regulatory compliance; and
- Better financing availability.

The wind turbines used by Juhl Energy vary based on the size and type of project (industrial cogeneration versus a farm, for example). They are supplied by established turbine manufacturers (such as General Electric Co. [GE-NYSE] and Vestas of Denmark) and can be the same size and type as would be deployed in a utility-scale project, at up to 260 feet tall producing 1.8 MW of power, or smaller and less expensive at up to 115 feet tall.

To the Company's knowledge, its skill in building out energy generation sites of 1 MW – 50 MW is a significant competitive advantage, as this niche is often overlooked by large developers. While mega-wind projects may benefit from greater economies of scale/reduced transactional costs, higher electrical production, and thus greater sales, Juhl Energy reports that its benefits (in addition to those listed above) also come from receiving considerable industry attention as one of the few publicly traded players in the 1 MW – 50 MW sector as well as the opportunities for growth that are available in this sector.

Figure 18
COMPLETED PROJECTS



Source: Juhl Energy, Inc.

HIGHLIGHTS OF JUHL ENERGY'S RECENT WIND FARM DEVELOPMENT PROJECTS

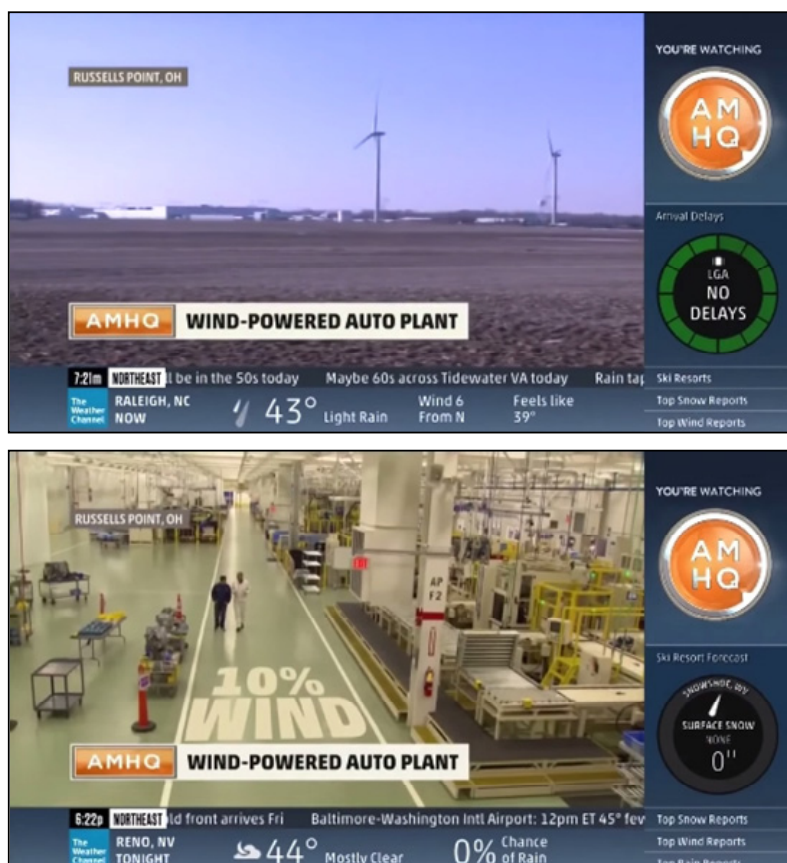
Wind Energy Powering a Honda Automotive Plant

One of Juhl Energy's notable recent installations was at a Honda manufacturing plant in Russells Point, Ohio. The Company installed two wind turbines at Honda Transmission Manufacturing of America, Inc., which is located at one of the highest and windiest elevations in Ohio. Juhl Energy developed, installed, and now operates two, 200-foot wind turbines at this Honda plant. The turbines began operating in January 2014. This project was forecast to supply approximately 10% of the electricity needed at the Honda plant while also offsetting the manufacturer's CO₂ emissions. To the Company's knowledge, this is the first time a major automotive plant in North America is generating a portion of its own electricity through onsite wind turbines.

After six months of operation, Juhl Energy and Honda reported that the installed wind turbines were exceeding power projections. The two turbines from ConEdison Solutions had produced 6.3% more power than was expected. Rather than meeting just 10% of Honda's electricity demand, this wind project provided 16.26% of the plant's power in the month of April 2014 (which was the month with the highest output) and outperformed the 10% expectation in a total of four of the first six months in operation (Source: Juhl Energy's September 10, 2014, press release). In April 2014, the Weather Channel's Dave Malkoff interviewed Tyler Juhl, vice president of Juhl Energy Services Inc., as well as personnel from the Honda plant regarding the installation of Juhl Energy's wind turbines and the impact that transitioning automobile manufacturers to renewable energy may have on the industry. The segment specifically noted that while a project like this was a first for North America, Europe is farther ahead on the renewable power front. Figure 19 contains screenshots of the segment, which can be viewed in its entirety here: <https://www.youtube.com/watch?v=t-mAVuvmk9E>.

Figure 19

WIND POWER SUPPLIED BY JUHL ENERGY DEPLOYED AT A HONDA TRANSMISSION FACILITY



Source: The Weather Channel, April 8, 2014.

Figure 20

PREPARING TURBINE BLADES FOR INSTALLATION AT HONDA TRANSMISSION PLANT IN OHIO

*Source: Juhl Energy, Inc.*

Purdue Energy Park Wind Farm

One of the projects ongoing at Juhl Energy is the development of a 20 MW wind farm at the Purdue Energy Park in Tippecanoe County, Indiana. This project is a partnership between Juhl Energy, Indianapolis-based Performance Services (<http://www.performanceservices.com/>), Indiana's Purdue University, Duke Energy, and possibly the Wabash Valley Power Association. It is anticipated to consist of 12, 1.7 MW wind turbines manufactured by GE and installed on a parcel of private land approximately eight miles from the Purdue campus. Initial construction has begun, and an amended power purchase agreement (PPA) and interconnection agreement are likely to be finalized in the near term. Juhl Energy expects the Purdue Energy Park project to be able to sell energy to the utilities for a period of 20 years upon completion. Upon completion of the interconnection agreement and PPA amendment, a project completion date will likely be more ascertainable.

Purdue University is involved in the project for its research implications, as the university seeks to have access to the wind farm in order to facilitate faculty research related to wind energy. To this end, the turbines are expected to be equipped with web-based monitoring devices, which could aid education on topics such as blade efficiency, power production, turbine maintenance, and noise, among other opportunities in the field of renewable energy research (Source: *Lafayette Journal & Courier*, April 21, 2014).

Oak Tree Wind Farm, South Dakota

Juhl Energy ended 2014 by providing development support services to the Oak Tree wind farm in Clark County, South Dakota. This 19.5 MW wind farm owned by ConEd Development uses 11 wind turbines expected to power 5,000 homes under a 20-year power purchase agreement with NorthWestern Energy. Juhl Energy helped close and commission the project (Source: *Windpower Engineering & Development*, December 30, 2014).

Black Oak Wind Project, New York

Juhl Energy is part of the development team for the Black Oak Wind Project ongoing in upstate New York. Black Oak is an 11.9 MW community wind project that is currently scheduled for construction during summer 2015. In early 2015, the project received final approval from the Town of Enfield, which came after the completion of a comprehensive local and state environmental review process. The Black Oak wind project, for which Juhl Energy is a development partner, is the state of New York's first community wind project. It is open to investment by New York residents and organizations, and seeks to ultimately be an 11.9 MW wind farm located in Tompkins County, New York, composed of seven GE wind turbines. A power purchase agreement has been negotiated with Cornell University to purchase the project's output for 10 years.

SOLAR POWER AND ENERGY STORAGE

Juhl Energy is moving toward distributed generation projects, where energy is generated at or close to its point of use. The Company's ability to provide quality solar power solutions is key in this endeavor, as solar may be preferable to wind power in certain situations and solar/wind hybrid projects are a growing market for Juhl Energy.

