

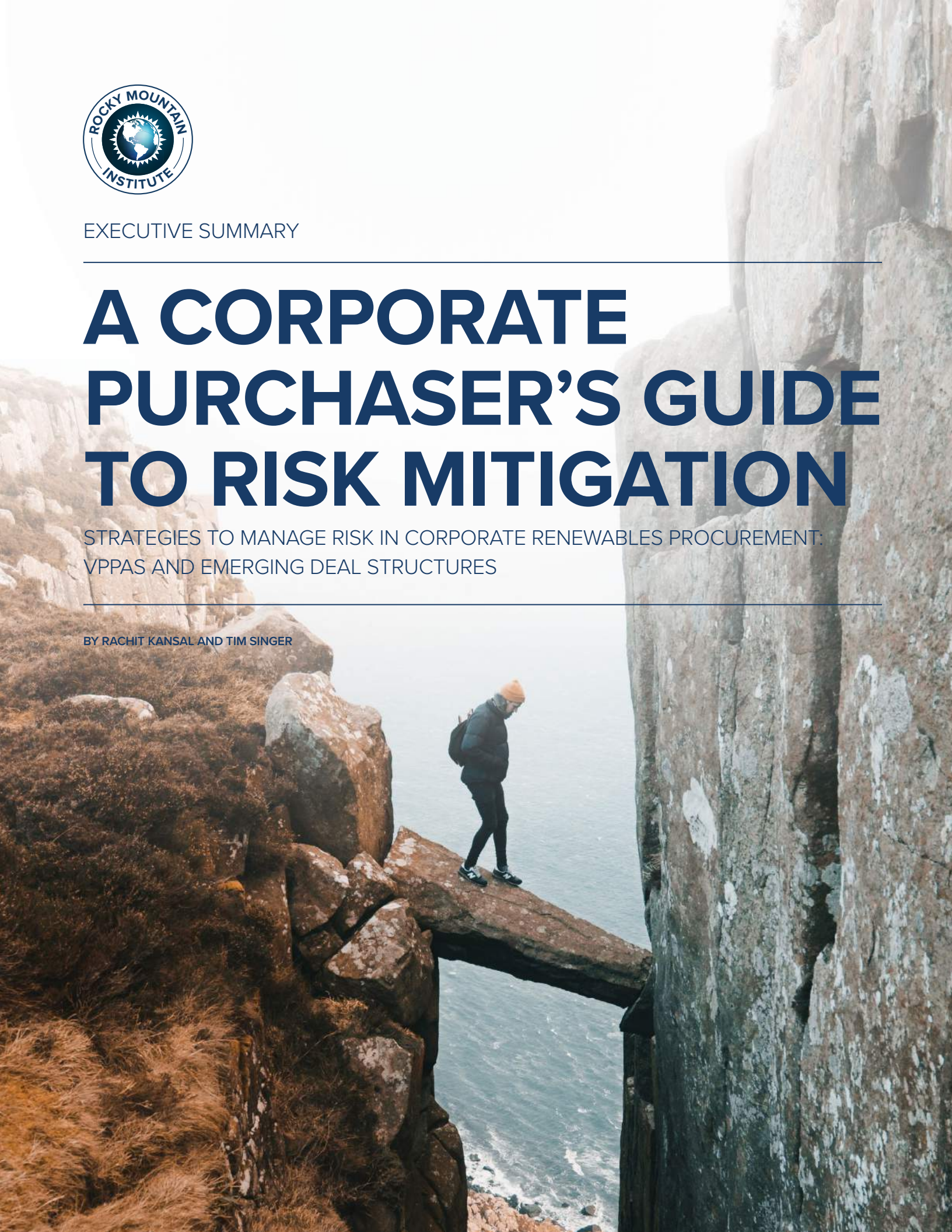


EXECUTIVE SUMMARY

A CORPORATE PURCHASER'S GUIDE TO RISK MITIGATION

STRATEGIES TO MANAGE RISK IN CORPORATE RENEWABLES PROCUREMENT:
VPPAS AND EMERGING DEAL STRUCTURES

BY RACHIT KANSAL AND TIM SINGER



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ABOUT US



ABOUT ROCKY MOUNTAIN INSTITUTE

Rocky Mountain Institute (RMI)—an independent nonprofit founded in 1982—transforms global energy use to create a clean, prosperous, and secure low-carbon future. It engages businesses, communities, institutions, and entrepreneurs to accelerate the adoption of market-based solutions that cost-effectively shift from fossil fuels to efficiency and renewables. RMI has offices in Basalt and Boulder, Colorado; New York City; Washington, D.C.; and Beijing.



