

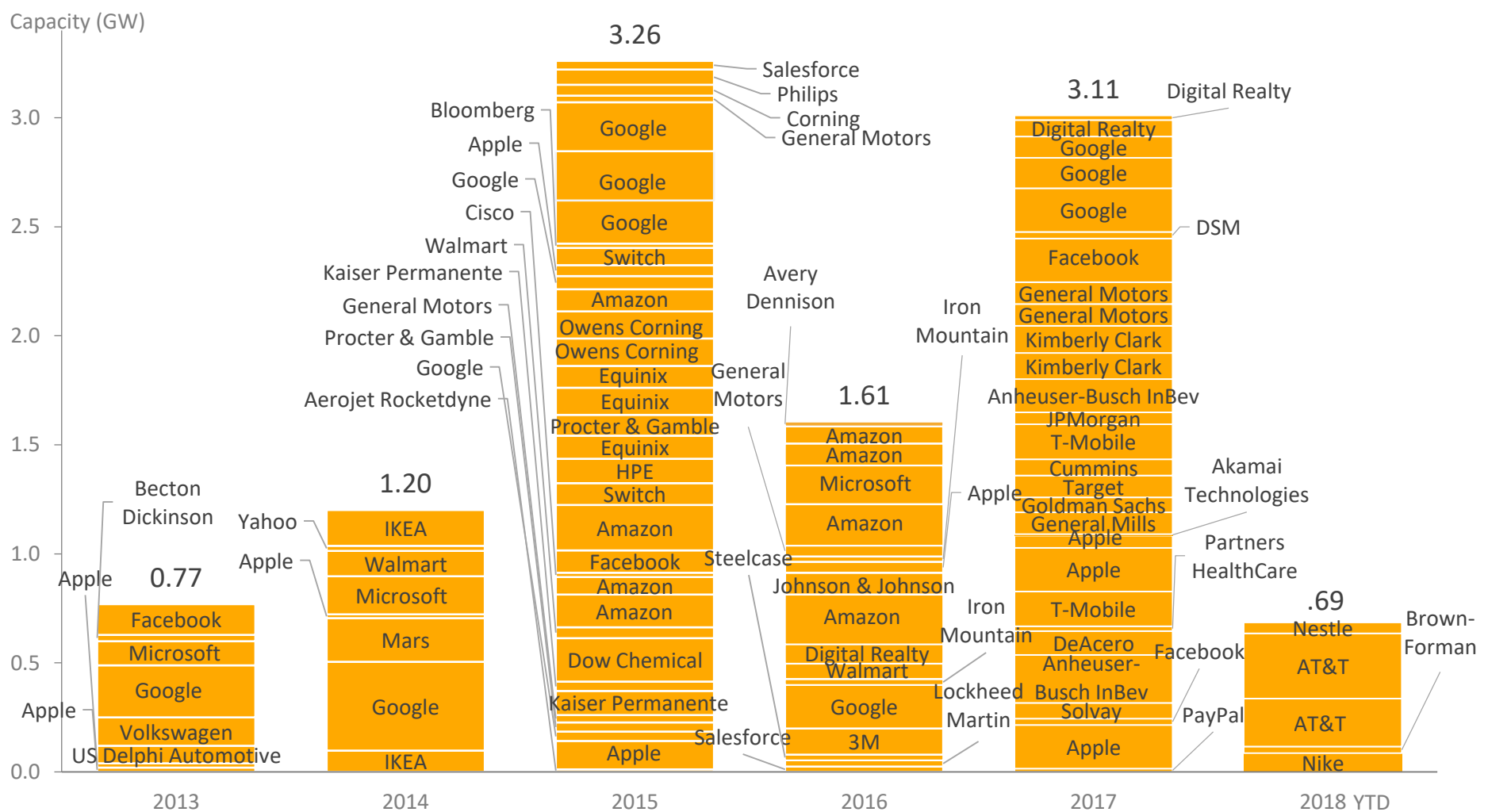
Accelerated Procurement of Renewables in the US Business Scene

REVision 2018

Lily Donge | March 9, 2018 | Tokyo, Japan

Corporate Renewable Deals

2013 – 2018 YTD



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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For more information, please visit <http://www.businessrenewables.org/> or contact BRC@RMI.org

Rocky Mountain Institute (RMI)



- 501(c)(3) Non-Profit
- Energy market transitions since 1982
- Focused on the cost-effective shift to efficiency and renewables

Rocky Mountain Institute

RMI in the News – *Sampling from Past 12 months*

 <p>The Economist Topics ▾</p> <p><i>We've got the power</i></p> <p>Big business sees the promise of clean energy</p>	 <p>THE WALL STREET JOURNAL.</p> <p>BUSINESS ENERGY JOURNAL REPORTS: ENERGY</p> <p>Companies That Buy Green Power</p> <p>complex regulation. But barriers to smaller businesses are starting to come down.</p>
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Corporate Renewables Procurement

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RMI in the News – Sampling from Past 12 months

The Washington Post

Energy and Environment

Microgrids and Resiliency

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

The Economist

Topics ▼

We've got the power

Big business sees the promise of clean energy

Corporate Renewables Procurement

THE WALL STREET JOURNAL.

BUSINESS | ENERGY | JOURNAL REPORTS: ENERGY

Big Business Sees the Promise of Clean Energy

complex regulation. But barriers to smaller businesses are starting to come down.

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Digital Money / #PowerUp
OCT 4, 2017 @ 10:02 AM

Transactional Systems

How Blockchain Will Take Fossil Energy by Storm

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Companies That Buy Green Power

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The New York Times

TECHNOLOGY

Disruptive Energy Solutions

A Better, Safer Battery Could Be Coming

By JOHN MARKOFF AUG. 1, 2017



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U.S. News & World Report News

NEWS / WORLD NEWS

Advanced Transportation

Exclusive: India's Green Car Plan Prioritizes Electric Vehicles Over Hybrids

May 6, 2017, at 10:06 p.m.

Business Renewables Center (BRC)

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



/RockyMtnInst



#theBRC

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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.