Moreover, the availability of battery backup and storage for renewable energy systems is a key advancement driving greater adoption of distributed generation systems going forward, and could represent an expanding market for Juhl Energy due to the Company's energy storage products/technologies. A December 2014 report from the Solar Energy Industries Association® and GTM Research found that U.S. demand for rooftop solar paired with batteries (energy storage) systems could represent a market of \$1 billion within four years, as both residential and commercial customers increasingly seek to connect "behind the meter" to the power grid in order to sell surplus energy to the utility companies (Source: Bloomberg, December 18, 2014).

To capitalize on these trends, Juhl Energy offers small wind and solar products for onsite energy generation and battery backup, such as SolarBank®; is exploring additional battery storage partnerships; designs and installs rooftop solar; and intends to pioneer new wind/solar/storage hybrid renewable systems over the next 24 months.

SolarBank® Energy Storage



SolarBank®, designed by Dan Juhl, is an intelligent energy system that uses solar power in conjunction with advanced battery storage to allow energy consumers to purchase less expensive off-peak power while also having a backup for critical loads during power outages. The system is scalable and extendable, and can thus be used by a wide range of customers, from individuals at home to businesses, municipal facilities, farms, livestock buildings, and schools.

As shown in Figure 21 (page 34), the SolarBank® system is built for durability and is equipped with a battery bank that can be programmed to recharge during off-peak hours and run on battery power during peak hours. As a result, consumers will likely be able to reduce their monthly utility bills by using their own solar electricity battery power during the times when purchasing electricity from the local utility company is most expensive. For example, one of California's largest utility companies, Pacific Gas and Electric Co. or PG&E (PCG-NYSE), has introduced "Peak-Day Pricing" whereby the utility charges customers a surcharge for their electricity use on certain high-demand days (e.g., hot summer days) between the hours of 2 p.m. and 6 p.m. For customers who are able to reduce their usage during these peak hours, PG&E offers discounted rates during other, non-peak summer hours (Source: <http://www.pge.com/en/mybusiness/rates/tvp/peakdaypricing.page>). Time-of-day pricing schemes like these are increasing across the country and can have a major impact on commercial customers. Perhaps accordingly, GTM Research has forecasted that one out of every 10 commercial solar systems will also have an energy storage system by 2018 (Source: Bloomberg, December 18, 2014).

Having a dependable way to store renewable power, such as with SolarBank®, not only gives consumers a choice in when to use their off-grid system versus when to use the grid-connected power but also increases the security of energy supply. For both residences and businesses, the SolarBank® system is designed to offer a virtually seamless source of backup power during outages. Juhl Energy reports that transferring to the SolarBank® takes just 15 milliseconds and the system can be customized to accommodate various electrical loads. This is an important feature of small-scale renewable technologies for many consumers who have been affected by rolling black-outs or severe weather-related power outages in the past and for small businesses with mission-critical activities and data that depends on a power connection.

SolarBank® systems are believed to be simple to install, monitor, and control, which is aided by a method for remote operation that allows customers to monitor it 24/7 from anywhere with Internet access. Once SolarBank® is operational, it is low maintenance with little upkeep requires and it runs quietly without fumes or exhaust.

Figure 21
SOLARBANK® SOLAR BACKUP POWER SYSTEM

Solar Panels	SolarBank® Cabinet
<p>Includes 1120 W of solar panels, with options to increase capacity (<i>pictures below are only an illustration, not actual product</i>)</p> 	 <ul style="list-style-type: none"> Manufactured in Minnesota Industrial-strength construction with powder-coated finish Built-in air vents <p>Legend</p> <ul style="list-style-type: none"> 1 DC/AC Power Inverter 2 Electrical Sub-Panel 3 Photovoltaic (solar panel) Charge Controller 4 SolarBank Control Enclosure 5 Battery Bank 6 External Battery Capacity Gauge

Source: Juhl Energy, Inc.

Solar System Packages

Juhl Energy and PVPower have launched a line of solar power systems for homeowners and small businesses that complements the SolarBank® backup power system described above. There are three packages—“Cabin,” “Home,” and “Small Business”—that are designed to give consumers everything they need for a successful solar installation at competitive prices (Source: Juhl Energy’s February 13, 2014, press release). Each package is sized for its targeted use, such that the “Cabin” provides 2 KW of power, the “Home” is 6 KW, and the “Small Business” is 10 KW.

As shown in Figure 22 (page 35), Juhl Energy offers its solar packages, as well as SolarBank®, for sale through PVPower’s website at: <http://www.pvpower.com/juhl-2.aspx>.

Figure 22

JUHL ENERGY'S SMALL-SCALE SOLAR SYSTEMS SOLD AS COMPLETE PACKAGES

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866.274.0642
Live Chat

pvpower.com
solar power simplified

Direct Solar PV Distribution in North America

Products, Logistics & Engineering

Keyword or item # [Shop by Category](#) [Shop by Brand](#) [Solar Installation](#) [Advice](#) [Connect](#)

Home > Solar Power Systems > Solar Off Grid & Cabin Solar Systems > Juhl Renewable Energy Systems

Juhl Renewable Energy Systems

Juhl Renewable Energy Systems is the subsidiary of Juhl Energy, Inc. that focuses on providing advanced solar, wind and backup power systems for residential, commercial, agricultural and institutional customers. These systems are designed to meet the specific needs of each customer.

[Browse Solar Panels:](#) [By Type](#) [By Manufacturer](#) [By Wattage](#)

Displaying products 1 - 7 of 7 results Show: 30 Sort: Default

Juhl - Cabin Package, complete 2kW system, modules, inverters, racking
ONLY: Your cost: \$5,330

★★★★★

[ADD TO CART](#) [DETAILS](#)

Juhl - Home Package, complete 6kW system, modules, inverters, racking
ONLY: Your cost: \$14,725

★★★★★

[ADD TO CART](#) [DETAILS](#)

Juhl - Small Business Package, 10kW system, modules, inverters, racking
ONLY: Your cost: \$23,795

[ADD TO CART](#) [DETAILS](#)

Juhl Energy, 4.4kW SolarBank
ONLY: \$9,995.00

[ADD TO CART](#) [DETAILS](#)

Juhl - Cabin Package w/ Battery Back-up, complete 2kW system, modules, inverters, racking, Batteries
ONLY: Your cost: \$14,137.5

[ADD TO CART](#) [DETAILS](#)

Juhl - Home Package w/ Battery Back-up, complete 6kW system, modules, inverters, racking, Batteries
ONLY: Your cost: \$24,890

[ADD TO CART](#) [DETAILS](#)

Solar Components

- Panels & Modules
- AC Modules
- Inverters
- Microinverters
- Roof Racking
- Pole Mounts
- Tracking Mounts

Balance of System

- Batteries
- Enclosures
- Disconnects
- Combiner Boxes
- Charge Controllers
- Monitors & Meters
- Wire & Connectors

Special Products

- Tools for the Job
- Ontario FIT Products
- LED Lights & Bulbs
- Kiwi Solar JuiceBox

Engineering Services

- PV System Design
- Line Diagrams
- Layout Diagrams
- Custom Engineering

Full Systems

- Grid-Tie Systems
- Home Solar Power by Kiwi
- Off-Grid Systems

SolarBear

Custom Solar in Minutes

[Design Yours Now](#)

No-Hassle Solar Power

Guaranteed Price. Local Installation.

[Get Started](#)

Kiwi

SolarMail Sign-Up

Connect on Twitter

YouTube Channel

Source: <http://www.pvpower.com/juhl-2.aspx>.

