



Utility Partnerships with Data Center Customers

CoreSite at the Utility Energy Forum

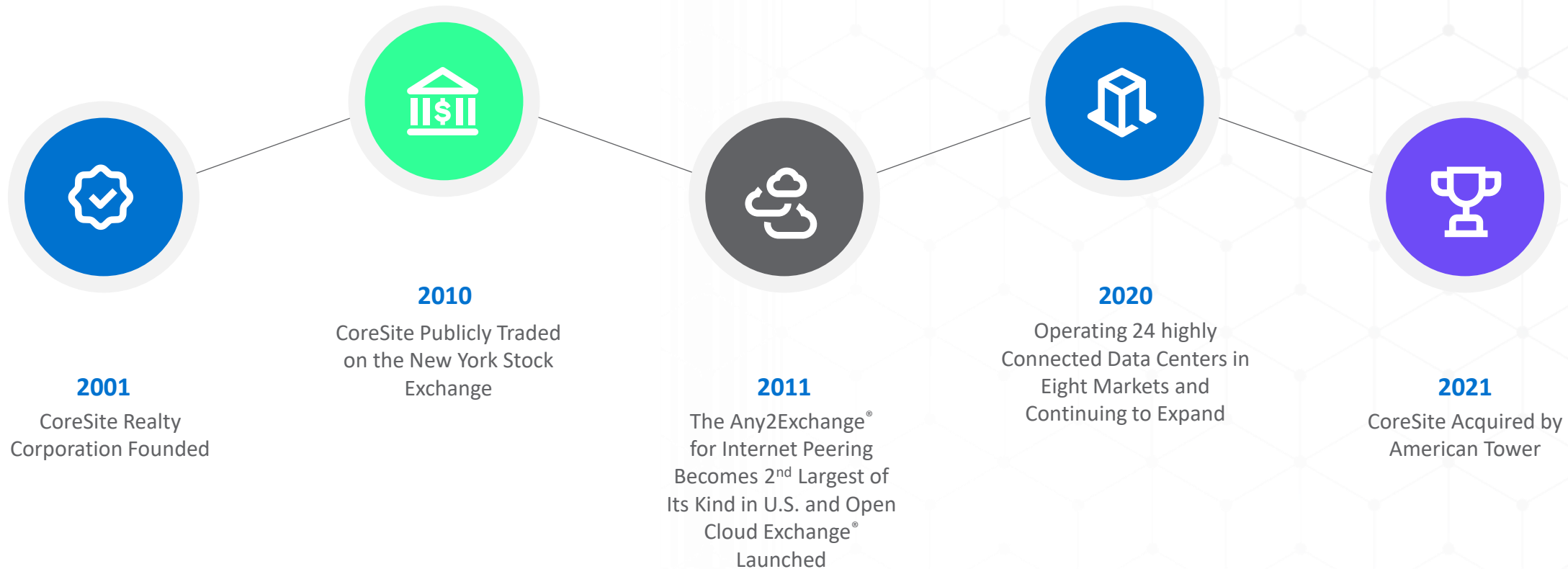
About CoreSite

CoreSite Realty Corporation delivers secure, high-uptime data center campuses with high-performance cloud access and interconnection solutions to a growing customer ecosystem across eight key North American markets. More than 1,375 of the world's leading enterprises, network operators, cloud providers, and supporting service providers choose CoreSite to connect, protect and optimize their performance-sensitive data, applications and computing workloads. Our scalable, flexible solutions and 475+ dedicated employees consistently deliver unmatched data center options — all of which leads to a best-in-class customer experience and lasting relationships.

Customers

CoreSite is trusted by our 1,375+ customers to safeguard their IT equipment and defend against incidents that could impair their operations such as power outages, weather catastrophes, physical security breaches, and public health emergencies. We are committed to providing a best-in-class experience while building long-term trust with our customers.

