

The Future of Corporate Power Purchase Agreements in Canada



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Proposed Agenda

1. Non-utility buyers of renewables – The US market experience
2. Customer perspective – What corporate buyers need
3. Reflections on the Canadian market
4. Q&A – How can we move the market forward?

Level of Experience in the Room

Step 1: Text CanWEA to 37607 (we do not receive your number)

Level of Experience in the Room

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Step 2: Answer

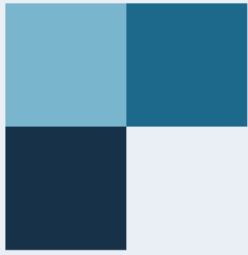
A = No experience

B = Have *thought* about a non-utility offtaker

C = Have *spoken* with a non-utility offtaker

D = Am in a transaction with a non-utility offtaker

E = Have closed a transaction with a non-utility offtaker



To show this poll

1

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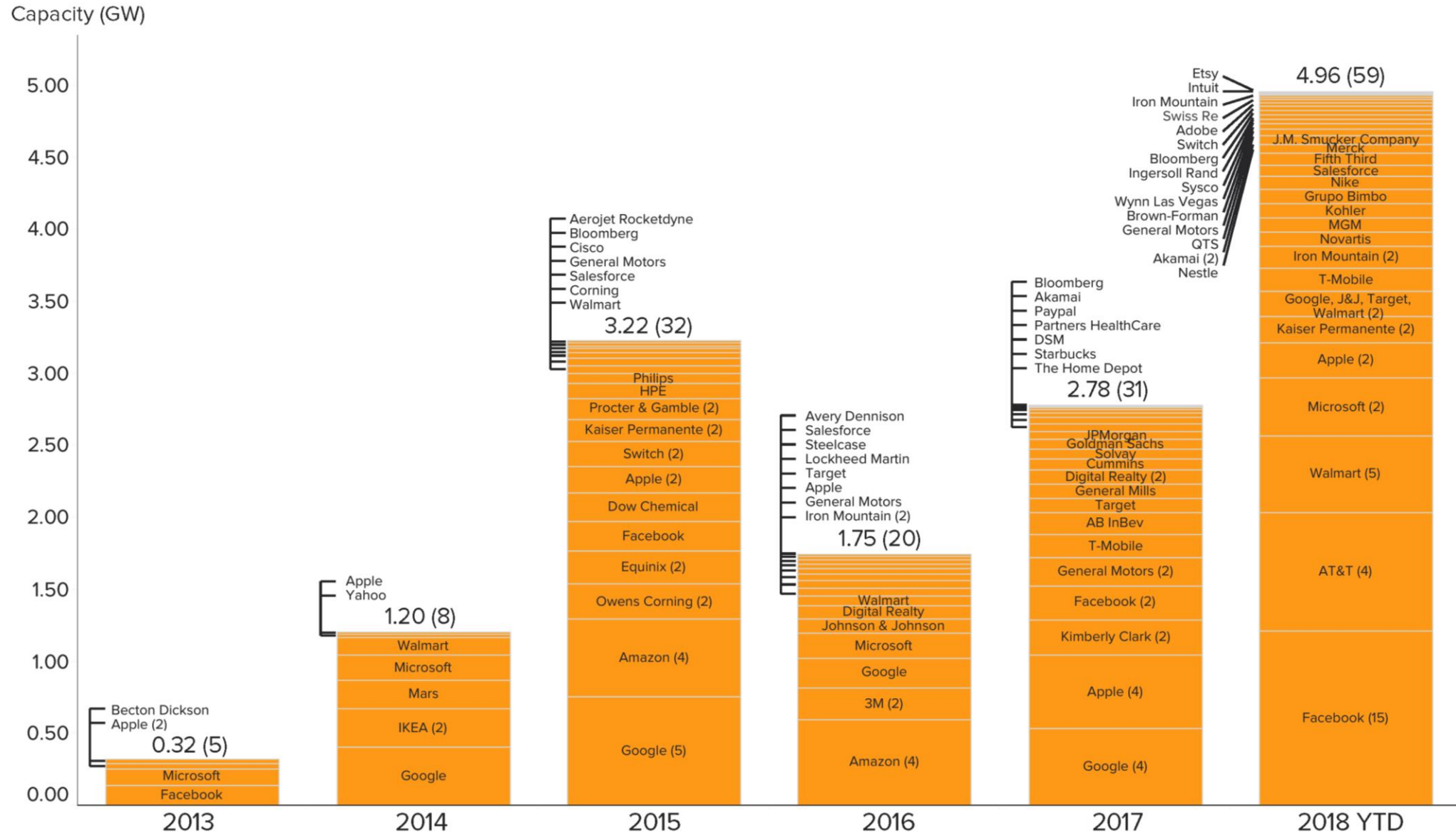
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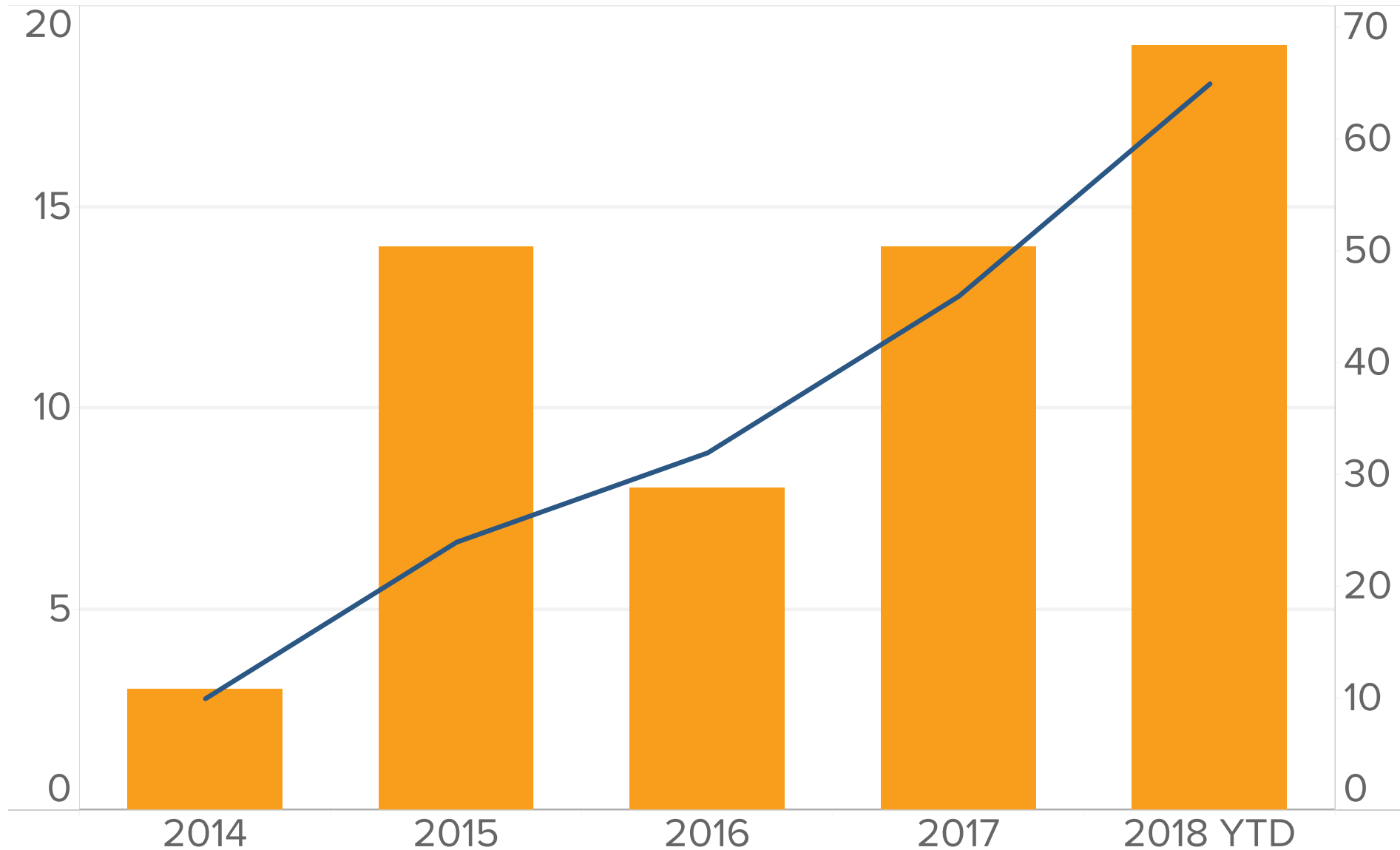
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Announced Deals to Date



