



Green Energy for Data Centers

Overview of U.S Wind & Solar Procurement by Corporations



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We provide commercial insight and access to our experts leveraging our integrated proprietary metals, energy and renewables research platform

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Leaders in renewables, EV demand and grid-connected storage

Over 500 sector-dedicated analysts and consultants globally, including 75 specifically to power and renewables

Located close to clients and industry contacts



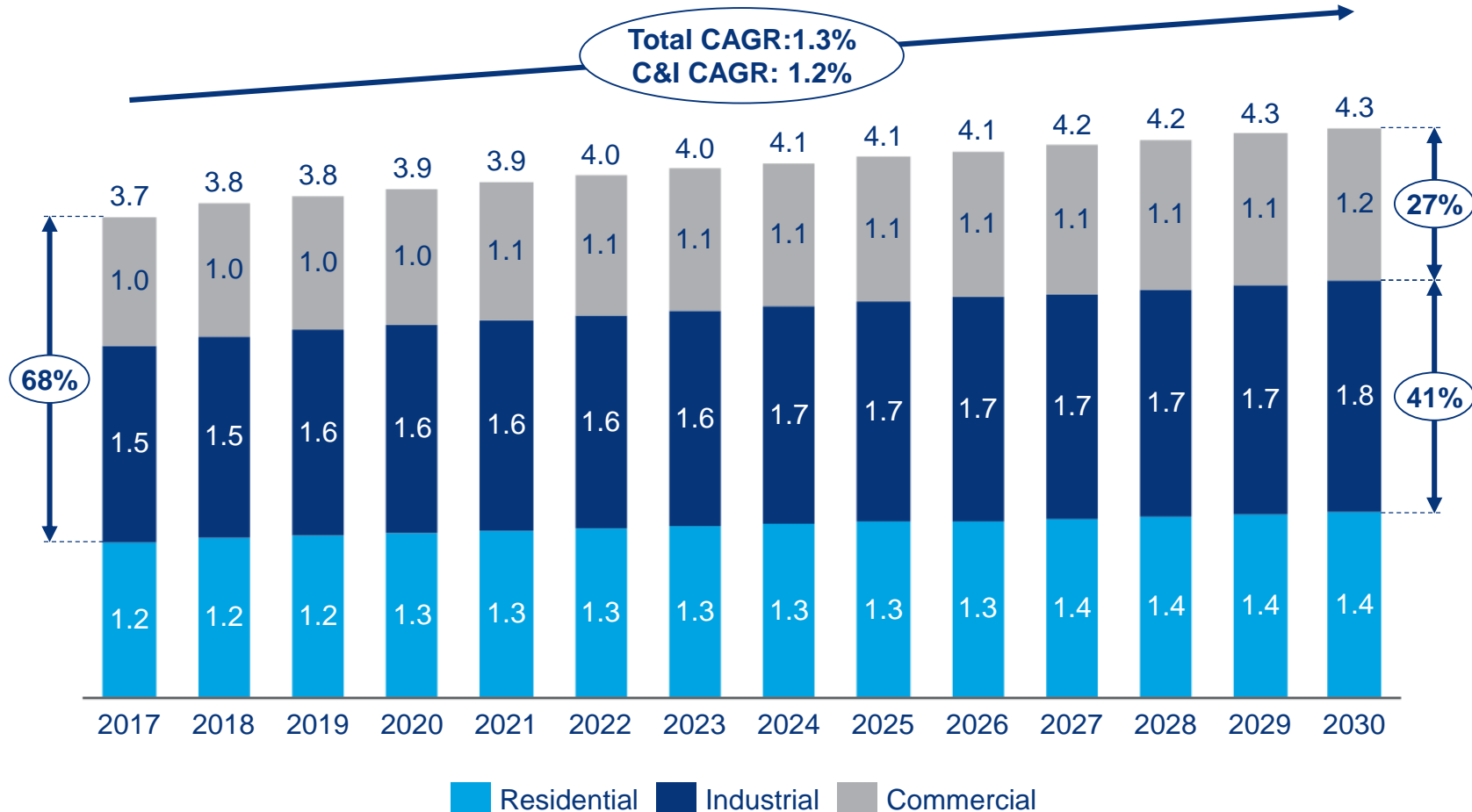
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United States electricity demand will continue to be driven by C&I sector

C&I segment will continue to serve as a critical client set for foreseeable future

United States electricity demand (Pwh)



