The data center space continues to expand, with revenue expected to reach $948 billion by 2030, an almost 200% growth from $340.2 billion today.\(^1\) This growth will be costly to the environment if sustainability is not jointly considered. Data centers are huge energy consumers, and their energy usage is expected to quadruple by 2030, with the tech industry accounting for 5-20% of global energy utilization.\(^2\) In addition to energy, data centers are also large water consumers, as a 1-MW load data center uses around 6.75 million gallons water per year. In the U.S. alone, data centers utilized more than 660 billion liters of water in 2020.\(^2\) Tech firms are already facing backlash for the energy and water performance of existing data centers and some have been prohibited from building data centers in the EU due to high energy consumption.\(^2\) Additional regulatory pressures and initiatives are also driving the need for more sustainable data centers, like the EU Climate Neutral Data Centre Pact, a major pledge of industry players to achieve climate neutrality by 2030, and Virginia’s Data Center Efficiency Bill, which would require data center operators to meet energy efficiency requirements to be eligible for the sales and use tax exemption for data center purchases. Clearly, more sustainable data centers are necessary for long term success.

Major players like Microsoft, Meta, and Google are already adopting sustainable practices like procuring renewable energy for their facilities. It is expected that the global sustainable data center market will reach $213.4 billion by 2030, comprising efficient IT equipment, sustainable building design, monitored water consumption, and climate friendly data storage and servers to reduce energy and water consumption.\(^3\) By adopting more sustainable practices, data centers can not only reduce electricity consumption and carbon emissions but also reduce capital expenditures and long-term costs through improved life span.

To get further insights and information about Sustainable Finance delivered to your inbox, please sign up here:

Subscribe Now

---

1. Adam, “Data Centres in 2030: Challenges and Trends for the Next 10 Years”
2. Forbes, “Pioneering The Future of Sustainable Data Centers”
The following represent best practices for developing sustainable data centers:

<table>
<thead>
<tr>
<th>Efficient Data Center Equipment</th>
<th>Equipment represents nearly two-thirds of the energy consumption of a data center. Purchasing energy saving certified equipment, including enterprise servers, power suppliers, storage servers, network switches, and routers can greatly reduce energy consumption and increase efficiency. For example, an ENERGY STAR certified server consumes 30% less energy than a standard server, saving on average more than 650 kWh/year.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimized Air Flow and HVAC</td>
<td>On average, the HVAC consumes 40% of the energy at data centers. Optimizing HVAC performance through adopting inexpensive airflow management practices for cooling efficiency, moving to a hot aisle/cold aisle layout for server racks which will reduce the fan energy consumption by 20-25%, or using a cooling tower instead of a mechanical chiller to supply chilled water for cooling the data center can reduce overall energy use.</td>
</tr>
<tr>
<td>Improved IT and Power Infrastructure</td>
<td>Ensure full utilization of IT and power infrastructure by removing underutilized servers and consolidating to increase server utilization, enabling power management features that will reduce power consumption during times of low utilization, deploying efficient and smart power distribution units (PDU) that monitor power usage, and installing energy efficient UPS systems to minimize electrical losses.</td>
</tr>
<tr>
<td>Sustainable Data Center Building</td>
<td>Obtaining green building certifications like LEED or ENERGY STAR, ensuring lighting is upgraded to LED and building upgrades are made in a timely manner, and sourcing 100% of electricity from clean or renewable sources are best practices for operating the data center buildings.</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>Integrating clean energy sources into a data center can reduce its carbon footprint. Renewable energy can be procured through a variety of onsite and offsite methods, including onsite, through PPAs or VPPAs, or through REC purchases.</td>
</tr>
<tr>
<td>Water Consumption</td>
<td>Data centers can reduce their water consumption by optimizing the timing of introducing water into the cooling cycle of servers and locating the data center in a naturally cool climate geography which will reduce the need for water to cool the servers (“free cooling”).</td>
</tr>
</tbody>
</table>

4. ENERGY STAR, “Data Center Equipment”  
5. ENERGY STAR, “Optimize Airflow and HVAC”
As data centers look to adopt more sustainable practices, they can potentially broaden their investor base and leverage sustainable finance solutions to reduce financing costs. There have been a number of recent transactions that highlight the different sustainable finance opportunities, from sustainability linked to green use of proceeds, for data centers embarking on their sustainability journey.