ABOUT THE BUSINESS RENEWABLES CENTER

Rocky Mountain Institute's Business Renewables Center (BRC) is a member-based platform that streamlines and accelerates corporate purchasing of off-site, large-scale wind and solar energy. With over 275 members, including major corporations, leading renewable energy project developers, and transaction intermediaries, the BRC embodies the know-how of the industry. Today, BRC members account for over 15 gigawatts of renewable energy, and more than 98% of US corporate renewables deals to date have included a BRC member. With a goal to help corporations procure 60 gigawatts of renewable energy by 2030, the BRC is at the leading edge of the fastest growing sector of renewable energy procurement.

For more information on BRC membership, resources, and our online member portal, please contact Kevin Haley, Manager, at khaley@rmi.org or brc@rmi.org. More information on the BRC, its activities, and membership can be found at: www.businessrenewables.org.

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The US corporate renewable market has grown by leaps and bounds in the past five years. Corporate procurement has rapidly expanded from a niche to a substantial part of the US electricity system—one that has cumulatively brought online over 12% of all utility-scale wind and solar installed in the country today.¹

However, risk mitigation solutions have not kept pace with a rapidly diversifying and expanding corporate market. The issue of buyer risk has been raised with increasing frequency over the last few years and the market must address this issue seriously and immediately.

For its own long-term health, the market must move away from the current one-size-fits-all approach to a “many-sizes-for-all” approach to risk mitigation.

The report, of which this is the executive summary, dives into five specific risks buyers find unfamiliar—*price, shape, basis, volume, and operational risk*. It then

reviews a range of mitigation strategies, including those that are widely available and those that are emerging in the market today—*hub-settled contracts, floors and collars, proxy generation, volume firming agreements, and fixed volume swaps*. The report also explores mitigation and procurement strategies such as long-term renewable energy certificate (REC) agreements, project tranches, and contract tranches.

Lastly, the report highlights best practices for buyers to contract for off-site renewable power in a way that meets their risk priorities.

BUYER DIVERSIFICATION AND EXPANSION

As Figure ES1 shows, 2018 has been a landmark year for corporate renewables in the United States. The market has seen over 6 gigawatts (GW)² of renewable energy announcements in this year alone—more than the previous two years combined.

FIGURE ES1

CORPORATE PROCUREMENT IN THE UNITED STATES, 2013–2018 (YTD)