Rooftop Solar

In July 2014, Juhl Energy's subsidiary Juhl Renewable Energy Systems, Inc. was one of two companies appointed as lead contractors for the City of Chicago's rooftop solar installations. The program that Juhl Energy is working with is Solar Chicago, which is providing rooftop solar installations for homeowners across the Chicago metro area by capitalizing on group purchasing power. From July through September 2014, Solar Chicago generated over 2,000 leads for the program (exceeding the goal of 1,500 people), equating to new solar capacity of approximately 350 KW (Source: GroupEnergy, a non-profit project of the Vote Solar Initiative, <http://www.mygroupenergy.com/group/solarchicago/>). Solar Chicago is funded by grants from the World Wildlife Fund and is helping jumpstart the City of Chicago's near-term sustainability and economic development goals. People who purchased rooftop solar through this program will have an installation cost of approximately \$3.49/watt—a 25% discount off of typical installation costs (Source: *Chicago Tribune*, July 9, 2014). In addition, they will be able to take advantage of a federal tax credit of 30% on solar installation costs (expiring in 2016) as well as net metering and potentially an Illinois state policy of purchasing solar renewable energy credits from existing solar installations.

Juhl Renewable Energy Systems has completed approximately seven projects as of January 2015 and expects to complete up to 100 projects in 2015, using the assistance of two qualified subcontractors.

PowerBank® Battery Backup Systems

PowerBank® is designed to be a simple back-up power system, very similar in nature to the SolarBank®, with the exception of the solar panels and controller. It is designed to be a battery backup system to provide electricity to critical loads of a customer's electrical needs.

Engineering and Field Services

Engineering Consulting Services	37
Wind Farm Administration and Maintenance	39

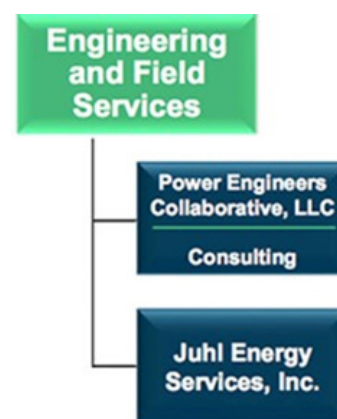
Juhl Energy's engineering and field services activities include business-to-business engineering consulting services, asset management (operation and management oversight), and maintenance services.

ENGINEERING CONSULTING SERVICES

Through Power Engineers Collaborative (PEC), Juhl Energy is able to provide professional engineering and consulting services across the renewable energy spectrum, including natural gas, biomass, waste-to-energy, geothermal, onsite solar, and more. PEC is a full-service Midwestern engineering firm with services targeting all phases of the power development from site selection, permitting, and preparation of contract documents, project budgets, and scheduling to bid evaluation, construction oversight from the home office or at the project site, commissioning, and training of operations and maintenance personnel. Figure 24 describes PEC's areas of expertise and available services.

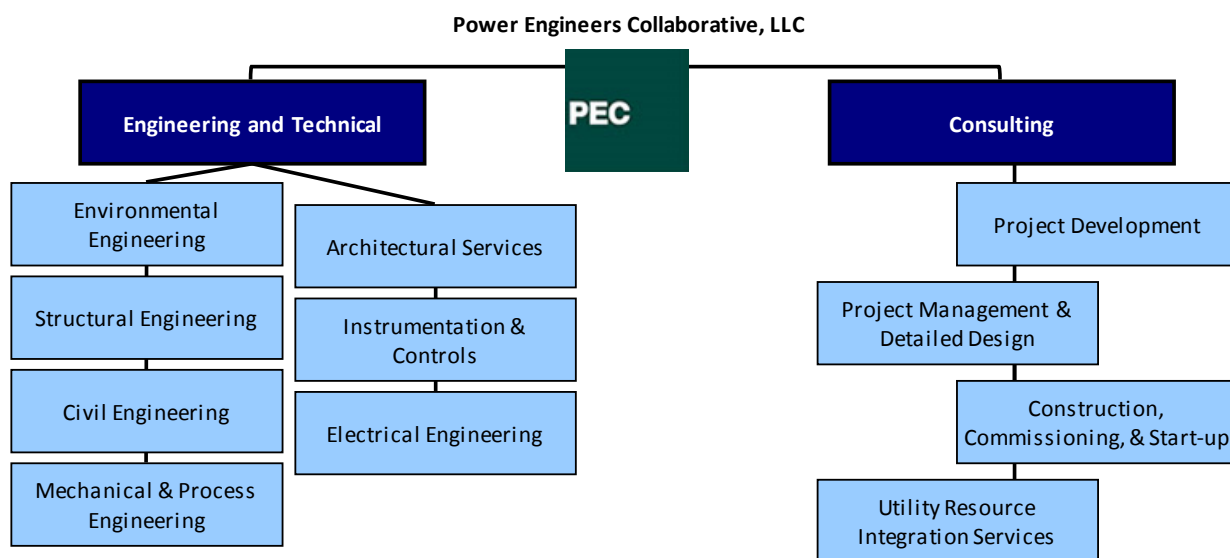
Juhl Energy acquired PEC in April 2012 as part of its strategy to acquire complementary, higher-margin industry service providers. PEC now serves as the "owner's engineer" for development and execution of Juhl Energy's renewable and clean energy projects. Moreover, Juhl Energy states that the acquisition of PEC has added over \$5 million in annual revenue to the Company.

Figure 23
ENGINEERING AND FIELD SERVICES



Source: Juhl Energy, Inc.

Figure 24
PEC'S SERVICE OFFERINGS



Sources: Power Engineers Collaborative, LLC and Crystal Research Associates, LLC.

Beyond the projects of its parent company Juhl Energy, PEC's clients and target clientele encompass primarily the utility industry and central power plants of large institutions or commercial/industrial enterprises. Most utilities have decades of resource planning experience internally and as part the docket process with state regulators. Given the rapid changes to generating assets that are occurring today, in particular with the price of renewable technologies and utility-scale battery storage, PEC has designed a consulting program to help utility clients work within their resource planning initiatives in order to address the requirements of their existing resource plan, need for clean power that can be cost-effectively dispatched, and maintenance of transmission and distribution system integrity.

Figure 25 lists a selection of the firm's past projects. For these entities, PEC's experience included working with gas turbines, coal-fired utility boilers, steam turbine generators, central plant steam and chilled water systems, biomass and other alternatively-fired boilers, and various electrical systems/controls. Prior to 2014, PEC also had provided services for mechanical, electrical, and plumbing to commercial and industrial real estate. However, PEC has decided to focus on the utility industry and is no longer dedicating resources for building systems projects.

Figure 25

A SELECTION OF PEC'S CLIENTS AND PROJECTS

<ul style="list-style-type: none"> ▪ Vienna Correctional Center ▪ UW Madison Charter Street Heating Plant Rebuild ▪ Duke Energy International ▪ Illinois Capital Development Board Coal Bunker / Conveyor Upgrade ▪ Biomass Cogeneration Facility ▪ University of Wisconsin - Milwaukee Golda Meir Library, Milwaukee, WI ▪ University of Wisconsin - Whitewater, WI ▪ Department of Military Affairs - Madison, WI ▪ Wisconsin Resource Center, Winnebago, WI ▪ GEF-3 Print Shop Air Conditioning Installation ▪ Hoffman Hall Energy Study, Prairie du Chien, WI ▪ Prairie Du Chien Corrections Institute: <ul style="list-style-type: none"> - Segregation Remodeling, Prairie Du Chien, WI - Administrative Building, Prairie Du Chien, WI - Water Heater and Softener Replacement, Prairie Du Chien, WI ▪ Department of Military Affairs - AASF#1 Hangar Remodeling, West Bend, WI ▪ Wisconsin Military Academy - Chiller Addition, Fort McCoy, WI 	<ul style="list-style-type: none"> ▪ State Patrol Academy - Chiller Equipment Replacement, Fort McCoy, WI ▪ UW - Madison, Sterling Hall IT Renovation, Madison, WI ▪ La Crosse School District - Mechanical Systems Renovation ▪ Badger High School - Additions, Lake Geneva, WI ▪ Southwest Technical College, Fennimore, WI ▪ WHEDA Office Build-out, Milwaukee, WI ▪ Three Lake Town Public Works Garage - Three Lakes, WI ▪ Brewer Library - Richland Center, WI ▪ Wautoma Public Library Renovation - Wautoma, WI ▪ Oak Creek Power Plant: <ul style="list-style-type: none"> - Unit 6, Oak Creek, WI - Unit 7, Oak Creek, WI - Unit 5, Oak Creek, WI ▪ Lake Edge Church - Steam to Hot Water Boiler Conversion, Madison, WI ▪ University of Illinois - Student Dining Residence Program, Champaign, IL ▪ Chicago Public Schools - Libby Renovation, Chicago, IL ▪ Westside Landfill - Renewable Energy Facility, Fort Worth, TX
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Source: Juhl Energy, Inc.