Strong New Buyer Growth



Growth also Shown in Buyer-Sectors

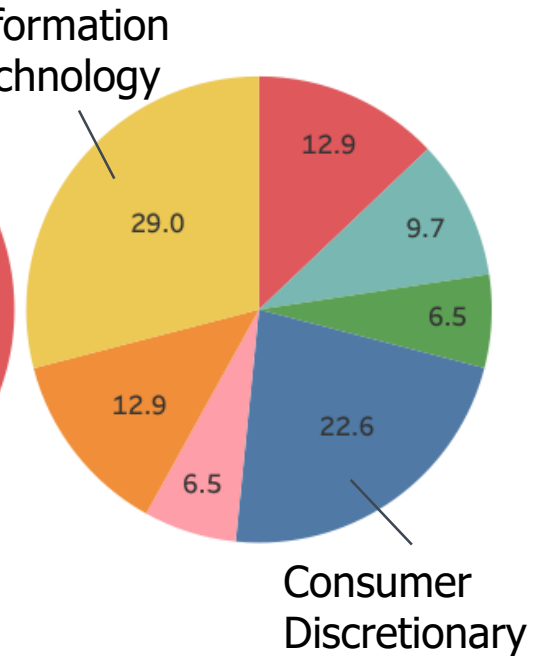
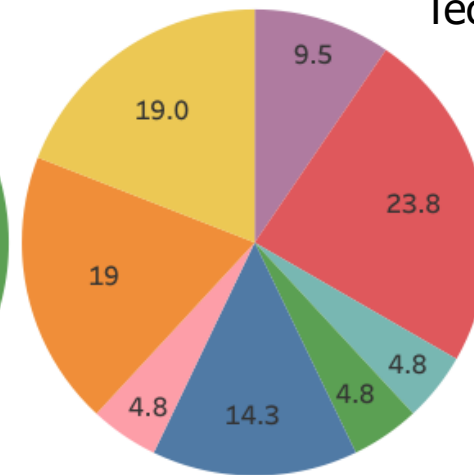
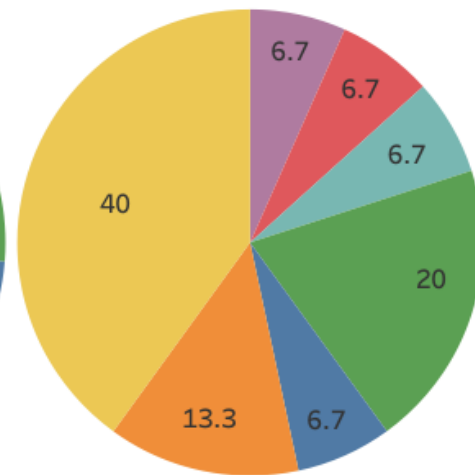
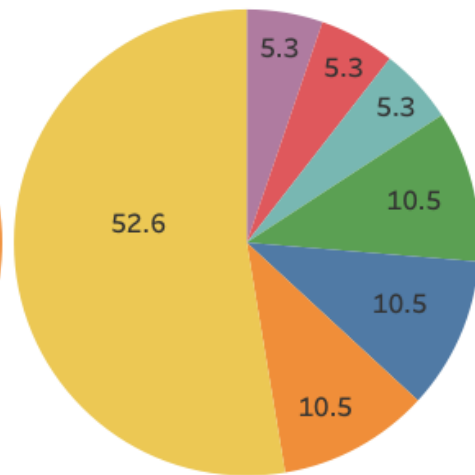
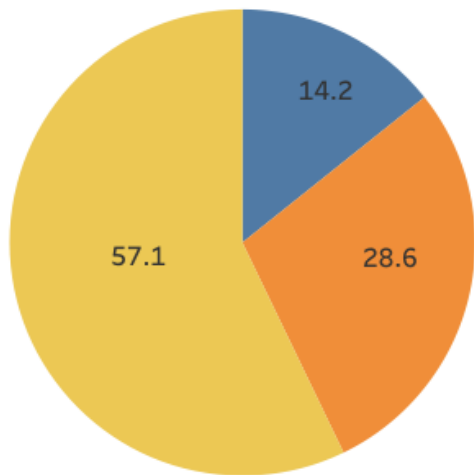
2014