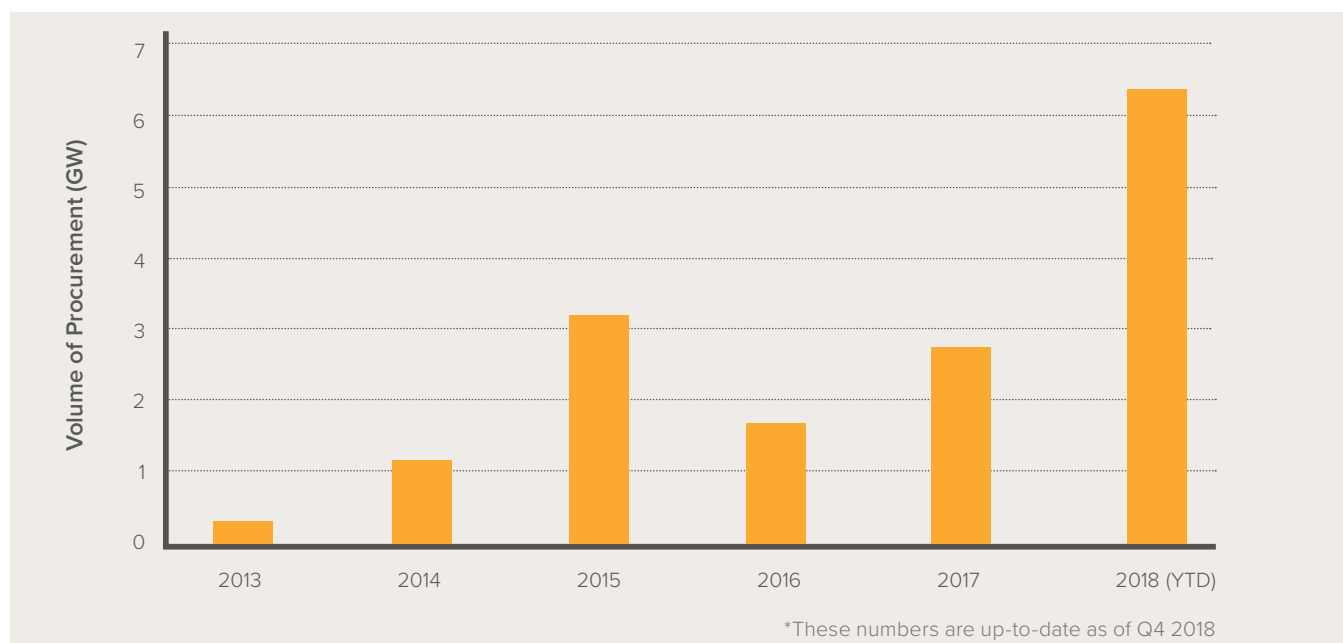
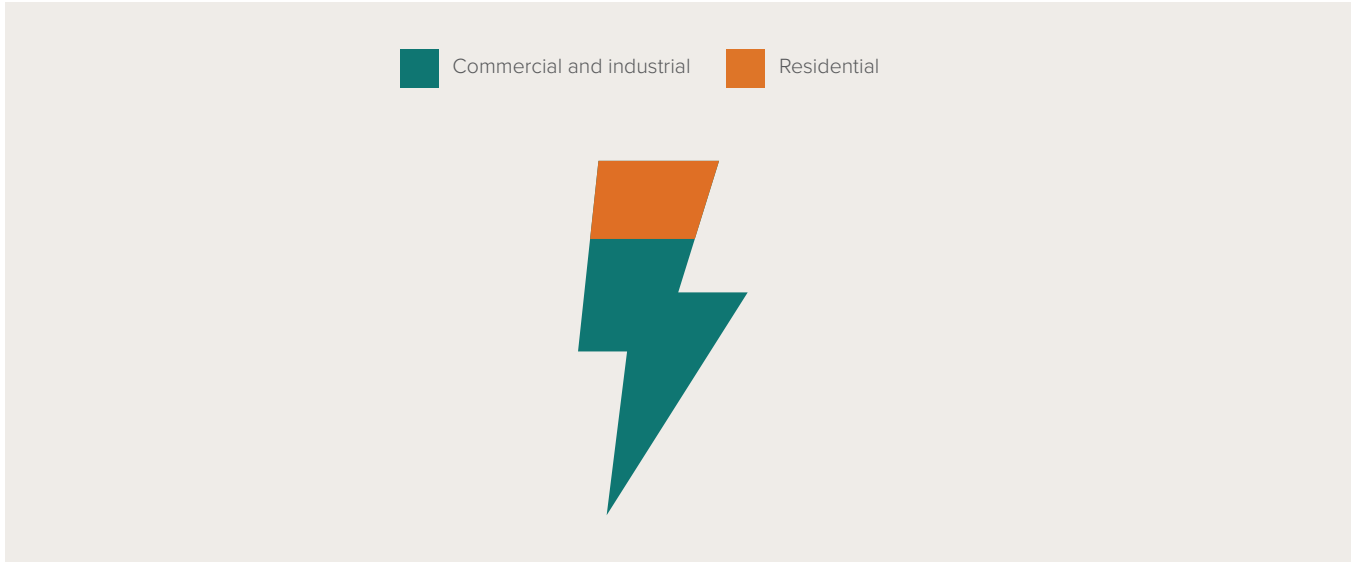