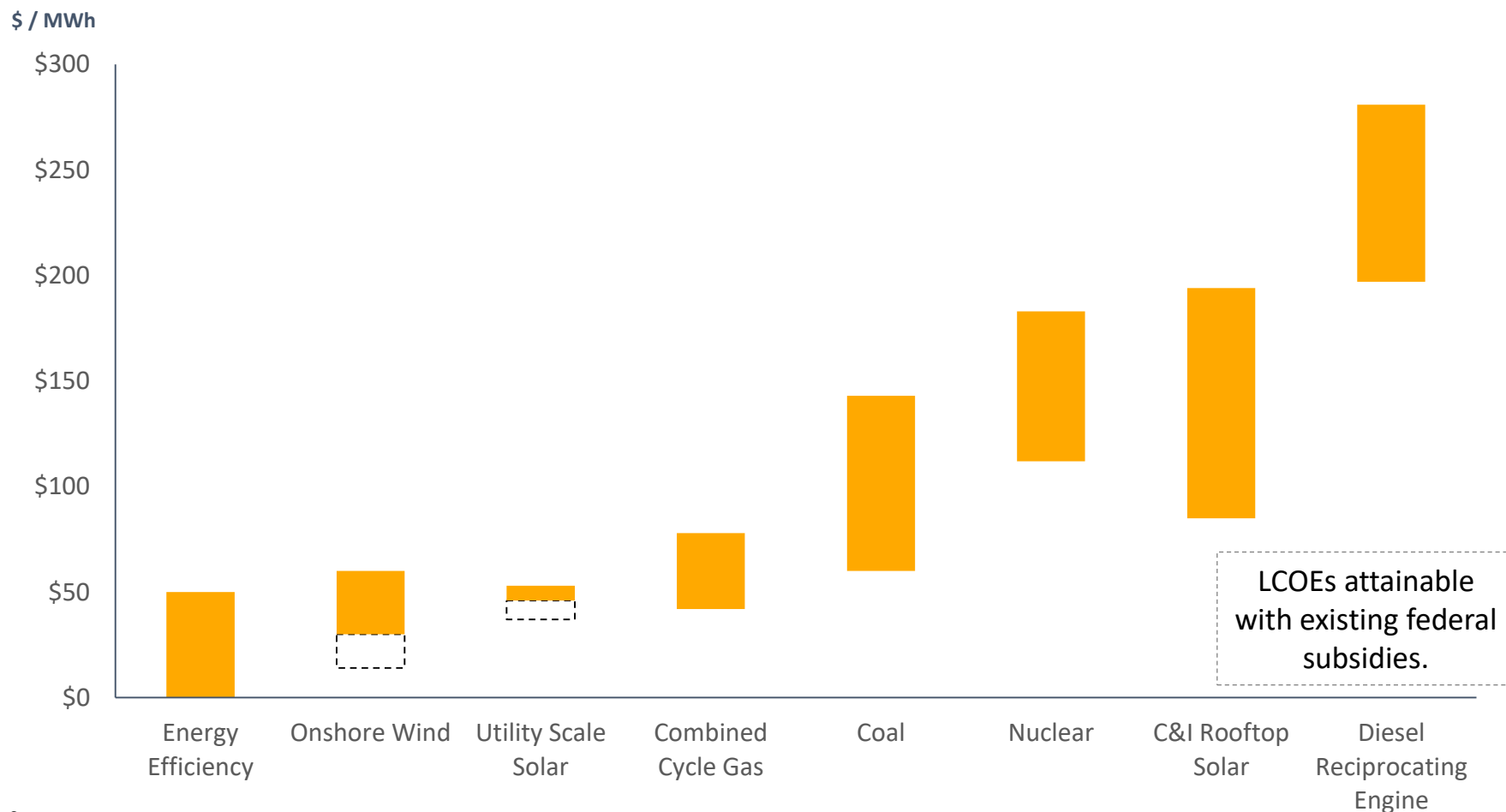
Renewable Energy Buyers' Principles

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

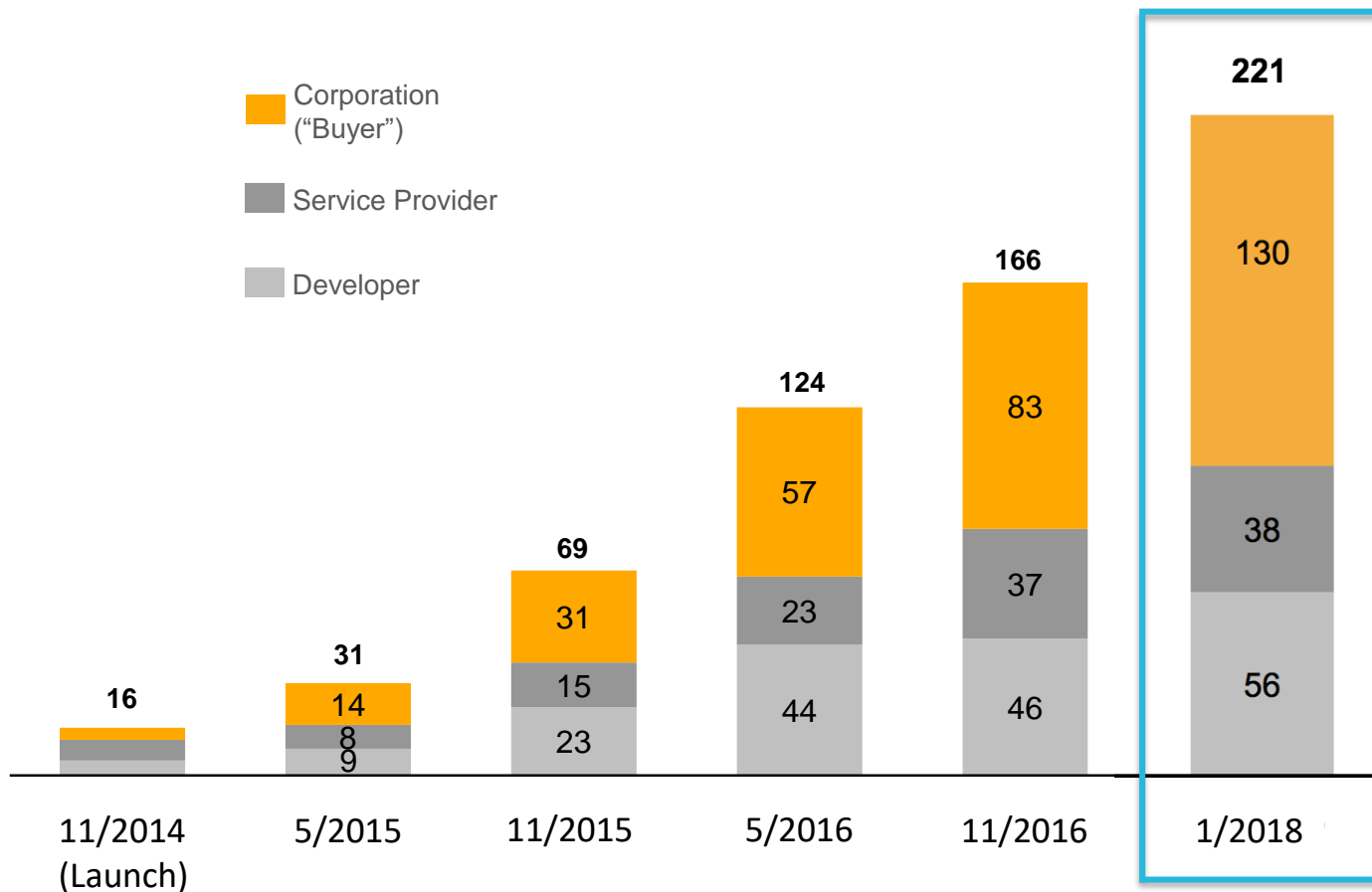


Sources:
"Levelized Cost of Energy Analysis – version 11.0", Lazard, November 2, 2017, <https://www.lazard.com/media/450337/lazard-levelized-cost-of-energy-version-110.pdf>
"Levelized Cost of Energy Analysis – version 10.0", Lazard, December 15, 2016, <https://www.lazard.com/media/438038/levelized-cost-of-energy-v100.pdf>



Why buy renewable energy?

>10x growth in BRC membership in ~3 years





Why buy off-site renewable energy?

