

NAVIGANT



solar electric power association

# Evaluating Options for Deploying Distributed Solar:

## A Multi-Client Study Addressing the Challenges for Utilities

Today's utilities are being pushed to address the question of whether or not they want to play an active role in distributed solar. And, if so, then how? Answering these questions requires a strong understanding of the solar business model options available and, more importantly, an understanding of how the underlying financial and structural variables of each business model drives business economics and solar program design.

Solar business model variables include technology and system configuration, a utility's position in the value chain, regulatory treatment for the solar business model, and customer acceptance of and willingness to pay for solar equipment or services. By carefully evaluating each of these aspects, a utility can optimize its strategic approach to distributed photovoltaics (PV) based on its own unique circumstances.

Navigant and the Solar Electric Power Association (SEPA) are pleased to offer a multi-client study expanding on SEPA's Utility Solar Business Model work. This study is designed to assist a select group of U.S. utilities in evaluating their options for deploying distributed solar by:

- » Mapping the motivations for pursuing distributed PV to applicable business models
- » Characterizing the key financial and structural variables of the main 5 – 7 solar business models utilities could pursue, then identifying variations in each model
- » Quantifying the relative importance of the financial and structural variables to the economics of each business model
- » Identifying an appropriate path forward for utilities operating in a given region, regulatory, and customer environment

The study will also address the evolution of PV technologies, the distributed PV marketplace, and the current trends regarding regulatory treatment of distributed solar.

Participation in the Navigant–SEPA Distributed Photovoltaic Generation Multi-Client Study will provide utilities with the tools to evaluate how value can be derived from distributed solar. The study is limited to approximately 15 participating organizations and will be structured around two to three in-person meetings over a three-month period. During the study, participants will have the opportunity to help shape the content of the report, as well as share ideas and network with peers from across the country.





## About Navigant Consulting

Navigant Consulting, Inc. (NYSE: NCI) is a specialized, global expert services firm dedicated to assisting clients in creating and protecting value in the face of critical business risks and opportunities. Through senior level engagement with clients, Navigant professionals combine technical expertise in Disputes and Investigations, Economics, Financial Advisory and Management Consulting, with business pragmatism in the highly regulated Construction, Energy, Financial Services and Healthcare industries to support clients in addressing their most critical business needs.

## About the Solar Electric Power Association

The Solar Electric Power Association (SEPA) is a 501(c)3 non-profit organization that focuses on 'helping utilities make smart solar solutions' regarding solar technology, policy, and market assessment since 1992. SEPA has been working with utilities on solar business models since 2007 and has released two reports, held numerous webinars and workshop, and coordinates a business models interest group for utilities.

## New Factors for Utilities Consider

This study will help to prepare utilities for decision making about their involvement with distributed solar. Utilities are finding that the process for deploying distributed solar is much different than that for large fossil or nuclear plants and requires consideration of different factors, including:

### Value-Chain Position/Partnerships

A utility may choose to own solar systems or purchase the power from an independent power producer (IPP). Similarly, a utility may opt to install solar energy systems itself or contract for turn-key systems. While today's utilities are familiar with these activities, the parties with whom they interact and the number of transactions involved with distributed solar are quite different. Rather than dealing with large IPPs, utilities will likely be transacting with a new breed of solar service providers. Or, in some cases, utilities may begin to discuss power procurement choices directly with a residential or commercial customer. Given the number of solar installations needed to supply the equivalent of a large natural gas-fired plant, utilities will likely be engaged in many more distinct transactions than before.

### Solar PV Technology

If a utility decides to own solar assets, it will need to be familiar with the cost and performance characteristics of various solar technologies (e.g., mono-crystalline, poly-crystalline, thin-film). In addition, it will need to understand the trade-offs between roof- and ground-mounted systems, as well as the tradeoffs between using tracking or no tracking. Moreover, utilities are faced with understanding and accommodating for the impact on the distribution network of an increasing amount of intermittent power generation capacity.

