A Portfolio Approach to Buying Clean Tech: Leading Best Practices Across a Global Footprint

April 20, 2017
Today’s Agenda

1. Announcements

2. Introduction

3. Presentations

4. Q&A Time

Helena Tavares Kennedy
Program Consultant
SPLC
This session is being recorded.

The recording and slides will be posted in SPLC’s online member community and on this webpage:

www.sustainablepurchasing.org/past-webinars

To see future webinars for SPLC members and public:

https://www.sustainablepurchasing.org/calendar
SPLC’s Summit is one of the most dynamic and informative events that I attend. Great networking.

Debbie Jaslow-Shatz, Sourcing, Bloomberg

This was one of the best sustainability-related gatherings I’ve experienced in my 20 years working on sustainability.

Stephan Sylvan, Senior Policy Advisor, US EPA
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Cuchulain Kelly
Communications Coordinator
Opportunity

Institutional purchasers send a powerful economic signal that focuses the forces of market innovation.

$10 Trillion

Challenge

Purchasers lack shared resources to build a robust strategy and avoid duplication of effort.

Suppliers face multiple "different but similar" market signals as they seek to differentiate their offerings.

Solution

A shared program provides a framework for leadership action and aligns market innovation for a positive future.
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Today’s Agenda

1. Announcements
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2. Introduction
   - James Lewis
     Sr. Director, Strategic Renewables, International Markets
     Renewable Choice-Schneider Electric
     jlewis@renewablechoice.com

3. Presentations
   - Aaron Binkley
     Director of Sustainability
     Digital Realty
     abinkley@digitalrealty.com

4. Q&A Time
A Portfolio Approach to Clean Tech

Leading Best Practices Across a Global Footprint
Our mission is **to make it ever easier for all organizations to embrace clean, renewable energy.**

- Leading independent provider of renewable energy advisory services to global 500 organizations.
  - Renewable energy focus, > 2,300 MW of consulted PPAs (onsite and offsite) globally
  - No conflict-of-interest with developers


- SPLC member since 2015 and 2016 Outstanding Case Study Award recipient.
AUDIENCE POLL:
WHERE ARE YOU ON YOUR RENEWABLE ENERGY JOURNEY?
AGENDA

- Market Snapshot: Renewable Energy Opportunity and Drivers for C&I Buyers
- Using Renewable Energy Across Your Portfolio
- Case Study: Digital Realty
### THREE DRIVERS FOR C&I CLEAN TECH BUYERS

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Economic</th>
<th>Fixed Power Price</th>
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<tbody>
<tr>
<td>• Reduce environmental impact &amp; climate risk</td>
<td>• Achieve environmental goals while saving money</td>
<td>• Hedge existing short position</td>
</tr>
<tr>
<td>• Demonstrate reputation and brand leadership</td>
<td>• Take advantage of tax incentives and other subsidies</td>
<td>• Secure fixed price at a discount rather than a premium</td>
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<tr>
<td>• Manage stakeholder &amp; NGO expectations</td>
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<td>• Mitigate risk of future electricity cost increases</td>
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In 2015, for the first time in the history of the wind market, US corporate demand outpaced utility demand. Corporate wind PPAs represented 19% of total PPAs in 2014 and 56% of total PPAs in 2015.

**Corporate Contracted Wind Capacity (MW):**

- 2014: 514 MW
- 2015: 2,508 MW

388% increase

Source: Enerdata, REN21, IHS, EIA, BNEF, LBL
AGENDA

• Market Snapshot: Renewable Energy Opportunity and Drivers for C&I Buyers

• Using Renewable Energy Across Your Portfolio

• Case Study: Digital Realty
### 3 Ways C&I Buyers Utilize Renewable Energy

#### Environmental Attributes
- The way clean energy use is tracked
- RECs, GOs, I-RECs, TIGRs, carbon offsets, etc.
- Needed to make environmental claims
- Unbundled vs. bundled