Our Timeline of INNOVATION



About Us

Unique data center platform with among the highest network-dense assets interconnecting the most critical digital infrastructure in key U.S. markets

COMPANY OVERVIEW

- Interconnection focused data center operator
- Geographic presence in eight network-dense locations in Tier-1 U.S. markets:
 - Hard-to-replicate data center campuses in Silicon Valley, Los Angeles, Northern Virginia, New York, Chicago, Denver, Miami and Boston
- Solutions provide connectivity for Enterprises, Network Providers and Cloud Providers
 - Interconnected large scale campuses enable hybrid-cloud / multi-cloud technology architectures
 - On-premises access to top public Cloud Providers reduces network cost / complexity, optimizes cloud performance / resiliency
- Business model grounded in financial discipline has led to industry leading ROIC
 - Two decades of consistent organic growth

2001

Year Founded

475

Professionals

4.6+mm

Gross NRSF

93%

Owned NRSF

1,370+

Customers

600+

Enterprise and
Digital Content

440+

Network
Service
Providers

330+

Cloud and IT
Service
Providers

25

Operational
Data Centers

8

Markets

~32,800



Customer
Interconnections

100%

Uptime SLA

CoreSite Cloud Connectivity

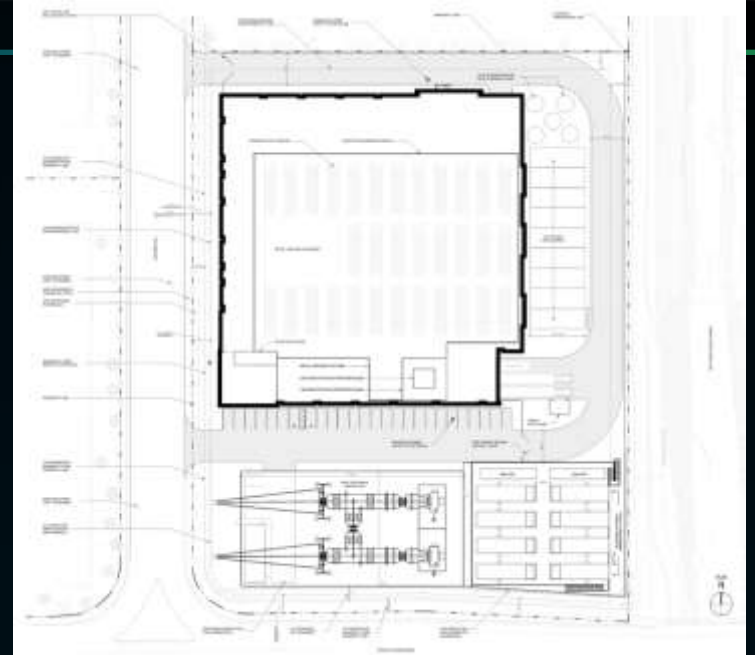


-  CoreSite Open Cloud Exchange®
-  AWS Direct Connect
-  Google Cloud Interconnect
-  Microsoft Azure ExpressRoute

-  IBM Cloud Direct Link
-  Alibaba Cloud
-  Oracle FastConnect
-  International Connectivity (subsea cables)

 CoreSite Open Cloud Exchange®

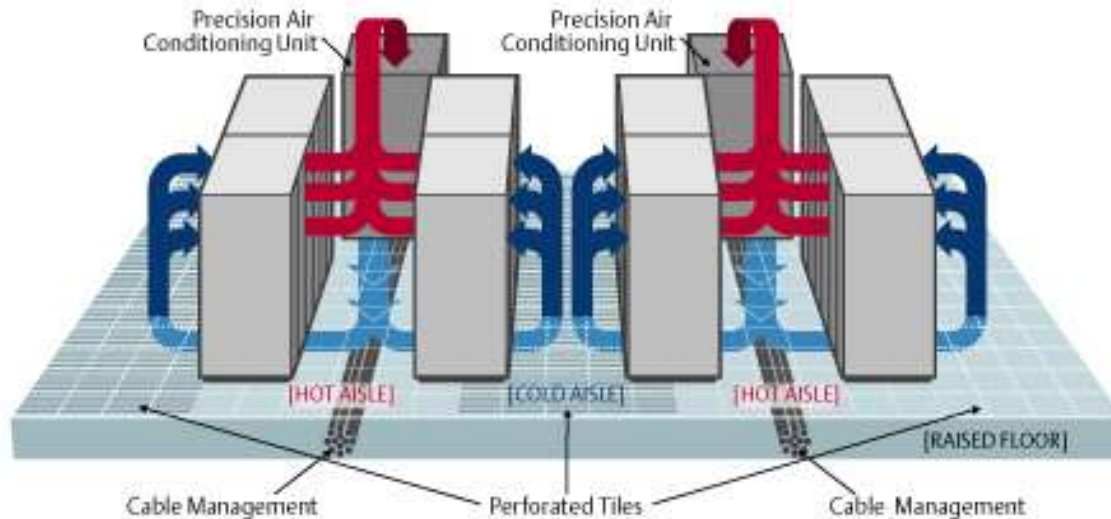
Amazon, Microsoft, Google, Alibaba Cloud, IBM Cloud and Oracle FastConnect can all be accessed through the CoreSite Open Cloud Exchange® in all eight of our markets.