Because of its ability to work with both fossil fuel and renewable power sources, PEC specializes in cross-discipline engineering projects where it can tailor a product to meet its customers' unique design and implementation requirements. Greater details are available from PEC's projects and services pages at <http://www.pecllc.com/our-projects.html> and <http://www.pecllc.com/our-services.html>.

WIND FARM ADMINISTRATION AND MAINTENANCE

Through Juhl Energy Services, the Company provides operations management and oversight to 11 project facilities that collectively generate approximately 111 MW of power. In addition, Juhl Energy Services provides turbine maintenance services to five projects covering over 50 wind turbines located in Minnesota and balance of plant maintenance services to eight projects representing approximately 70 MW of wind power. The Company expects to add solar power administration and operating support beginning in 2015.

Potential Competitive Advantages

Juhl Energy is equipped to handle all aspects of wind power project development, including wind farm development and ownership, construction management, engineering, operations, and maintenance, and general consulting on wind projects. The Company believes that it is one of few renewable energy entities capable of doing so, with exception for utility-based conglomerates.

Figure 26 (page 41) outlines a selection of Juhl Energy's potential competitive advantages as it seeks to continue to obtain market share in the renewable energy industry.

A Community Stakeholder

The climate for wind energy projects can be challenging to negotiate, as project siting, financing, construction, and energy sale can require cooperation from many different entities, including state and local government agencies. Juhl Energy has pursued a policy of operating locally, in essence, becoming involved in local community affairs and developing a meaningful local presence in order to nurture community support for wind energy. The Company works with landowners to ensure that the impact of the turbines is fully understood, and monitors community attitudes toward hosting a wind farm throughout the development process. Juhl Energy has stated that this focus has provided the Company with a significant advantage in working through local permitting processes versus competitors that are not as active in the target communities. Moreover, Juhl Energy's local approach has been credited with helping the Company secure approvals and support for its projects even in regions with historical opposition to wind farms.

Figure 26

A SELECTION OF JUHL ENERGY'S COMPETITIVE ADVANTAGES

Tiered Service Offerings
<ul style="list-style-type: none"> Results in multiple revenue streams, as Juhl Energy generates revenue from operating subsidiaries that have diversified products and services targeting multiple clean energy markets
An Established Renewable Energy Development Company
<ul style="list-style-type: none"> Record in developing wind farm projects with over 23 community wind farm projects completed to date Extensive knowledge base in renewable energy development Skilled in medium-sized projects under 50 MW Broad relationships with entities like utility power purchasers, equity and debt project finance sources, turbine suppliers, and contractors may give Juhl Energy an edge in securing new projects with owners considering retaining a development company
Leadership
<ul style="list-style-type: none"> Pioneered the current financial, operational, and legal structure surrounding local ownership of medium- to large-scale wind farms Experience developing community wind farms in new market areas Experience operating energy companies Management understands deregulated energy markets Team has experience in site selection, market analysis, land acquisition, community relations, permitting, financing, regulation, and construction
Turbine Technology and Supply
<ul style="list-style-type: none"> Good working relationships with turbine suppliers Extensive experience to determine suitability of turbine technologies for Company projects Ability to purchase turbines in bulk at lower prices, thereby controlling costs Uses new turbine technologies where feasible, which are more efficient with improved capacity factors and often provide lenders with comfort in terms of financing a project
Community Wind Approach
<ul style="list-style-type: none"> Offers land owners and local stakeholders a novel ownership-sharing structure for community wind projects Development of medium-sized projects may lead to lower installation costs, quicker construction, benefits to the local community, simpler land aggregation, less expensive power transmission, easier regulatory compliance, and availability of financing
Local Credibility
<ul style="list-style-type: none"> Decades of promoting community stakeholder involvement and being involved in local affairs Offices in Pipestone, Minnesota; Minneapolis, Minnesota; Chicago, Illinois; and Milwaukee, Wisconsin

Source: Juhl Energy, Inc.

Competition

As the Company continues to pursue its development plan, it may face competition from both conventional (i.e., non-renewable) and renewable energy companies. Juhl believes that its primary competition should come from utility companies and producers of electricity generated from coal and other non-renewable energy sources. In the U.S., large utility companies dominate the energy production industry and coal continues to dominate as the primary resource for electricity production, followed by other traditional resources such as oil and natural gas.

In addition, the Company is expected to face competition from other renewable energy companies, especially wind energy companies, that could challenge the Company in bidding on new projects, as well as for the geographic locations desired by the Company for its wind farms, as Juhl believes that there are a limited number of sites desirable for wind farms and a limited supply of wind turbines and other related equipment necessary to operate wind farm facilities.

The following summaries are not intended to be an exhaustive collection of potential competitors to Juhl Energy; however, they are believed to be representative of the type of competition the Company may encounter as it seeks to further commercialize its products/technologies.

Community Green Energy (<http://communitygreenenergy.com>)

Community Green Energy develops and finances renewable energy projects for businesses and communities, bringing together funding, contractors, and solar developers for the creation of green energy projects. The company creates and manages Community Virtual Solar Gardens, in which businesses, organizations, or municipalities provide the land or space to host a solar energy system, and local residents support the garden by purchasing the electricity generated by the project. In addition, Community Green runs the Energy Project Exchange (EPE), a web-based platform to connect clean energy projects with investors, with efforts ranging from commercial rooftop solar projects to utility-scale, grid-connected projects. Community Green Energy is headquartered in Lake Geneva, Wisconsin.

EcoGen LLC (www.ecogen-energy.com/index.html)

EcoGen is a development firm in the field of alternative energy, with emphasis on the wind farm development and ethanol plant development sectors. EcoGen is focused on the development of competitive renewable energy projects by combining strategic partnerships and industry expertise. The company is currently evaluating a select group of sites for potential alternative energy projects, for both wind farms and ethanol plant development. EcoGen is headquartered in Wichita, Kansas.

Full Spectrum Solar (www.fullspectrumssolar.com)

Full Spectrum Solar is a renewable energy contractor serving Madison and southern Wisconsin. Full Spectrum designs and installs solar energy systems for homeowners, small businesses, large commercial clients, governmental, and non-profit organizations. Full Spectrum has installed over 250 solar energy systems, including projects at the Milwaukee Recycling Center, the Holy Wisdom Monastery, the Evansville Community Pool, as well as multiple housing and apartment buildings.

NRG Energy, Inc. (NRG-NYSE) (www.nrg.com)

NRG Energy is engaged in the ownership and operation of conventional and renewable power generation facilities, while driving innovation in solar and renewable power, electric vehicle ecosystems, and carbon capture technology. In addition, NRG is involved in the trading of energy, fuel, transportation services, and related products, as well as the direct sale of energy, services, and products to residential, commercial, and institutional customers. The company is also engaged in the deployment and commercialization of potentially transformative technologies, such as electric vehicles, solar and wind energy technologies, smart meter/home automation technologies, and energy generation that emits low or zero greenhouse gases. As of December 31, 2013, NRG Energy operated 88 fossil fuel and nuclear plants, 11 utility-scale solar facilities, and 4 wind farms. A Fortune 250 company, NRG was founded in 1989 and is headquartered in Princeton, New Jersey.