Sampling of Industrial and Manufacturing BRC Members Companies

FOOD, BEVERAGE, & PACKAGING



CHEMICAL & PHARMACEUTICAL



AUTOMOTIVE & AEROSPACE



ELECTRICAL & DIVERSIFIED



BUILDING MATERIALS & FURNITURE



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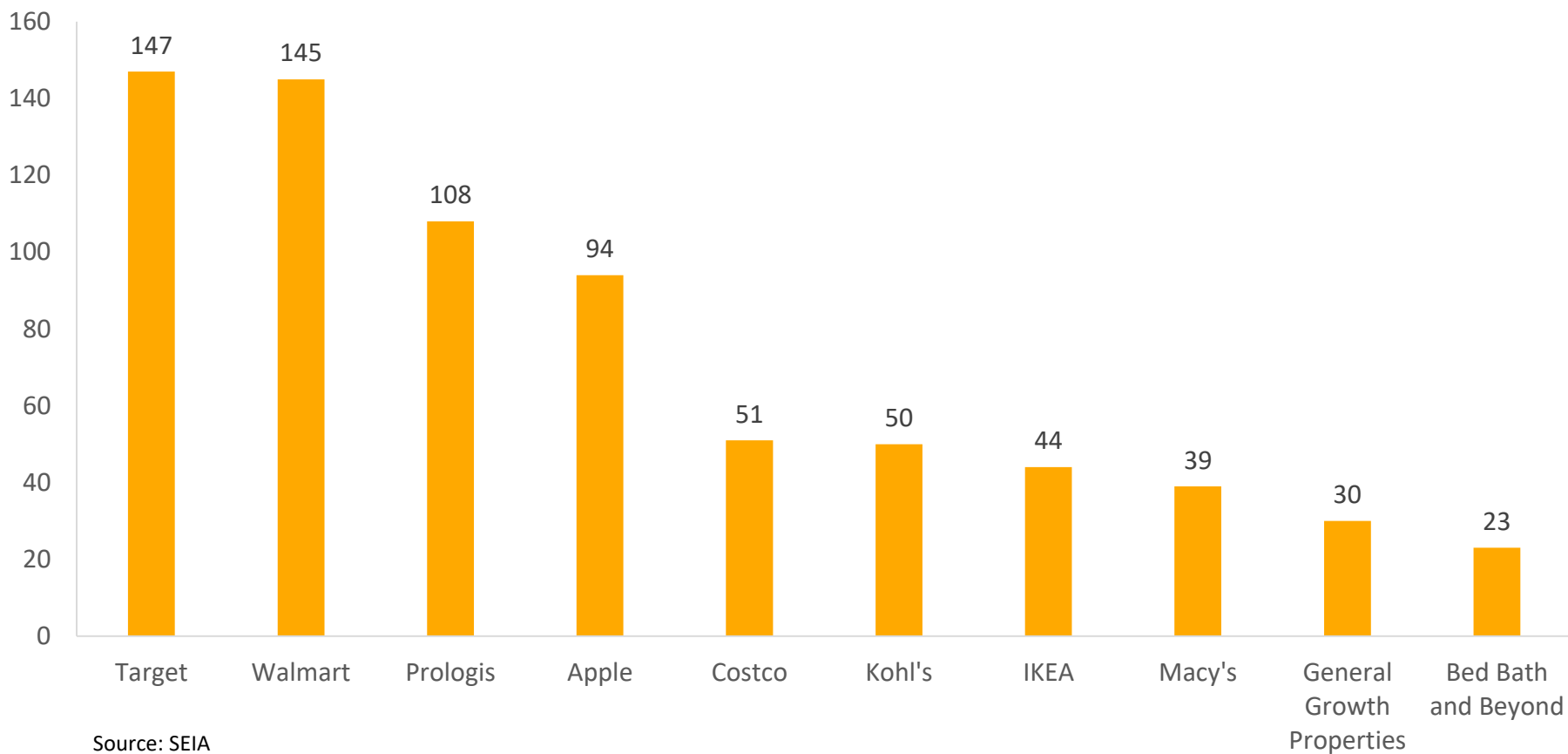
#theBRC



Why buy off-site renewable energy?

MW

On-site Solar Installations



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

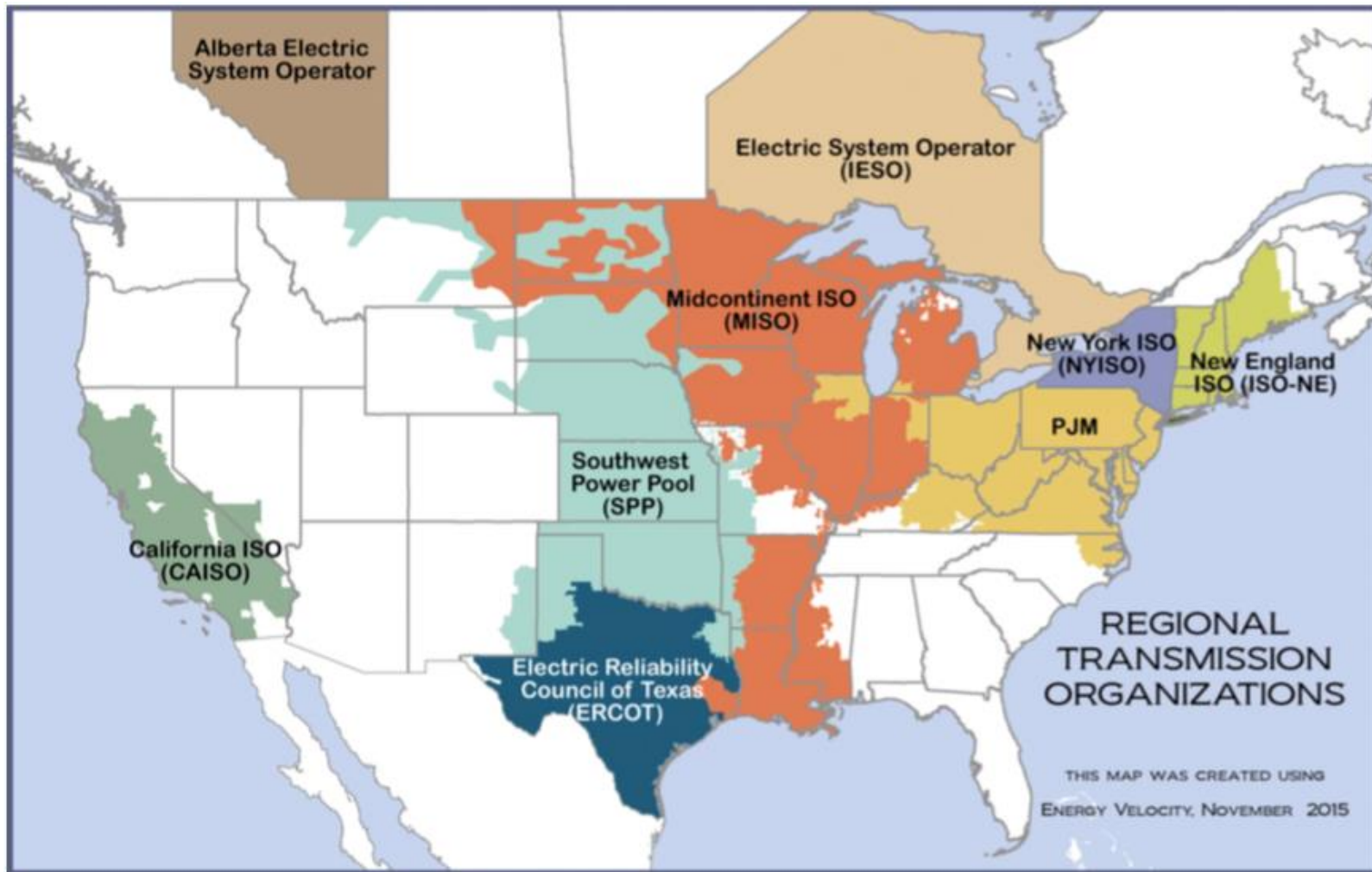
Mars' long term goal is to eliminate all GHG emissions from our operations and reduce value chain emissions by 2/3.

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 #theBRC



PPAs are limited to deregulated markets





What issues do buyers consider when evaluating projects?