2015

2016

2017

2018 YTD



Percent of buyers each year by industry sector (announced transactions)



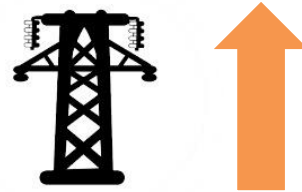
What Motivates Corporate Buyers?

Climate ambition is increasing



- **Corporates set goals:** science-based carbon goals, [RE100](#) goals, '[We-Are-Still-In](#)' commitment, competitor action
- **Investors care:** 60% of board members willing to divest from companies with poor sustainability performance*
- **Customers too:** 91% of global consumers expect companies to address social & environmental issues**

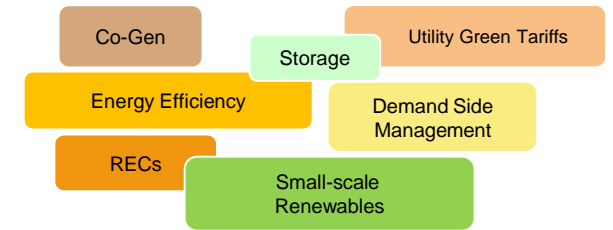
Energy challenges are growing



Electricity is:

- Major driver of **GHG emissions**
- Uncertain yet addressable **operating expense**
- Modern growth means increasingly technology and **electricity intense**

Current approaches are insufficient



- Capturing low-hanging fruit through **demand reduction** and **energy efficiency**
- **Fuel switching** to natural gas
- **Small scale onsite renewables** (due to space constraints onsite RE typically covers **only 2-8% of organizational load**)

* Boston Consulting Group/ MIT Sloan Management Review, 'Investing for a Sustainable Future'