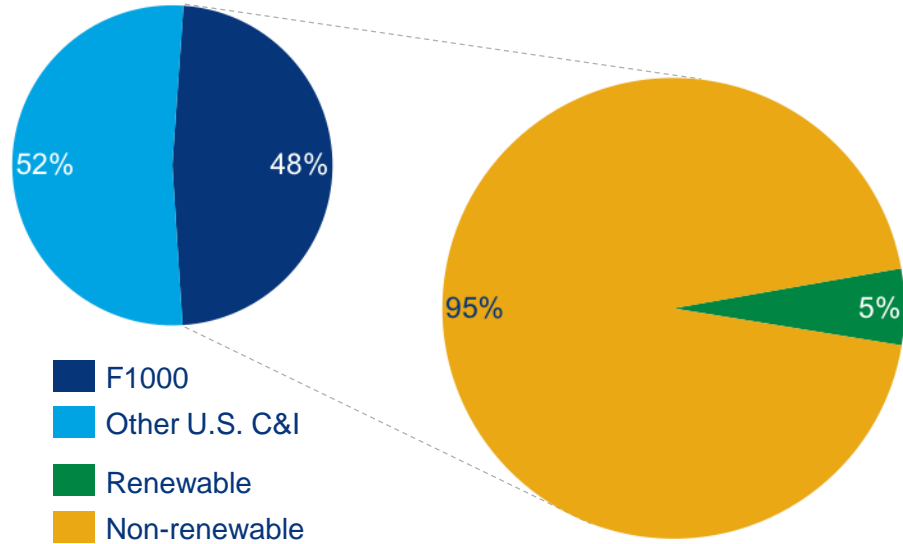
- C&I segments comprise ~70% of US electricity demand
- Industrial efficiency increasing 177 workers in 2019 have equal output as 1,000 in 1950*
- Electrification within energy intensive industries driving some power growth
- Growth in concentrated power demand from data centers
- Services economy driving commercial growth and differentiation based on sustainability

Source: Woodmac, * <https://www.industryweek.com/leadership/hope-not-plan-myth-american-manufacturing>

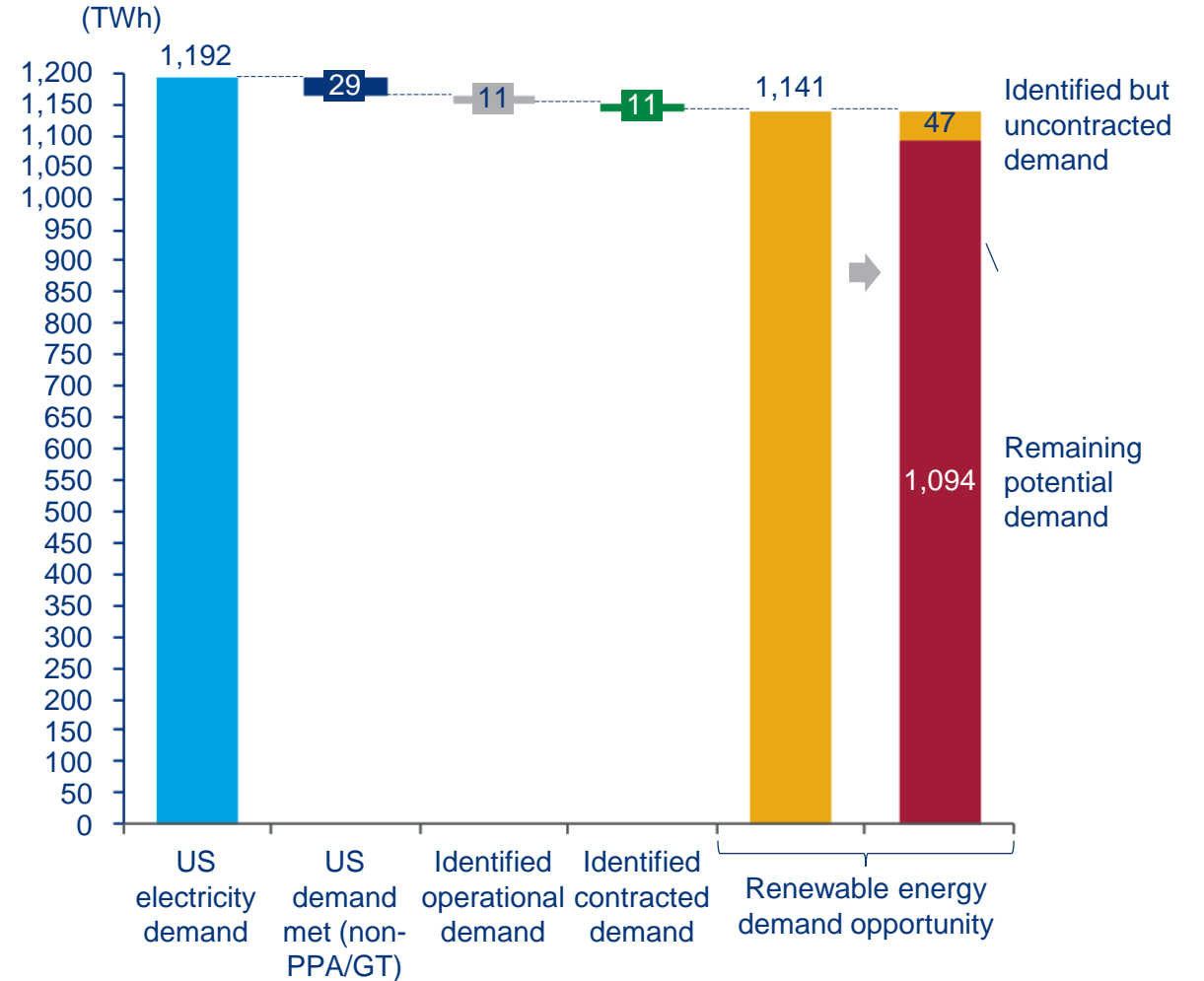
The pool of potential C&I electricity demand is staggeringly deep