Data Center Design

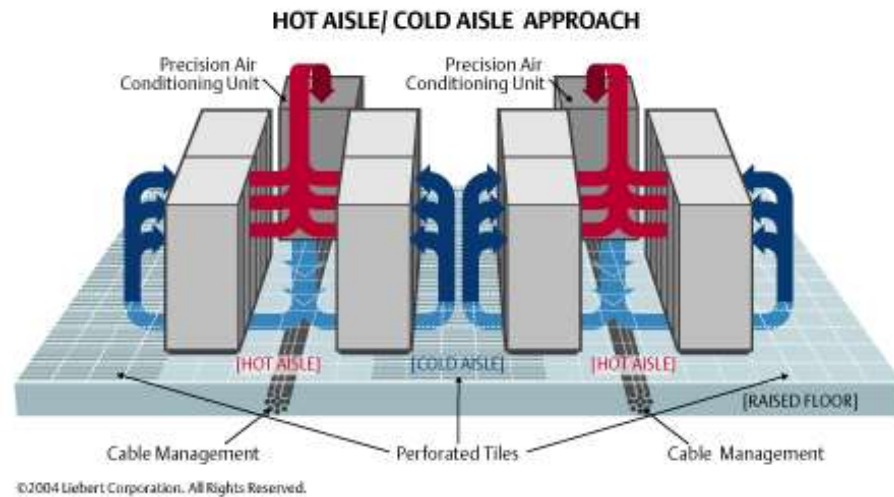


HOT AISLE/ COLD AISLE APPROACH



- CoreSite builds Data Centers with state-of-the-art power, environmental, and security systems
- Each facility is secure, reliable and customizable to meet our customers needs
- Space, Power, and Cooling:
 - Raised floor and drop ceiling
 - Hot Aisle Cold Aisle Layout
 - Backup Generators
 - DC Plant and UPS Battery Backup
 - Redundant Cooling Systems
- Security
 - 24 x 7 Security presence
 - Biometric access controls

Data Center Environmental Systems



Power Use Effectiveness (PUE)

- IT equipment electrical use (IT Power) creates heat which needs to be cooled
- Cooling systems include fans and pumps that consume electricity
- Cooling system power usage is called Mechanical Power
- Total Power = IT + Mech + Other
- **PUE = Total Power / IT Power**