OwnEnergy Inc. (www.ownenergy.net)

OwnEnergy is a mid-sized community wind development company, based in New York City, New York. OwnEnergy partners with landowners and energy entrepreneurs in wind-rich areas around the U.S. to help develop wind energy projects. The company's partners have an active role in project development and receive a share of project ownership in return. This collaborative process allows OwnEnergy to combine local knowledge and connection with its energy development experience and expertise to drive projects to completion. OwnEnergy believes that its project development approach reduces the costs and risks associated with project development while increasing turnaround time and profitability. OwnEnergy is involved in a national network of wind energy projects under development with its local partners, with energy-producing capacity ranging from 30 MW to 100 MW. The company has also completed and sold six projects totaling 240 MW.

Solar America Solution (<http://www.solaramericasolutions.com>)

Solar America Solutions is a manufacturer of solar thermal energy materials and equipment, used in the construction of renewable energy projects for government, commercial, and institutional facilities and operations. The company provides wholesale solar thermal energy materials and equipment to its end users and contracts with qualified installers. Solar America Solutions manufactures the patent-pending SunQuest 250 solar thermal collector, capable of producing up to 30,000 BTUs per hour, and developing output temperatures of over 400 degrees Fahrenheit. Solar America Solutions is headquartered in Indianapolis, Indiana.

SunEdison, Inc. (SUNE-NYSE) (www.sunedison.com)

SunEdison is a renewable energy company mainly operating in two segments: solar energy and semiconductor materials. The solar energy segment provides solar energy services that integrate the design, installation, financing, monitoring, operations, and maintenance of solar power systems. It also manufactures polysilicon, silicon wafers, and solar modules. As of December 31, 2013, this segment had interconnected approximately 816 solar power systems representing 1.3 GW of solar energy generating capacity. The company expanded its natural energy operations with the acquisition of First Wind—a Boston-based wind power company that owns and operates several wind farms in Maine—by its publicly traded subsidiary TerraForm Power, Inc. (TERP-NASDAQ). The acquisition, in a deal estimated to be worth up to \$2.4 billion, closed during the first quarter 2015. The company was formerly known as MEMC Electronic Materials, Inc. and changed its name to SunEdison, Inc. in May 2013. SunEdison was founded in 1984 and is headquartered in St. Peters, Missouri.

Historical Financial Results

Revenue Generation

In terms of wind farm development, Juhl Energy primarily derives revenue from the following activities occurring as part of the development process: feasibility studies, development fees, operations and management oversight, and construction contracts. For operational wind farms, the Company earns revenue under administrative services agreements related to the management, administrative, and maintenance services that Juhl Energy performs.

However, like many infrastructure projects, wind project development can be subject to delays in obtaining financing or regulatory and permitting approvals, among other factors. This has the potential to create variability in recording revenues from wind farm development. To mitigate these impacts, Juhl Energy has added a number of new products and services intended to position the Company for more predictable revenue growth, such as engineering consulting services and solar installations. Additionally, through its ownership positions in certain renewable power plants (chiefly, wind assets), the Company generates revenue under power purchase agreements as utility customers purchase the electricity generated from these wind energy assets.

Year End 2014 Snapshot

Juhl Energy has stated that its total revenue in 2014 increased by approximately 5.6%, from roughly \$13.4 million for the year ended December 31, 2013, to over \$14.1 million for the year ended December 31, 2014. The increase in revenue is primarily attributable to growth in engineering consulting services to the utility industry and increased development fee income, together with the effects of growth in sales stemming from the acquisitions of two wind farms and PVPower. With regard to Juhl Tower Services that was launched in February 2013, the Company determined in late 2014 that it should wind down the operations of Juhl Tower Services after experiencing net operating losses and facing difficulties with the working capital aspects of the industry. Accordingly, the results of operations from tower services have been reclassified into Discontinued Operations in the financial statements on pages 45-47. For the year ended December 31, 2014, Juhl Energy had a net loss of approximately \$5.6 million versus a net loss of \$3 million in 2013.

Figures 27, 28, and 29 (pages 45-47) comprise Juhl Energy's most recent historical financial statements, as presented in the Company's Form 10-K filed with the U.S. Securities and Exchange Commission (SEC) on April 3, 2015. These include the Juhl Energy's Consolidated Statements of Operations, Balance Sheets, and Statements of Cash Flows for the years ended December 31, 2014 and 2013.

Figure 27

CONSOLIDATED STATEMENTS OF OPERATIONS (FOR THE YEARS ENDED DECEMBER 31, 2014 AND 2013)

	2014		2013	
REVENUE	\$ 14,144,382	100 %	\$ 13,399,263	100 %
COST OF REVENUES , including impairment of wind farm assets of \$1,830,000 in 2014	10,718,834	75.8	9,879,474	73.7
GROSS PROFIT	3,425,548	24.2	3,519,789	26.3
OPERATING EXPENSES				
General and administrative expenses	2,710,084	19.2	2,462,729	18.4
Payroll and employee benefits	2,930,884	20.7	2,188,626	16.3
Wind farm administration expenses	601,114	4.3	357,762	2.7
Total operating expenses	6,242,082	44.2	5,009,117	37.4
OPERATING INCOME (LOSS)	(2,816,534)	(20.0)	(1,489,328)	(11.1)
OTHER INCOME (EXPENSE)				
Interest and dividend income	2,360	—	3,061	—
Interest expense	(881,717)	(6.2)	(820,652)	(6.1)
Gain (Loss) on fair value of interest rate swap	(74,673)	(0.5)	663,509	5.0
Total other income (expense), net	(954,030)	(6.7)	(154,082)	(1.1)
INCOME (LOSS) BEFORE INCOME TAXES	(3,770,564)	(26.7)	(1,643,410)	(12.2)
INCOME TAX BENEFIT (EXPENSE)	—	—	—	—
INCOME (LOSS) FROM CONTINUING OPERATIONS	(3,770,564)	(26.7)	(1,643,410)	(12.2)
INCOME (LOSS) FROM DISCONTINUED OPERATIONS	(1,812,199)	(12.8)	(1,402,936)	(10.5)
NET INCOME (LOSS)	(5,582,763)	(39.5)	(3,046,346)	(22.7)
LESS NET INCOME (LOSS) ATTRIBUTABLE TO NONCONTROLLING INTEREST	(322,964)	(2.3)	222,618	1.7
NET INCOME (LOSS) ATTRIBUTABLE TO JUHL ENERGY, INC.	\$ (5,259,799)	(37.2) %	\$ (3,268,964)	(24.4) %
PREFERRED DIVIDENDS	566,495		713,532	
NET INCOME (LOSS) ATTRIBUTABLE TO JUHL ENERGY COMMON STOCKHOLDERS	\$ (5,826,294)		\$ (3,982,496)	
AMOUNT ATTRIBUTABLE TO JUHL ENERGY				
Net income (loss) from continuing operations	\$ (4,014,095)		\$ (2,579,560)	
Net income (loss) from discontinued operations, net of taxes	(1,812,199)		(1,402,936)	
NET INCOME (LOSS) ATTRIBUTABLE TO JUHL ENERGY	\$ (5,826,294)		\$ (3,982,496)	
WEIGHTED AVERAGE SHARES OUTSTANDING - BASIC AND DILUTED	\$ 29,436,419		\$ 23,513,996	
NET INCOME (LOSS) PER SHARE - BASIC AND DILUTED				
FROM CONTINUING OPERATIONS	\$ (0.14)		\$ (0.11)	
FROM DISCONTINUED OPERATIONS	(0.06)		(0.06)	
NET INCOME (LOSS) PER SHARE - BASIC AND DILUTED	\$ (0.20)		\$ (0.17)	

Source: Juhl Energy, Inc.

