S&P Global
Ratings

Research

Presale:

Stack Infrastructure Issuer LLC (Series 2024-1)

March 11, 2024

Preliminary rating

Class	Preliminary rating(i)	Preliminary amount (mil. $)	Maximum LTV ratio (%)(ii)	Anticipated repayment date (years)	Legal maturity (years)
A-2	A- (sf)	240.00	70.00	5	25

Note: This presale report is based on information as of March 11, 2024. The rating shown is preliminary. This report does not constitute a recommendation to buy, hold, or sell securities. Subsequent information may result in the assignment of a final rating that differs from the preliminary rating. (i)The preliminary rating does not address post-anticipated repayment date additional interest. (ii)Maximum allowable class A LTV ratio, according to the transaction documentation. LTV--Loan-to-value.

Profile

Expected closing date	March 20, 2024.
Collateral	Primarily the asset entities' real property interests in the data centers, the personal property and fixtures located in the data centers, tenant leases, reserves and escrows, certain transaction accounts, and the equity interest in each of the asset entities.
Issuer	Stack Infrastructure Issuer LLC.
Manager	Stack Infrastructure Inc.
Servicer	Midland Loan Services, a division of PNC Bank N.A.
Indenture trustee	Wilmington Trust N.A.
Joint structuring agents	TD Securities (USA) LLC, MUFG Securities Americas Inc., Citigroup Global Markets Inc., SMBC Nikko Securities America Inc., and Truist Securities Inc.

Request For Comment: Data Center Securitizations: Global Methodology And Assumptions

On Dec. 5, 2023, S&P Global Ratings announced its request for comment on its new proposed criteria framework for rating securitizations backed by income generated from data center operations. Our ratings on the notes could change as a result of that review. The nature of any potential rating changes will depend on the final criteria adopted, as well as our assessment of the transaction. We cannot provide an estimated implementation date for the proposed criteria at this time (see "Request for Comment: Data Center Securitizations: Global Methodology And Assumptions," published Dec. 5, 2023).

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We currently rate data center securitizations under our "Principles of Credit Ratings," criteria published Feb. 16, 2011, with certain stress assumptions used from our "Methodology And Assumptions For Rating North American Single-Tenant Real Estate Triple-Net Lease-Backed Securitizations," criteria published March 31, 2016. Although these criteria were partially superseded by our new triple-net criteria, "North American Real Estate Securitizations Backed By Triple-Net Leases: Methodology And Assumptions," published Aug. 24, 2023, we will continue to use them when rating data center securitizations. Wholesale data center leases are not in the scope of our new or old triple-net ABS criteria.

Transaction Overview

Stack Infrastructure Issuer LLC's series 2024-1 class A-2 note issuance is a securitization of the real estate and tenant lease payments for space and the electrical capacity in Stack Infrastructure Inc.'s (Stack's; the manager's) eight completed and operating wholesale data center campuses, which are located in Hillsboro, Ore.; San Jose, Calif.; Plano, Texas; Alpharetta, Ga.; Elk Grove Village, Ill.; New Albany, Ohio; and Sterling, Va. The occupied data centers are turnkey facilities, in which 38.2% are triple-net and 61.8% are modified gross leases, based on annualized adjusted base rent (AABR).

No new properties were added to the master trust since the series 2023-3 issuance in November 2023, and the total appraisal value increased slightly to approximately $2.58 billion from approximately $2.54 billion during that time. Aggregate AABR increased to $189.9 million from $187.4 million, primarily driven by increased capacity and increased lease rates due to contractual annual rent escalations at various sites.

The series 2024-1 notes will be Stack Infrastructure Issuer LLC's eighth issuance from the master trust, and they share collateral with the existing series (2019-1, 2019-2, 2020-1, 2021-1, 2023-1, 2023-2 and 2023-3) (see table 1). Stack plans to use the issuance proceeds to repay the outstanding balance of the series 2019-2 class A-2 notes in full. The anticipated repayment date (ARD) of the series 2019-1 variable-funding notes (VFN) has been amended to the payment date in February 2027, and its maximum commitment amount has been reduced to $100 million from $125 million.

Assuming a fully drawn VFN, the total debt outstanding at the series 2024-1 closing date will be $1.86 billion, resulting in an estimated gross loan-to-value (LTV) ratio of 71.6%, excluding the cash liquidity reserve amount. Table 1 shows the outstanding ratings on the master trust.

Table 1

Outstanding ratings

Issue	Rating	Balance at issuance (mil. $)	Current balance (mil. $)	Anticipated maturity	Legal maturity
Series 2019-1 class A-1	A- (sf)	100.00	7.54(i)	Feb. 25, 2027	Feb. 25, 2044
Series 2019-2 class A-2	A- (sf)	225.00	225.00 (ii)	Oct. 25, 2024	Oct. 25, 2044
Series 2020-1 class A-2	A- (sf)	325.00	325.00	Aug. 25, 2025	Aug. 25, 2045
Series 2021-1 class A-2	A- (sf)	400.00	400.00	March 25, 2026	March 26, 2046
Series 2023-1 class A-2	A- (sf)	250.00	250.00	March 25, 2028	March 25, 2048

Table 1

Outstanding ratings (cont.)