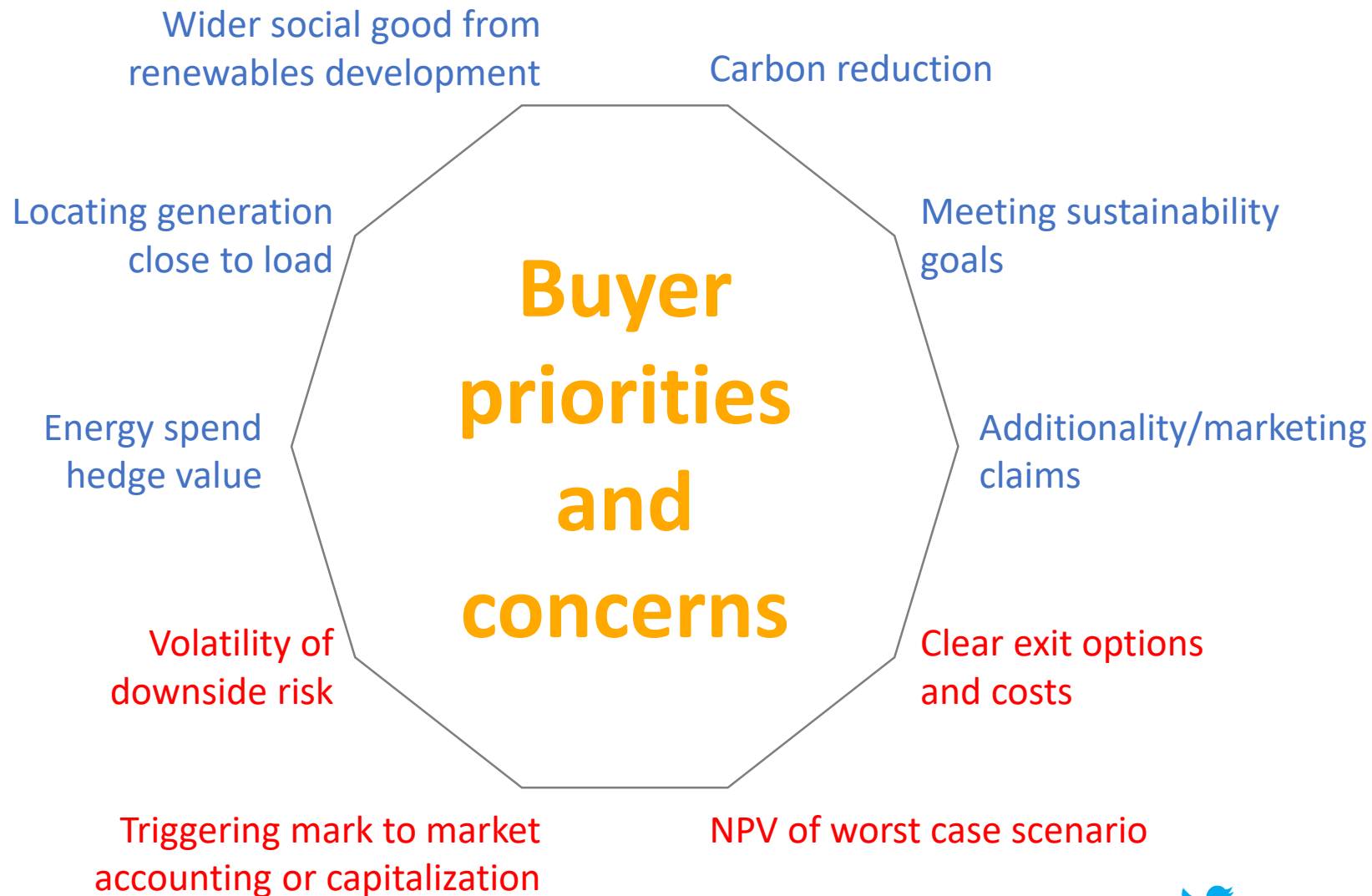
With a partner, come up with

- a potential priority, and
- a potential risk

that companies might consider when selecting a project.