Select Sustainable Finance Data Center Transactions

<table>
<thead>
<tr>
<th>Data Center</th>
<th>Transaction Details</th>
</tr>
</thead>
</table>
| Netrality Data Centers | Closed a $380 million sustainability-linked credit facility comprised of a $125 million term loan, a $155 million revolving credit facility, and a $110 million delayed draw term loan. The facility includes two KPIs, reduction in portfolio PUE and energy-efficient capital expenditures, and pricing will be determined based on achievement of annual targets related to these KPIs.  
| Aligned Data Centers | Issued $1.35 billion in green securitized notes, using their Green Finance Framework to identify qualifying use of proceeds for this issuance. The notes were externally analyzed by Sustainalytics, and qualifying expenditures include investment in data center infrastructure that target PUE of 1.35 for data centers that use water-based cooling technology and 1.45 for data centers that use water-free cooling technologies. Aligned was also the first data center to issue a sustainability-linked loan.  
7. Aligned, “Aligned Sets Record for Largest-Ever Inaugural Data Center Securitization As Part of $1.725 Billion in Structured Sustainable Debt Financing” |
| CyrusOne | Launched its inaugural $701 million Green ABS transaction for five of its data centers in 2023. CONE updated its existing Green Finance Framework to explicitly contemplate securitized products and eligible projects include data centers with design PUE of less than or equal to 1.5 for existing, retrofitted, and new-build infrastructure.  
8. Data Center Dynamics, “CyrusOne to Issue $701 Million in CMBS” |
| Equinix | Included ESG Amendment language in its $4.0 billion credit facility in late 2022. This allows Equinix to add in KPIs at a later date through an amendment process. Integrating this language into a credit facility indicates the company’s intent to further incorporate sustainability into their business strategy.  
9. Equinix Filing |

In addition to tailoring sustainable financing options for our data center clients that are looking to operate more efficiently and sustainably, Wells Fargo is also committed to occupying sustainable data centers. Four new data centers are currently under construction, all of which are pursuing LEED Gold certification. The new data centers have a target PUE of 1.2, have 100% of electric energy offset by renewables, and will use refrigerant-based cooling which is expected to reduce water usage by 90%.  
10. Wells Fargo Securities, LLC.
Contacts

Kelly Souza
Managing Director
kelly.a.souza@wellsfargo.com

Paul Stanley
Executive Director
paul.stanley@wellsfargo.com

Kaila Frohna
Analyst
kaila.frohna@wellsfargo.com

To get further insights and information about Sustainable Finance delivered to your inbox, please sign up here:
Disclaimers

This document and any other materials accompanying this document (collectively, the "Materials") are provided for general informational purposes. By accepting any Materials, the recipient thereof acknowledges and agrees to the matters set forth below in this notice.

Wells Fargo Corporate and Investment Banking (CIB) makes no representation or warranty (express or implied) regarding the adequacy, accuracy or completeness of any information in the Materials. Information in the Materials is preliminary and is not intended to be complete, and such information is qualified in its entirety. Any opinions or estimates contained in the Materials represent the judgment of CIB at this time, and are subject to change without notice. Interested parties are advised to contact CIB for more information.

The Materials are not an offer to sell, or a solicitation of an offer to buy, the securities or instruments named or described herein. The Materials are not intended to provide, and must not be relied on for, accounting, legal, regulatory, tax, business, financial or related advice or investment recommendations. No person providing any Materials is acting as fiduciary or advisor with respect to the Materials. You must consult with your own advisors as to the legal, regulatory, tax, business, financial, investment and other aspects of the Materials.

