BUSINESS RENEWABLES CENTER ("BRC")
SPLC SUMMIT 2015, SEATTLE
MAY 28, 2015
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ROCKY MOUNTAIN INSTITUTE
THE U.S. CORPORATE OFF-SITE RENEWABLES MARKET IS GROWING

CAPACITY OF CORPORATE POWER PURCHASE AGREEMENTS, GREEN POWER PURCHASES, AND OUTRIGHT PROJECT OWNERSHIP IN THE U.S., 2008-2015 YTD

Percent of utility-scale solar and wind PPAs signed in the U.S. by corporate buyers

Source: BNEF, RMI analysis.
IKEA BUYS 165 MW OF TEXAS WIND

Transaction Details

- 165 MW Texas wind farm
- Together with a 98 MW wind farm in Illinois, will generate nearly 1,000 GWh (4x U.S. needs)
- **Outright project ownership** in both Texas and Illinois
- Project developer: APEX Clean Energy
- Texas deal announced **November 18, 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

Note: IKEA’s U.S. consumption ~230 GWh. Illinois wind farm’s production ~380 GWh. Texas wind farm’s production ~640 GWh.
AMAZON WEB SERVICES BUYS 150 MW OF INDIANA WIND

**Transaction Details**
- 150 MW project, with expected 500 GWh annual production
- 13-year PPA signed with Pattern Energy
- Received accolades from Greenpeace – “good first step”
- Project located in Indiana (MISO)
- Announced January 20, 2015

**Context**
- Long-term commitment to achieve 100% renewable energy announced in November, 2014
- Short-term commitment to hit 40% by 2016.
- Amazon had been under pressure from environmental activists to demonstrate progress in renewable energy sourcing.

APPLE BUYS 130 MW OF CALIFORNIA SOLAR

Transaction Details
- 130 MW portion of 280 MW California Flats Solar Project
- 25 year PPA with First Solar
- $848 million nominal value
- Announced February 10, 2015, expected to be operational by end of 2016
- Was publicly announced by Tim Cook (CEO)

Context
- Deal will supply enough electricity for all of Apple’s California stores, offices, headquarters, and a data center
- All of Apple’s data centers are now powered by renewables
- Two 20 MW plants in North Carolina already are supplying power; also signed PPAs with developers for a third 20 MW plant in North Carolina and a 20 MW plant in Nevada

GOOGLE BUYS 43 MW OF CALIFORNIA WIND

Transaction Details
- 43 MW portion of Golden Hills (Altamont Pass) wind farm (50% allocation)
- 20 year PPA with NextEra Energy Resources
- Repowering of 770 wind turbines from 1980s with 48 new, 2015-technology turbines
- Announced February 11, 2015, expected to operate by early 2016

Context
- Google adopted carbon neutrality commitment in 2007
- Google uses 35% renewable energy (24% from direct purchase and 11% already on grid) as of 2013; carbon offsets account for remainder
- Google has now signed six PPAs for 952 MW of utility-scale wind electricity in total

Sources:
DOW CHEMICAL BUYS 200 MW OF TEXAS WIND

Transaction Details

- 200 MW project (all allocated to Dow) with Bordas Wind Energy, to be completed by Q1 2016
- Single deal makes Dow the third-largest corporate purchaser of wind energy in the U.S.
- Deal was announced **March 13, 2015**
- First publicly announced deal by an **energy-intensive** chemical company.

Context

- Dow adopted a target of procuring 400 MW of clean energy by 2025
- Dow has a major manufacturing facility in Freeport, Texas (near Houston)
- Dow released “An Energy Plan for America” in 2013; two of its four pillars were accelerating renewable energy and transitioning to a sustainable energy future

WALMART BUYS 40 MW OF TEXAS WIND

Transaction Details
- **40 MW out of 95 MW** phase of Rocksprings Wind Farm
- 12 year PPA with Akuo Energy
- Other deal terms not announced
- Announced **March 18, 2015**, expected completion in Q3 2016

Context
- Walmart committed to procure 7 TWh per year of renewable energy globally by 12/31/2020
- Current renewable energy procurement is 2.2 TWh per year (32% of commitment)
- Walmart signed first utility-scale wind PPA in Mexico in 2006, first Texas PPA in 2008

WE CAN DO MUCH MORE

Less than 3% of Fortune 500 have signed off-site PPAs*

What does “much more” mean?

