

SOLAR DEVELOPMENT ON LANDFILLS AND BROWNFIELDS

August 21 – 22, 2018
Hyatt at The Bellevue
Philadelphia, PA

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*“This is the most focused
and practical conference
about landfills and
development I have ever
attended!”*

Chief Commercial Officer,
Hanergy America

POST-CONFERENCE WORKSHOP

Financing Strategies for Solar Projects on Landfills and Brownfields

TUESDAY, AUG 22, 2018



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to offer 1.1 CEUs for the
conference and 0.4 CEUs
for the workshop

OVERVIEW

With solar power moving into the mainstream of energy resources, the aggressive search for suitable greenfield sites has prompted savvy investors, project developers, suppliers and power organizations to consider sites with less conventional development characteristics.

Ironically, these blemished sites areas often turn out to be attractive siting options for solar projects. Business is flourishing. Renewable energy policies, coupled with multiple tax and related financial incentives, contribute to the development appeal of these types of sites. Yet, there are special considerations unique to closed landfill and brownfield sites as compared with greenfield locations.

This symposium will examine the significant aspects of developing solar energy on landfills and brownfields. It will consider utility interconnection, engineering, permitting, environmental and regulatory, legal, risk and financing issues. Developers, regulatory officials, investors and legal specialists with expertise in this very special arena will conduct the program, using case studies and examples from successful projects.

LEARNING OUTCOMES

The content is intended as a survey (fundamentals) course for utilities, project developers, regulators and community stakeholders in states that are just now beginning to turn their attention to this prospective solar development tool.

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

- Analyze PV technical and economic factors unique to landfills and brownfields
- Design solar projects suitable for development on these areas
- Assess the environmental engineering aspects of siting
- Identify interconnection considerations and constraints
- Evaluate the risk issues connected to these projects
- Identify aspects of development and financing specific to landfill and brownfield projects
- Evaluate the technical and practical considerations municipalities and other government agencies must consider when initiating these projects

“

“The EUCI conference on Solar Projects on Brownfield sites gave a detailed overview of issues and opportunities associated with these Developments!!”

EPC Project Mgr,
Consumers Energy

“

“EUCI events provide a good forum for great industry dialogue based on commercial applications of solar landfill development.”

Director – Development, Lendlease Energy
Development

“

“Speakers welcomed questions, which was helpful to fill in the gaps of presentations and the responses were candid.”

Assistant General Counsel, SunEdison

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AGENDA

MONDAY, AUGUST 21, 2018

7:30 – 8:00 am Registration and Continental Breakfast

8:00 – 8:15 am Welcome and Introductions

8:15 – 9:45 am Building a Pipeline of Landfill/Brownfield Projects

- Local, state and regional policy initiatives
- Project development teaming and collaborations
 - o EPC
 - o Finance and tax
 - o Legal
- Jurisdictional components

Lyle Rawlings, President and CEO, Advanced Solar

9:45 – 10:30 am EPA Landfill, Brownfield and Solar Program Support

This session will detail the U.S. Environmental Protection Agency's (EPA) ongoing initiative to encourage and facilitate renewable energy development on current and formerly contaminated lands, landfills and mine sites when such development is aligned with the community's vision for the site. The RE-Powering America's Land Initiative identifies the renewable energy potential of tracked EPA and state sites and provides useful resources for communities, developers, state and local governments and other interested stakeholders. The focus in this session will be on opportunities for future development, with supplemental information on the program's efforts to date and observed trends.

Marc Thomas, Senior Policy Analyst, U.S. Environmental Protection Agency (EPA)

10:30 – 10:45 am Morning Break



"EUCI developed a strong program of industry practitioners – well worthwhile."

Executive Vice President,
groSolar



"This was a very functional conference with industry leaders detailing interesting and demonstrative projects."

Senior Program Manager, ISM Solar Solutions



"The conference participants proved to be knowledgeable and provocative practitioners active in various segments of the solar project development process. This was a most worthwhile gathering."

Managing Principal, Brightfields, LLC

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AGENDA

MONDAY, AUGUST 21, 2018 (CONTINUED)

10:45 am – 12:15 pm

Site Preparation and Environmental Remediation Considerations

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 segment, conducted by site remediation specialists, will examine the critical knowledge needed by those interested in developing solar projects on these sites including:

- Site assessment, remediation and prep
 - o Reviewing site closure documents
 - o Evaluating topography, settlement and venting conditions
 - o Identifying the brownfield and contamination
 - o Determining any level of remediation needed
 - o Permitting and risk management
- Special landfill considerations
 - o Landfill characteristics discussion
 - o Cap depth, wastewater and outgassing consideration
 - o Accommodating landfills with active gas collection systems
 - o Fire suppression
- Foundation and racking systems' selection
 - o Identifying the appropriate systems for the site
 - o Construction techniques for landfills
 - o Maintenance considerations
- Corrosion mitigation
 - o Long term effect of brownfields on PV panels and balance of system
- Construction Best Practices
 - o Equipment selection
 - o Field conditions verification
 - o Staging
 - o Weather variability
- Risk and insurance
 - o Environmental Insurance
 - o Risk mapping through the project phases
 - o Contractual risk allocation
- o Insurance options and considerations

Kevin Magayah, Manager, The Conti Group



"EUCI's focused conferences afford those actively participating or looking to participate in solar/energy development the tools necessary to streamline processes and conduct business in the most efficient manner possible. I love EUCI's focused conferences!"

Senior Vice President, Seminole Financial Services

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AGENDA

MONDAY, AUGUST 21, 2018 (CONTINUED)

12:15 – 1:15 pm

Group Luncheon

1:15 – 2:30 pm

Permitting and Regulatory Variables When Planning and Executing Solar Projects on Landfills

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
- Soil contamination, if relevant

Brian Morrissey, Managing Director, Citizens Solar
James Duffy, Partner, Nixon Peabody LLP

2:30 – 2:45 pm

Morning Break

2:45 – 4:15 pm

Working with Utilities to Address Interconnection and Transmission Access Issues

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

Todd Hranicka, Director – Solar Energy, Public Service Gas and Electric (PSEG) invited

4:15 – 5:15 pm

Project Development Expense Assumptions

As with any development project, the numbers have to add up. This segment will provide pragmatic guidance, financial ranges and lessons learned by one of the solar landfill sector’s longest-standing development organizations, touching upon these critical elements:

- Due diligence
- System design
- Equipment selection
- Construction
- Commissioning
- Operation

Rich Cogen, Partner, Nixon Peabody LLP
Paul Curran, Managing Director, BQ Energy

5:15 pm

Adjourn for Day

AGENDA

TUESDAY, AUGUST 22, 2018

7:30 – 8:00 am

Continental Breakfast

8:00 – 9:00 am

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.

- Key features
- Key players
- Business interests and focus of key principals
 - o Sponsor
 - o Lender
 - o Cash equity
 - o Tax equity
- Financial considerations based on power off-taker
 - o Power Purchase Agreements (PPA)
 - o Self-supply vs export to grid

Jim Duffy, Partner, Nixon Peabody LLP

Tony Grappone, Partner, Novogradac & Company LLC

Brian Morrissey, Managing Director, Citizens Solar

9:00 – 9:20 am



Largest Non-Federal Solar Landfill Project in America

Newport Solar is a 32 MW brownfield redevelopment on remediated land owned by the US Navy. The project is designed to re-deploy contaminated land and increase energy resiliency of this critical Navy installation.

Paul Curran, Managing Director, BQ Energy

9:20 – 9:40 am



PV on Landfill Construction with Tight Regulatory Timelines

This case study will review the construction of a 515 Kw Dc system at the Ceader St landfill in Cohasset MA. This entire system was designed, procured and constructed in just 6 weeks due to SREC II deadlines. Contractor had to take an innovative design and construction schedule to ensure completion for this SREC II-eligible program.

Eric McLean, Principal, ACE Solar

9:40 – 10:00 am



Landfill and Superfund site

When this closed landfill as well as Superfund site located in the Billerica, MA was completed in 2014, it was one of the largest landfill solar projects on a Superfund site in the country. The 5.9 MW (DC) project has been recognized by the Mass. Dept of Environmental Protection for its innovation in turning a Superfund site into a solar project and is an example of how even the most environmentally challenged land can be re-purposed for renewable energy development.

Marnin Lebovits, Managing Director, Lake Street Development Partners

10:00 – 10:20 am

Morning Break

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AGENDA

TUESDAY, AUGUST 22, 2018 (CONTINUED)

10:20 – 11:45 am

Solar Technology and Policy Forecast as it Affects Landfill/Brownfield Development **Panel Discussion**

Content matter experts will engage in a roundtable discussion that project developers, utilities, investors, integrators, EPC providers and others will find instructive and insightful re: how emerging solar-related technology and policy measures will influence landfill and/or brownfield project development, such as:

- Declining costs
- Modules
- Trump's tariff
- Batteries/storage combo (+ IRS letter)
- Racking/tracking

11:45 am

Symposium Adjourns



"Very informative, tailored conference."

Director of Finance & Operations, Renova Partners



"Conference is a 'must-attend' for stakeholders in this niche market space."

Assistant Vice President – Renewable Director, Arcadis U.S. Inc.



"EUCI provides the highest quality events – from the facilities to the quality of the content. If you're looking for the 'state of the state' of the industry from the people who are driving things. Look no further than EUCI."