FIGURE ES2

US ELECTRICITY CONSUMPTION BY SECTOR IN 2016



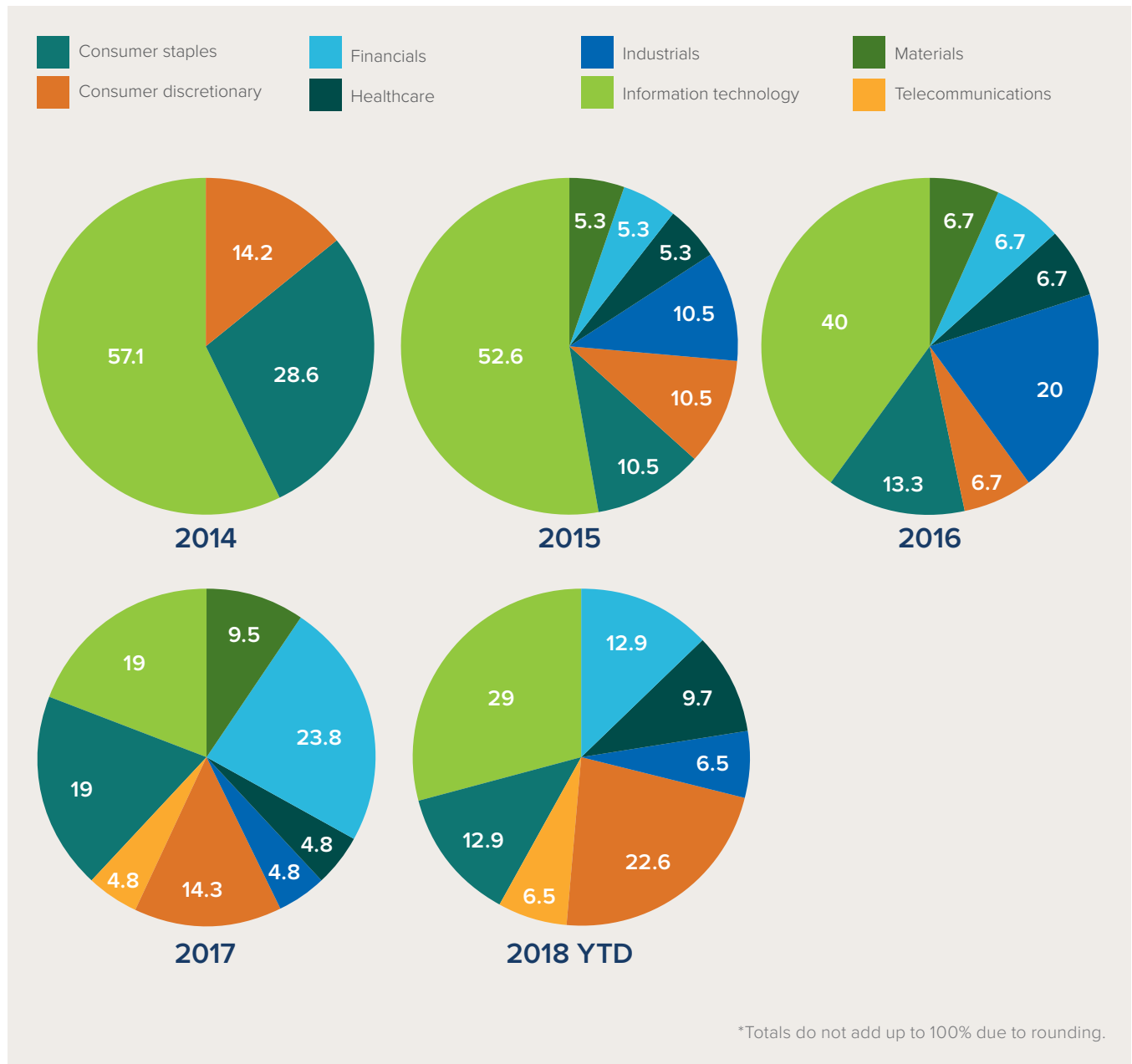
The market holds promise for even greater growth in the future, as a sizeable majority of US electricity consumption comes from the commercial and industrial (C&I) sector (see Figure ES2).