- 2/3 of Fortune 100 and close to 50% of Fortune 500 have sustainability or GHG targets
- 40% of their U.S. electricity consumption = ~60 GW
- However at 2014 speed it would take 40 years to get to 60 GW
- Huge potential, slow speed

* Excluding PPAs by utilities, energy companies, and financial firms
Source: DOE; RMI analysis
WE NEED A FASTER, SIMPLER, CLEANER JOURNEY

Slow Followers

Fast Followers
THE FIRST MOVERS WE TALKED TO

Case studies
- Kaiser Permanente
- Microsoft
- K&L Gates
- NextEra Energy
- GM
- Walmart
- Customer First Renewables

In-depth interviews
- Facebook
- MARS
- Cisco
- Climate Friendly

Feedback/reviews
- Customer First Renewables
- Renewable Choice Energy
- WWF
- Invenergy
- Origin Energy Resources
- BSR
- Salesforce
- World Resources Institute

NY task force
- Bloomberg
- GM
- Novelist
- Macy’s
- Yahoo!
- Sprint
- Renewable Power Direct
- Altenex
- Origin Climate
- Winston & Strawn
- Invenergy
- WSGR
- Apex Clean Energy
- Customer First Renewables
- One Energy Renewables
- Own Energy
PARTICIPANTS AT OUR MAY 11-12 WORKSHOP

Corporate Buyers
- Adobe
- Akamai
- Apple
- Autodesk
- Bloomberg
- Cisco
- Digital Realty
- EMC
- Equinix
- Facebook
- Fairmont
- Gap, Inc.
- Genentech
- GM
- HP
- Intuit
- IO
- Johnson & Johnson
- Kaiser Permanente
- Kohl’s Corp
- Lockheed Martin
- Microsoft
- Nestlé Waters North America
- Nike
- Novelis
- Oracle
- P&G
- Salesforce
- Target
- Texas Instruments
- Unilever
- Walmart
- Workday
- Yahoo!

Project Developers
- Apex Clean Energy
- Brightfield Energy
- Community Energy Inc.
- Duke Energy Renewables
- EDF Renewables
- E.ON Climate & Renewables, N.A.
- First Solar
- Iberdrola
- Infinity Wind
- Invenergy
- Juwi Solar
- NextEra Energy Resources
- NRG Energy
- OneEnergy Renewables
- OwnEnergy
- SolarCity
- SunEdison
- SunPower
- Tradewind Energy
- Altenex
- Anthesis Group
- Climate Friendly
- CustomerFirst Renewables
- Greenlight Energy
- Irbaris
- Origin Climate
- Renewable Choice Energy
- Renewable Power Direct
- Schneider Electric

Consultants/Brokers
- Altenex
- Anthesis Group
- Climate Friendly
- CustomerFirst Renewables
- Greenlight Energy
- Irbaris
- Origin Climate
- Renewable Choice Energy
- Renewable Power Direct
- Schneider Electric

Law Firms
- K&L Gates
- Wilson Sonsini Goodrich & Rosati
- Winston & Strawn

NGOs
- Advanced Energy Economy
- BC3
- BSR
- Ceres
- RE100
- RMI
- WRI
- WWF

Other Organizations
- 11th Hour Project
- BNEF
- Boston Trust
- Defense Logistics Agency
- Energy Innovation
- Ernst & Young
- NREL
- Reos Partners
- Trillium Asset Management
- US Navy
- US RE Group
Key Learnings

- First movers are open and willing to share
- Corporate buyers face similar issues
- The fastest virtual PPA signed by a corporation took only six weeks
- Knowledge sharing can be very effective
HOW DO WE ORGANIZE KNOWLEDGE SHARING?

**Main Issue**
- Balancing a multiplicity of objectives
- Accessing deals
- Understanding key terms and the available options
- Forecasting future market power prices
- Understanding deal structures and their impact on accounting the treatment
- Getting internal deal approval

**BRC Technical Products**
- Deal Structure Primer
- Economic Analysis Primer
- Accounting Primer

**BRC Organizational Products**
- Deal Dream Team Guide
- Deal Process Guide
- Internal Support Guide
WHAT COMES NEXT?

Developers Profile Portal

- **Need**: Many corporate buyers do not have precise knowledge of project developers’ capabilities, geographic reach, and track records.
- **Solution**: Develop an online portal that contains (i) a directory of developers, (ii) a weighted score based on public key performance indicators, and (iii) a list of project references.

Supply Chain Engagement

- **Need**: Many companies want to encourage their suppliers to buy renewable power but lack the necessary framework, incentive structures, and influence to do so effectively.
- **Solution**: Set up a program to source renewable power jointly – or on behalf of – suppliers.

Projects Profile Portal

- **Need**: Corporate buyers do not have direct and transparent information on (i) past transactions and (ii) projects that are available for future transactions.
- **Solution**: Create a searchable database of (i) completed transactions and (ii) projects (in operations, in development) that are available for future transactions.
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