#### Onsite/Distributed Generation
- Direct reduction of energy on meters
- High visual appearance for renewable energy
- Hard to achieve scale
- Usually fixed to real estate portfolio
- Virtual Net Metering possible in certain markets

#### Offsite Generation
- Large scale purchases of utility-scale projects
- PPA structures (Financial/Virtual, Direct)
- Needed for most companies to achieve significant goals with “Additionality”
- PPA is usually electricity plus RECs

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Confidential & Proprietary
SMART RAMP TO RENEWABLE ENERGY GOAL

Offsite PPAs or RECs are necessary to hit GHG emissions reduction goal.

Portfolio Approach:

- Maximize onsite generation
- Pursue offsite power purchase agreements (PPAs)
- Purchase energy attribute certificates (EACs, such as RECs) for the balance
A PPA is a long-term contract for fixed-price wind/solar energy and Renewable Energy Credits.

Developers need long-term offtake agreements from creditworthy counterparties to secure financing.

PPA Prices can be below local market electricity prices:
- Competition among developers
- Government incentives (for example, PTC/ITC in the U.S.)
- PPA price tied to cost of finance, construction and maintenance - not market or fuel
ENERGY VOLATILITY

Energy Volatility ERCOT North

- ERCOT N Price Weighted
- Average Historical: $28.41
- Traditional Hedge: $32
- PPA Price: $20.25
ENERGY ATTRIBUTE CERTIFICATES (EACS)
WHY EACS: FOLLOW THE ELECTRONS

The single and only instrument that enables our clients to make the claims they seek to make.

- Direct transmission of renewables via the grid is difficult
- EACs are how renewable energy is purchased and tracked
- EACs convey the environmental attributes
- As the EAC purchaser, you make the renewable energy claim
- EACs guarantee the production of renewable energy
AUDIENCE POLL:
WHICH OF THESE ACTIVE GLOBAL MARKETS ARE OF THE GREATEST INTEREST TO YOUR COMPANY?
GLOBAL MARKET OPPORTUNITY

- Energy Attribute Certificates (EACs)
- Both EACs + Power Purchase Agreements (PPAs)
MARKETS TO WATCH*: EXAMPLE ROAD MAP

<table>
<thead>
<tr>
<th>Priority Countries</th>
<th>“Traffic Light”</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td><img src="Green" alt="Traffic Light" /></td>
<td>Offsite, Onsite, EACs</td>
</tr>
<tr>
<td>Mexico</td>
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<td>Brazil</td>
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<td>Argentina</td>
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<td>Offsite</td>
</tr>
<tr>
<td>Russia</td>
<td><img src="Red" alt="Traffic Light" /></td>
<td>Continue to evaluate market</td>
</tr>
<tr>
<td>Spain</td>
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*Not an exhaustive list
AGENDA

• Market Snapshot: Renewable Energy Opportunity and Drivers for C&I Buyers

• Using Renewable Energy Across Your Portfolio

• Case Study: Digital Realty
Leading Data Center Provider
Digital Realty at a Glance (NYSE: DLR)

As of December 31, 2019, includes investments in fourteen properties held in unconsolidated joint ventures.

1. As of December 31, 2019, includes 2.6 million square feet of active development and 0.3 million square feet held for future development.

2. As of February 21, 2017, based on the closing stock price of $177.85, includes Digital Realty’s pro rata share of unconsolidated joint venture debt.


4. These credit ratings may not reflect the potential impact of risks relating to the structure or trading of the Company’s securities and are provided solely for informational purposes. Credit ratings are not recommendations to buy, sell or hold any security, and may be revised or withdrawn at any time by the issuing organization in its sole discretion. The Company does not undertake any obligation to maintain the ratings or to advise of any change in ratings. Each agency’s rating should be evaluated independently of any other agency’s rating. An explanation of the significance of the ratings may be obtained from each of the rating agencies.