Recent C&I offtake deals reflect a tiny percentage of total C&I power demand, opportunities in REC conversion

Estimated current F1000 power demand as a share of total US C&I electricity demand, and current renewable share thereof, 2018



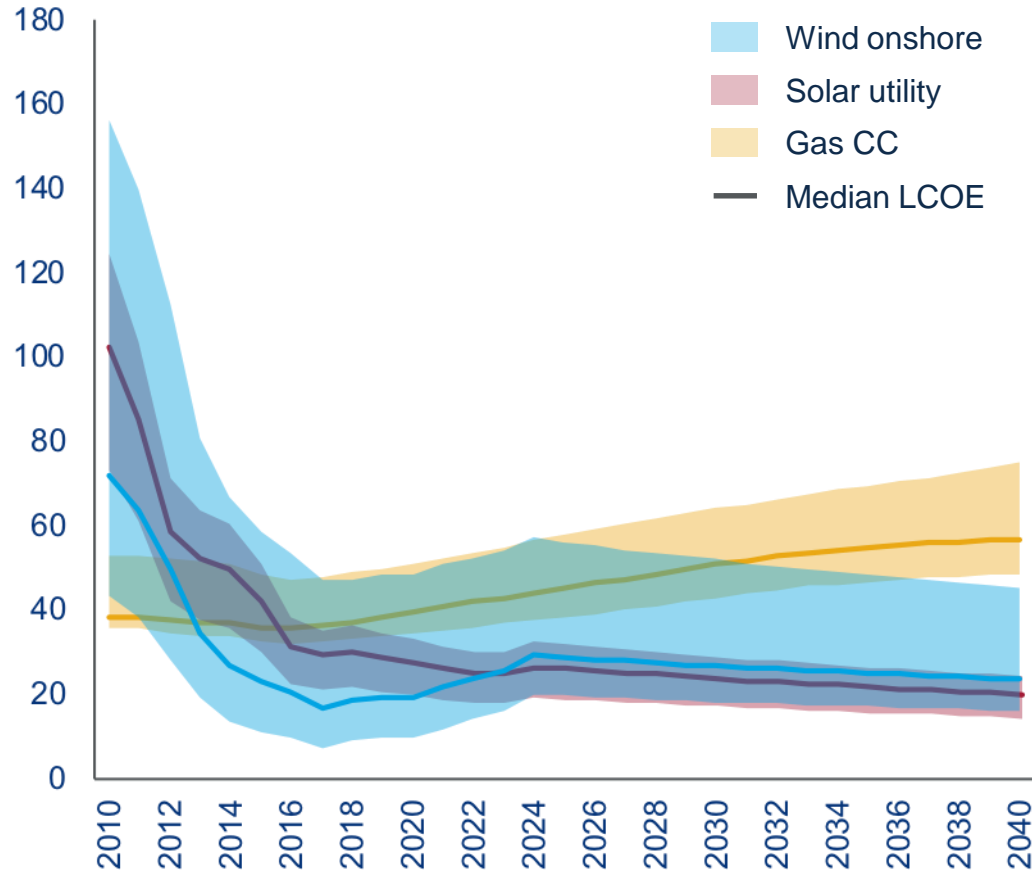
Estimated annual renewable energy demand opportunity from F1000 companies (TWh)



