



QTS and Akamai pave a path to a sustainable future with clean energy, improved efficiencies and partnership

Executive Overview

Enterprises across the world have embraced sustainability as a key element of their corporate strategies. While there has been tremendous focus on renewable energy, this market is facing a series of obstacles that make 100% renewably sourced energy more challenging as more enterprises commit to this power supply. As the industry works toward addressing these issues, integrating other clean energy sources, minimizing water consumption and implementing other initiatives that support the environment can continue the momentum toward a more sustainable future. QTS Data Centers and Akamai Technologies are taking this message to heart and championing sustainability through their own actions and corporate initiatives.

Introduction

The amount of energy enterprises use to power their buildings and operations is continuing to grow. The internet alone requires a tremendous amount of energy—in the realm of [10% of worldwide electricity consumption](#)—to support the hyperconnected world. This volume of energy use is stressing natural resources and polluting the atmosphere. To help protect the environment, a growing number of enterprises are integrating sustainable practices into their corporate strategies.

Akamai, a content delivery network, cybersecurity, and cloud service company, has a long-standing commitment to sustainable practices. Its Intelligent Edge Platform, one of the world's largest distributed computing platforms, accounts for [92% of its annual emissions](#). In 2021, renewable energy powered more than 50% of the platform with 20% of this energy supplied by its own renewable energy projects: wind farms in Texas and Illinois and a solar array in Virginia.

Driving this level of change cannot be done alone. Akamai works with its data center partners, including QTS, to improve power usage and efficiencies and champion sustainability causes. As major consumers of power and water—accounting for approximately [1% of global electricity](#)—data centers can be key strategic partners in helping organizations control their environmental impacts. QTS, a leading provider of mega-scale data centers, shares Akamai's commitment and is actively working to minimize its carbon footprint across its fleet of 28, and growing, data centers.

One of the organizations' shared goals is obtaining 100% of their energy from renewable sources, such as wind and sun, that are created from continuously replenished sources and cannot be depleted like fossil fuels and gases. While renewable energy generators have made marked strides in power production, growing at a compound average annual growth rate of 15% between 2015 and 2020, the industry faces a number of hurdles to keep up with demand for this clean energy supply. This places increased attention on decarbonization strategies and alternative clean energy technologies.



QTS Goals

- Procure 100% of our power from renewable energy sources by 2025, tracking on a portfolio baseline of 2018
- Portfolio wide WUE
- Report to GRESB, CDP, EcoVadis, RE100 and the EPA Green Power Partnership
- Design 100% of Buildings to Green Building Standards, Pursue EnergyStar certification for all eligible properties
- Install EV charging stations at 75% of our facilities by 2025
- Recycle 90% of our Operational Waste by 2025

Akamai 2030 Goals

- 100% Renewably Sourced Energy
- 50% More Energy-Efficient Platform.
- 100% Platform Emissions Mitigation
- Responsible Supply Chain Management
- Global Expansion of 100% Electronic Waste Recycling Program

The Challenges Facing the Renewable Energy Market

While 100% renewable energy supplies may be the goal, the reality is that the renewables market is not there yet. In 2021, the world generated a record [10% of its electricity from wind and solar sources](#). While these numbers continue to grow, generating enough renewable energy to meet rising demand is an ongoing challenge, made even more difficult by a series of factors.

SUPPLY AND DEMAND

Renewable energy is facing a textbook supply-and-demand scenario with the limited supply of renewables hiking prices. Not only is there more demand for renewables to support existing infrastructure, but organizations are continually building new facilities and introducing innovative technologies with the intent of powering them with renewable energy. QTS and Akamai are prime examples. QTS plans to bring several new data centers online in the next few years and also has plans to expand existing facilities. Akamai's [Intelligent Edge Platform](#) is also always growing. While both companies have made commitments to use renewables, existing renewable-energy-generating infrastructure struggle to meet this need.

PRODUCT SUPPLY CHAIN

Building the necessary infrastructure to support escalating demand has its own challenges, including its cost and finding appropriate locations. The industry is also facing the same supply chain challenges as the automotive industry, technology sector and the world-at-large, impeding its ability to procure the components needed to build and maintain wind turbines and solar panels.

THE DISTRIBUTED STORAGE DILEMMA

A lack of storage is also hampering the market. While some areas are unable to produce enough renewable energy to fill the grid, other areas—particularly those in deregulated markets or areas with a strong focus on emissions abatement—are becoming saturated. The



industry needs a storage solution that allows energy to be saved to ensure its future availability in the necessary quantities and locations.