Cooling Tower/
Chiller
Cools water



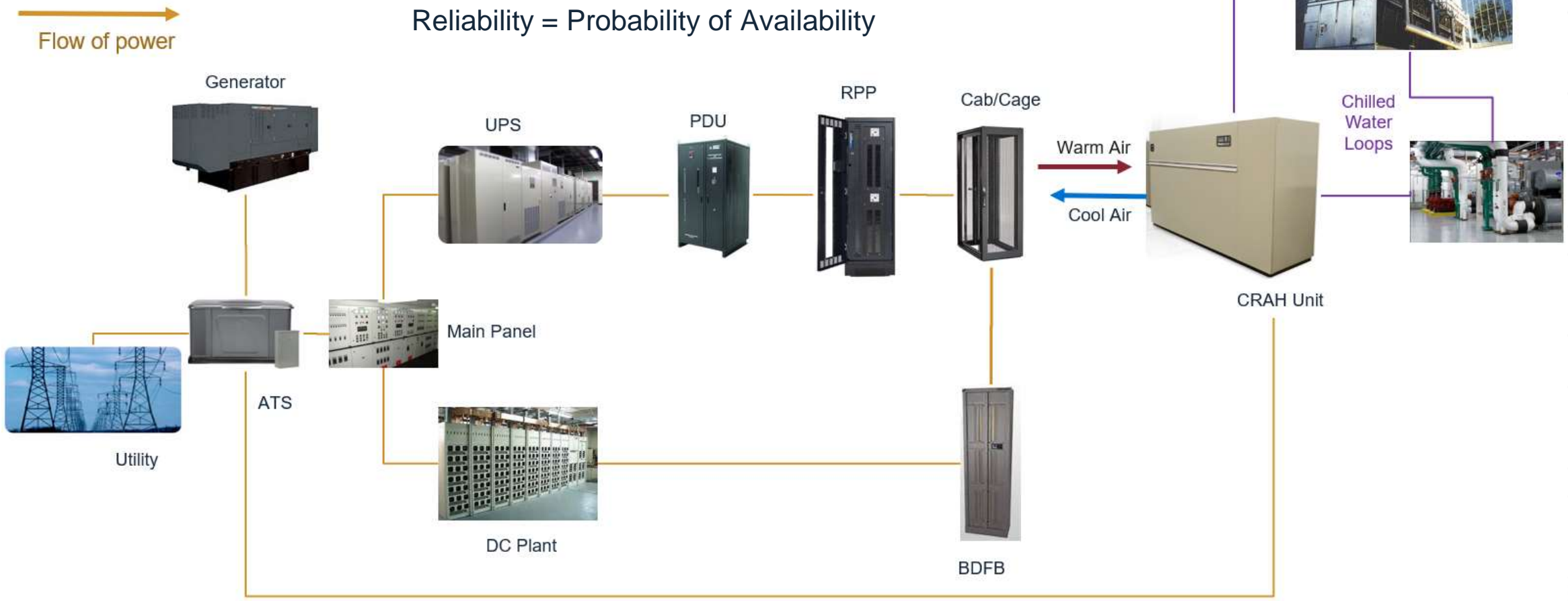
CRAH Unit
*Blows air over
chilled water into
computer room*

Chilled Water
Loop
*Transports
chilled water*



Increased Reliability and Performance

CoreSite data center power and cooling systems are designed and operated consistent with the highest industry standards for reliability



Environmental System Metrics

2011 ASHRAE Temperature and Humidity Guidance

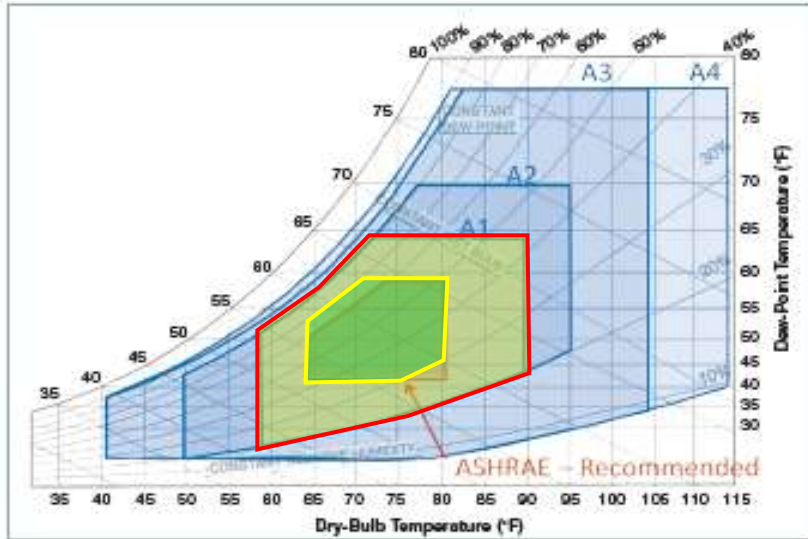


Figure 1: 2011 ASHRAE environmental classes for data center applications. Note: Envelopes represent conditions at IT Equipment inlet.