Wells Fargo Corporate & Investment Banking (CIB) and Wells Fargo Securities (WFS) are the trade names used for the corporate banking, capital markets, and investment banking services of Wells Fargo & Company and its subsidiaries, including but not limited to Wells Fargo Securities, LLC, member of NYSE, FINRA, NFA, and SIPC, Wells Fargo Prime Services, LLC, member of FINRA, NFA and SIPC, and Wells Fargo Bank, N.A., member NFA and swap dealer registered with the CFTC and security-based swap dealer registered with the SEC, member FDIC. Wells Fargo Securities, LLC and Wells Fargo Prime Services, LLC, are distinct entities from affiliated banks and thrifts.

Notwithstanding anything to the contrary contained in the Materials, all persons may disclose to any and all persons, without limitations of any kind, the U.S. federal, state or local tax treatment or tax structure of any transaction, any fact that may be relevant to understanding the U.S. federal, state or local tax treatment or tax structure of any transaction, and all materials of any kind (including opinions or other tax analyses) relating to such U.S. federal, state or local tax treatment or tax structure, other than the name of the parties or any other person named herein, or information that would permit identification of the parties or such other persons, and any pricing terms or nonpublic business or financial information that is unrelated to the U.S. federal, state or local tax treatment or tax structure of the transaction to the taxpayer and is not relevant to understanding the U.S. federal, state or local tax treatment or tax structure of the transaction to the taxpayer.

All information provided in this presentation represents the views of CIBs Banking team, and not the independent views of our Research Analysts. CIB has adopted policies and procedures designed to preserve the independence of our Research Analysts, whose views may differ from those presented herein.

If you require an accessibility accommodation, please notify your CIB contact.

©2024 Wells Fargo & Company. All rights reserved.
Wells Fargo EMEA corporate banking products and services, including certain lending, payments, derivatives and other commercial banking activities, are offered in EMEA primarily by Wells Fargo Bank, N.A. ("WFBNIA"), authorised and regulated by the Office of the Comptroller of the Currency, in the UK, WFBNIA London Branch ("WFBNIA LB"), authorised by the Prudential Regulation Authority and subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority, and in Dubai, WFBNIA DIFC Branch, regulated by the Dubai Financial Services Authority. Wells Fargo Bank International Unlimited Company ("WFBI") is licensed and regulated by the Central Bank of Ireland and is registered in Germany with the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht – the "BaFin").

Wells Fargo EMEA – capital markets and investment banking products and services are offered in EMEA primarily by Wells Fargo Securities International Limited ("WFSIL"), authorised and regulated by the UK Financial Conduct Authority, and Wells Fargo Securities Europe S.A. ("WSES"), authorised by the Autorité de contrôle prudentiel et de resolution and regulated by the Autorité des marchés financiers.

For more information about Wells Fargo EMEA including additional regulatory disclosures, please visit our website at http://emea.wf.com/

This document and any other materials accompanying this document (collectively, the "Materials") have been prepared and distributed by Wells Fargo EMEA for general informational purposes and should not be construed as creating legal relations or a contract for the provision of any products or services referenced in the Materials. By accepting the Materials, the recipient acknowledges and agrees to the terms of this document and the basis on which it is being provided.

The Materials are confidential and directed only at eligible counterparties or professional clients, as defined in the Markets in Financial Instruments Directive (2014/65/EU), the Financial Conduct Authority Rules, the DFSA Rulebook or any other similar legal persons to whom Wells Fargo EMEA may lawfully communicate. The Materials are not intended for retail clients or any other private individuals, and must not be distributed to or relied on by persons other than the intended recipient, whom in each and every instance will be a professional client.

Wells Fargo EMEA does not deal with retail clients and the Materials are not being made available to retail clients. To the extent that eligible deposits are held by Wells Fargo EMEA on behalf of eligible claimants, eligible deposits maintained with Wells Fargo Bank, N.A., London branch may be protected up to a total of £85,000 by the UK Financial Services Compensation Scheme ("FSCS"), and eligible deposits maintained with WFBI may be protected up to a total of €100,000 by the Irish Deposit Guarantee Scheme ("DGS"), in each case subject to the terms of the FCS or DGS, as applicable.