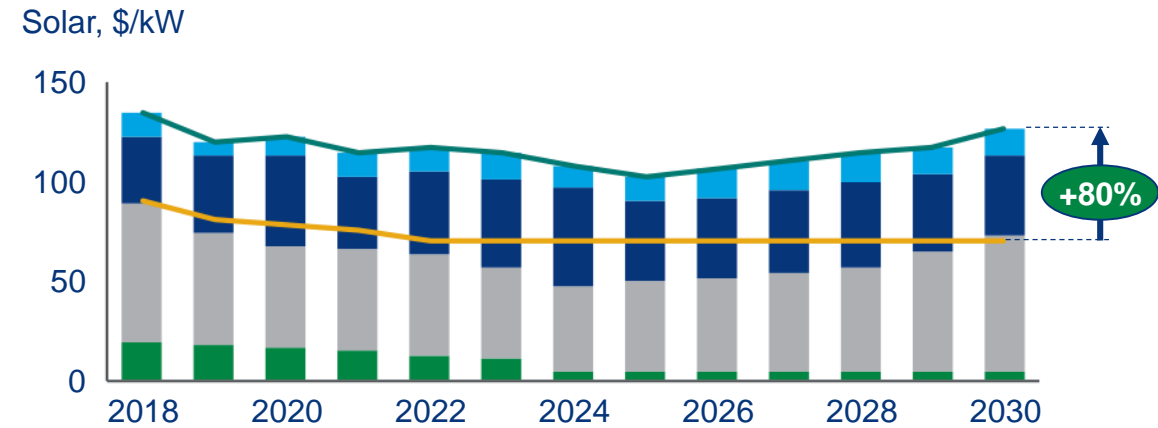
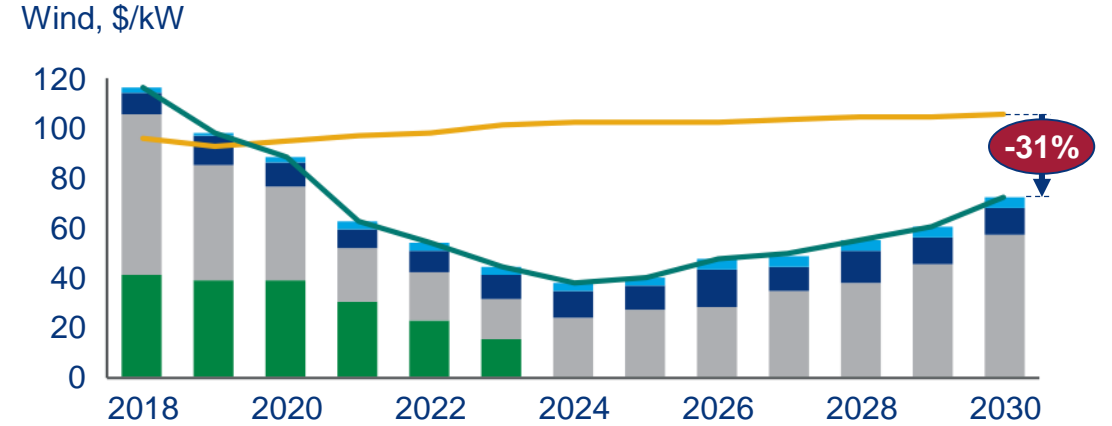
Levelised Cost of Energy (LCOE) and Net Cost of New Entry (NetCONE) outlook

New analytic measures, such as NetCONE, point to solar leadership to meet future power demand

US LCOE range & medians (2018 \$/MWh)



