SOLAR DEVELOPMENT ON LANDFILLS AND BROWNFIELDS

December 8-9, 2014
Millennium Knickerbocker Hotel
Chicago, IL

Post-Conference Workshop
BROWNFIELDS PREPARATION FOR SOLAR
December 9, 2014
OVERVIEW

Solar power plant development has grown increasingly profitable in the last few years. Yet, finding “greenfield” land of sufficient size and low cost is a challenge, especially in urban areas. Keeping down the cost of acquisition for land often locates the project much farther away from load centers and transmission/interconnection. At the same time, many metropolitan areas have large swaths of unusable or underutilized space deemed unfit or too costly to rehabilitate. These problematic areas often turn out to be attractive siting options for solar projects:

• For the community, recycling such sites to generate clean, renewable energy is often greatly appealing to the neighborhood, city, solar advocates, environmentalists, utilities and a host of other stakeholders, as it converts an otherwise blighted area into a productive revenue and community power asset.
• For a municipality, special district or other closed landfill site owner, it can remove a significant liability and barrier for progress, plus it may offer an economic return.
• For a project developer or power producer, it can mean a profitable project with steady cash flow that may benefit from faster permitting, construction and completion as compared to a greenfield site. In addition, because of its proximity to significant load centers and grid interconnections, the site may reduce access and development costs.

While legislative implementation of renewable energy policies and multiple tax and related financial incentives have driven development on these types of sites, there are special considerations unique to the sites as compared to a greenfield location. This conference will address the significant aspects of developing solar energy on landfills and brownfields, examining the elements of successful previous projects, and looking ahead to new developments in financing, incentives and technology. It will bring together utility personnel, developers, engineers, municipal officials, regulatory officials, attorneys, and insurance brokers with expertise in this very special arena. These experts will examine all aspects of this process and provide guidance through case studies and examples in the following development areas:

• Environmental engineering
• Permitting
• Site reuse permits
• Environmental compliance
• Interconnection/engineering
• Financing
• Development

WHO SHOULD ATTEND

• Utility resource planning and environmental staff
• Solar project developers
• Merchant and independent power producers
• Financial groups involved in renewable projects
• Environmental engineers
• Engineering firms that support solar projects
• Attorneys, counsel, and legal staff
• Federal, state, special district and local government agencies wanting to capitalize on this scenario
• Landfill operators
• Solar and renewable energy advocates

LEARNING OUTCOMES

Attendees will gain practical and technical skills that allow them to:

• Analyze PV technical and economic factors unique to landfills
• Design solar projects on these areas
• Assess the environmental engineering aspects of siting
• Identify interconnection considerations and constraints
• Evaluate the insurance and risk management connected to these projects
• Analyze landfill reuse permits
• Identify legal aspects of development and financing
• Evaluate the technical and practical considerations municipalities must consider when planning these projects

“The level of detail at EUCI’s Solar Development on Landfills and Brownfields has provided new insight into an expanding industry.”

– Sr. Engineer, Ray Angelini, Inc.
In the last two years, increasingly greater focus has been devoted to landfills and brownfields as sites for solar energy by state solar energy agencies, state energy agencies, and environmental agencies. A large amount of solar development has already taken place in Northeast states such as New Jersey, Massachusetts and New York and other states are following suit. Specific incentive policies have already been adopted in Illinois. As additional Midwestern states commit more attention and resources to high penetration renewable energy, the focus of solar on landfills and brownfields is certain to intensify and become a commonplace element of a renewably fueled future.

- Howard Learner, Executive Director, Environmental Law and Policy Center (ELPC)

In select areas of the country, solar projects sited on brownfields and landfills went from an idea with merit to a profit-generating reality in a relatively short period of time. This session will examine those areas and discuss how to translate the idea of solar on underutilized spaces into legislative actions and policy and then profitable, energy-producing projects.

- Pete Pedersen, Managing Principal, Brightfields LLC

This 2.5-MW solar project, with a 4MW of lithium ion and lead acid battery storage component, was developed on a brownfield in an economically depressed area. In addition, it is part of a resilient micro-grid, designed to power an emergency shelter in a nearby school. In an area hard hit by Superstorm Sandy, this combination of features was welcomed by renewable energy advocates and local stakeholders. Developed by Green Mountain Power of Vermont in conjunction with two partner firms, the energy storage component of this project is co-funded by a federal-state-NGO partnership. Featured in this discussion will be:

- Site specific environment concerns
- Frequency regulation value of storage
- Coordinating federal, state, local and NGOs
- Project financing

- Robert Sanders, Senior Finance Advisor, Clean Energy Group
- Todd Olinsky-Paul, Senior Project Director, Clean Energy Group

On March 5, 2014 Hanwha Q CELLS commissioned the 10.86MWdc Maywood Solar Project, thus becoming the first solar developer to construct a utility scale solar project on an existing Superfund site. The project, located on 43 acres of the Reilly Tar & Chemical Superfund site in Indianapolis, was completed under the 2012 Indianapolis Power & Light (IPL) Rate-REP program. Of critical significance, the project was fully realized without additional federal, state, local or corporate incentives and used conventional solar project financing. The project will operate for up to 30 years, generate approximately 14,500MWh/year and reduce CO2 emissions by 13,000mmt/year. This segment — jointly presented by Hanwha Q CELLS and site owner Vertellus Specialities Inc. — will discuss the technical aspects of the project, as well as the partnering and contracting arrangements involving Hanwha Q CELLS, Vertellus Specialities Inc., US EPA, IP, Indiana Department of Environmental Management (IDEM) and project financier PNC Bank.

