Accelerated Procurement of Renewables in the US Business Scene

REVision 2018

Lily Donge | March 9, 2018 | Tokyo, Japan
Publicly announced contracted capacity of corporate Power Purchase Agreements, Green Power Purchases, Green Tariffs, and Outright Project Ownership in the US and Mexico, 2013 – 2018 (YTD). Excludes on-site generation (e.g., rooftop solar PV) and deals with operating plants. Last updated: February 13, 2018.

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Rocky Mountain Institute (RMI)

- 501(c)(3) Non-Profit
- Energy market transitions since 1982
- Focused on the cost-effective shift to efficiency and renewables
RMI in the News – Sampling from Past 12 months

Big business sees the promise of clean energy and contracts with companies that buy green power and are pioneering the process of Corporate Renewables Procurement.
RMI in the News – Sampling from Past 12 months

**The Washington Post**
Energy and Environment
Severe power failures in Puerto Rico and across the Caribbean spur new push for renewable energy

**The Economist**
We’ve got the power
Big business sees the promise of clean energy

**The Wall Street Journal**
Companies That Buy Green Power
Complex regulation. But barriers to smaller businesses are starting to come down.
RMI in the News – *Sampling from Past 12 months*

**The Washington Post**
*Energy and Environment*
Severe power failures in Puerto Rico and across the Caribbean spur new push for renewable energy

**Forbes**
*Digital Money / #PowerUp*
How Blockchain Will Take Fossil Energy by Storm

**The Economist**
*Topics*
We've got the power
Big business sees the promise of clean energy

**The Wall Street Journal**
*Business | Energy | Journal Reports: Energy*
First Companies That Buy Green Power
Complex regulation. But barriers to smaller businesses are starting to come down.
Rocky Mountain Institute

RMI in the News – Sampling from Past 12 months

The Washington Post
Severe power failures in Puerto Rico and across the Caribbean spur new push for renewable energy

Forbes
How Blockchain Will Take Fossil Energy by Storm

The Economist
Corporate Renewables Procurement

The Wall Street Journal

The New York Times
A Better, Safer Battery Could Power Your Home
Rocky Mountain Institute

**RMI in the News – Sampling from Past Year**

*The Washington Post*  
**Microgrids and Resiliency**  
Severe power failures in Puerto Rico and across the Caribbean spur new push for renewable energy

*Forbes*  
**Transactional Systems**  
How Blockchain Will Take Fossil Energy by Storm

*The Economist*  
**Corporate Renewables Procurement**  
Big business sees the promise of clean energy

*The Wall Street Journal*  
**Disruptive Energy Solutions**  
Fast Companies That Buy Green Power

*The New York Times*  
**Advanced Transportation**  
Exclusive: India's Green Car Plan Prioritizes Electric Vehicles Over Hybrids
Corporate Renewable Energy Procurement: Faster, Easier, Better

213
BRC MEMBERS

8041
MW OF RENEWABLE ENERGY DEALS COMPLETED BY BRC MEMBERS

94
% OF TOTAL NON-UTILITY RENEWABLE ENERGY DEALS INVOLVED A BRC COMPANY
A movement towards RE100
Collaboration with first movers

REBA INITIATIVES

Business Renewables Center
Rocky Mountain Institute is developing the ecosystem of solutions providers, scaling renewable energy developments, and helping companies execute their renewable energy strategies through its Business Renewables Center.

Electricity Initiative
WRI's Electricity Initiative convenes an action-oriented group of member companies with utilities to expand clean energy in China, India, the United States and across Southeast Asia and Latin America.

Future of Internet Power
BSR’s Future of Internet Power specializes in increasing companies' use of renewable energy to power data centers through collaboration with power providers, utilities, and policymakers.

Renewable Energy Buyers' Principles
The Renewable Energy Buyers' Principles aggregate corporate demand, and articulate the buyers' needs to the market. Implementation of the Buyers' Principles is focused on creating options in regulated electricity markets.
Why buy renewable energy?

Unsubsidized Levelized Cost of Electricity

Sources:

LCOEs attainable with existing federal subsidies.
>10x growth in BRC membership in ~3 years

- Corporation ("Buyer")
- Service Provider
- Developer

<table>
<thead>
<tr>
<th>Date</th>
<th>Corporation</th>
<th>Service Provider</th>
<th>Developer</th>
</tr>
</thead>
<tbody>
<tr>
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<td>16</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>5/2015</td>
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<td>15</td>
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<td>11/2015</td>
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<td>5/2016</td>
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<tr>
<td>1/2018</td>
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<td>56</td>
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</table>

May 11, 2015
Nov 2014
Nov 16, 2016
May 19, 2016
Nov 17, 2015
June 20, 2017
11/2014 (Launch)
5/2015
11/2015
5/2016
11/2016
1/2018
Why buy off-site renewable energy?

Sampling of Industrial and Manufacturing BRC Members Companies

FOOD, BEVERAGE, & PACKAGING
- New Belgium Brewing
- Anheuser-Busch
- MARS Incorporated
- Berry
- Organic Valley

CHEMICAL & PHARMACEUTICAL
- Saint-Gobain
- AkzoNobel
- Novozymes
- Novo Nordisk
- Allergan
- Merck
- BD
- DSM

AUTOMOTIVE & AEROSPACE
- Raytheon
- Lockheed Martin
- GM
- Cummins
- Northrop Grumman
- Honda

ELECTRICAL & DIVERSIFIED
- Siemens
- Ingersoll Rand
- The Okonite Company

BUILDING MATERIALS & FURNITURE
- Steelcase
- Owens Corning
- Gunlocke
- NSG Group

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Why buy off-site renewable energy?