Vice President, Watershed Geosystems



"Every EUCI meeting and/or conference I have attended provides relevant and tangible resources."

Deputy Chief of Staff, City of Atlanta

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POST-CONFERENCE WORKSHOP

Financing Strategies for Solar Projects on Landfills and Brownfields

TUESDAY, AUGUST 22, 2018

OVERVIEW

As with development of any renewable energy project, one of the biggest challenges in executing a solar project on landfills and brownfields is financing. Financing options differ according to their building site. Just as the interconnection, construction and permitting process differs from traditional solar projects, financial institutions often seek a different approach from municipalities, private owners, utilities and developers.

This workshop will assess the variety of financing options available and determine effective strategies for raising funds for these projects. It will analyze the fine details of financing these solar projects and highlight the contrast of landfill and brownfield projects to projects developed on green fields. Case studies of successfully financed projects of varying structures will be compared and discussed. Finally, this workshop will break down the detailed financial models associated with each of the case studies.

LEARNING OUTCOMES

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

- Discuss different financing structures for solar landfill/brownfield projects
- Determine the financing structure most effective for a particular type of project
- Apply financing strategies to the planning of a solar landfill/brownfield project
- Differentiate the process of financing of a project on a landfill or brownfield from a project in a traditional setting



“The conference was well organized and informative and brought together a varied and knowledgeable group of presenters and attendees.”

Associate, Phillips Lytle



“The seminar provided deep market insight and networking opportunities with developers, EPCs and government stakeholders.”

Business Manager, Enerparc

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WORKSHOP AGENDA

1:00 – 2:00 pm

I. Explaining Financing Terms and Document Provisions for Landfill and Brownfield Programs

This session will take a detailed look at the terms and provisions that differentiate the financing process of a solar project built on a landfill or brownfield from a standard solar farm. It will explain the nuances related to the following topics:

- Power purchase agreements (PPAs)
- Ground leases
- Project pro forma
- Debt / Equity
 - o Term sheet
 - o Definitive documentation
- Project financing vs back leverage

2:00 – 3:00 pm

II. The Financial Driver: Tax Incentives

- Basic financial structure
 - o Stages
 - o Operating revenues and expenses
 - o Federal Investment tax credit
 - Criteria
 - Construction and in-service timing
 - Vesting and recapture provisions
- Monetizing the ITC
 - o Entity selection
 - o Revenue Procedure 2007-65
 - o Interests
 - Owner
 - Investor
 - o Exceptions
 - IRS Chief Counsel's Memorandum 201524024
- Validity of a transaction's allocations of tax credits
 - o Historic Boardwalk Hall decision
 - o Revenue Procedure 2014-12
- Depreciation rules
- Cash flow
- Return to tax equity investor
- Other ITC-specific provisions relating to...
 - o Depreciation
 - o Additional transaction structures
 - o Alternative minimum tax (AMT)

3:00 – 3:15 pm

Afternoon Break

3:15 – 4:00 pm

III. Transaction Structures

- "Flip" Model
- Traditional sale-leaseback structure used for equipment leasing
- Lease pass-through (or inverted lease) structure
- 100% facility ownership
- Which structure is best?

4:00 – 5:00 pm

IV. Analyzing Detailed Financial Models

The final session of the workshop will expand upon the financial models discussed and provide a detailed explanation of the factors determining each financial model. It will allow attendees to compare the drivers for financing the case studies to the needs of their prospective projects.

5:00 pm

Workshop Adjourns

WORKSHOP INSTRUCTORS



Bethany Bartlett

Partner, Sherin and Lodgen LLP

Bethany A. Bartlett is chair of the Solar Energy Practice Group at Sherin and Lodgen LLP and a partner in the firm's Real Estate Dept. Her practice focuses on transactional real estate and includes project finance, the acquisition, disposition, leasing and financing of both developed and to-be-developed properties, including land use, zoning, title and permitting matters, as well as conservation and deed restrictions for the preservation of open space. Ms. Bartlett has a specialty concentration in representing lenders in complex financing transactions, particularly portfolio debt financing for commercial solar development, which includes Investment Tax Credit investors and various state incentive programs. She also represents solar developers, land owners and off-takers in negotiating ground and rooftop leases and power purchase agreements. Prior to joining the firm, she was an associate at Deutsch Williams Brooks DeRensis & Holland P.C. in Boston, where she gained substantial experience representing various municipalities concentrating on real estate matters, including project permitting, title disputes, conservation and land use restrictions and ensuring statutory compliance for real estate acquisitions and dispositions.