Wells Fargo EMEA makes no representation or warranty (express or implied) regarding the adequacy, accuracy or completeness of any information in the Materials. Wells Fargo EMEA accepts no liability for any direct, indirect, incidental or consequential damages or losses arising from the use of the Materials. Information in the Materials is preliminary and is not intended to be complete, and such information is qualified in its entirety. Any opinions, pricing information or estimates contained in the Materials represent the judgment of Wells Fargo EMEA at this time, and are subject to change without notice. Past performance is no indicator of future performance and the Materials are not intended to forecast or predict future events. Interested parties are advised to contact the appropriate persons at Wells Fargo EMEA for more information.

The Materials are not an offer to buy or sell, or a solicitation of an offer to buy or sell any securities or instruments named or described herein. The Materials are not intended to provide, and must not be relied on for, accounting, legal, regulatory, tax, business, financial or related investment advice or personal recommendations. No person representing Wells Fargo EMEA or its affiliates is acting as a fiduciary or investment advisor with respect to the Materials. The recipient must consult with their own advisors as to the legal, regulatory, tax, business, financial, investment implications and other risks related to the Materials prior to making any decision to proceed. This document does not constitute part of any agreement a recipient may subsequently enter into with Wells Fargo EMEA in respect of any products or services detailed herein.

The Materials may reference securities and related financial instruments which may be ineligible in certain jurisdictions or to certain investors, and may refer to certain products and services which are not regulated in certain jurisdictions. The Materials should not be construed by the recipient as an offer or solicitation to engage in any financial product or service in a jurisdiction where such an offer or solicitation would be unlawful.

All information provided in the Materials represents the views of Wells Fargo EMEA, and not the independent views of Wells Fargo Research Analysts. Wells Fargo EMEA has adopted policies and procedures in place to preserve the independence of Wells Fargo Research Analysts, whose views may differ from those presented in these Materials.

Wells Fargo EMEA and its affiliates may make markets and/or hold positions in securities or instruments (including any expressly named or described herein), and may also conduct business with the companies (including any expressly mentioned or described herein) which could affect the objectivity of the Materials. Wells Fargo EMEA maintains appropriate conflicts of interest policies in this respect.

Nothing contained in this document or the Materials represents an investment recommendation as defined under the Market Abuse Regulation 596/2014. Notwithstanding anything to the contrary contained in the Materials, all persons (and each of their employees, representatives, or other agents) may disclose to any and all persons, without limitation of any kind, the U.S. tax treatment and U.S. tax structure of any transaction that may be included in the Materials relating to such U.S. tax treatment and U.S. tax structure. For this purpose, the tax treatment of a transaction is the purported or claimed U.S. federal income tax treatment of the transaction, and the tax structure of a transaction is any fact that may be relevant to understanding the purported or claimed U.S. federal income tax treatment of the transaction.

© 2024 Wells Fargo. All rights reserved.

This communication is for informational purposes only, is not an offer, solicitation, recommendation or commitment for any transaction or to buy or sell any security or other financial product and is not intended as investment advice or as a confirmation of any transaction.

Any market price, indicative value, estimate, view, opinion, data or other information herein is not warranted as to completeness or accuracy, is subject to change without notice, and Wells Fargo Securities (Japan) Co., Ltd. ("WFSJ") accepts no liability for its use or to update or keep it current. Any views or opinions are those of the individual sender, not necessarily of WFSJ. Any decision to invest in securities or to enter into any trading strategy or transaction should be made after reviewing the applicable Definitive Documentation, conducting such investigations as the recipient deems necessary and consulting the recipient’s own legal, accounting, and tax advisors in order to make an independent determination of the suitability and consequences of an investment in such securities or other financial product, or entering into any trading strategy or transaction.

The rating stated on the document may not be a credit rating assigned by a rating agency registered with the Financial Services Agency of Japan but a rating assigned by a group company of a registered rating agency. The rating agency groups call respectively Fitch Ratings, Moody’s Investors Services or S&P Global Ratings. Any decision to invest in securities or transaction should be made after reviewing "Explanatory Note on Non-Registered Credit Ratings/無登録格付に関する説明書" at WFSJ webpage (https://www.wellsfargo.com/cib/global-services/asia-pacific/japan-jpn/).

