Digital Realty's Sustainability Snapshot

Every year we publish an environmental, social and governance (ESG) report filled with facts and stats measuring our success against our pre-determined ESG goals.

We're proud of the steps we've taken across the globe, constantly striving to do more, and in this sustainability snapshot, we're putting the spotlight on some of these ESG initiatives.

2020 was the year we drew our line in the sand. We joined the Science-Based Targets initiative (SBTi), becoming the first global data center organization of our size and scale to do so. We set aggressive targets, committing to reducing our Scope 1 and 2 emissions (direct and indirect company emissions) by 68% and Scope 3 emissions (indirect emissions in our value chain) by 24% by 2030. To put this into perspective, imagine cutting your daily commute time by 68%, transforming a 60-minute journey into just under 20 minutes, or reducing your household waste by 24% – almost a quarter less waste going to landfills. That's the kind of transformation we're aiming for across our business.

We have more than 5,000 customers globally and as we continue to grow with them, we must ensure our sustainability strategy supports their ESG targets – and empowers them to drive innovation with green, scalable digital infrastructure. Across our customers, partners, and suppliers, we are part of conversations on how we can all be doing more to reduce our environmental impact – and it's by having these honest conversations with our stakeholders that we will create lasting change.

68%
Reduced Scope 1 and 2 emissions by 2030

24%
Reduced Scope 3 emissions by 2030

5,000
Customers globally

Our Guiding Principles for Sustainability

Collaboration is key to making sure we're fulfilling our potential and walking the walk, not just talking the talk. That's why we're working with our customers, investors, colleagues, and local communities to get it right. At Digital Realty, we have identified three core focus areas for sustainability:

01

Designing and constructing sustainable data centers. We're developing data centers that don't just compute; they uplift the neighborhoods they're in.

In 2022, we completed our first green building certificate in South Korea, adding to the **12+ million** square feet of equivalent sustainability certifications across our portfolio.

02

Finding new ways to power them. We're supporting the development of new renewable energy supplies and exploring ways to reduce our reliance on fossil fuels.

In 2022, we hit a major milestone: one gigawatt of new renewables under contract – a **9.8%** increase from 2021 – with an additional **315 gigawatt** hours of renewable energy.

03

Continually improving how we operate our data centers. We're investing in new technologies to reduce the environmental impact of running our data centers.

36% of the water our sites consumed in 2022 was supplied by non-potable reclaimed or recycled water sources, making more fresh water available in local communities.

Putting Our Principles into Practice: 2022 Milestones

Cutting carbon

Scope 1 and 2 carbon emissions cut by nearly a half **(43%)**. By square foot, compared with 2018 levels.

Carbon neutral for Scope 1 and 2 emissions in France. Purchased carbon offsets to match the emissions from our data centers.
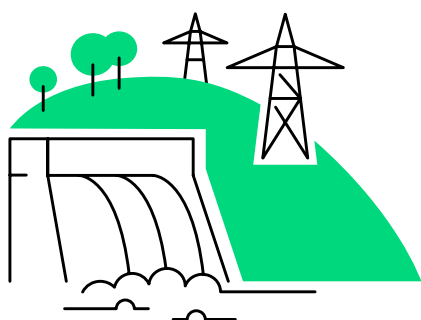
Net zero for Scope 2 emissions in Europe. Matched all our electricity consumption with sources of renewable energy.

43%

Reduced Scope 1 and 2 carbon emissions

Energy efficiency
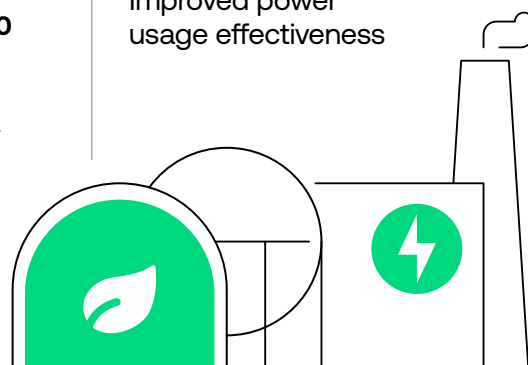
Improved our power usage effectiveness by 16%. Compared with 2017 levels for our colocation sites – this is the metric used to determine the energy efficiency of a data center.