Figure 28
 CONSOLIDATED BALANCE SHEETS (DECEMBER 31, 2014 AND 2013)

	DEC. 31, 2014	DEC. 31, 2013
ASSETS		
CURRENT ASSETS		
Cash	\$ 3,143,899	\$ 1,238,925
Restricted cash	82,032	488,715
Short-term investments - restricted	80,084	90,005
Accounts receivable, net of allowance for doubtful accounts	1,252,054	2,427,273
Work-in-progress	485,050	518,762
Inventory	114,418	92,663
Costs and estimated profits in excess of billings	—	849,241
Other current assets	183,144	228,937
Assets of Discontinued Operations - Current	98,103	664,148
Total current assets	5,438,784	6,598,669
PROPERTY AND EQUIPMENT, Net	24,447,768	23,748,042
OTHER ASSETS		
Escrow cash reserves for contractual commitments	1,340,209	1,288,231
Loan costs, net	257,050	6,843
Intangible assets, net	256,066	258,666
Goodwill	214,090	214,090
Assets of discontinued operations - Noncurrent	51,144	85,437
Project development costs and other	153,088	87,740
Total other assets	2,271,647	1,941,007
TOTAL ASSETS	<u>\$ 32,158,199</u>	<u>\$ 32,287,718</u>
LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)		
CURRENT LIABILITIES		
Accounts payable	\$ 1,713,823	\$ 2,415,406
Accrued liabilities	1,168,880	1,248,916
Billings in excess of costs	128,352	—
Deferred revenue - license arrangement and other	317,408	317,408
Current portion of notes payable	1,994,067	524,649
Derivative liabilities - interest rate swap	—	194,196
Share repurchase obligation	518,450	—
Liabilities of discontinued operations	264,007	526,610
Current portion of nonrecourse debt	1,140,207	834,555
Total current liabilities	7,245,194	6,061,740
LONG-TERM LIABILITIES		
Nonrecourse debt, net of current portion	11,130,764	9,032,734
Notes payable, net of current portion	3,246,419	3,123,617
Derivative liabilities - interest rate swap	—	265,804
Other long-term liabilities	625,942	553,464
Deferred revenue - license arrangement and 1603 Grant, net of current portion	1,921,438	1,967,839
Deferred revenue - power purchase contract	4,245,402	4,058,924
Deferred income taxes	42,000	42,000
Total long-term liabilities	21,211,965	19,044,382
REDEEMABLE PREFERRED MEMBERSHIP INTERESTS	2,000,000	2,518,450
REDEEMABLE CUMULATIVE PREFERRED STOCK OF SUBSIDIARY	4,897,700	1,580,000
STOCKHOLDERS' EQUITY (DEFICIT)		
Controlling interest in equity:		
Preferred Stock, 20,000,000 shares authorized		
Series A convertible preferred stock - \$.0001 par value, -0- and 4,820,000 issued and outstanding as of Dec. 31, 2014 and 2013, respectively (liquidation preference of \$-0- and \$5,836,000 at Dec. 31, 2014 and 2013, respectively)	—	2,569,683
Series B convertible preferred stock - \$.0001 par value, 128,042 and 5,966,792 issued and outstanding as of Dec. 31, 2014 and 2013, respectively	240,391	11,392,403
Common Stock - \$.0001 par value; 100,000,000 shares authorized, 36,614,430 and 24,449,626 issued and 36,424,826 and 24,260,022 outstanding Dec. 31, 2014 and 2013, respectively	3,661	2,445
Additional paid-in capital	22,970,796	9,348,324
Treasury stock, 189,604 shares held by the Company at Dec. 31, 2014 and 2013	(218,965)	(218,965)
Accumulated deficit	(27,247,365)	(21,421,071)
Total equity (deficit) attributable to Juhl Energy, Inc.	(4,251,482)	1,672,819
Noncontrolling interest in equity	1,054,822	1,410,327
Total stockholders' equity (deficit)	(3,196,660)	3,083,146
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)	<u>\$ 32,158,199</u>	<u>\$ 32,287,718</u>

Source: Juhl Energy, Inc.

Figure 29
CONSOLIDATED STATEMENTS OF CASH FLOWS (FOR THE YEARS ENDED DECEMBER 31, 2014 AND 2013)

	2014	2013
CASH FLOWS FROM OPERATING ACTIVITIES		
Net income (loss)	\$ (5,582,763)	\$ (3,046,347)
Net loss from discontinued operations	1,812,199	1,402,936
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:		
Depreciation and amortization	1,470,839	1,567,776
Writedown of issuance costs	—	244,399
Impairment of assets	1,830,000	172,200
Stock-based compensation	613,293	42,335
Change in allowance for doubtful accounts	5,000	(4,320)
(Gain) loss on fair value of interest rate swap	74,673	(429,413)
Change in operating assets and liabilities, net of effects from acquisitions:		
Accounts receivable	1,361,428	(1,117,636)
Work-in-progress	33,712	8,538
Inventory	(21,755)	16,658
Costs and estimated earnings in excess of billings	849,241	(849,241)
Other current assets	49,530	388,445
Accounts payable	(866,338)	1,911,506
Promissory notes payable	154,499	154,499
Accrued expenses	(29,322)	15,290
Billings in excess of costs	128,352	—
Derivative instruments - interest rate swap	(632,000)	(234,096)
Deferred revenue	196,615	131,303
Other long-term liabilities	72,478	553,464
Other	(10,348)	75,000
Cash from (used in) operating activities - continuing operations	1,509,333	1,003,296
Cash from (used in) operating activities - discontinued operations	(1,184,117)	(1,872,188)
Net cash provided by (used in) operating activities	325,216	(868,892)
CASH FLOWS FROM INVESTING ACTIVITIES		
Proceeds from short-term investments	10,000	547,836
Payable to former owners of acquired company	—	(735,872)
Cash paid for business acquisition, net of cash acquired	(1,855,207)	—
Payments for project development costs, net of reimbursements	(65,348)	(24,574)
Payments for property and equipment	(89,404)	(203,109)
Cash from (used in) investing activities - continuing operations	(1,999,959)	(415,719)
Cash from (used in) investing activities - discontinued operations	(18,920)	(138,293)
Net cash provided by (used in) investing activities	(2,018,879)	(554,012)
CASH FLOWS FROM FINANCING ACTIVITIES		
Change in restricted cash	406,683	(76,050)
Escrow deposits related to long-term debt, net	123,022	(145,226)
Net proceeds from sale of common stock	1,799,845	20,000
Repurchase of common stock	(15,000)	—
Repurchase of Series A and B preferred stock	(80,000)	—
Cash dividends and distributions paid	(599,036)	(388,612)
Net proceeds from sale of preferred stock of subsidiary	3,151,930	1,400,000
Proceeds from notes payable	572,212	330,000
Principal payments on notes payable	(1,334,547)	(853,529)
Payments of loan costs	(195,930)	—
Cash from (used in) financing activities - continuing operations	3,829,179	286,583
Cash from (used in) financing activities - discontinued operations	(254,380)	385,963
Net cash provided by (used in) financing activities	3,574,799	672,546
NET INCREASE (DECREASE) IN CASH	1,881,136	(750,358)
CASH BEGINNING OF THE PERIOD	1,280,681	2,031,039
CASH END OF THE PERIOD	3,161,817	1,280,681
LESS CASH OF DISCONTINUED OPERATIONS	17,918	41,756
CASH END OF THE PERIOD- CONTINUING OPERATIONS	\$ 3,143,899	\$ 1,238,925
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION		
Cash paid during the year for:		
Interest	\$ 614,668	\$ 687,360
NONCASH INVESTING AND FINANCING ACTIVITIES		
Series A dividend payment in common stock	\$ 5,316	\$ 297,652
Issuance of common stock upon conversion of Series A preferred stock	\$ 131,035	\$ —
Issuance of promissory note for Series A preferred stock dividend	\$ 46,613	\$ —
Issuance of promissory note for Series A and B preferred stock	\$ 2,103,738	\$ —
Issuance of common stock for PVPower acquisition	\$ 64,731	\$ —
Issuance of common stock through reduction in accounts payable	\$ —	\$ 75,400
Accrued dividend on redeemable preferred membership interests	\$ —	\$ 75,554
Series A preferred stock dividend in accrued expenses	\$ —	\$ 51,929
Costs of raising capital included in accounts payable	\$ 164,755	\$ —
Redeemable preferred membership interests in share repurchase obligation	\$ 518,450	\$ —
Warrants issued to underwriter	\$ 101,400	\$ —
Accretion of subsidiary preferred stock	\$ 165,770	\$ —
Business acquisition financed with notes payable	\$ 2,416,604	\$ —
Debt refinanced with new lender	\$ 9,177,788	\$ —
Loan proceeds used to pay loan fees	\$ 83,396	\$ —

Source: Juhl Energy, Inc.