Until these challenges are addressed, renewable energy alone will not be able to meet the growing demand of today's market, forcing companies to make some difficult decisions about their energy procurement strategies.

The Road to Sustainability

To address these issues and balance sustainability with economically sound procurement practices, many organizations are adjusting their sustainability efforts and introducing decarbonization strategies to build in some supply chain diversity, where needed.

"As we continue to progress toward a 100% renewable energy plan, we may need to evaluate clean energy options and a range of technologies and opportunities that are outside of the renewables space," said Mike Mattera, global director of corporate sustainability at Akamai Technologies. *"This can help us achieve the 90% decarbonization level CEBA [Clean Energy Buyers Association] is shooting for by 2030."*

Clean energy is produced with zero emissions and does not pollute the atmosphere.

ALTERNATIVE SOLUTIONS TO A MORE SUSTAINABLE FUTURE

A decarbonization strategy limits the amount of carbon emissions that enters the atmosphere. Carbon-free or clean energy supplies such as nuclear, green hydrogen and hydroelectric power generate zero carbon emissions and can offer clean alternatives to solar and wind. Finding the right mix of renewable and carbon-free energy sources can help build a sustainable energy strategy.

CARBON CAPTURE TECHNOLOGY

Carbon capture technology also helps limit carbon emissions by capturing the gas as it is released during energy production, so it does not enter the atmosphere. The carbon dioxide is then delivered to and stored in an isolated location, usually underground. The Federal government is [incentivizing this process](#), making it an increasingly popular option.

BUILDING A STORAGE SOLUTION

Battery storage technology is another important step toward enabling 100% renewable energy usage and flattening the supply curve. While lithium battery storage is the go-to answer on a small scale, cost and disposal concerns make it less viable for utility-scale storage. However, the electric vehicle (EV) market may offer another option.

"The transportation industry is moving toward electrification," said Travis Wright, vice president, energy and sustainability at QTS. *"The energy industry could leverage electric vehicles to source or sell the energy the vehicles have stored in their own, individually managed battery packs."*

By utilizing the more than [2 million EVs in the U.S.](#), the sustainability industry could gain access to a greatly distributed, mobile and continually growing network of batteries, allowing local grids to compensate or charge EV owners depending on whether they are delivering or receiving energy. This solution could offer a long-term, cost-effective solution to energy storage and distribution without requiring utilities to manage large battery packs.

ADDRESSING WATER CONSUMPTION

In addition to evaluating and implementing new technology and clean energy sources, sustainability efforts should minimize water usage. Data centers traditionally utilize large quantities of water—to the tune of 360,000 gallons a day—to regulate the temperature of the facility. Innovative cooling technologies are emerging to bolster water utilization effectiveness (WUE), improve efficiencies and costs, and help lower facilities' power usage effectiveness (PUE).



QTS utilizes its own highly efficient, water-free cooling technology that leverages outside air to regulate server temperatures. QTS will employ this highly efficient pump refrigerant system in most of its new data centers to strengthen its sustainable data center design.

"By pairing our water-free cooling system with solar or wind power sources that do not use water to generate power, we've created a truly water-free data center," said Wright. *"It is another critical step toward a truly sustainable data center."*

For its part, Akamai has explored hybrid solutions with its own data center builds, integrating a mix of outside air and direct expansion (DX) cooling. This solution places a refrigerant coil directly in the supply air stream to remove energy and lower the air stream's temperature.

DATA CENTER TEMPERATURE

Understanding the heat tolerance of the infrastructure within the data center can also minimize energy utilization and water consumption. Data centers run at around 78°F—to ensure critical equipment and servers do not overheat. However, such extreme temperatures may not be necessary.

"The rule of thumb is that every 1°F increase in temperature translates to a 4% reduction in energy consumption," said Wright. *"These types of changes can lead to tremendous energy efficiencies and cost savings, especially in existing facilities that may not be able to accommodate new technologies without altering cooling systems or performing expensive upgrades."*

The Social Side of Sustainability

Sustainability can also be addressed from a social perspective. In a competitive business environment, organizations seek opportunities to differentiate themselves from their competitors, and other organizations want to partner with organizations with strong sustainability practices to amplify the good they can do.

QTS has rolled out several success-based giving initiatives that support local communities and the world

at-large by directly linking customer contracts with the data center provider's charitable giving.