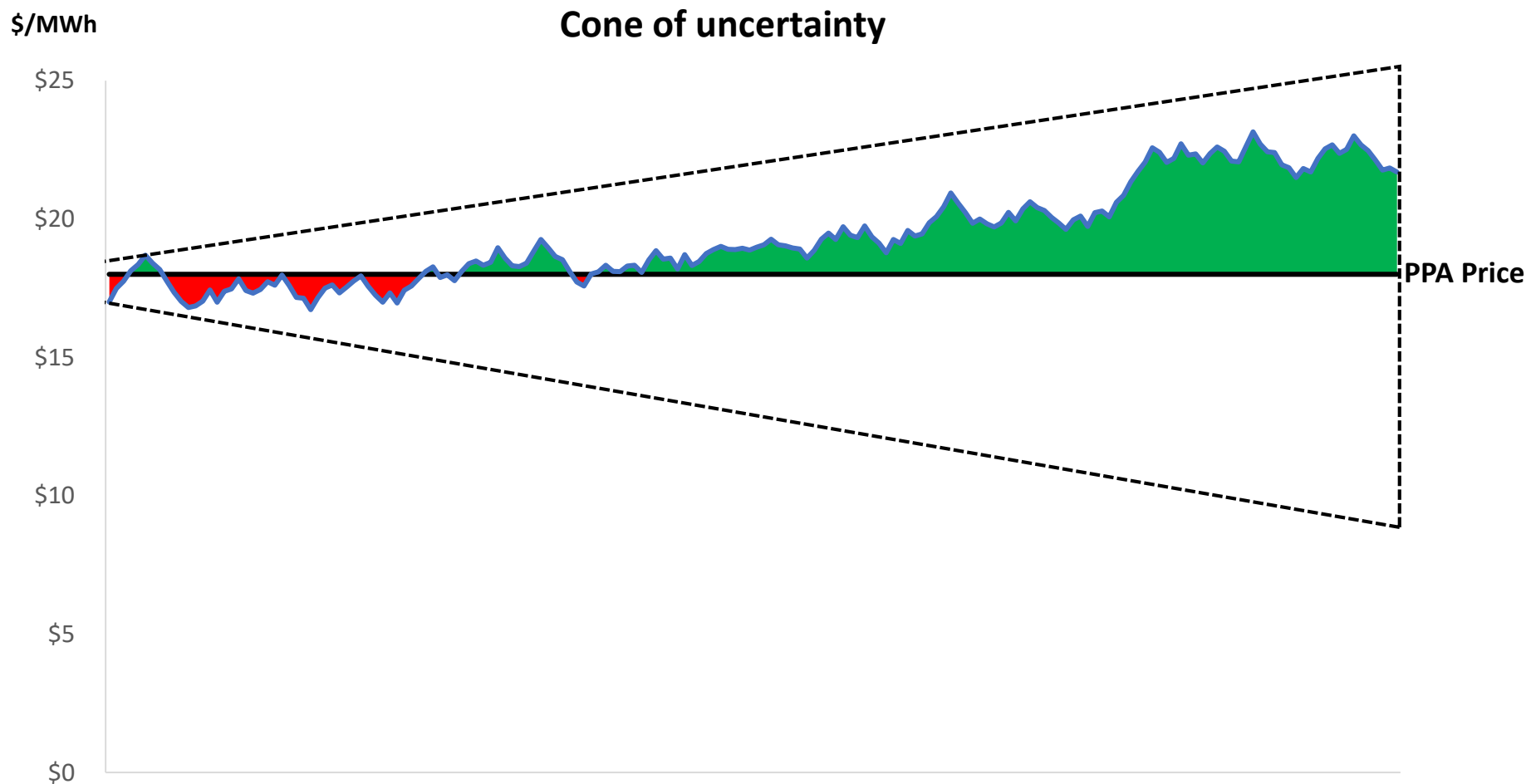


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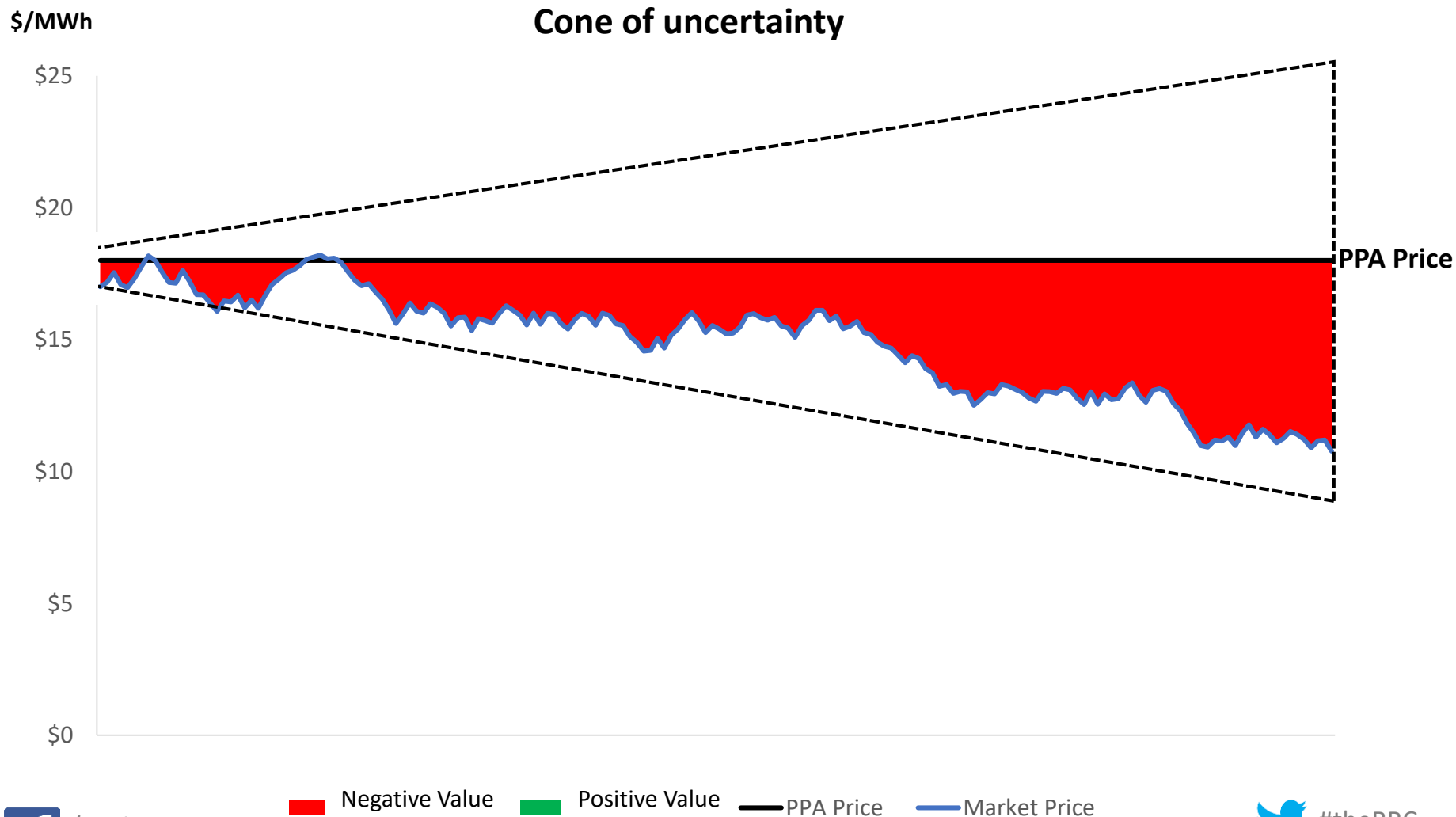