Wind and Solar NetCONE – ERCOT West



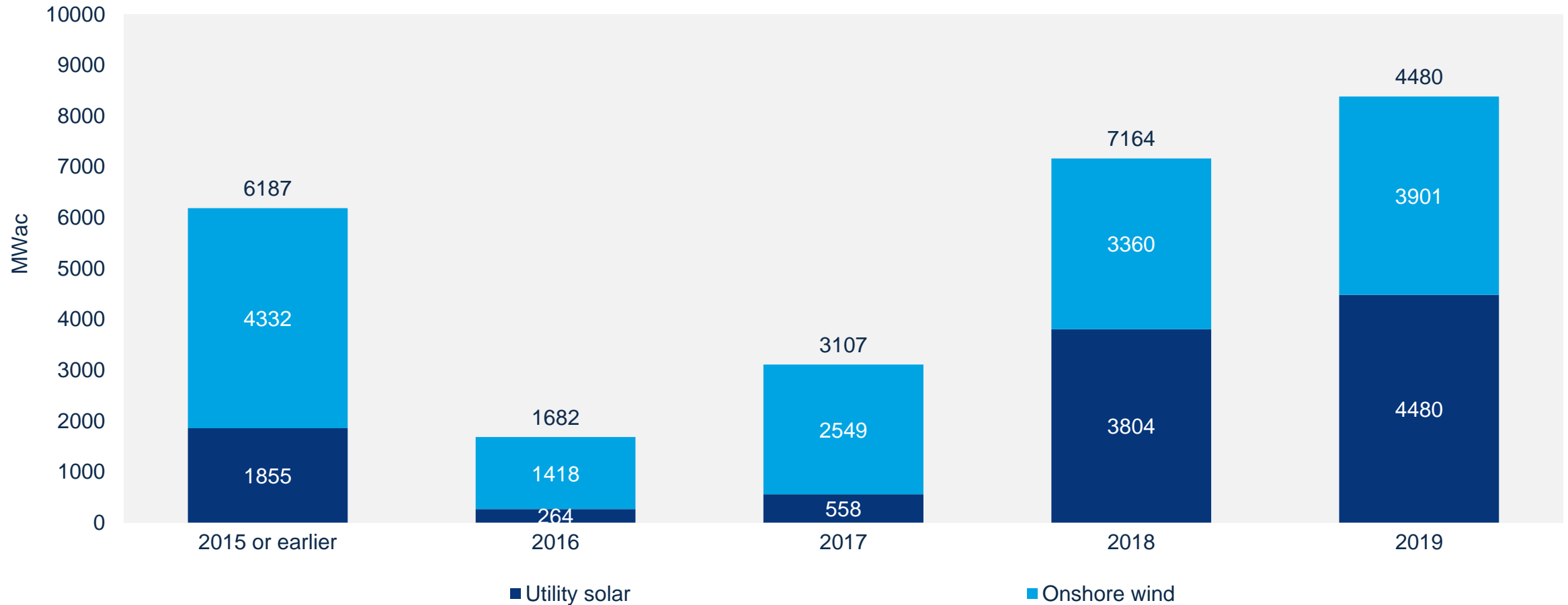
- Capacity revenue
- SRMC margin
- CONE
- Scarcity revenue
- Tax credits
- Net revenue

Note: LCOE lines represent medians
 Ranges represent US ranges for utility-scale projects
 NetCONE analysis derived from H1 Federal Carbon Case
 Source: Wood Mackenzie

Solar and wind C&I offtakers by procurement year

Substantial increase in C&I deals YoY takes place as PTC phaseout loom and Section 201 tariff scare abates

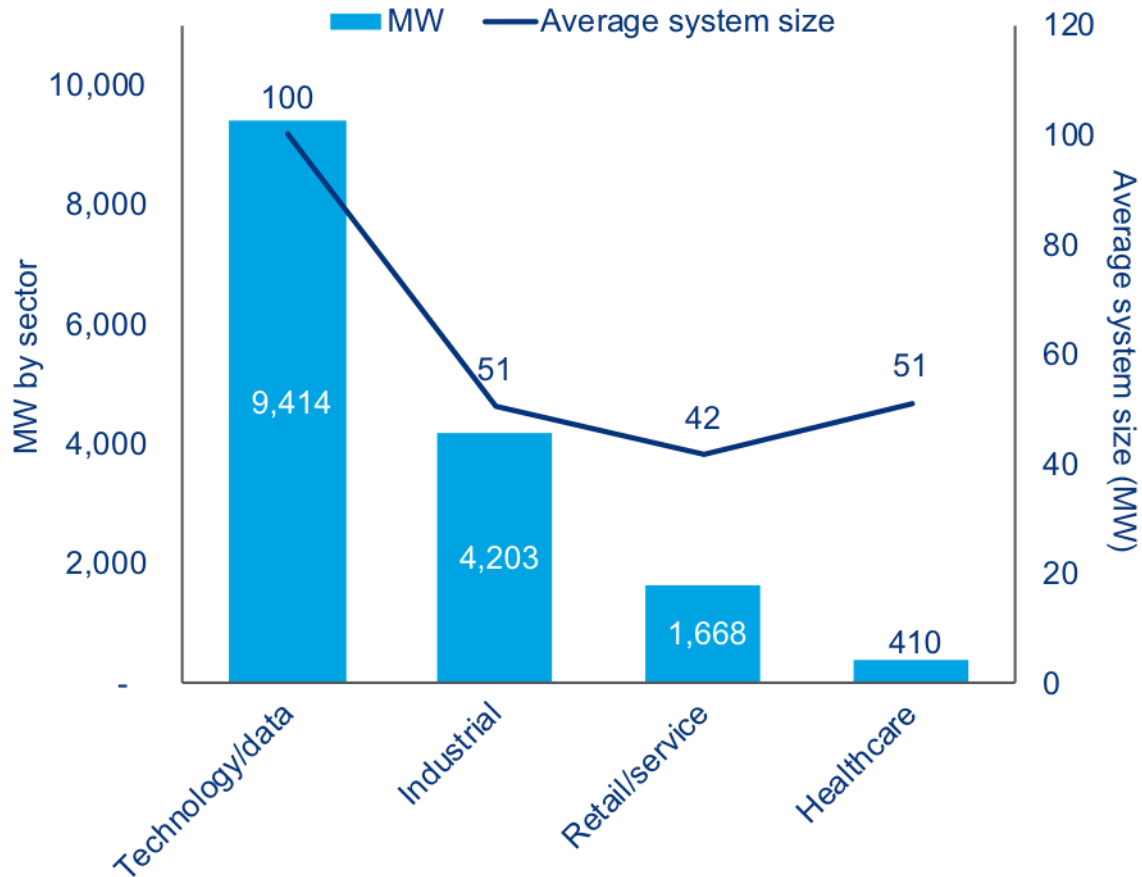
Select solar vs. wind C&I capacity deals by year of offtake announcement