Increased the number of our properties aligned with the EU Code of Conduct for Energy Efficiency in Data Centers (EU DC CoC) by **18%**. Compared to 2021 – the EU DC CoC is a voluntary commitment designed to reduce energy consumption.

All properties have now been assessed by the US Environmental Protection Agency's ENERGY STAR Portfolio Manager – and **26 of our U.S. properties are now ENERGY STAR certified.** The Portfolio Manager measures a building's energy usage, water consumption, and greenhouse gas (GHG) emissions. The ENERGY STAR certification means properties must meet strict energy efficiency criteria.

Ramping up renewables

One gigawatt of new renewable energy under contract. Up nearly 10% from 2021 – reducing our reliance on fossil fuels and investing in renewable energy sources.

1.8 million metric tons of carbon dioxide (CO_2) equivalent emissions avoided in 2022 – roughly the same as the carbon emissions from **361,800** U.S. homes each year. Thanks to sourcing renewable energy.

100% renewable energy powering our European and U.S. colocation data centers. This means that we match **100%** of the energy used to power these data centers with renewable energy.

16%

Improved power usage effectiveness

100%

renewable energy powering our European and U.S. colocation data centers.

A closer look at what we're doing in (and around) our data centers

Realizing the rewards of renewables

Embracing clean energy isn't a sprint, it's a marathon – and introducing established renewable energy sources to pave the way for pioneering technology is key. Solar power, for example, is at the heart of our renewable energy initiatives, supporting the transition to renewables across our business.

We've installed solar technology in data centers all over the world, from Cape Town to New Jersey, and the impact has been significant. Earlier in 2023, we announced the installation of solar panels at our SIN11 data center in Singapore, as well as an investment in solar farms in Germany that will help power our data centers. In addition to Singapore, we have on-site solar installations at several sites across the globe including Greece, Kenya, Switzerland, and New Jersey, generating clean power for use in our data centers. Moves like this simultaneously reduce our greenhouse gas emissions and reduce the strain on local energy grids.

A closer look at what
we're doing in (and around)
our data centers

Giving back to local communities

Giving back to the communities in which we operate is a priority for us. One way we do this is by capturing excess heat from our facilities and sharing it with our neighbors. Currently, we're involved in several district heating projects globally, from Seattle to Stockholm, helping to heat thousands of homes and businesses across the world.

Here's how it works: we design and set up systems that capture the extra heat from our facilities. We then convert this heat into hot water, which nearby homes and offices can use as central heating to lower their heating costs.Recycling waste heat from our data centers is a significant way we can give back whilst creating efficiencies.

Amsterdam

In Amsterdam, we've joined forces with Dutch energy company Polderwarmte. When the project is operational, our **AMS5 data center there will provide extra heat to businesses parks** in Schiphol-Rijk, benefiting the local community and reducing waste.

Stockholm

Since 2015, we've been part of Stockholm Exergi's district heating network, a testament to our ongoing commitment to heat recycling. **The initiative provides heat to more than 800,000 Stockholmers** through its 3,000 kilometer-long network, something we're extremely proud to be a part of.

Zurich

We're also looking to the future. We've signed up to a project, currently due to go live in 2024, which will see us **provide 18 megawatts of heat** to businesses in and around Zurich airport. In phase one of the project, we're expected **to save a remarkable 15,000 tons of CO_2 emissions.**

Vienna

In Vienna we're helping to heat up the Floridsdorf Hospital by supplying them with **more than half of their required warmth** using our waste heat.

Our Vienna data center campus will be able to supply **50% of the hospital's heating energy needs and save 4,000 tons of CO_2 emissions** per year when fully operational.

A closer look at what
we're doing in (and around)
our data centers

Keeping cool
under pressure

The main source of energy consumption
for data centers is keeping them cool – so
it's incredibly important that we find ways
to do this as efficiently as possible.

Take our new cooling tower initiative at our
SIN10 data center in Singapore, for example.
The first of its kind to be implemented in
Singapore's data center industry, the tower
uses a process known as DeCalon (DCI)
electrolysis. This process removes mineral
build-up from cooling equipment without the
need for additional chemicals. Result? We've
tripled the number of times the same pool of
water can be used at our SIN10 cooling towers
before it is discharged as wastewater – saving a
substantial 1.24 million liters monthly.