On-site Solar Installations

<table>
<thead>
<tr>
<th>Company</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target</td>
<td>147</td>
</tr>
<tr>
<td>Walmart</td>
<td>145</td>
</tr>
<tr>
<td>Prologis</td>
<td>108</td>
</tr>
<tr>
<td>Apple</td>
<td>94</td>
</tr>
<tr>
<td>Costco</td>
<td>51</td>
</tr>
<tr>
<td>Kohl's</td>
<td>50</td>
</tr>
<tr>
<td>IKEA</td>
<td>44</td>
</tr>
<tr>
<td>Macy's</td>
<td>39</td>
</tr>
<tr>
<td>General Growth Properties</td>
<td>30</td>
</tr>
<tr>
<td>Bed Bath and Beyond</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: SEIA
Why buy off-site renewable energy?

MARS

“Mars’ long term goal is to eliminate all GHG emissions from our operations and reduce GHG value chain emissions by 2/3.”
Why buy off-site renewable energy?

MARS

“Mars’ long term goal is to eliminate all GHG emissions from our operations and reduce GHG value chain emissions by 2/3.”

1 off-site project
100% US Operations
PPAs are limited to deregulated markets

Source: FERC
What issues do buyers consider when evaluating projects?

With a partner, come up with

- a potential priority, and
- a potential risk

that companies might consider when selecting a project.
What issues do buyers consider when evaluating projects?

Wider social good from renewables development
Meeting sustainability goals
Energy spend hedge value
Additionality/marketing claims
Locating generation close to load
Clear exit options and costs
Volatile of downside risk
NPV of worst case scenario
Triggering mark to market accounting or capitalization
Carbon reduction

Buyer priorities and concerns
Value, rather than price, determines the economic returns

$/MWh

Cone of uncertainty

Negative Value  Positive Value  PPA Price  Market Price
Value, rather than price, determines the economic returns.
An important process

BUYERS' ROADMAP

DETERMINE
electricity load & company goals

UNDERSTAND
the different options

BUILD
internal support for a transaction

BUILD
a team (internal and/or external)

IDENTIFY
your risk tolerances

DEVELOP
market approach

STRUCTURE
& refine options

OBTAIN
C-suite approval

RUN
RFP
An important process
# Third parties that support transactions

<table>
<thead>
<tr>
<th>Consultants</th>
<th>Brokers</th>
<th>Lawyers</th>
</tr>
</thead>
</table>

## Activities
- Advise on strategy and implementation
- Run RFP process
- Can originate and structure transactions
- Originate and structure transactions
- Run RFP process
- Can support internal stakeholder engagement
- Provide legal advice
- Experienced legal advice can be vital to a transaction

## Fees
- Hourly or success-fee based
- Typically success-fee based
- Often $/MW or $/MWh basis
- Hourly, fixed fee or success-fee based

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APPENDIX
A changing clean energy economy driven by corporations

Lily Donge | March 20, 2018 | Tokyo, Japan
Procurement Options

- Unbundled renewable energy certificates (RECs)
- On-site solutions
- Virtual PPAs (aka contracts for differences)
- Direct investment
1. The corporation buys electricity from the grid as usual.
1. The corporation buys electricity from the grid as usual.

2. The corporate buyer signs a virtual PPA with a project developer for a fixed price. This gets more wind and solar built, and the corporation banks the RECs.
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Companies can purchase renewable energy projects directly

**Transaction Details**
- 165 MW Texas wind farm
- Together with an existing wind farm in Illinois, will generate nearly 1,000 GWh per year
- Outright project ownership in both Texas and Illinois
- Texas deal announced **November 2014**, expected to be operational in late 2015

**Context**
- IKEA’s 2020 goal: produce as much renewable energy as it consumes globally
- Committed to have invested $1.9 billion in wind and solar by end of 2015
- Also has solar PV on 90% of its U.S. rooftops (total capacity 38 MW)
- Owns wind farms in eight other countries
Alternatively, companies can invest capital in exchange for tax credits

Potential tax benefits:

Production Tax Credit (PTC):
- $23 of tax credits per MWh generated over 10 years
- Typically used by wind farms

Investment Tax Credit (ITC):
- Credits worth 30% of eligible capital costs when plant opens
- Typically used by solar farms

Modified Accelerated Cost Recovery System (MACRS):
- Used by both wind and solar farms
Tax equity can be profitable, but requires significant investment in capital and time

**Example transaction: Balko Wind Farm**

- 300 MW wind farm in Oklahoma
- Tax equity investors included Google, GE Capital, BofA Merrill Lynch, and Citi.
- Google’s investment: $76 million
- Developer: Apex Clean Energy

**Some Considerations**

- Tax equity returns can be as high as 10% or more
- Tax equity is usually 45-60% of the capital stack, equating to tens of millions of dollars
- Tax equity investing is complex, and requires the investor to undergo significant due diligence of the project
- Tax credits can best be utilized by companies with reliable annual profits

Source: Forbes and Apex Clean Energy.
REBA is led by four non-profit organizations that have brought together their deep expertise in transforming energy markets.

REBA coordinates with The Climate Group's RE100 campaign, delivered in partnership with CDP to support companies committed to 100% renewable electricity.

Our collective goal is to help corporations purchase 60GW of additional renewable energy in the US by 2025.