Value, rather than price, determines the economic returns



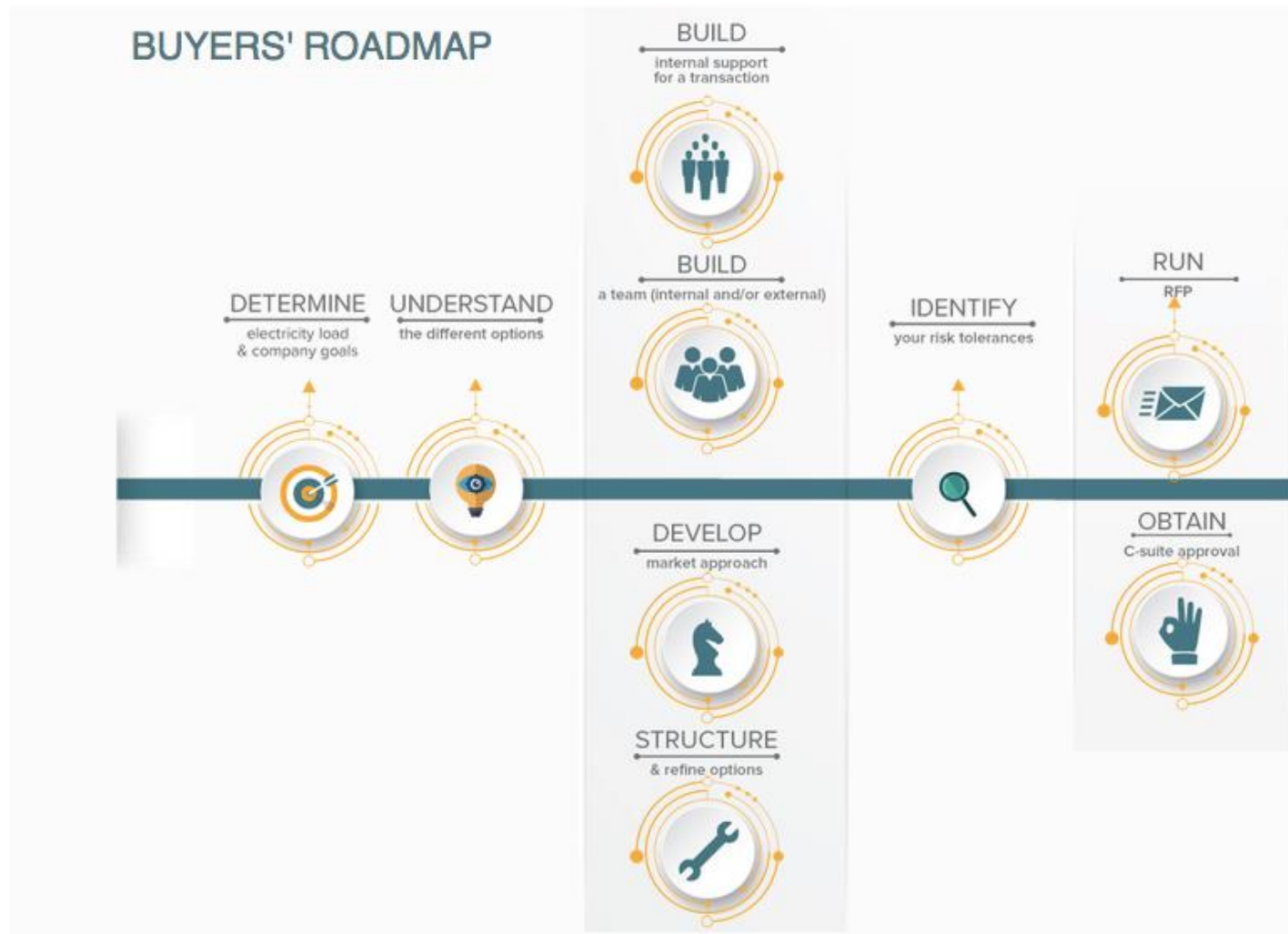


Value, rather than price, determines the economic returns



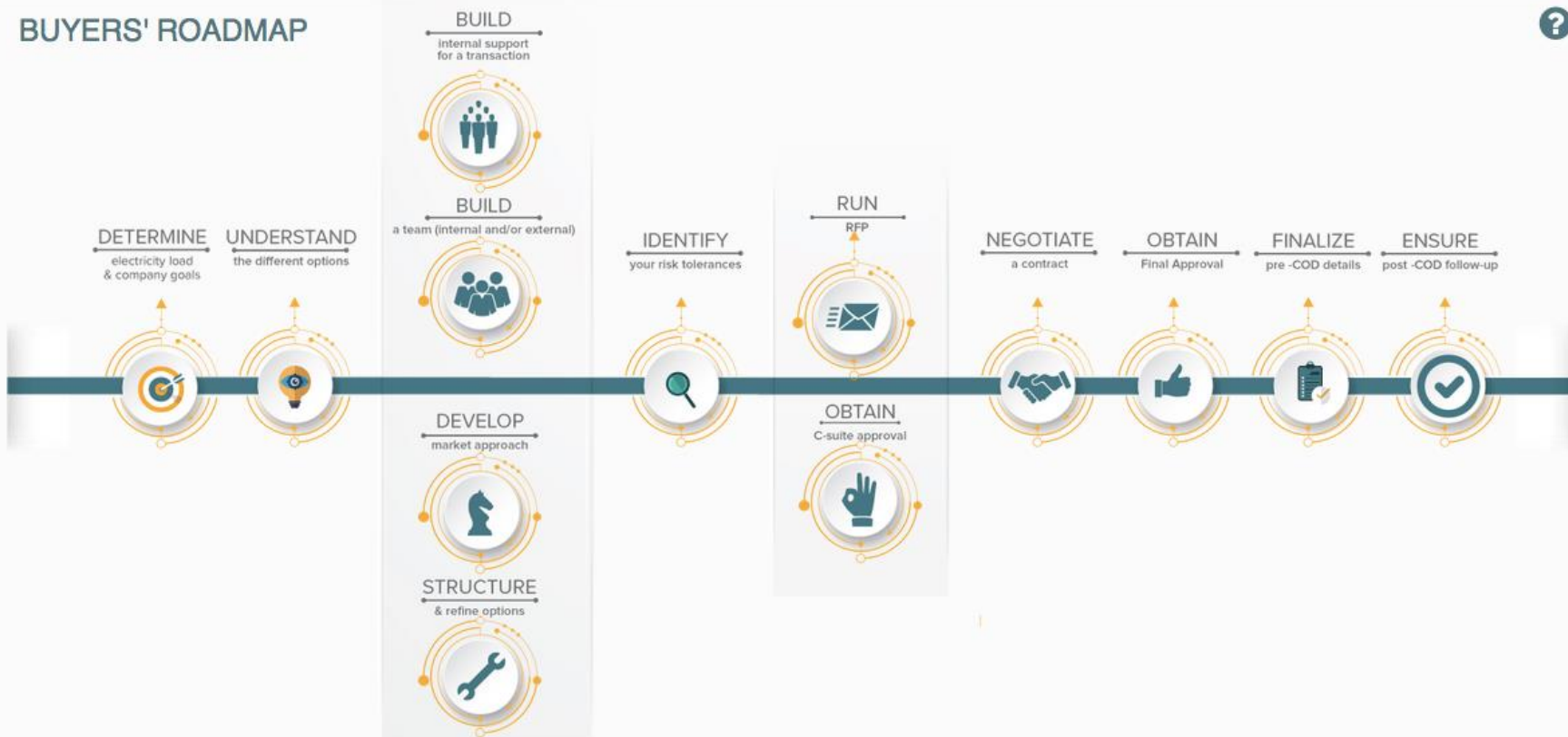


An important process





An important process





Third parties that support transactions

Consultants

Activities

- Advise on strategy and implementation
- Run RFP process
- Can originate and structure transactions

Fees

- Hourly or success-fee based

Brokers

Activities

- Originate and structure transactions
- Run RFP process
- Can support internal stakeholder engagement

Fees

- Typically success-fee based
- Often \$/MW or \$/MWh basis

Lawyers

Activities

- Provide legal advice
- Experienced legal advice can be vital to a transaction

Fees

- Hourly, fixed fee or success-fee based

APPENDIX

A changing clean energy economy driven by corporations

Lily Donge | March 20, 2018 | Tokyo, Japan



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Procurement Options

Unbundled renewable
energy certificates (RECs)