### Customer Interest

In evaluating the landscape of distributed PV business models, it is important for utilities to assess varying customer needs. A utility considering deploying distributed PV will quickly realize that one size does not necessarily fit all. Different models are applicable to different customer segments. A large industrial customer may be interested in leasing its roof to the utility for the deployment of solar, but not in the actual purchase of the energy. A residential customer, however, may want help in financing his/her own system and consume the system's energy on-site. For all utilities, it is unclear how much various customer segments are willing to pay for solar PV and what levels of adoption are realistic.

### Regulatory Environment

For investor-owned utilities, regulatory treatment of distributed solar and cost recovery mechanisms are often unclear, given the limited precedent nationwide. For public utilities, finding cost effective ways to advance distributed solar is difficult given the limited government financial incentives available to them. The regulatory environment for solar is evolving quickly, creating the need for utilities to understand and respond to changing conditions. Clearly, regulatory issues can be unique to specific utilities in specific regions. However, there are a set of regulatory issues that all utilities will likely have to consider when developing a distributed solar offering, including recovery mechanisms, "non utility" businesses, net metering rules, ownership of environmental attributes, and renewable portfolio standards (RPS) compliance, among others.

## Mounting Pressure for Utilities to Have a Well Thought Out Plan for Being Involved (or Not) in the Distributed Solar Value Chain

This study will help utilities respond to mounting pressure from regulators, customers and shareholders to be involved – in some way – in the solar value chain. When states began to enact RPSs in the late 1990s, utilities showed greater interest in providing renewable energy to their customers. Then, governing boards of some municipal utilities followed by setting their own renewable energy targets. Many utilities began to pursue solar projects for two major reasons. First, some utilities needed to comply with solar-carve out requirements, also called “set-asides” (an amount of renewable energy that utilities must source specifically from solar). Second, many utilities either lacked access to other renewable resources such as wind or geothermal or found solar projects easier to site and permit due to fewer transmission constraints and environmental impacts. Utilities are now pursuing distributed solar projects where the solar resource is strongest, and where transmission and permitting challenges have typically existed for large-scale solar systems.

More recently, residential, commercial and industrial customers have been demanding distributed solar solutions, especially as the PV system prices continue to decline. This demand is increasingly being met by non-utility solar service providers who are now forming relationships with and selling power to utility customers. Some utilities see this as a threat that they would like to proactively address due to potential for revenue erosion and complications with grid operations.

Between 2001 and 2014, 12GW of solar PV will cumulatively be added to the U.S. electric grid. Of this, 4GW will go into residential grid-tied applications and 8GW will go into commercial and utility grid-tied applications.<sup>1</sup> And, it is highly likely that moving forward the vast majority of residential and commercial systems will be provided by third-party owners. Given the significance of the installed capacity on the horizon, many utilities are evaluating options for creating value from distributed solar.

### How Will This Study Be Structured?

This study will meet the needs of utilities contemplating a first, additional or expanded distributed PV program, by identifying and evaluating emerging opportunities for utilities to participate in the solar value chain. Some topics relevant specifically to investor-owned utilities (IOUs) and publicly-owned utilities (POUs) will be developed in parallel tracks to provide participants the most relevant results.

The study will be conducted over a three-month timeframe, and will include in-person kick-off and final meetings as well as interim WebEx sessions. An electronic version of the final report will be provided at the end of the study to all participating organizations. At the conclusion of this study, Navigant and the organizations participating in the study may consider follow-on work to examine best practices in implementation of solar programs for those utilities wanting to develop a specific business model.

### Preliminary Schedule

- » Kickoff – February 2011  
The kickoff will prioritize the study's scope and define the outline for the final report. Client participation is critical. The location of the kick-off meeting will be determined based on the final participant list, and could be in Washington, DC, Chicago, Denver or San Francisco.
- » Interim Study – March 2011  
Navigant will present the initial analyses and findings and solicit feedback. Feedback will be integrated into the study results. Participants are welcome to join the Navigant-SEPA teams for the meeting in our San Francisco, Boston or Washington, DC offices, or can join the meeting(s) via WebEx. Additional interim meetings will be scheduled as needed.
- » Draft Final Report – April 2011  
The final meeting will be held at the PV America Conference in Philadelphia, PA. At the meeting, Navigant will review findings and facilitate a roundtable discussion. Clients will receive a PowerPoint-style draft final report. Navigant will present the draft and solicit input from participants. The Final Report will be delivered two to three weeks later.