- Geoffrey Underwood, Utility Scale Solar Development, Hanwha Q CELLS
- Tom Mesevage, Corporate Counsel – Environmental, Vertellus Specialties Inc.
Monday, December 8, 2014 (CONTINUED)

12:15 – 1:15 p.m.  Group Luncheon

1:15 – 2:15 p.m.  Municipal Brownfield Conversion: East St. Louis, MO — Case Study

This heavily contaminated, 220-acre Superfund site was used for aluminum production until the late 1950s. Long vacant and now owned by the city of East St. Louis, this site is being remediated in preparation of a 20 MW solar plant. This session will review the site, discuss the steps taken to prepare it to for the solar plant along with the legislative, financial and PPA agreements needed to make this project a reality.

- Pete Pedersen, Managing Principal, Brightfields LLC

2:15 – 3:45 p.m.  Permitting and Regulatory Variables When Planning and Executing Solar Projects

Permitting a solar project is a laborious process that typically involves obtaining approvals from an array of local, state and federal agencies with jurisdiction and oversight responsibilities for: solid waste, environmental standards, public utility commissions, land use, etc. In some respects, even the local utility can be considered part of this important category. The session will analyze the process on both the state and local level, and address the following topics:

- Storm water runoff
- Gas control
- Integrity of the cap
- Modifications to the existing gas system
- Planning
- Zoning
- Building
- Post-closure use permits
- Environmental compliance
- Issuing "comfort" letters
- Liability

- Rich Cogen, Partner, Nixon Peabody
- Charles Howland, Senior Assistant Regional Counsel – Region III, US EPA

3:45 – 4:00 p.m.  Afternoon Break

4:00 – 5:30 p.m.  Contrasting Solar Financing with Fossil Generation

Upon the completion of the permitting and financing processes, utilities and developers alike must address the interconnection issues unique to PV development on landfills and brownfields. This session will explore differing design structures and interconnection strategies to consider when designing these projects. It will cover the following topics:

- PV overview
- Interconnection permits
- Interconnection considerations specific to landfills
- Interconnection with local utility
- State-specific considerations

- Paul Astolfi, Partner, Mayer Brown

“Very clear presentations with useful information that addressed relevant issues, problems, and new opportunities. Well done!”

- Managing Principal, IMA, LLC
AGENDA

Tuesday, December 9, 2014

8:00 – 8:30 a.m.     Continental Breakfast

8:30 – 10:00 a.m.    Financing Overview of Landfill-Specific Solar Projects

As the process and regulation on landfill and brownfields projects are executed differently than on a more traditional solar project, so too is the financing. This session will give an overview of the different financing structures available and outline what financial institutions seek in order to support development.

- Power Purchase Agreements (PPA)
- Project pro forma
- Ground leases
- Yieldcos
- Debt / Equity
  - Term sheet
  - Definitive documentation
- Jim Duffy, Partner, Nixon Peabody
- Pete Pedersen, Managing Principal, Brightfields LLC
- Eric McLean, American Capital Energy
- Ed Bossange, Vice President, Morgan Stanley
- Mark G. Williams, Managing Director, PNC Equipment Finance, Structured Finance Solutions

10:00 – 10:15 a.m.  Morning Break

10:15 – 11:00 a.m.  Review of Financial Metrics

Risk and the appropriate financing instruments are closely correlated in properly positioning any solar project, but especially for a landfill or brownfield project site. This segment will evaluate the available options, and how best to assess the preferred instrument(s), considering:

- Risk profile
- Tax and subsidy drivers
- Example of construction / permanent financing structure
  - Debt
  - Tax equity
  - Cash equity
- Market drivers and relationship to profitability
- Winners and losers
- Joe Ritter, Vice President-Originations - Production/Acquisition, Seminole Financial Services, LLC

11:00 a.m. – 12:00 p.m. Development, Financing, Grants and Incentives Specific to Landfills and Brownfields

Energy development on landfills and other contaminated sites tell a good story. Effective use of land otherwise unsuited for other purposes, especially in urban areas, and the use of the site to contribute renewable energy to the community plays well with the vast majority of stakeholders. But without the ability to fund such developments, these projects remain just a good story. This session will examine how to use tools that can identify sources of funding and incentives for brownfield redevelopment and leverage stakeholder support for such projects.