James Duffy

Partner, Nixon Peabody LLP

James F. Duffy is a partner in the Boston office of the national law firm, Nixon Peabody LLP. He serves as the Chair of the firm's Renewable Energy Tax Credit Team and concentrates his practice on structuring and closing transactions involving federal income tax credits and other significant federal and state income tax incentives, including Production Tax Credits for wind and other forms of renewable energy, Energy Investment Tax Credits for solar and certain other forms of renewable energy, as well as Treasury cash grants in lieu of Energy Investment Tax Credits. His practice also covers New Markets Tax Credits, Historic Rehabilitation Tax Credits, and Low-Income Housing Tax Credits. He has represented numerous developers, investors, syndicators and lenders in structuring and closing renewable energy and other transactions. He has served as the chair of the Equity Finance Committee of the Real Estate Section of the Boston Bar Association and as a member of the Real Estate Steering Committee of the Boston Bar Association and is admitted to practice in Massachusetts. He is a graduate of the University of Rhode Island, B.A., summa cum laude (1978), and The Harvard Law School, J.D. (1981).



Tony Grappone

Partner, Novogradac & Company LLP

Tony Grappone is a partner in the Boston, Mass. office of Novogradac & Company LLP, where he specializes in providing accounting, tax and consulting services to developers, syndicators and investors of projects that qualify for federal and state tax credits such as the low-income housing tax credit, historic rehabilitation tax credit, new markets tax credit and renewable energy tax credits. Mr. Grappone is a frequent speaker at various renewable energy and other tax credit industry events and has contributed several articles on renewable energy to the Novogradac Journal of Tax Credits and serves as a technical editor of the firm's Renewable Energy Tax Credit Handbook. Prior to joining Novogradac & Company LLP, Mr. Grappone worked at Ernst & Young LLP specializing in partnership taxation within the affordable housing industry and servicing many of the nation's largest tax credit syndicators and investors. In addition, he served several leading venture capital firms as well as commercial real estate developers and investors. Mr. Grappone serves as a member on the Northeastern University Undergraduate Accounting Group Advisory Board and is on the board of directors of the Women's Institute for Housing and Economic Development. He received a bachelor's degree from Northeastern University in Boston, Mass. and is licensed in Massachusetts and New Hampshire as a certified public accountant.

WORKSHOP INSTRUCTORS



Brian Morrissey
Managing Director, Citizens Solar

Brian Morrissey is the Managing Director at Citizens Energy Corporation. Prior to joining Citizens Energy, he was an Associate at Cambridge Energy Research Associates (CERA), a leading energy consulting and research firm to international energy companies, governments, financial institutions, and technology providers led by Daniel Yergin. At CERA, Mr. Morrissey was on the Global Power team and focused on renewable policy and finance. Prior to his work at CERA, he worked in GE Energy's central marketing and strategy group, and was an officer in the U.S. Army. He received a BS in Mechanical Engineering from the U.S. Military Academy at West Point and an MBA from the Massachusetts Institute of Technology (MIT).

SPONSORSHIP OPPORTUNITIES

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Please contact Stephen Coury at scoury@euci.com or 720-988-1228 for more information.

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INSTRUCTIONAL METHODS

Case studies, PowerPoint presentations, and panel discussions will be used in this program.

REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must sign in/out each day and be in attendance for a minimum of four hours to be eligible for any 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, EUCI 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, EUCI 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.

REGISTER 3, SEND THE 4TH FREE

Any organization wishing to send multiple attendees to this event may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.

EVENT LOCATION

A room block has been reserved at the Hyatt at The Bellevue, 200 S Broad St, Philadelphia, PA 19102, for the nights of August 20-21, 2018. Room rates are \$199 plus applicable tax. To reserve your room, please call **1-215-893-1234**. The cutoff date to receive the group rate is July 20, 2018 but as there are a limited number of rooms available at this rate, the room block may close sooner. ***Please make your reservations early.***

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REGISTRATION INFORMATION

EVENT LOCATION

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PLEASE REGISTER

SOLAR DEVELOPMENT ON LANDFILLS AND BROWNFIELDS CONFERENCE AND POST-CONFERENCE WORKSHOP

AUGUST 21-22, 2018: US \$1795
Early bird on or before August 3, 2018: US \$1595

SOLAR DEVELOPMENT ON LANDFILLS AND BROWNFIELDS CONFERENCE ONLY

AUGUST 21-22, 2018: US \$1395
Early bird on or before August 3, 2018: US \$1195

POST CONFERENCE WORKSHOP ONLY

TUESDAY, AUGUST 22, 2018: US \$595
Early bird on or before August 3, 2018: US \$495

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OR Enclosed is a check for \$ _____ to cover _____ registrations.

Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before July 20, 2018 in order to be refunded and will be subject to a US \$195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of course 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 303-770-8800. EUCI reserves the right to alter this program without prior notice.