Risks and Disclosures

This Executive Informational Overview® (EIO) has been prepared by Juhl Energy, Inc. (“Juhl Energy” or “the Company”) with the assistance of Crystal Research Associates, LLC (“CRA”) based upon information provided by the Company. CRA has not independently verified such information. Some of the information in this EIO relates to future events or future business and financial performance. Such statements constitute forward-looking information within the meaning of the Private Securities Litigation Act of 1995. Such statements can only be predictions and the actual events or results may differ from those discussed due to the risks described in Juhl Energy’s statements on Forms 10-K, 10-Q, and 8-K, as well as other forms filed from time to time.

The content of this report with respect to Juhl Energy has been compiled primarily from information available to the public released by the Company through news releases, Annual Reports, and U.S. Securities and Exchange Commission (SEC) filings. Juhl Energy is solely responsible for the accuracy of this information. Information as to other companies has been prepared from publicly available information and has not been independently verified by Juhl Energy or CRA. Certain summaries of activities and outcomes have been condensed to aid the reader in gaining a general understanding. CRA assumes no responsibility to update the information contained in this report. In addition, CRA has been compensated by the Company in cash of forty-two thousand, five hundred dollars and two hundred and fifty thousand shares for its services in creating this report and for updates. For more complete information about the risks involved in an investment in the Company, please see Juhl Energy’s Form 424B4 filed with the SEC on August 4, 2014, and available at https://www.sec.gov/Archives/edgar/data/1366312/000143774914014117/juhl20140731_424b4.htm.

Investors should carefully consider the risks and information about Juhl Energy’s business, as described below. Investors should not interpret the order in which considerations are presented in this or other filings as an indication of their relative importance. The risks identified below are summarized from Juhl Energy’s August 4, 2014, Form 424B4. Investors should consult this filing for detailed explanations of each risk factor. In addition, the risks and uncertainties overviewed in Juhl Energy’s Form 424B4 are not the only risks that the Company faces. Additional risks and uncertainties not presently known to Juhl Energy or that it currently believes to be immaterial may also adversely affect the Company’s business. If any of such risks and uncertainties develops into an actual event, Juhl Energy’s business, financial condition, and results of operations could be materially and adversely affected, and the trading price of the Company’s shares could decline.

This report is published solely for information purposes and is not to be construed as an offer to sell or the solicitation of an offer to buy any security in any state. Past performance does not guarantee future performance. Additional information about Juhl Energy and its public filings, as well as copies of this report, can be obtained in either a paper or electronic format by calling (888) 438-5845.

Risks Related to Juhl Energy’s Business

- The Company has a history of net losses, and Juhl Energy may never achieve or maintain profitability.
- As a holding company, Juhl Energy is dependent on its subsidiaries for cash distributions to fund debt payments and other corporate liabilities.
- If Juhl Energy cannot continue to develop its portfolio of wind farm projects and turn such projects into operating projects, its business will not grow.
- The Company’s plans for growth and diversification may not be successful.
- The Company faces competition from industry participants that may have greater resources than Juhl Energy.
- The Company’s diversification outside of the wind energy market exposes it to business risks associated with new industries, which may slow Juhl Energy’s growth or penetration in these markets.

- The Company is dependent on Daniel J. Juhl's reputation and experience, and his loss would adversely affect Juhl Energy's ability to implement its strategy.
- The loss of some of Juhl Energy's key executive officers and employees could negatively impact Juhl Energy's business prospects.
- The loss of one or more members of Juhl Energy's senior management or key employees may adversely affect Juhl Energy's ability to implement its strategy.
- The Company depends on outside advisors for some of its primary business operations.
- The Company competes with other renewable energy producers for limited tax equity financing, which could raise the cost of tax equity financing and adversely impact Juhl Energy's development strategy.
- The Company may not be able to efficiently integrate the operations of acquisitions, products, or technologies.
- The Company faces competitive pressures from a variety of competitors in the markets it serves.
- The Company needs to manage growth in operations to maximize its potential growth and achieve expected revenues, and its failure to manage growth will cause a disruption of operations resulting in the failure to generate revenue or operate profitably.
- The Company's operating results may be adversely affected by the uncertain geopolitical environment and unfavorable factors affecting economic and market conditions.
- The Company relies on a limited number of customers.
- Electric power plants using Juhl Energy's systems to generate electricity rely on national and regional transmission systems and related facilities that are owned and operated by third parties and have both regulatory and physical constraints impeding access to electric markets.
- Current or future litigation and regulatory actions could have a material and adverse effect on Juhl Energy's business, financial condition, and results of operations.
 - *Winona Lawsuit Disclosure.* The Winona project is the subject of a lawsuit (the "Unison action") initiated in the U.S. District Court for the District of Minnesota in December 2013 by Unison Co., Ltd. against Juhl Energy, Juhl Energy Development, a subsidiary of Juhl Energy, Winona Wind Holdings, LLC, Winona County Wind, LLC, members of management, and others. The Unison action arises out of the purchase of the wind turbine generators from plaintiff and purports to state causes of action for (i) fraudulent inducement; (ii) breach of Juhl Energy Development's Financing Agreement with Unison; (iii) breach of the implied covenant of good faith and fair dealing; (iv) tortious interference with contractual relationship; and (v) unjust enrichment. The defendants, including the Company, dispute the allegations and are vigorously defending the action. Although the defendants, including the Company, believe they will prevail in the Unison action, an outcome of the Unison action could be divesting ownership of the project.
- The Company's businesses could be materially and adversely affected by events outside of its control.
- The Company cannot insure against all potential risks and may have difficulty insuring its business activities or become subject to increased insurance premiums.
- Some of the projects Juhl Energy finances may require substantial operating or capital expenditures in the future.

Risks Relating to the Wind Energy Industry

- The performance of wind farms is dependent upon meteorological and atmospheric conditions that fluctuate over time.
- Operational factors may reduce energy production below projections, causing a reduction in revenue.
- The wind energy industry is extensively regulated and changes in or new regulations or delays in regulatory approval could hurt Juhl Energy's business development.
- Various state governments may not extend or may decrease incentives for renewable energy, including wind energy, which would have an adverse impact on Juhl Energy's development strategy.
- The Company depends on Juhl Energy's ability to locate and develop new sources of wind power in a timely and consistent manner, and failure to do so would adversely affect Juhl Energy's operations and financial performance.
- Access to, availability, and cost of transmission networks are critical to development of wind farms. A failure to obtain sufficient network connections for future wind farms would adversely affect Juhl Energy's operations and financial performance.
- The Company may be unable to develop and construct wind farm projects economically in the future as a result of a significant, sustained decline in the market price of electricity or renewable energy certificates (RECs).
- The Company needs governmental approvals and permits, including environmental approvals and permits, to construct and operate its projects. Any failure to procure and maintain necessary permits would adversely affect ongoing development, construction, and continuing operation of Juhl Energy's projects.
- The Company's development activities and operations are subject to numerous environmental, health, and safety laws and regulations.
- Warranties from suppliers of turbines, which protect the Company against turbine non-performance, may be limited by the ability of the vendor to satisfy its obligations under the warranty. In addition, the warranties have time limits, and if Juhl Energy is not ready for turbine installation at the time it receives a turbine, that warranty protection can be lost.
- Acquisition of existing wind energy assets involves numerous risks. The Company is not able to insure against all potential risks and may become subject to higher insurance premiums.
- Any inability or delay in updating or obtaining required licenses and permits could hinder development and adversely affect profitability.
- The wind energy industry is highly dependent on tax incentives.
- The federal government may not extend or may decrease tax incentives for renewable energy, including wind energy, on which Juhl Energy depends, and which would have an adverse impact on Juhl Energy's development strategy.
- The Company's inability to obtain new wind farm development and construction project opportunities will impact its ability to maintain or grow its income streams from wind farm development and construction activities.