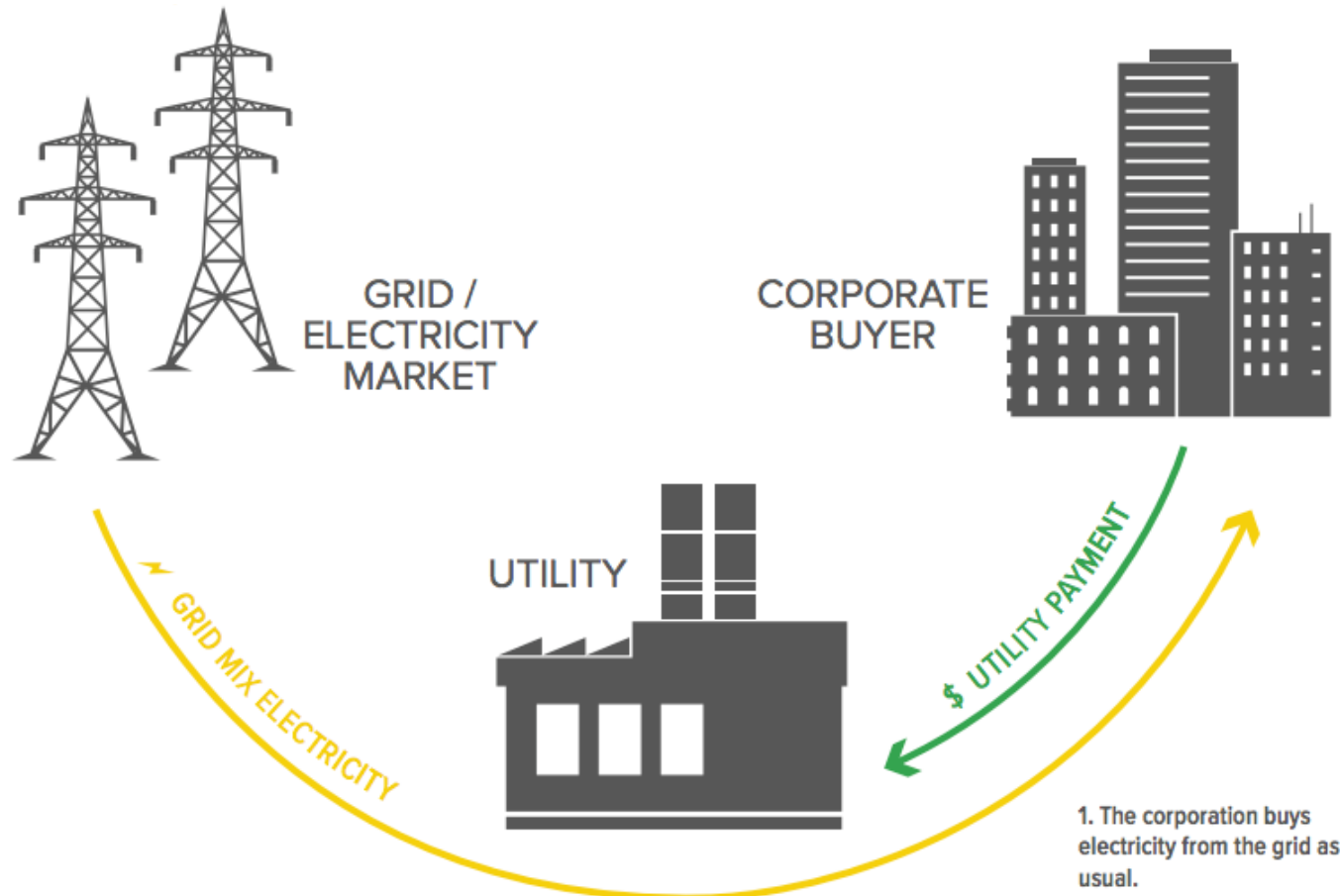
On-site solutions

**Virtual PPAs (aka contracts
for differences)**

Direct investment



HOW A VIRTUAL POWER PURCHASE AGREEMENT WORKS

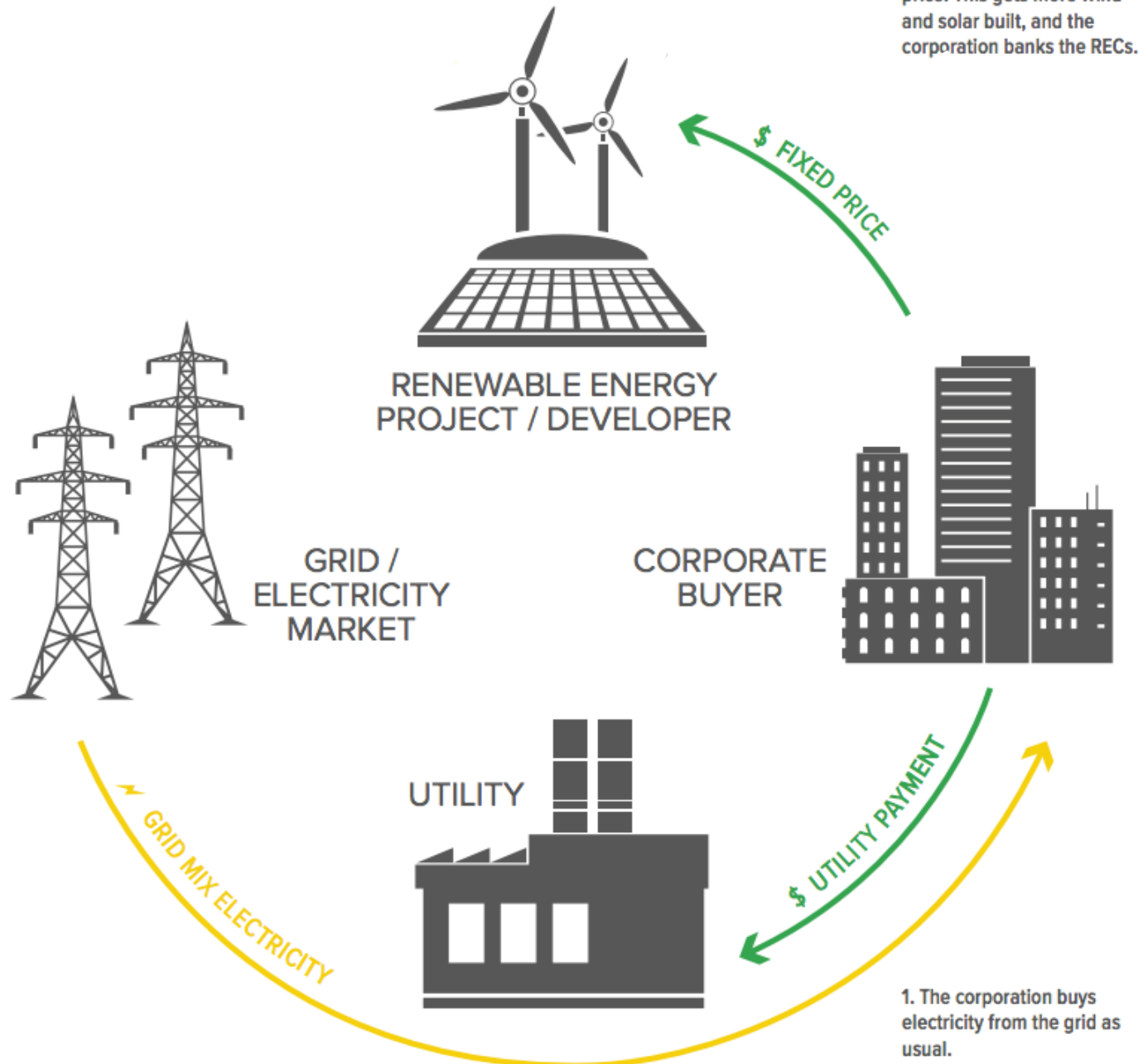


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HOW A VIRTUAL POWER PURCHASE AGREEMENT WORKS



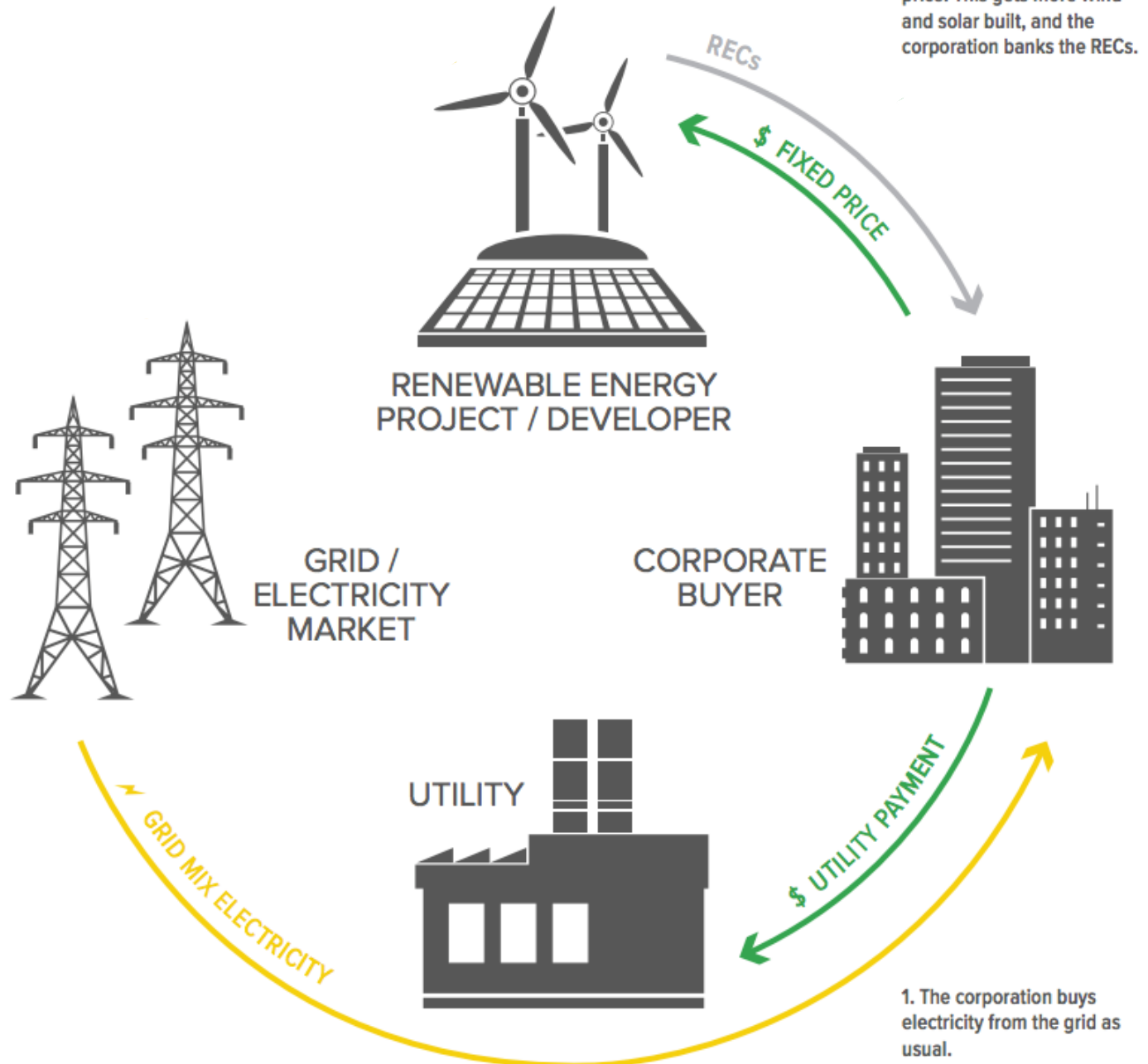
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HOW A VIRTUAL POWER PURCHASE AGREEMENT WORKS