** Cone Communications/Ebiquity, 2015 Global CSR Study

Source: CFR analysis

Value of Renewables to Corporate Buyers



LONG-TERM SAVINGS

Contract for renewable energy at price levels below today's market price



RISK MITIGATION

Lock-in a long-term physical hedge against market price increases



SUSTAINABILITY

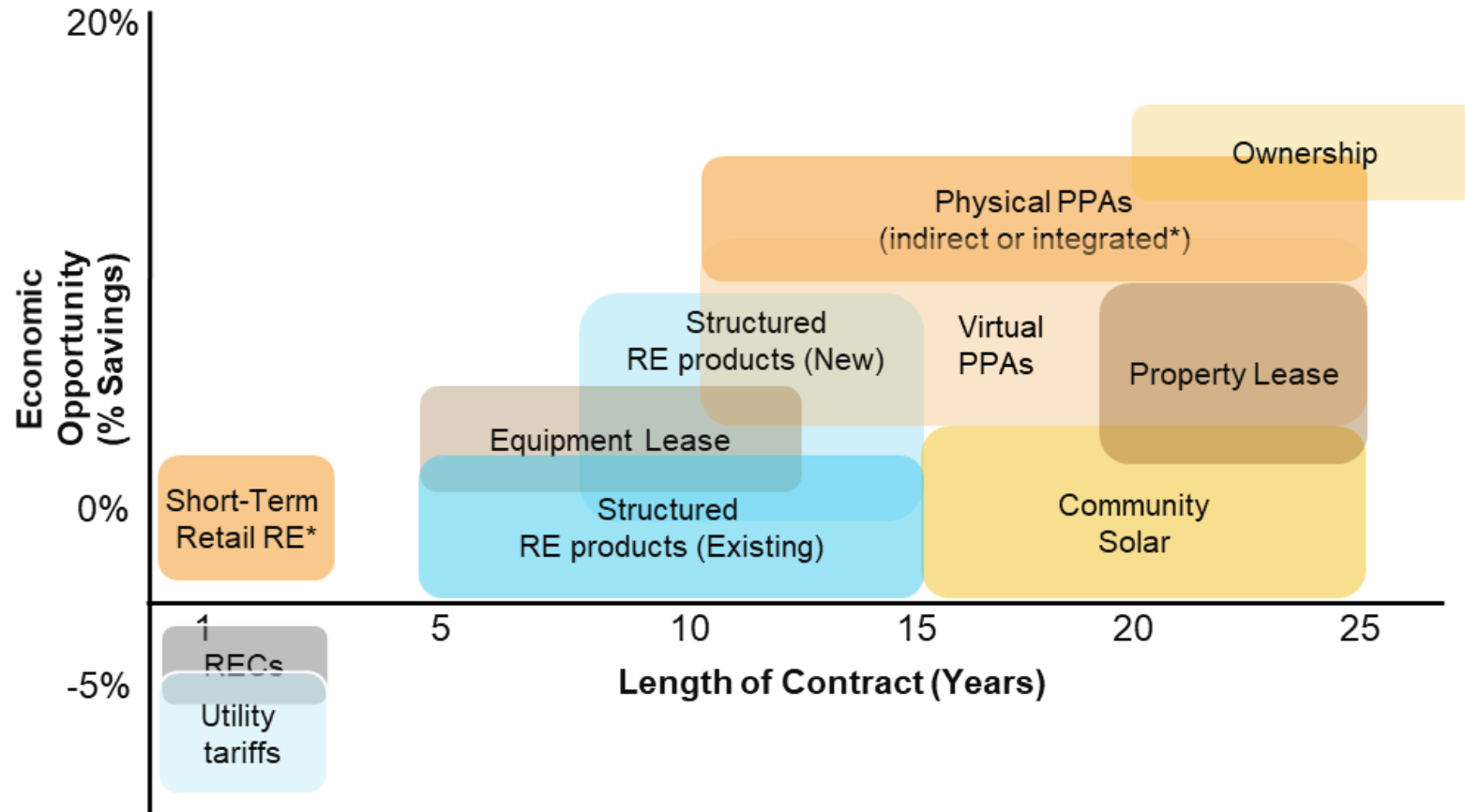
Reduce harmful GHG emissions from electricity purchasing (Scope 2)