Risks Related to the Renewable Energy Industry

- Compliance with environmental regulations can be expensive, and noncompliance with these regulations may result in adverse publicity and potentially significant monetary damages and fines.
- The abundant competition and rapidly changing technology in the renewable energy industry may impair Juhl Energy's success.
- The pricing of renewable fuels from renewable resources may fluctuate due to the level of production of renewable fuels.
- The Company is dependent on market acceptance of renewable energy.
- If the prices of traditional sources of energy decline significantly, the sales in Juhl Energy's renewable energy business segment could decline and the financial results of Juhl Energy's business operations would be harmed.
- If renewable energy technologies are not adopted for widespread use or sufficient demand for renewable energy products does not develop or takes longer to develop than Juhl Energy anticipates, Juhl Energy would be unable to achieve sales and market share.
- Failure to obtain and maintain industry certification for Juhl Energy's renewable energy products where required could negatively impact its business.

Risks Relating to the Engineering Services Industry

- The Company's vulnerability to the cyclical nature of the markets in which its clients operate is exacerbated during economic downturns or times of political uncertainty.
- The Company's project execution activities may result in liability for faulty engineering services.
- The Company is subject to professional standards, duties, and statutory obligations on professional reports and opinions Juhl Energy issues, which could subject the Company to monetary damages.
- The Company may depend upon suppliers and subcontractors to complete its contractual commitments.
- Employee, agent, or partner misconduct or Juhl Energy's overall failure to comply with laws or regulations could weaken Juhl Energy's ability to win contracts, which could result in reduced revenues and profits.
- The Company engages in a highly competitive business. If Juhl Energy is unable to compete effectively, it could lose market share and Juhl Energy's business and results of operations could be negatively impacted.

Risks Associated with the Company's Common Stock and Capital Structure

- Because Juhl Energy became a publicly traded company through a share exchange transaction (or reverse acquisition), Juhl Energy may not be able to attract the attention of major brokerage firms.
- The Company's current management can exert significant influence over it.
- The Company could issue "blank check" preferred stock without approval of the common stockholders with the effect of diluting then current stockholder interests and impairing their voting rights. Provisions in Juhl Energy's charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable.

- The Company's stock price has been volatile and this volatility is likely to continue.
- The Company has not paid, and Juhl Energy is unlikely to pay in the near future, cash dividends on its common stock. As a result, investors' only opportunity to achieve a return on investment is if the price of Juhl Energy's common stock appreciates.
- The Company's common stock does not have a vigorous trading market and investors may not be able to sell securities when desired.
- Factors over which Juhl Energy has little or no control may cause its operating results to vary widely from period to period, which may cause Juhl Energy's stock price to decline.
- The Company's operating results may fluctuate significantly from period to period. If Juhl Energy fails to meet the expectations of securities analysts or investors, its stock price may decline significantly.
- Significant sales of Juhl Energy's common stock, or the perception that significant sales may occur in the future, could adversely affect the market price for the common stock.

Risks Related to Juhl Energy's Financial Activities

- The preparation of Juhl Energy's financial statements involves use of estimates, judgments, and assumptions, and the financial statements may be materially affected if Juhl Energy's estimates prove to be inaccurate.
- The Company has made certain guarantees of indebtedness or offered indemnification as part of its funding activities in certain wind farm projects. Thus, if a default or breach occurs, it would likely have a current or future adverse effect on Juhl Energy's financial condition.
- One of Juhl Energy's subsidiaries is in default under a line of credit. Any default by Juhl Energy's subsidiaries on their obligations under their debt instruments could require the Company to make payments to lenders to prevent foreclosure on the collateral securing the debt, such as wind energy assets.
- The Company may not be able to finance the growth of its business, including the development and construction of wind energy projects and the growth of Juhl Energy's organization.
- The Company may have difficulty obtaining additional financing when needed or on acceptable terms and there can be no assurances that Juhl Energy's operations will generate cash flows in an amount sufficient to enable the Company to pay its indebtedness.
- The Company and its subsidiaries have had material weaknesses and significant deficiencies in internal control over financial reporting that Juhl Energy has not addressed. Any material weaknesses or significant deficiencies in Juhl Energy's internal controls could result in a material misstatement in the Company's financial statements as well as result in Juhl Energy's inability to file periodic reports timely as required by federal securities laws, which could have a material adverse effect on Juhl Energy's business and stock price.
- The Company is subject to credit and performance risk from third parties under service and supply contracts.

Glossary

Behind the Meter—An energy generation unit that delivers energy to load without using the transmission system or any distribution facilities; or essentially, distributed generation that sells electricity directly to an end user onsite to offset usage costs from the generation service provider.

Biomass—Organic matter used as a fuel, especially in a power station for the generation of electricity.

Community Wind—A sector of wind development that seeks to increase local energy independence and prosperity while reducing carbon emissions. These are medium-sized wind farms that are typically owned and operated locally, or in partnership with local owners, as opposed to being owned by a distant utility power company.

Distributed Wind—Defined in terms of technology application based on a wind project's location relative to end-use and power-distribution infrastructure, rather than on turbine or project size. Distributed wind is the use of wind turbines, off-grid or grid-connected, at homes, farms and ranches, businesses, public and industrial facilities, and other sites to offset all or a portion of the local energy consumption at or near those locations, or systems connected directly to the local grid to support grid operations and local loads. Distributed wind is differentiated from wholesale power that is generated at large wind farms and sent via transmission lines to substations for subsequent distribution to loads and distant end-users. (Source: U.S. Department of Energy, *2013 Distributed Wind Market Report*, "Introduction")

Gigawatts (GW)—1,000 MW of electrical power.

Greenhouse Gases—Greenhouse gases, such as carbon dioxide (CO₂), trap heat from the sun and warm the planet's surface. Of all U.S. greenhouse gas emissions, the majority are related to energy production and consumption. Specifically most of those are CO₂ from the burning of fossil fuels. From 1990 to 2013, energy-related carbon dioxide emissions in the United States increased on average by about 0.3% per year.

Integrated Gasification Combined Cycle (IGCC)—A technology that uses a gasifier to turn coal and other carbon-based fuels into gas. It then removes impurities from the resulting gas before it is combusted. Some of these pollutants, such as sulfur, can be turned into reusable byproducts.

Kilowatt (KW)—1,000 watts of electrical power.

Kilowatt Hours (KWh)—An hour during which 1KW of electrical power has been continuously produced.

Megawatts (MW)—1,000 KW of electrical power.

Megawatt Hour (MWh)—An hour during which 1MW of electrical power has been continuously produced.

Net Metering—A system in which solar panels or other renewable energy generators are connected to a public-utility power grid and surplus power is transferred onto the grid, allowing customers to offset the cost of power drawn from the utility.

Production Tax Credit (PTC)—The federal renewable electricity production tax credit (PTC) is an inflation-adjusted per-kilowatt-hour (kWh) tax credit for electricity generated by qualified energy resources and sold by the taxpayer to an unrelated person during the taxable year.

Renewable Energy Certificate (REC)—Renewable energy facilities generate renewable energy certificates or credits (RECs) when they produce electricity. Purchasing these credits is the widely accepted way to reduce the environmental footprint of electricity consumption and help fund renewable energy development. Purchasing RECs at the same quantity as electricity consumption guarantees that the energy being used is added to the power grid from a renewable energy facility and supports the further development of these facilities.

Renewable Portfolio Standard (RPS)—A regulatory mandate to increase production of energy from renewable sources such as wind, solar, biomass and other alternatives to fossil and nuclear electric generation. It is also known as a renewable electricity standard.

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