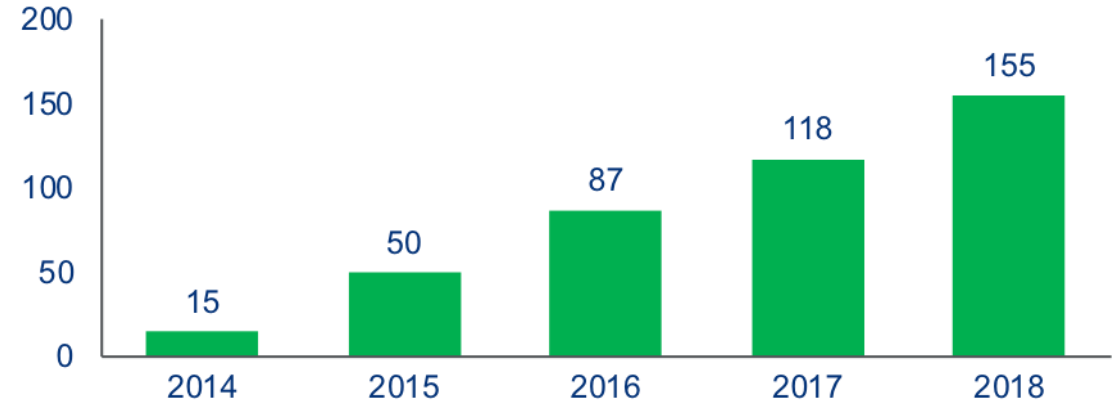
Support for renewables is surging across the C&I sector

Peer pressure building as RE100 ranks grow, mirroring new entrant activity

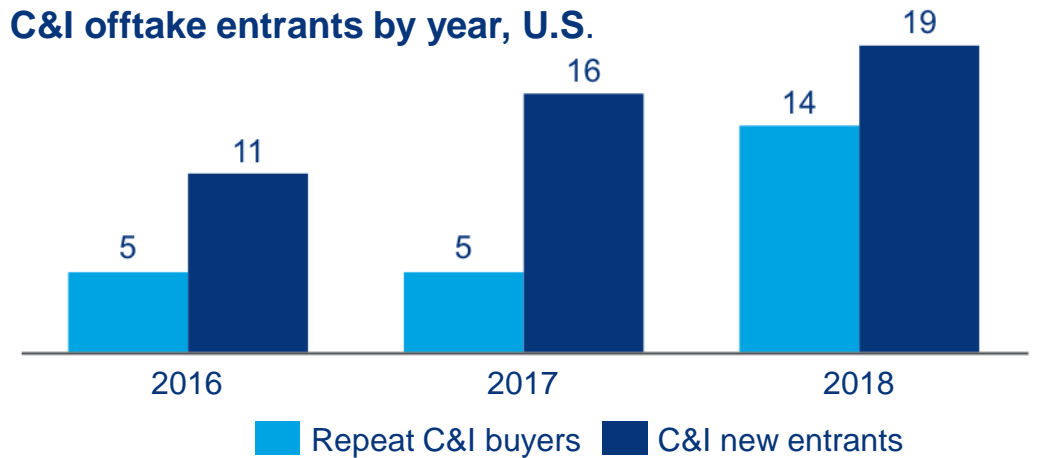
Renewable C&I capacity, operational and in-development (through 2018)



Cumulative RE100 signatories by year



New C&I offtake entrants by year, U.S.