While the IT sector continues to be a leader in the market (with 29% market share), 2018 has seen the sustained participation of many other industries in

this space. More than half the procured capacity over the past year came from outside the IT sector and included industries like telecommunications, retail, manufacturing, and healthcare. This is reflected in Figure ES3, which shows how the participation from different industries has evolved over the years.

FIGURE ES3

DISTRIBUTION OF SECTORS OF CORPORATE BUYERS (PERCENTAGE)



Despite the tremendous growth in 2018 (with a 70% increase in announced transaction volume from 2017)¹ and the increasing diversity in the market, only around 60 companies have completed additional, off-site procurement of renewable energy in the United States.³ When that is compared to the number of companies with decarbonization targets (over 150 companies set targets⁴ just in the past year), it is clear that this market holds enormous potential for future growth and change.

The Business Renewables Center (BRC) engages with a broad group of stakeholders to bring down market barriers and enable more megawatts of clean energy on the grid. The BRC consists of a membership that is representative of the market it has seen evolve and now works with—over 90% of all US corporate buyers are BRC members and 96% of all US off-site procurement involves a BRC member.⁵

Through conversations with a variety of members and stakeholders, the BRC believes that risk mitigation needs to be seriously addressed—and in a timely fashion—to ensure the sustainable growth of this market. The following section will dive deeper into the reasons behind this conclusion.

INSIGHT #1: MITIGATION SOLUTIONS HAVE BEEN OUTPACED BY BUYER EXPANSION

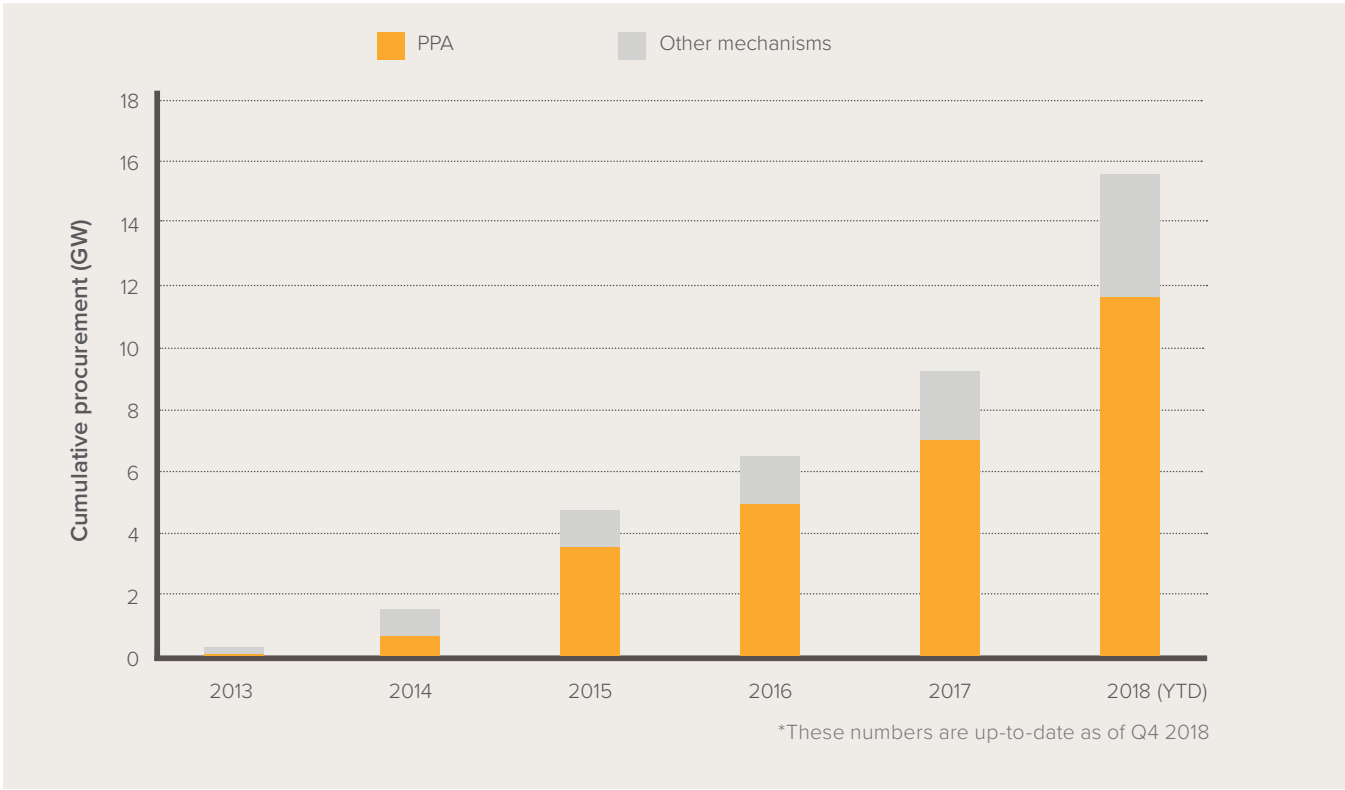
While the corporate procurement market has expanded and diversified rapidly in the last few years, risk mitigation solutions have not. This has led to a one-size-fits-all approach to risk, which is expanded upon in the next section.