In Marseille, we joined forces with Dalkia Smart Building in 2020 to
develop a sustainable and innovative River Cooling solution at our
MRS2 and MRS3 data centers. The solution, which took two and a
half years to build and includes more than three kilometers of buried
networks and 27 heat exchangers, works by diverting underground
water from a former industrial facility dating back to
the late 19th century, 'La Galerie de la Mer.'

The structure collects and channels rainwater that seeps
in from the old mines of Gardanne to the Grand Port Maritime de
Marseille. Kept at 15°C year-round, the water is channeled via a
buried network and pumping station near to the Digital Realty data
centers, which is then used to cool them by thermal exchange.

The solution, which is up to 30 times more energy efficient than
traditional cooling systems, results in approximate savings
of up to 18,400 MWh annually, while mitigating the emission
of 795 tons of CO_2, the equivalent of 5,560 trees planted each year.

Our aim is to limit our water consumption, particularly in water-
scarce regions. We're working on some innovative tech to steer us in
that direction. For instance, in the U.S., we're teaming up with Nalco
Water to deploy AI tools that will pinpoint any water system issues
and help us fine-tune for efficiency.

27
Heat exchangers

1.24 million
Liters of water saved monthly

Let's talk about the birds and the bees...and don't forget the trees!

Caring for the animals, plants, and landscapes that surround our data centers is very important to us. We know that the small steps we take to preserve ecosystems can make a big difference.

Here are a few examples:
In Frankfurt, the site of our Digital Park Fechenheim is home to a population of sparrows. Amidst construction, we've worked to minimize disruption to their home by setting up cozy **'sparrow villas'** – and once we're done, we will restore their natural habitat to create a thriving ecosystem.

Venture over to our **DUB3** data center in Ireland and you'll see how we're conserving natural biodiversity in the surrounding area. We teamed up with local biodiversity experts and professional landscape architects to decode the best conservation moves. The first port of call was identifying what needed to be protected. There was already a pond on-site with a rich ecosystem of trees, shrubs, reeds, birds, bees, and fish. Our team made sure that this area was protected during the construction of the data center, and now ensures that it remains undisturbed during the day-to-day operations of the facility.

We then consulted with external experts who made recommendations on what we could build ourselves that would support a broad range of local wildlife, not just the birds and bees. Off the back of these recommendations, the DUB3 data center site features bat-friendly parking lot lighting, which is **LED-based** and designed specially to emit light that does not affect the natural senses and rhythms of bats.

In Spain, twice a year colleagues from our local Digital Realty office plant, water, and maintain two reforested areas near Madrid, both of which are certified by the Spanish Ministry of Environment and regulated to ensure the surrounding biodiversity is thriving.

We're collaborating with Reforest'Action, a social enterprise that protects, restores, and plants new forests in France, and around the world. Since 2020, we've planted a total of **58,290** trees across the South of France and the Île-de-France region. In 2022, we financed a reforestation project in the Jura region, resulting in the planting of a further **11,143** trees – reducing **2,800** tons of CO_2 emissions.

The French Riviera is getting a carbon offset boost through the Prométhée-Med project in Calanques National Park, run by EcoAct. The project aims to safeguard seagrass beds by soaking up carbon and raising the bar on conservation – and we're excited to be contributing. The aim is to capture and store up to **1,500** tonnes of carbon per hectare, to prevent it being released into the atmosphere.

2,800
Tons of reduced CO_2 emissions

58,290
Trees planted across the South of France

The Next Frontier

At Digital Realty we're proud of the strides we're making towards a more sustainable future, and we're always looking for ways to do more. As we gear up to accelerate the shift to net zero, our journey is constantly gaining momentum.

Our dedicated team of data center designers, engineers, and sustainability experts is constantly looking for ways to increase our sustainable efforts. Collaborating closely with our customers and industry partners, we're transforming big concepts into practical solutions that drive change within our data centers. Here's a glimpse into three trends we think will be key in our sustainability journey:

Powered by vegetables

Our commitment to reducing emissions leads us to prioritize green energy wherever possible. In 2022 alone, our renewable energy sourcing programs curbed 1.8 million metric tons of CO_2 equivalent emissions – a figure comparable to powering 361,800 U.S. homes annually.