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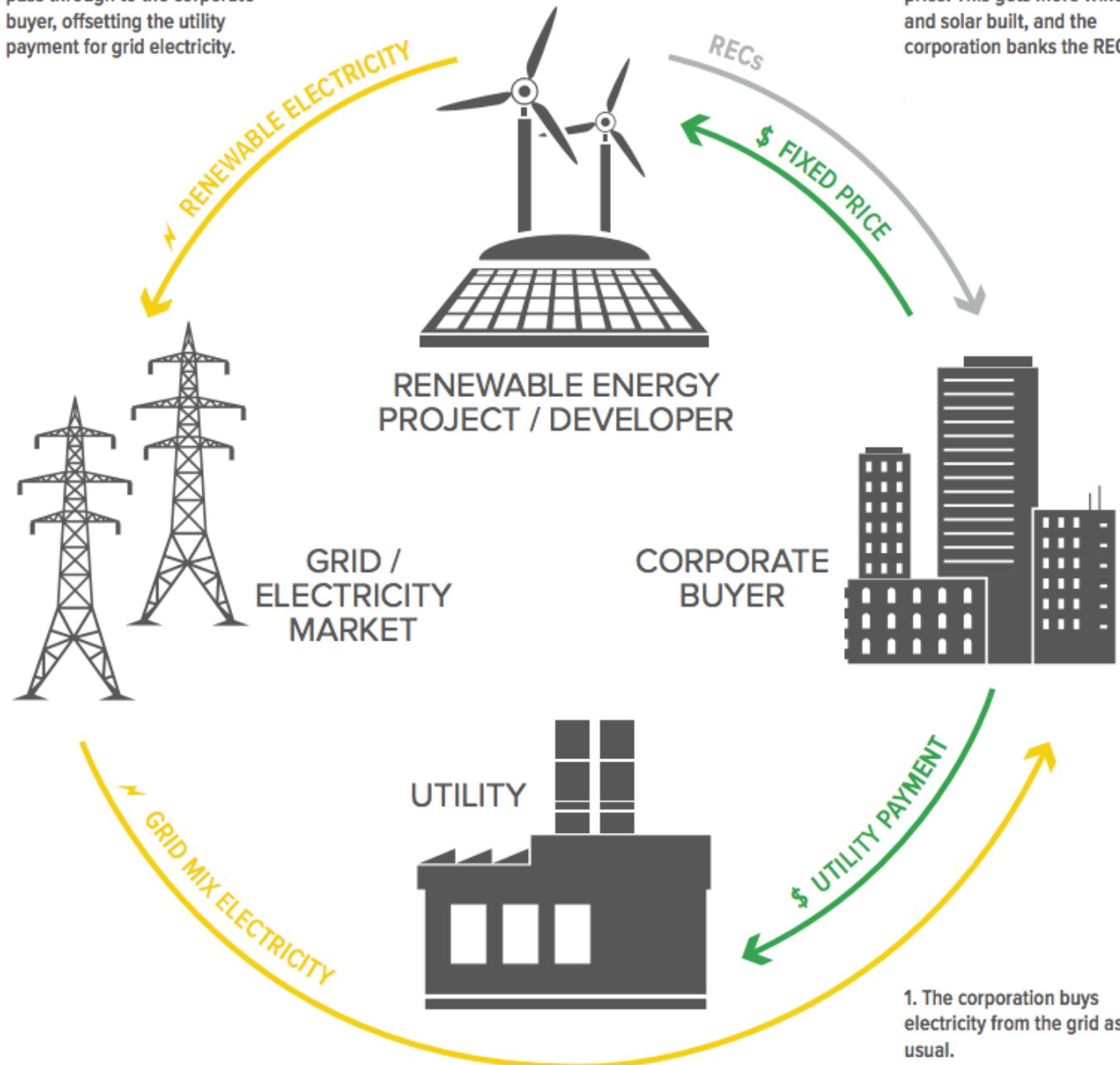


HOW A VIRTUAL POWER PURCHASE AGREEMENT WORKS



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3. The renewable energy is fed into the grid for a variable market price. Those payments pass through to the corporate buyer, offsetting the utility payment for grid electricity.



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.

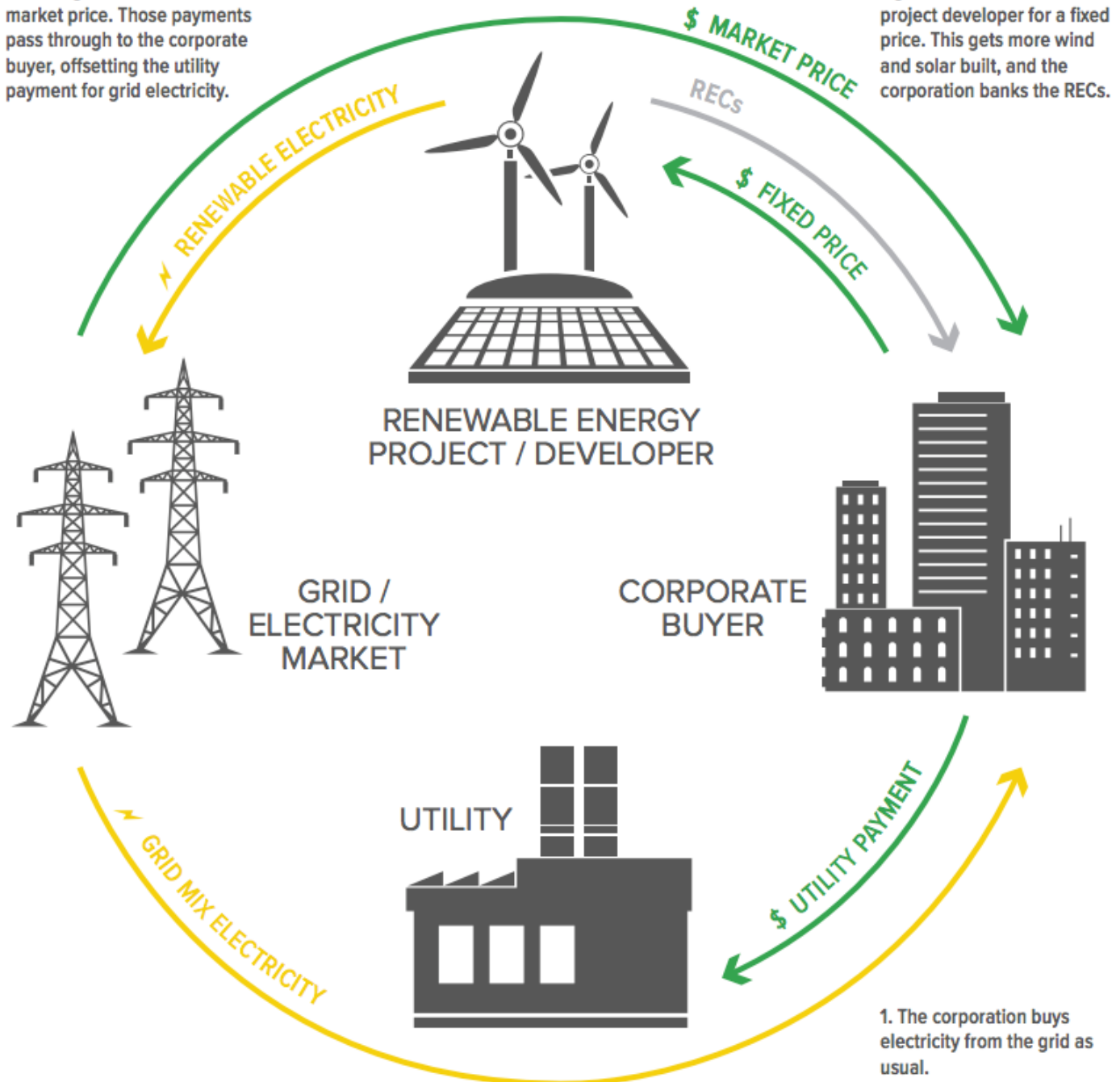
1. The corporation buys electricity from the grid as usual.

HOW A VIRTUAL POWER PURCHASE AGREEMENT WORKS



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3. The renewable energy is fed into the grid for a variable market price. Those payments pass through to the corporate buyer, offsetting the utility payment for grid electricity.



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

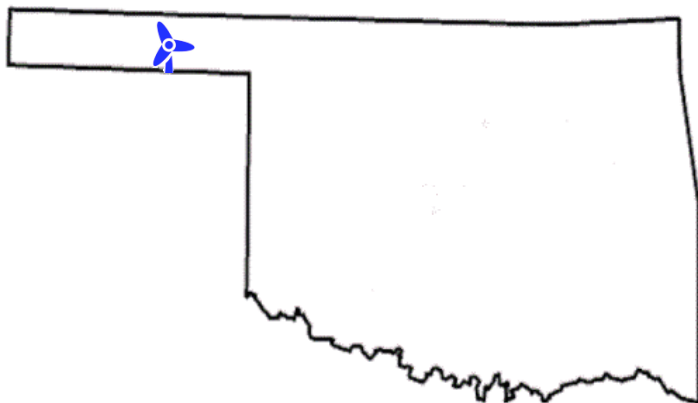
Modified Accelerated Cost Recovery System (MACRS):

- 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



Source: Forbes and 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



Words from the market

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.