The power purchase agreement (PPA) is and has been the dominant contracting structure in the US corporate procurement market (see Figure ES4).



¹ The BRC considers 2017 to be the first true benchmark year for corporate procurement in the United States, as procurement in 2017 was undertaken by a sufficiently large and diverse group of industries, and was not influenced by (potential) policy changes.

FIGURE ES4
CUMULATIVE CORPORATE OFF-SITE PROCUREMENT OF NEW RENEWABLE ENERGY USING VARIOUS CONTRACTING STRUCTURES



The PPA contracting structure brings a unique set of risks for each counterparty. Some of these risks (including price, basis, and shape risk) are specific to the wholesale electricity market, and are thus risks that corporate buyers do not encounter in their core business operations. A lack of familiarity with these risks makes it all the more important for buyers to understand them, their implications, and the applicability of different mitigation options (as highlighted in the report). Failure to assess and address these risks could cause buyers to experience unexpected—and significant—financial downside over the lifetimes of their contracts.

While the PPA contracting structure has proven scalable and effective for delivering renewable power, it is only one contract structure with one set of specific risks. The PPA’s unique set of risks may align well with one company’s risk appetite, while misaligning entirely with a different company’s risk appetite. This lack of variety around risk mitigation is increasingly at odds with a market diversifying in size and industry as the spectrum of risk appetites is broadening.

The set of available risk mitigation solutions has simply been outpaced by the rate of change in the market. As a result, the PPA is often the only viable option for companies that want cost-competitive, utility-scale renewable power.

The BRC came to this conclusion through three points of observation:

- **Market evolution:** the BRC has been at the center of this market since its inception. It has seen how this market has grown and diversified in a short period of time. Through conversations with solution providers and by means of general domain knowledge, the BRC has gathered that the pace of risk solution expansion has been much slower than the pace of market expansion.
- **Market interest:** the BRC has observed that there has been significant and growing interest in risk mitigation options. This interest has intensified over the past year and indicates a real appetite in the market for more ways to manage risk.
- **Stakeholder conversations:** the BRC has spoken to many stakeholders from multiple stakeholder groups—buyers, developers, risk managers, lawyers, financiers, and consultants. All the stakeholders are market leaders in their own right and one theme that emerged from many conversations was that risk mitigation is a growing challenge that must be addressed sooner rather than later.

To satisfy this broadening spectrum of risk appetites, the BRC advocates for an expanded set of risk mitigation solutions and contracting tools, as highlighted in the report. **There is a need to move from a one-size-fits-all to a “many-sizes-for-all” approach in risk management that ensures rapid but sustainable market growth in the long run.**

INSIGHT #2 – A “MANY-SIZES-FOR-ALL” APPROACH IS NEEDED FOR FUTURE MARKET GROWTH

A many-sizes-for-all approach is needed to identify the key risks for buyers and, more importantly, to expand on corresponding mitigation options to manage those risks.