Our ambition doesn't stop there. We're diving into the realm of cleaner fuels that promise substantial reductions in greenhouse gas emissions.

Our operations in France showcase this commitment. Through a partnership with Neste, we've adopted hydrotreated vegetable oil (HVO100) fuel, a renewable fuel derived from waste oils and fats. This change has reduced our fuel-related lifecycle carbon emissions in France by a remarkable 90%, all while maintaining operational efficiency and customer satisfaction.

Our ambition is to rollout HVO100 fuel – or similar alternative(s) – widely across our portfolio. Right now, we're using it in Spain and trialing it in Ireland and in Oregon, United States, following the successful implementation in France.

" HVO is our ticket to **a cleaner, greener future** for data centers. By replacing diesel in our backup generators with HVO, we're not only afeguarding our operations but also safeguarding the planet. It's a win-win for reliability and sustainability."

Lex Coors
Chief Data Center Technology and Engineering Officer
Digital Realty
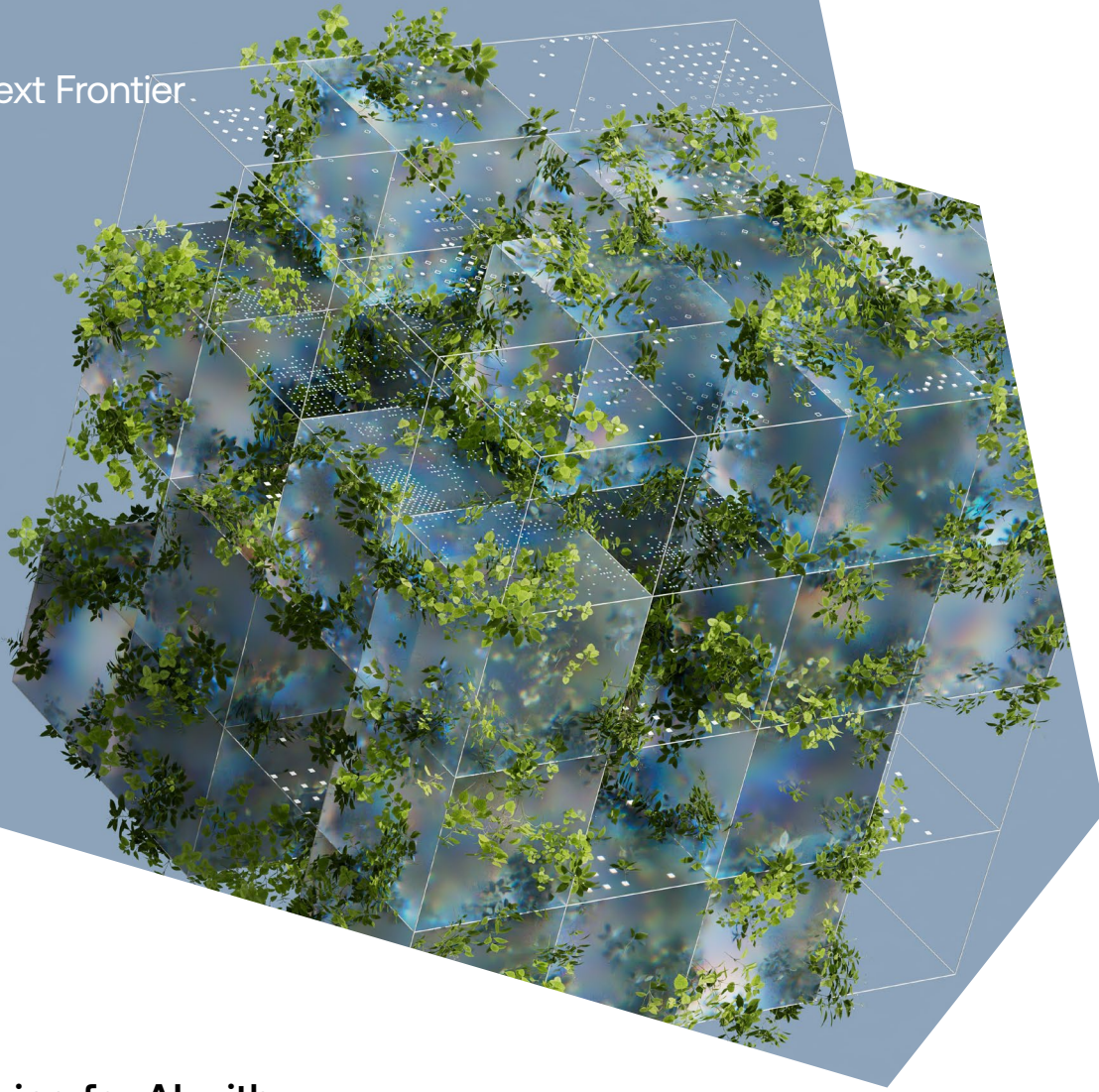
Preparing for AI with the planet in mind