Please note that in-person participation is strongly encouraged, however, participation will be possible via phone and WebEx.

## The Navigant Consulting Energy Experts Conducting this Study

**Lisa Frantzis**, Managing Director

- » 30 years of experience and globally recognized renewable energy expert.
- » Current Board member of the Solar Electric Power Association and member of the American Council on Renewable Energy's Leadership Council.
- » Previous member of ACORE's Board of Directors and former Vice President of the Solar Energy Business Association of New England.

**Shannon Graham**, Associate Director

- » Provides strategic advisory services on renewable energy for manufacturers, electric utilities and leading government agencies.
- » Deep experience in renewable energy, with emphasis on distributed solar PV
- » More than 17 years of experience in renewable energy.

**Andy Wickless**, Associate Director

- » Provides strategic advisory services on renewable energy, energy efficiency, and smart grid to electric utilities, government agencies, technology manufacturers, project developers, and potential investors.

**Fred Wellington**, Managing Consultant

- » Specializes in clean energy strategies
- » Advises utility clients on solar business models and opportunities,
- » Expert in compliance issues associated with renewable energy and greenhouse gas policies, as well as REC valuation and procurement.

**Julianne Meurice**, Managing Consultant

- » Provides strategy and market entry advice to utilities and power generators.
- » More than 25 years of experience melding strategic business objectives, market and regulatory realities, and operational challenges for utility clients.

<sup>1</sup> Source: Navigant Solar Services Program, December 2010.

## Subscription Form

# Evaluating Options for Deploying Distributed Solar: A Multi-Client Study Addressing the Challenges for Utilities

The target start date for the project is February 2011, or within two weeks of the commitment of a minimum of ten subscribers. The cost for participation is \$30,000, or \$25,000 for SEPA members.<sup>2</sup> SEPA Utility Memberships range in price from \$750-\$7500, based on revenues. For more information on SEPA membership visit [www.solarelectricpower.org](http://www.solarelectricpower.org) or contact Emily Easley at [eeasily@solarelectricpower.org](mailto:eeasily@solarelectricpower.org) or 202-857-0898.

Navigant, SEPA and the subscribers of this study will agree to reasonable precautions to prevent the disclosure of the contents of this study to any persons or organizations other than the subscribers for a period of three years after its date of issue.

- I am interested in subscribing and would like to receive more information about the Navigant–SEPA study *Evaluating Options for Deploying Distributed Solar: A Multi-Client Study Addressing the Challenges for Utilities*

Please provide your comments on this study in general and on specific areas related to distributed photovoltaic generation that you would like us to focus on:

---

---

---

Name: \_\_\_\_\_

Position: \_\_\_\_\_

Company Name: \_\_\_\_\_

Telephone: \_\_\_\_\_

Email: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

### Please submit this form to:

**Lisa Frantzis**

Managing Director  
Navigant Consulting  
77 South Bedford Street  
Burlington, MA, USA 01803  
Phone: 781.270.8314  
Fax: 781.270.0418  
[lfrantzis@navigantconsulting.com](mailto:lfrantzis@navigantconsulting.com)

or

**Shannon Graham**

Associate Director  
Navigant Consulting  
1 Market Street  
Spear Street Tower, Suite 1200  
San Francisco, CA 94105  
Phone: 415.399.2164  
Fax: 415.356.4005  
[sgraham@navigantconsulting.com](mailto:sgraham@navigantconsulting.com)

[www.navigantconsulting.com](http://www.navigantconsulting.com)



<sup>2</sup> The subscription fee does not include costs incurred by subscribers to attend in-person meetings.