Range	Class	Dry-Bulb Temperature	Humidity Range, Non-Condensing	Maximum Dew Point
Recommended	All A	64.4°F to 80.6°F	41.9°F DP to 60% RH and 59°F DP	59°F
	A1	59°F to 89.6°F	20% to 80% RH	62.6°F
Allowable	A2	50°F to 95°F	20% to 80% RH	69.8°F
	A3	41°F to 104°F	10.4°F DP and 8% RH to 85% RH	75.2°F
	A4	41°F to 113°F	10.4°F DP & 8% RH to 90% RH	75.2°F
	B	41°F to 95°F	8% RH to 80% RH	82.4°F
	C	41°F to 104°F	8% RH to 80% RH	82.4°F

Table 2: 2011 ASHRAE environmental classes for data center applications.

Why Temperature and Humidity Matter

Temperature

- Electricity produces heat, enough heat to melt metal or catch fire; most equipment will shut down to avoid damage
- Low temperatures are also concerning, most likely will negatively impact the humidity, but very cold temperatures can affect electric current

Humidity

- Too much moisture can cause electrical devices to short circuit
- Not enough moisture increases the risk of static electric build which can lead to electrostatic discharge



Energy Efficiency

Energy efficiency is a key competitive differentiator for CoreSite data centers. Our customers are focused on their 'total cost of ownership' ("TCO") when deciding to colocate with CoreSite; market competitive, energy efficient designs are critical to our success. **Efficient design and construction reduces waste, which should drive reductions in build costs, ultimately making CoreSite more competitive.**

CoreSite's phased build out approach and modular equipment design standard ensures systems are optimally sized and/or staged to support the portion of the data center that is in operation, reducing losses and system inefficiencies.

Our primary source of energy consumption comes from the power demand of our customers' IT equipment and the cooling systems we control. **We identify and adopt best practices for our overall data center power design, which include building automation systems, air-side economization, water-side economizers, and hot/cold aisle containment. We continuously seek opportunities to upgrade our facilities to increase operational efficiency.** In 2020 our same store PUE was annualized at 1.42, an increase of 0.01 (0.3%) compared to 2019 (2021 results to come in June).

Thoughts on Energy Improvements

The Low Hanging Fruit

- PUE: A lower PUE benefits everyone, this should be the focus of operational improvement across the board
- One-off benefits for an easy win, E.G.:
 - Tier 4 v Tier 2 generators
 - EV charging stations
 - Emergency load reduction programs (CSEP)

The Larger Impact

- Beyond construction, our carbon footprint depends heavily on the utilities we depend on. Renewable energy from the utility is becoming more and more top of mind.
- Datacenters optimize cost/benefit at construction. Incentivizing energy efficiency is truly impactful for new buildings and for the 15-20 year cycle refresh projects.
- Policy/Legal review for code standards – EG using Lithium-Ion v. Lead-Acid (VRLA) batteries for UPS systems.
- Datacenter awareness – concentrated efficiency is far better than disperse inefficiency.
- Path to power – A customer's decision is largely driven by receiving reliable power which drives local revenue, taxes, and growth.



2018 SV3 & SV4 SVP Rebate

Project Description

CoreSite upgraded the building automation system (BAS) to improve energy efficiency and reliability. The new BAS sequence of operations involved many changes that reduces annual energy use, including:

- Optimal chiller staging to keep operating chillers nearest their best efficiency load at varying lift conditions.
- Dynamic chilled water differential pressure and supply temperature resets based on data hall air handler valve requests.
- Independent economizer and chilled water valve supply air temperature setpoints to minimize both mechanical energy use and IT fan energy use (i.e. economizers will be controlled to a lower SAT than the CHW valves).
- Revised comparative dry bulb economizer logic.
- Condenser water return temperature reset to minimize chiller energy.

Savings Estimates

Theoretical optimum PUEs were calculated at design IT load design day (no airside economizing) and

The pre-project annual energy use was then compared to the annual energy use of IT load over a full year. estimate of 12,706,903 kWh annually).

Note that the projected energy savings result in more than double maximum rebate incentive available.





Wrapping up

- Our business relies on energy, is driven by efficiency, and is looking for sustainability.
- Our customers want an easy choice for a sustainable option, which relies heavily on the utility, and everyone benefits from our concentrated ecosystem.
- The large impacts will come from policy and design incentives that drive forward looking decisions.