Issue	Rating	Balance at issuance (mil. $)	Current balance (mil. $)	Anticipated maturity	Legal maturity
Series 2023-2 class A-2	A- (sf)	250.00	250.00	July 25, 2028	July 25, 2048
Series 2023-3 class A-2	A- (sf)	290.00	290.00	Oct. 25, 2028	Oct. 26, 2048

(i)The maximum commitment on series 2019-1 class A-1 notes is $100.00 million, including the $12.5 million used to the fund liquidity reserve. The series 2029-1 class A-1 current balance as of the servicer report on Feb. 21, 2024.(ii)With the proceeds from the series 2024-1 class A-2 note issuance, the series 2019-2 class A-2 notes are expected to be paid off.

The transaction will feature an approximately $18.7 million liquidity reserve account at closing. The reserve will be funded by a combination of cash ($6.2 million) and a letter of credit ($12.5 million) carved out of the VFN. It also has a cash trap trigger and an early amortization trigger at 1.30x and 1.20x the three-month average amortization debt service coverage ratio (DSCR) levels, respectively. The series 2024-1 class A-2 notes have zero annual scheduled amortization, a five-year ARD, and a 25-year legal maturity.

Rationale

The preliminary rating assigned to Stack Infrastructure Issuer LLC's series 2024-1 class A-2 data center revenue notes reflects:

- The lease portfolio's projected performance,
- The real estate value,
- The manager's and the servicer's experience,
- The servicer- and indenture trustee-provided advances,
- The available cushion as measured by the estimated closing date DSCR of approximately 1.93x,
- The initial liquidity reserve of approximately $18.7 million, which covers the higher of three months of note interest and 12 months of senior expenses, and
- The transaction's structure.

Environmental, Social, And Governance

Our rating analysis considered the potential exposure of the transaction to environmental, social, and governance (ESG) credit factors. In our view, the transaction's exposure to ESG credit factors is in line with other transactions in the sector. Data center securitizations typically consist of a pool of data center properties and related leases with tenants.

Data centers are more exposed to environmental risks than other property types because physical climate risk could impact the building structure as well as access to power. This risk is exacerbated in pools with relatively high concentration by geography and number of properties. Nonetheless, the properties are designed to be resilient to prolonged power outages, and the geographic diversity of the collateral pool may partially mitigate these environmental risks.

The transaction's collateral pool consists of eight data center campuses located in seven states, a

similar concentration to other rated data center securitizations. To mitigate risks from extreme weather events (such as flood or earthquake), fire and casualty events, or incidents of terrorism, tenants generally have insurance policies to mitigate the risk of natural disasters and damage-causing events.

Social and governance credit factors do not directly impact our credit analysis for this sector. Data centers are not labor-intensive and are also typically not subject to health and safety risks. Social trends toward working from home, online shopping, and increased digitization of workstreams all support the growth and stability of data centers.

We considered Stack's strategy, risk management, and internal controls within our operational risk assessment framework. Given that collateral pools are typically static, the roles and responsibilities of each transaction party and the allocation of cash flows are well defined, and transactions are structured to achieve isolation of the assets from the seller. However, governance weaknesses at the property manager levels could still have a negative rating effect.

Key Rating Considerations

Transaction strengths

We believe the transaction's strengths include:

- The relatively long contract terms, which have a weighted average remaining term of 6.3 years (weighted by total AABR).
- The current tenants' high average credit quality (92% are rated 'BBB-' and above [investment-grade] by AABR).
- The staggered lease maturities, which range from 2024 to 2035.
- The low historical customer churn rates, which are partly supported by the high cost of tenant relocation.
- The leases' importance to the tenants' core businesses.
- The in-place lease rates are competitive with local market rates (the turnkey data centers in the pool have a weighted average lease rate of $135 per kilowatt [kW] per month).
- The geographic diversity, with sites in seven states.
- The limited supply and strong demand for wholesale data center space in the data centers' respective markets.
- The strong management team, which has extensive experience in data center operations.
- The class A LTV ratio, which is constrained at 70% of the assets' appraised value.
- The draw conditions for the variable-funding notes (VFNs), which require post-draw maintenance of a maximum LTV ratio of 70% and a minimum three-month average DSCR of 1.80x.
- The transaction's structural features, including performance tests that trigger cash trapping or early amortization if the DSCR drops below certain minimum thresholds.