Artificial intelligence's (AI) drumbeat is getting louder, and data centers are in it for the long haul.

The growing demand for AI-related infrastructure comes with environmental challenges. The computational requirements of AI algorithms and deep learning models necessitate a new generation of servers, cooling systems, and networking equipment. However, adapting to this landscape requires a thoughtful approach that extends beyond mere upgrades. It calls for an industry-wide reconsideration of digital architecture from the ground up.

Embracing modularity emerges as a key strategy. By incorporating modular designs, data centers position themselves at the forefront of the AI revolution, ensuring scalability, efficiency,
and adaptability in the face of evolving needs. Modularity also ushers in environmental benefits, enhancing resource allocation, cooling, and power distribution to minimize waste and promote sustainability.

Many of our data centers around the world are ready for direct liquid cooling, perfectly positioning us to support our customers through the AI revolution, offering them the infrastructure they need to harness its potential as efficiently and sustainably as possible.

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In the age of AI, data centers are the beating heart of innovation. But as we harness the power of artificial intelligence, we must also nurture the health of our planet. Balancing AI adoption with sustainability is our commitment – because a smarter future shouldn't come at the cost of our environment."
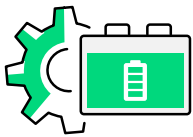
Chris Sharp
Chief Technology Officer, Digital Realty.

The Next Frontier

"

It's time to unplug from outdated solutions and **charge forward with greener alternatives,** enhancing both performance and environmental impacts for a better future."

Aaron Binkley
Vice President Sustainability, Digital Realty

Building better batteries

Data's significance has never been greater, underscoring the importance of uninterruptible power supply (UPS) solutions. Delving into the energy storage systems of UPS, we're uncovering opportunities to support our customers' emission reduction goals while streamlining our own operations.

Our focus is on replacing older battery technologies, such as lead-acid batteries, with more environmentally friendly alternatives like nickel-zinc batteries. Research confirms that nickel-zinc batteries offer superior sustainability in terms of greenhouse gas emissions, water usage, and energy consumption. Specifically, the manufacturing of nickel-zinc batteries saves 148,255 tons of CO_2[1], which is a 1,700% improvement compared to lead-acid batteries.

We're currently in the exploration phase, but we're committed to sourcing more sustainable alternatives in the future. Right now, in Virginia and beyond, we're working to integrate eco-conscious batteries across our data centers.

We're proud of what we have achieved so far and will continue pushing ourselves to go further and faster.

[1] https://www.datacenterdynamics.com/en/opinions/nickel-zinc-batteries-can-reduce-scope-3-emissions/#:~:text=Since%20nickel%20and%20zinc%20sourcing,improvement%20over%20lead%2Dacid%20batteries.

DIGITAL REALTY™

About Digital Realty

Digital Realty brings companies and data together by delivering the full spectrum of data center, colocation and interconnection solutions. PlatformDIGITAL®, the company's global data center platform, provides customers with a secure data meeting place and a proven Pervasive Datacenter Architecture (PDx®) solution methodology for powering innovation and efficiently managing Data Gravity challenges. Digital Realty gives its customers access to the connected data communities that matter to them with a global data center footprint of 300+ facilities in 50+ metros across 25+ countries on six continents.

To learn more about Digital Realty, please visit **digitalrealty.com** or follow us on **LinkedIn** and **X**.