STRATEGIC GAINS

Demonstrate leadership, capture PR, and other strategic value

Corporate Buyers Need Suite of Solutions



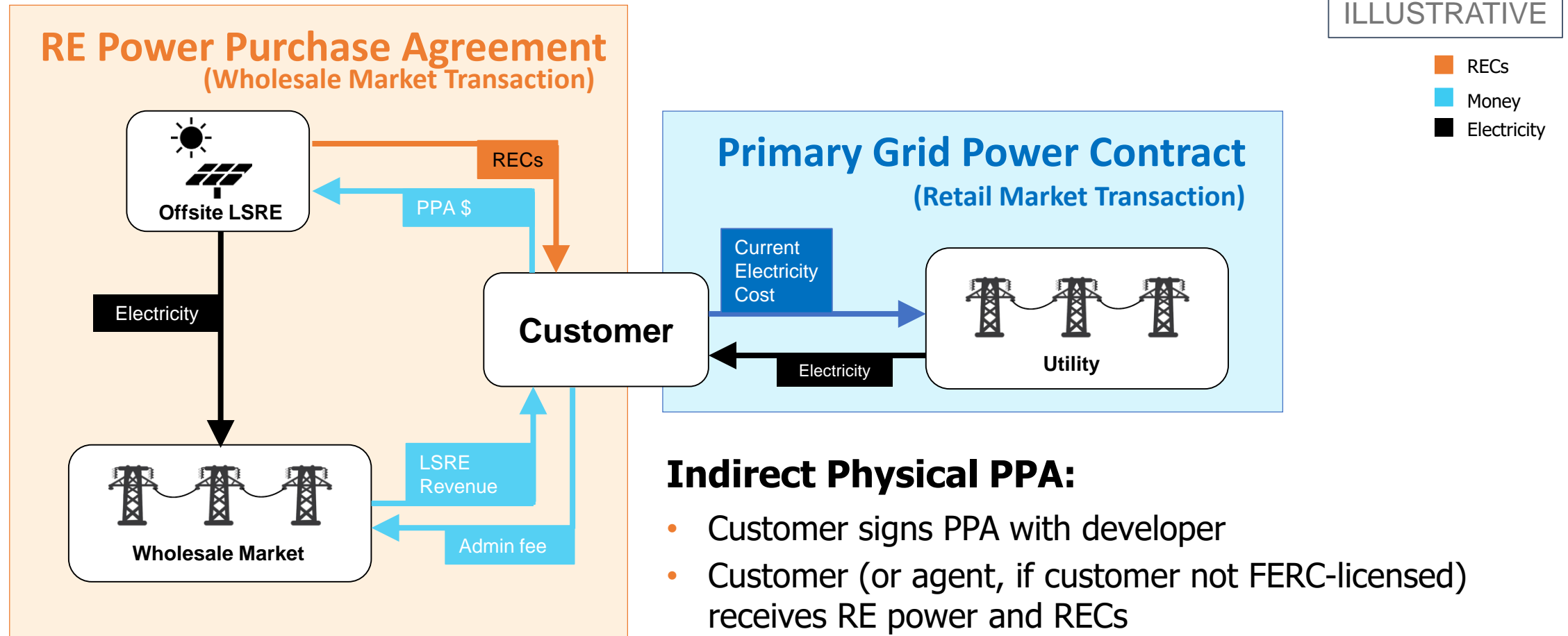
- Significant value is at stake
- Tailored RE solutions are key to meet buyers' cost, term and risk profiles
- Industry can create options

Other structures available: bilateral utility agreements, etc.

* Only available in deregulated electricity markets.

Source: CFR analysis

Most Corporate Buyers use Indirect PPAs



Indirect Physical PPA:

- Customer signs PPA with developer
- Customer (or agent, if customer not FERC-licensed) receives RE power and RECs
- RE power resold into wholesale market
- No change to purchase of power from retail/utility

What Corporates Need to Buy RE Strategically

Define Success

Assess energy baseline

- Load distribution
- Risk appetite
- Cost requirements
- Sustainability goals
- Other considerations

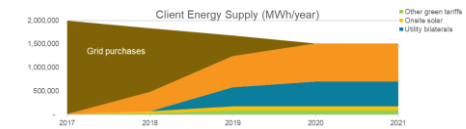
Assess RE Options

Build RE understanding

- Connect with market participants
- Learn from corporate peers
- Connect with CanWEA, CanSIA, Pembina, REBA
- Consult with advisors, lawyers

Leverage Expertise

Develop implementation plan



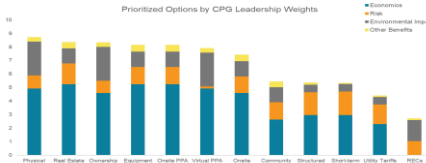
- Evaluate internal timelines
- Dimensionalize implementation of RE option(s) over time

Engage the organization

- Identify stakeholder
- Set goals
- Functional deep dives
- Align stakeholder views
- Build leadership buy-in



Prioritize RE options



- Profile RE options
- Prioritize optimal RE option(s)

Tailored procurement process



- Procurement plan
- Project Evaluation & Contracting
- Implementation
- Ongoing operations

How CFR Advises Corporate Buyers

CustomerFirst Renewables (CFR)

- RE Advisor focused 100% on bringing tailored RE solutions to large businesses and institutions
- Founded in 2010 by two former McKinsey & Company energy practice partners; privately-held
- Independent, objective and transparent; technology, developer and project agnostic
- Pioneered RE demand aggregation, other services
- Mission and core values driven

How We Add Value

Customer-Focus

Strategy

Implementation
& Execution

Operations
Optimization

- Strategy development
- Deep analysis and due diligence
- Negotiation and innovation on commercial terms
- Ongoing performance management and optimization