To that end, the report identifies five key risks that are unfamiliar to buyers and difficult to manage—price, basis, shape, volume, and operational risk.

It discusses the implications of these risks and how they can affect the financial performance of contracts. The report subsequently dives into current and emerging risk mitigation solutions—both within and outside the VPPA (virtual PPA) construct. The VPPA is a popular version of the PPA that involves a financial exchange of cash flows and no ownership of electrons from the buyer’s side.ⁱⁱ

For each mitigation solution, the report then details how it works, where it has been implemented before, the counterparties involved in it, and the risks that are being mitigated. The report also provides a framework that will help buyers navigate this growing suite of available solutions.

ⁱⁱThe BRC’s video series on its online member portal includes a video on VPPAs. Please contact BRC staff for more information.

Eight risk mitigation solutions are identified in the report—five within the VPPA construct and three outside it. The solutions within the VPPA construct are:

- Hub-settled VPPAs
- Floors and collars
- Proxy generation
- Volume firming agreements
- Fixed volume swaps

The three risk mitigation solutions outside the VPPA construct are:

- Long-term REC agreements
- Project tranches
- Contract tranches

To ensure that a diverse array of corporate buyers understand what each solution means for them, three buyer archetypes are modeled. This will accomplish the following:

- Contextualize abstract risk mitigation solutions
- Demonstrate different buyers' priorities
- Show the growing diversification among corporate buyers
- Allow a buyer to relate to an archetype

The three buyer archetypes are:



SuperComputer Electronics: a very large IT firm with load across the United States, internal capacity for energy procurement, and a desire for firm power



Regular Café: a chain of retail shops with a small and highly dispersed load spread across the United States and low internal capacity for energy procurement



Heavy Metal: a heavy manufacturing company with a large, regionally concentrated load that has some internal capacity for energy procurement

The report examines the possible reaction of each buyer archetype to, and likeliness to engage with, the eight risk mitigation solutions under consideration. The solutions (within the VPPA construct) and the risks they mitigate are summarized in Table ES1 below. This table encourages a buyer to visualize how different solutions work, and how they could align with their own risk priorities.

TABLE ES1
RISK MITIGATION STRATEGIES AND THE RISKS THEY ADDRESS, AT A GLANCE

	STRUCTURE MITIGATING SPECIFIC RISK				
	PRICE RISK	BASIS RISK	SHAPE RISK	VOLUME RISK	OPERATIONAL RISK
HUB-SETTLED VPPA		✓			
FLOOR & COLLARS	✓	✓	✓		
PROXY GENERATION					✓
VOLUME FIRING AGREEMENT			✓	✓	
FIXED VOLUME SWAP	✓	✓			

CONCLUSION

Corporations represent a majority of the electricity load in the United States. This puts them in a unique position as they can leverage their tremendous buying power to shape the grid of the future—a grid that delivers clean and affordable power for all.

However, to achieve that future, the market needs to develop and implement a robust set of risk mitigation solutions. While the market has grown and diversified rapidly over a short period of time, solutions to mitigate risk have not done so at a similar rate.

Corporate buyers need to plan in advance and engage with key (internal and external) stakeholders to address risk. Such planning will ensure that the buyer makes informed decisions that best suit its own risk priorities. This report can help corporate buyers in their planning.

We at the BRC aim to discuss how the market can satisfy this broadening set of risk appetites in a way that corporate buyers find accessible and easy to navigate. For the future of the market and to ensure buyers continue to meet their sustainability goals, it is essential that risk mitigation become a focus for all stakeholders going forward.



ENDNOTES

¹ https://www.eia.gov/electricity/monthly/current_month/epm.pdf

² <http://businessrenewables.org/corporate-transactions/>

³ <http://businessrenewables.org/corporate-transactions/>

⁴ <https://www.cdp.net/en/research/global-reports/tracking-climate-progress-2017>

⁵ <http://businessrenewables.org/>



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