- Turning stakeholder support into dollars
- Potential partners for grants, tax incentives and subsidies
- Incentive and funding source tools
  - DESIRE
- Brian Morrissey, Director, Citizens Energy

12:00 pm.            Conference Adjourns
OVERVIEW

As the numbers of brownfields and landfills multiply as solar project host sites, the engineering, environmental science and preparation practices particular to these contaminated properties advance as well. The choice of remediation methods, site engineering practices and applications, racking systems and foundations all can have profound effect on the risk mitigation and finance-ability of a project. This workshop, conducted by brownfields remediation specialists, will examine the critical knowledge needed by those interested in developing solar projects on these sites including:

- Site remediation and prep
- Special Landfill considerations
- Base and racking systems suited to sites
- Corrosion mitigation

LEARNING OUTCOMES

Attendees will gain practical and technical skills that will allow them to:

- Identify site contamination and apply remediation plan elements
- Analyze geotechnical issues associated with landfills and how they should be addressed
- Compare engineering best practices for specific brownfield application to more standard siting application
- Distinguish risk management measures specific to brownfield remediation as compared with more standard solar site development measures

AGENDA

Tuesday, December 9, 2014

12:30 – 1:00 p.m.  Registration
1:00 – 4:30 p.m.  Workshop Timing

I.  Site remediation and prep
   • Identifying the brownfield and contamination
   • Determining level of remediation needed
   • Permitting and risk management

II.  Special landfill considerations
    • Landfill characteristics discussion
    • Cap depth, wastewater and outgassing consideration

III.  Base and racking systems suited to sites
      • Identifying the appropriate systems for the site
      • Construction techniques for landfills
      • Maintenance considerations

IV.  Corrosion mitigation
     • Long term effect of brownfields on PV panels and balance of system
WORKSHOP INSTRUCTORS

David E. Koch, RBP / Principal and Senior Consultant / Terracon Consultants, Inc

Mr. Koch provides specialized technical expertise and training in the fields of risk-based assessment and mitigation. His emphasis is in evaluating and mitigating public health risk from chemical releases under Superfund (CERCLA/SARA), Brownfields, RCRA, solid waste, RBCA, and voluntary programs.

Michael W. Laney, P.E., G.E., P.Eng. / Senior Geotechnical Engineer / Terracon Consultants, Inc

Mr. Laney serves as a senior level resource for large energy sector (e.g. solar, wind, transmission line and power plant) projects in North America.

Click Here to Register Online

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P.O. Box 2303
Falls Church, VA 22042

FIVE: WEB SITE
www.pmaconference.com
INSTRUCTIONAL METHODS

Panel discussions, case studies, and PowerPoint Presentations will be used in this conference and affiliated workshop.

REQUIREMENTS FOR SUCCESSFUL COMPLETION OF PROGRAM

Participants must sign in/out each day and be in attendance for the entirety of the conference and/or workshop to be eligible for continuing education credit.

IACET CREDITS

EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, the (organization name) has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, (organization name) is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

EUCI is authorized by IACET to offer 1.1 CEUs for the conference and 0.4 CEUs for the workshop.

EVENT LOCATION

A room block has been reserved at the Millennium Knickerbocker Hotel, 163 E Walton Pl., Chicago, IL 60611, for the nights of December 7-8, 2014. Room rates are $189, plus applicable tax. Call 312-751-8100 for reservations and mention the EUCI program to get the group rate. The cutoff date to receive the group rate is Friday, November 7, 2014, but as there are a limited number of rooms available at this rate, the room block may close sooner. Please make your reservations early.

PROCEEDINGS

A copy of the conference proceedings will be distributed to attendees at the event. If you are unable to attend or would like to purchase additional copies, flash drives are available two weeks after the conference is complete. The cost per flash drive is US $395 (add US $50 for international shipments). Flash drives include visual presentations only. Upon receipt of order and payment, the flash drive will be shipped to you via regular USPS mail.

NOTE: All presentation flash drive sales are final and are nonrefundable.
SOLAR DEVELOPMENT ON LANDFILLS AND BROWNFIELDS AND POST-CONFERENCE WORKSHOP: BROWNFIELDS PREPARATION FOR SOLAR  
DECEMBER 8-9, 2014: US $1795  
EARLY BIRD ON OR BEFORE NOVEMBER 28, 2014: US $1595  

SOLAR DEVELOPMENT ON LANDFILLS AND BROWNFIELDS CONFERENCE ONLY  
DECEMBER 8-9, 2014: US $1395  
EARLY BIRD ON OR BEFORE NOVEMBER 28, 2014: US $1195  

POST-CONFERENCE WORKSHOP: BROWNFIELDS PREPARATION FOR SOLAR  
DECEMBER 9, 2014: US $595  
EARLY BIRD ON OR BEFORE NOVEMBER 28, 2014: US $495  

I’M SORRY I CANNOT ATTEND, BUT PLEASE SEND ME THE CONFERENCE PROCEEDINGS FOR US $395. (PLEASE ADD $50 FOR INTERNATIONAL SHIPPING.)  

How did you hear about this event? (direct e-mail, colleague, speaker(s), etc.)  

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OR Enclosed is a check for $________________ to cover __________________ registrations.  

All cancellations received on or before November 7, 2014, will be subject to a US $195 processing fee. Written cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event or publication. This credit will be good for six months. In case of event cancellation, EUCI’s liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices at (201) 871-0474.