DIGITAL REALTY
## Sustainability Overview

### Management & organizational commitment to sustainability
- Integrated cross-functional teams
- Senior executive with sustainability management responsibility
- Full time REIT-sustainability expertise in-house

### Track record of sustainable project investment
- Successfully allocated $493 million of proceeds from data center industry’s first green bond
- Signed long term contract to purchase 100% renewable energy for US colocation business

### Industry-leading clean energy solutions
- 600 gigawatt-hours of renewable power sourced globally
- #6 in EPA Green Power Partnership Tech and Telecom sector for renewable energy

### Award-winning data center designs with third party certification
- 50+ green building certifications globally
- 5 new certifications in 2016 including Green Mark Platinum rating for 3 Loyang Way, Singapore

### Thought leadership and innovation in energy efficiency
- US DoE Better Building’s Challenge for data centers participant; 20% energy savings by 2024
- The Green Grid board-level and technical committee leaders
Why Focus on Renewable Energy?

- Customers were asking for the ability to make “carbon-free computing” claims for the data center space they were leasing.
- A growing portfolio of global properties presented challenges for acquiring energy from renewable sources at a scale commensurate with the energy use of our data center footprint.
- Realization that supply-side solutions weren’t advancing at the pace needed by customers.
- Rapidly falling prices in wind and solar provide enticement to explore renewables as a means to save money on energy costs.
- Additionality considerations were top-of-mind for many of our customers.
A Portfolio Approach

- Energy Efficiency and Green Buildings
- Renewable Energy Certificates
- Physical Power Delivery
- Behind-the-Meter Renewable Energy
- Virtual PPAs
- Global Clean Energy Solutions
Energy Efficiency and Green Buildings

- US Department of Energy Better Building’s Challenge for Data Centers participant
  - 20% energy savings goal by 2024
- Growing portfolio of more than 50 green building certifications globally
- Commitment to Energy Star benchmarking
- ISO 14001 and 50001
Clean Start Program

- Unique position: Digital Realty is both a supplier and purchaser of clean energy
- Developed Clean Start℠ program in 2015
  - Program combines green power in the form of unbundled renewable energy certificates (RECs) with customer leases in our hosted data centers
  - RECs were retired on behalf of customers, allowing them to claim the environmental attributes for reporting purposes
  - RECs are uniquely sourced from the U.S. and globally.
  - First year of the program is provided at no additional cost
- Procured and retired 100,000 MWh of RECs in year one; 320,000 MWh in year two
Physical Power Delivery

- Deregulated markets
  - Blocks of renewable energy are a “premium” product
  - Visibility into source of renewable energy can be limited (e.g., brown power + RECs)
  - Short term contracts
  - Power sourcing for European property portfolio

- Regulated markets
  - Green tariffs may have varying quality
  - Costs may not always be competitive
  - Carbon-free vs renewable power supply
• Opportunities exist but more resources are needed to execute projects vs. other pathways
• Scalability can be a limiting factor for data centers
• Many variations exist from local market to local market
  – On-site “behind-the-meter” projects
  – Virtual net metering
  – Community solar
  – Community choice aggregation
• Ongoing challenge and opportunity
Virtual PPAs

• Wanted a means to provide similar Clean Start benefits to customers with enhanced additionality
• Executed a virtual power purchase agreement (PPA) with E.On Climate & Renewables in 2016
  – Nameplate capacity of 88 MW over a 12 year period.
  – Texas project will generate approx. 400,000 MWh of clean energy annually and reduce 275,000 metric tons of CO2e.
• Project addresses 100% of our retail colocation business footprint, giving these customers the ability to make carbon-free computing claims.
• Attained 19th place on the U.S. EPA Green Power Partnership National Top 100 in our first year in the program.
Global Adoption

- Currently pursuing other projects globally that will move us closer to our 100% renewable energy goals
- This strategy will consider the range of renewable energy and clean technology solutions available in our global regions
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