Team Experience

- 150+ years combined energy experience: ~2,900 MW of RE / ~6,000 MW traditional generation
- Deep expertise in corporate strategy, innovation, organizational and operational issues
- Specialized in risk management, financial analysis, and transaction execution



Client Examples*



* Partial list

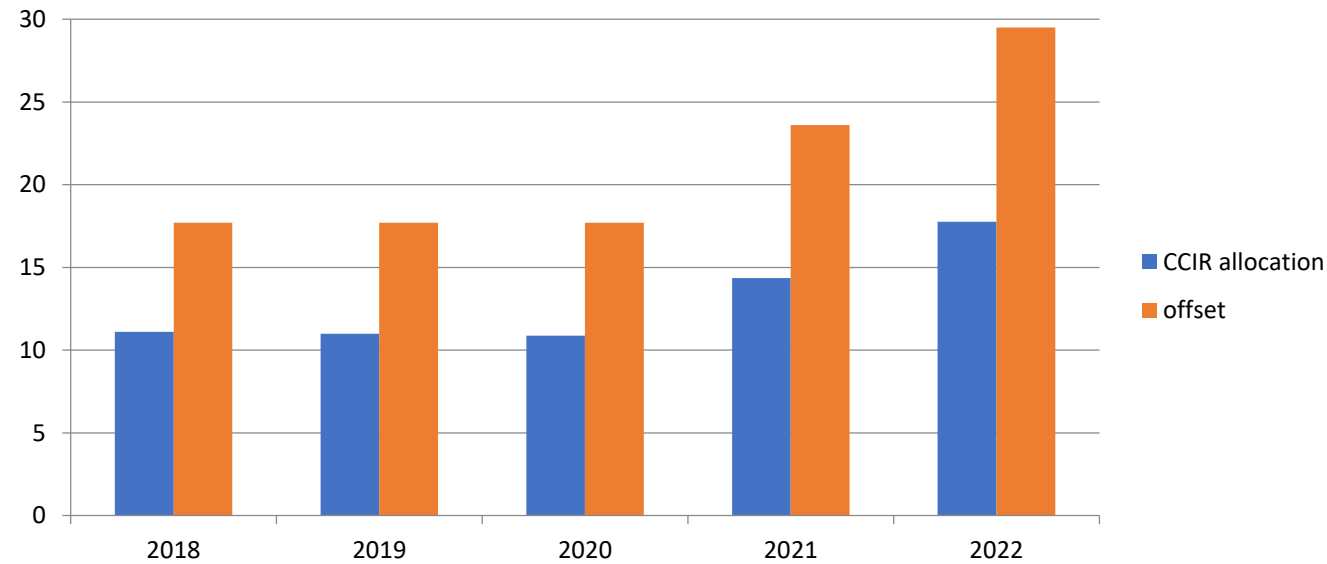
Canadian Market Potential

- Market structure and electricity generation makeup varies significantly across the country
 - Alberta promising for high carbon intensity and deregulated market structure
- Carbon pricing can drive high value of environmental attributes
 - Impact of opportunity cost for retiring EAs?
 - Potential for EA swaps?
- Potential for early mover advantage – relatively new phenomenon in Canada

Alberta Market Conditions

- Capacity market to be introduced
 - First auction 2019 for delivery in 2021/2022
 - Portfolio of solar/wind/other could participate – single resource renewable more challenged
- Provincial election – On or before May 2019
- Federal election – On or before Oct 2019

Value of the Environmental Attribute



Notes and assumptions:

- Federal carbon price schedule of \$40 in 2021, \$50 in 2022
- Allocation reduced by 1% per year per CCIR regulation
- Offset value of 0.59 tonne/MWhr – note this will likely be revised downwards over time
- Projects generating offsets are not eligible for allocations under CCIR
- Offsets generated for first 8 years of project lifetime with potential for 5 year extension

Launching BRC-Canada

- Initial research showed market need
- Seeking interested parties (already have strong interest from buyers, project developers and service providers)
- First year focus:
 - Buyer education and tool development
 - Increase buyer awareness
- First member event in 2019

How Can We Move The Market Forward?



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