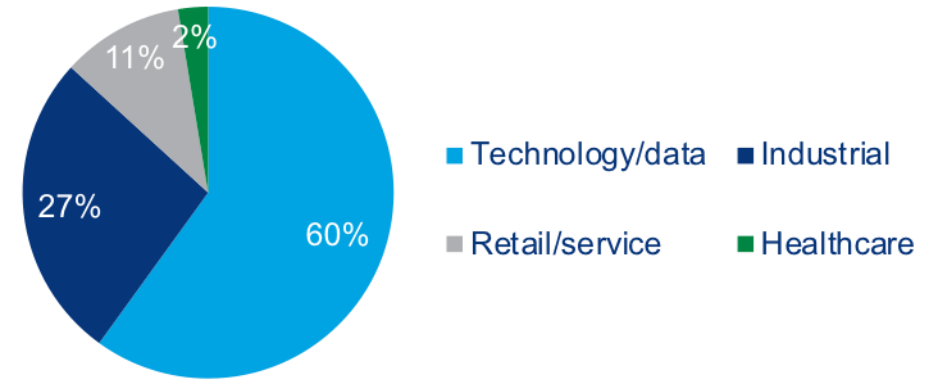
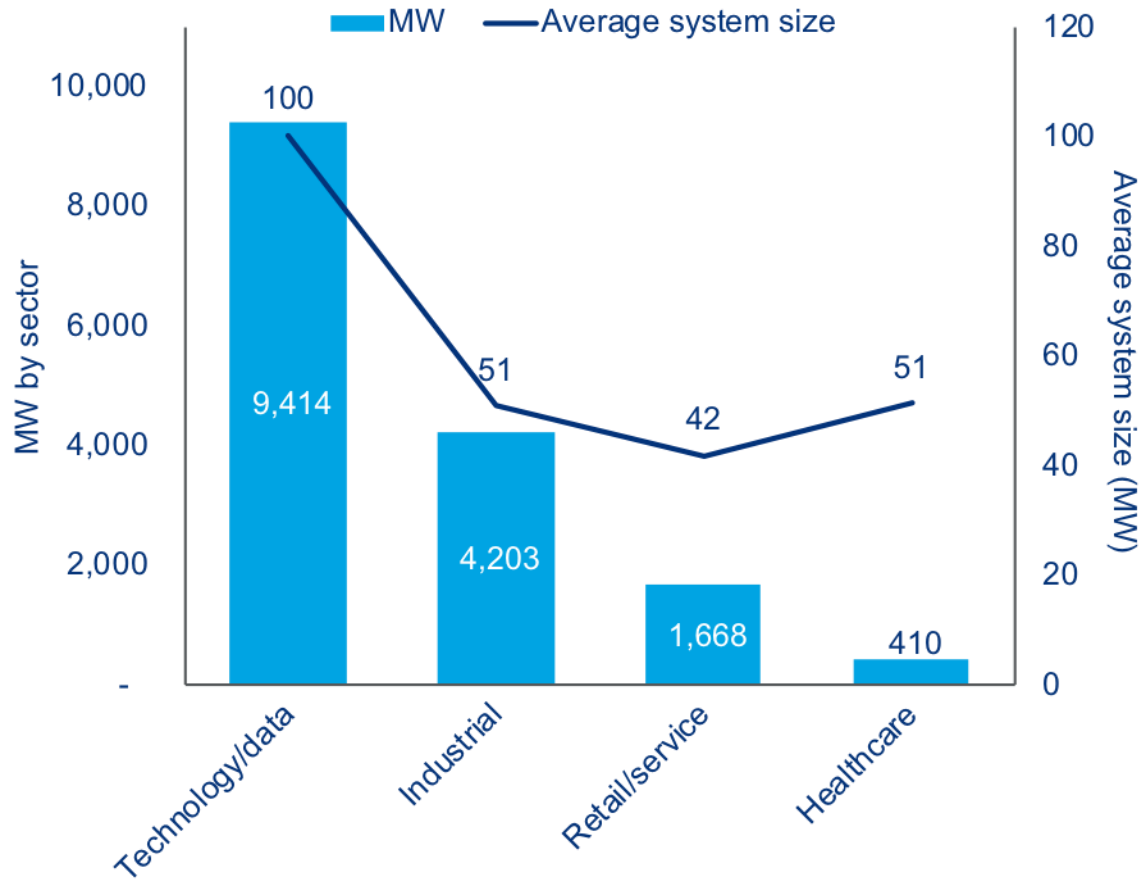


C&I offtaker segmentation

Technology/data sector dominates, but could be surpassed by industrial clients in coming years

Solar and wind capacity operating and in development by C&I segment Cumulative C&I capacity by segment in the U.S.