Wells Fargo & Company and/or its subsidiaries may provide advice, may make markets in or may, from time to time, acquire, hold or sell positions in any of the securities to which this indicative valuation relates, either for its own account or as a confirmation of any account of others.

This communication is intended only for professional investors (TOKUTEI TOUSHIKA) by Wells Fargo Securities (Japan) Co., Ltd. ("WFSJ"). WFSJ does not expect this communication to be distributed to any ordinary customer (IPPAN TOUSHIKA) (as defined in the Financial Instruments and Exchange Law Article 2-31 and Cabinet Office Order on Definitions under Article 2 of the Financial Instruments and Exchange Law Article 23).

Wells Fargo Securities (Japan) Co., Ltd. ("WFSJ") is registered as a broker/dealer with the Kanto Local Finance Bureau (Registration No. 1655), a subordinate regulatory body of the Ministry of Finance Japan. WFSJ conduct Type 1 and Type 2 financial instruments businesses (broker/ dealer business).
The information contained herein has been prepared solely for informational purposes and is intended for use solely by the intended recipient and is not an offer to buy or sell or a solicitation of any offer to buy or sell any security or to participate in any trading strategy or to enter into any transaction. As such the products and/or services described in this communication may not be offered or sold, directly or indirectly, to any person resident or located in any jurisdiction where (1) the distribution of such information is contrary to the laws of such jurisdiction; or (2) such distribution is prohibited without obtaining the necessary licenses or authorizations by Wells Fargo or any of its branches, subsidiaries or affiliate offices, and such licenses or authorizations have not been obtained. This communication does not take into account your particular investment objectives, financial conditions, or needs and is not intended to serve as a basis for entering into any transaction or to suggest, through opinion, recommendation, or otherwise, you should enter into a particular transaction or trading strategy. Unless otherwise specified, all rankings and league table positions in this document relate to the U.S. market only. Recipients must not reproduce, redistribute or pass on this document, directly or indirectly, to any other person, in whole or in part, for any purpose.

If any offer of securities or to enter into any trading strategy or transaction is made, it shall be made pursuant to a definitive offering memorandum or other documentation ("Definitive Documentation") prepared by or on behalf of any issuer or parties which would contain material information not contained herein and which would supersede this information in its entirety. Any decision to invest in securities or to enter into any trading strategy or transaction should be made after reviewing the applicable Definitive Documentation, conducting such investigations as the recipient deems necessary and consulting the recipient’s own legal, accounting, and tax advisors in order to make an independent determination of the suitability and consequences of an investment in such securities or entering into any trading strategy or transaction.

Wells Fargo Securities makes no representation or warranty, express or implied, as to the accuracy or completeness of the information contained herein and nothing contained herein shall be relied upon as a promise or representation whether as to the past or future performance. Any market price, indicative value, estimate, view, opinion, data or other information herein is not warranted as to completeness or accuracy, and is subject to change without notice. The information set forth herein may include estimates and projections and/or involve elements of subjective judgment and analysis. No representations are made as to the accuracy of any such estimates or projections or the appropriateness of any such judgments or analyses, or that all assumptions relating to such estimates, projections judgments or analyses have been considered or stated or that such estimates or projections will be realized or such judgments or analyses be justified. The information contained herein does not purport to contain all of the information that may be required to evaluate any securities that may be issued or any transaction or trading strategy discussed and any recipient hereof is encouraged to read the Definitive Documentation pertaining to any offered securities or trading strategy or transaction and should conduct its own independent analysis of the data referred to herein. Wells Fargo Securities disclaims any and all liability on any contractual, tortious or other legal basis as to the information set forth herein or omissions herefrom, including, without limitation any express or implied representation or warranty with respect to such information. Wells Fargo Securities does not expect to update or otherwise review the information contained herein. Additional information is available on request.

©2024 Wells Fargo & Company. All rights reserved. 4007410