"QTS believes sustainability should be financially, operationally and culturally sustainable, creating value for stakeholders and benefiting society at the same time," said Wright. *"Using this thought process, we've structured our Success-based Giving Program to allow our customers to buy the data center services they need, while doing some good in the world."*

AMERICAN FOREST

Partnering with American Forest, a world leader in restoring forests for over 140 years, the [Grow with QTS program](#) plants one tree each month for every 100 kilowatts (kW) a customer purchases for the life of the contract. This conservation effort which is primarily focused in wildfire-ravaged forests across the U.S., introduces approximately 35,000 trees per year. Each tree saves a quarter ton of carbon dioxide, with a large tree absorbing 40 to 50 pounds of carbon dioxide to improve air quality.

WORLD VISION

Through its QTS HumanKIND program, QTS partners with [World Vision](#), a humanitarian aid, development and advocacy organization, to provide clean water to those in need in developing countries. For every 100 kW of power contracted, QTS provides three people with clean water for the life of the contract. For any single contract of 12MW of power or more, QTS funds the building of a sustained, clean water source, such as a well or water point to provide long-term, sustainable clean water to an entire community.

DREAM ACADEMY

Also through the HumanKIND program, QTS also partners with the [U.S. Dream Academy](#), an organization dedicated to helping underserved children in the U.S. reach their dreams. For every 1MW – 12MW deal, QTS sponsors an at-risk child, providing education, sustenance and mentoring to empower these children with the confidence and skills to become valued members of their communities.



"QTS is putting its money where its mouth is and taking action out in the world—not just within its four walls," said Mattera. "It is looking to make a true and lasting impact, and we appreciate that we can be part of that effort, just by being a QTS customer."

THE AKAMAI FOUNDATION

Akamai is making a social impact of its own with [The Akamai Foundation](#). Dedicated to fostering tomorrow's technology leaders, the Foundation offers grants to provide equal access to quality STEM education in grades K-12 through programs like the [Girls Who Code](#). The Foundation also offers disaster resilience, relief and humanitarian aid globally.

Trends and Predictions on the Future of Sustainability

As organizations continue to adopt sustainability efforts, several trends and new expectations have emerged to strengthen conservation efforts and move closer to achieving 100% renewable energy and decarbonization.

LEGISLATION

Sustainability-focused legislation will continue to emerge in the U.S. and across the globe as government dynamics play an increasingly key role in making progress in the climate change efforts. The government already offers [tax credits for renewable energy products](#) and is seemingly following the [European Union's \(EU\) lead in requiring zero carbon emissions](#) with a recent Oregon bill that requires Oregon's two major power suppliers to [eliminate their carbon emissions by 2040](#). Having laws to back emerging sustainability practices can help accelerate the success and direction of the industry.

TRANSPARENCY

With more organizations invested in the sustainability practices of their partners and providers, transparency into these efforts will become increasingly important. QTS and Akamai have both filed Environmental, Social and Governance (ESG) Reports since 2019, to provide insight into their efforts in these areas. Additionally, the organizations actively report their sustainability efforts to an expanding list of voluntary disclosure frameworks such as GRESB, CDP, ECOVadis, the EPA Green Power Partnership and RE100.

QTS also offers its customers real-time insight into its sustainability efforts and progress toward its sustainability goals through its Service Delivery Platform (SDP), a powerful software-defined orchestration platform.

SUSTAINABILITY METRICS

As sustainability continues to widen its scope, organizations will want standardized metrics by which they can assess efforts and progress. This will provide a clearer, more consistent picture of the impact individual organizations are making on various environmental fronts.

Looking to the future, integrating sustainable practices into business operations will continue to be an essential element of operational strategies, especially as the internet continues to grow to meet the demands of the connected world. Whether organizations are trying to get to 100% renewably sourced energy or minimize their carbon footprints, sustainability efforts will require steadfast partnerships and evolving practices that address existing limitations and push capabilities to deliver innovative opportunities for the uninterrupted delivery of clean energy supplies to support the planet.

ABOUT QTS

QTS Realty Trust, LLC is a leading provider of data center solutions across a diverse footprint spanning more than 9 million square feet of owned mega scale data center space within North America and Europe. Through its software-defined technology platform, QTS is able to deliver secure, compliant infrastructure solutions, robust connectivity and premium customer service to leading hyperscale technology companies, enterprises, and government entities. QTS is a Blackstone portfolio company. Visit QTS at www.qtsdatacenters.com, call toll-free 877.QTS.DATA or follow on [Twitter @DataCenters_QTS](https://twitter.com/DataCenters_QTS).