Through 2018

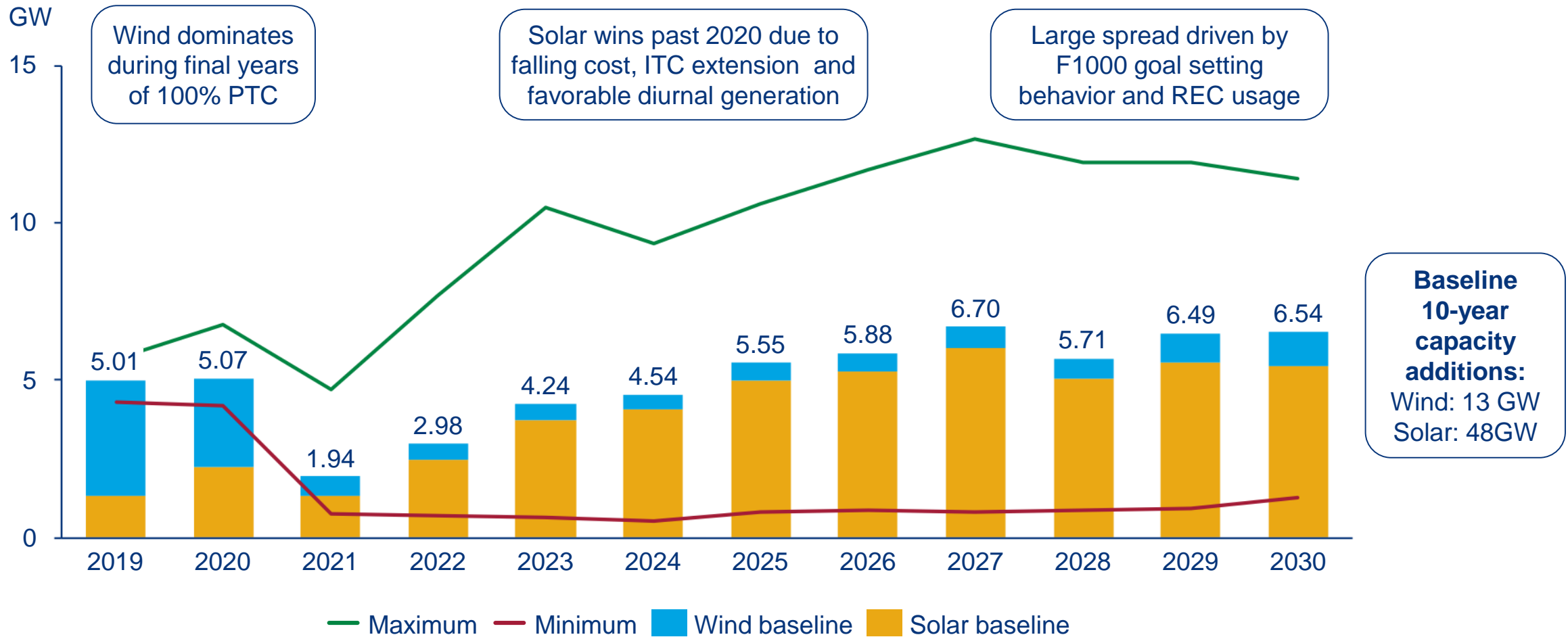


- Data centres, using between 20% and 87% more electricity per square foot than comparable buildings, are the largest segmentation of C&I offtakers
- The industrial sector is best positioned to surpass data and technology as the largest offtaker of renewables in the U.S.
 - » The number of large industrial companies like Dalmia, Gürmen Group, and Tata that have already signed renewable energy exceeds the number of data and technology firms
- Retail and service industry companies have procured less offsite wind and solar due to both their smaller average load size and ability to leverage distributed generation resources like rooftop solar

Additional capacity to meet C&I demand - forecast and potential range

Wind is the best option in near-term due to PTC, solar expected to be preferred C&I supply for long-term

Wind v. solar forecast for C&I demand, 2018-2030 (GW)



Thank You!

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