Transaction weaknesses

We believe the transaction's weaknesses include:

- The limited tenant diversity. Approximately 67.9% of the leased capacity and 62.7% of AABR is attributable to one tenant, and 85.0% of the total AABR is attributable to the top five tenants.
- The limited industry diversity. Most tenants are in various subsectors of the technology industry.
- The limited historical sector performance data. Approximately 15 years of performance data are available for the wholesale data center segment.
- The liquidity reserves. The reserves, sized to approximately three months of note interest, could prove insufficient if a disruptive event, such as a natural disaster, rendered any of the data center campuses inoperable for an extended period of time.
- The lack of restrictions on the terms of future eligible leases. The overall credit risk profile of the lease portfolio could erode over time due to the lack of restrictions on terms such as tenant credit quality, contract length, and optional termination features.
- The potential for decreased data center demand. Upon lease expiration, tenants with reduced needs could choose to migrate to the public cloud or other retail colocation data centers, while tenants with increased needs could opt to build, own, and operate their own data centers.
- The potential for higher-than-expected budgeted operating and maintenance capital expenditures due to various macroeconomic factors. Inflation, increased labor costs, power constraints, or supply chain shortages could affect expenditures.
- The supply and demand conditions within the data centers' local markets. Supply and demand could change adversely over time, driving down lease rates or driving up vacancy rates.
- The high current demand for data center operations personnel. It could become expensive to replace current key members of the sponsor's leadership team, including the chief operating officer and senior engineering team members.

Mitigating factors

Certain factors partly mitigate the transaction's weaknesses:

- The high costs for tenants to move to alternative data centers, including time, redundancy (to avoid service interruption), and logistical expenses (moving or duplication of network gear, racks, servers, and related fit-out).
- The lack of penalty-free optional termination provisions in the leases (except for three existing leases, which represent approximately 5% of the AABR and may exercise early termination under limited conditions).
- The underlying tenants' initial credit quality, with the largest tenant rated 'AAA' and comprising 62.7% of AABR (including its wholly owned subsidiary).
- The requirement that the issuer maintain comprehensive liability, fire, earthquake, extended coverage, business interruption, and rental loss insurance policies, which we expect to be compliant with the minimum requirements of our insurance criteria for U.S. and Canadian CMBS transactions.

- The available cushion under our stress sensitivities, which considered elevated lifetime budgeted operating expenses and maintenance capital expenditures (see sensitivity runs 1 through 3).
- Decreased wholesale data center demand due to the migration of the manager's smaller tenants to the public cloud or retail colocation that may be offset by increased demand from the manager's larger tenants, some of which are themselves retail colocation and public cloud providers.
- The servicer advancing interest, priority operating expenses, and maintenance capital expense, with a backup obligation by the indenture trustee, Wilmington Trust N.A.
- The stress scenarios performed in our cash flow analysis, which considered the pool's industry concentration, the limited industrial history, and the potential for downward migration in average tenant credit quality.

Industry Characteristics: Data Center Sector

Data centers are real estate facilities that house computer servers and network equipment within a highly secure environment with redundant mechanical, cooling, and electrical power systems and network connections. The data center operator, such as Stack, is responsible for maintaining the facility's infrastructure, providing physical security, and re-leasing the sites' capacity as it becomes vacant.

The vast majority of Stack's data centers are leased by large wholesale tenants, which typically require 500 kWs (roughly 98% of AABR) or more of capacity. Wholesale data centers place the entire responsibility for managing the tenant's network and equipment on the tenant, whereas retail co-location facilities, which tend to support tenants with shorter-term and smaller capacity needs, may offer varying levels of hands-on support and other services. In either model (wholesale or retail data center), the proper provision of uninterruptable power and cooling is critical to avoid any disruption in the tenant's business operations, especially those whose services necessitate consistent connection to their network through these data centers.

Data center leases are structured in various ways, including triple-net and modified gross leases. Triple-net leases require tenants to reimburse the site manager for costs, including taxes, insurance, operating expenses, and electricity. Modified gross leases, on the other hand, only require the tenants to reimburse the manager for their electricity expense. Under both types of leases, tenants are responsible for all costs related to the provision, installation, and upkeep of their equipment and network connectivity. Triple-net and modified gross leases are expected to make up approximately 38.2% and 61.8% (by AABR), respectively, of the annualized base rent generated by the series 2024-1 portfolio as of closing, though this proportion could change over time as capacity is released to future tenants.

Sector outlook

We expect demand for data centers to remain strong in the foreseeable future. The exponential increase in data usage, broad migration to the cloud, adaptation of artificial intelligence, and transition to a fully digitized economy will continue to shape the demand for third-party operated data centers. Wholesale data center providers will also benefit from the growth in cloud computing. However, new data center development is somewhat limited in primary markets due to site availability, lingering supply chain issues, and power constraints, which will all support lease rates, occupancy levels, and valuations.

Over the next five years, retail colocation providers will likely continue to benefit from the enterprise IT outsourcing trend. As corporations reevaluate their IT architecture, most are opting to house certain proprietary applications in dedicated third-party data centers, while other applications are migrating to the cloud. This migration will continue to cause churn for existing applications housed in these facilities. Ultimately, the longer-term outlook for retail colocation is uncertain, in our view.

We also believe the long-term industry risks include shifting technology, cloud service providers insourcing their data center needs, tenant concentration, and weaker pricing trends in hyperscale segments. Nonetheless, market data suggest that the market conditions will remain tight in 2024, and the shortage of colocation space and rising rent in primary data center markets will continue due to the ongoing supply and demand imbalance. The overall vacancy rate reached a near record low level in 2023.

Market summary

Silicon Valley

Silicon Valley is ranked as the fifth-largest multitenant data center market in North America, according to the appraiser. There are approximately 108 data centers operated by more than 30 data center providers in Silicon Valley, with a total 702 megawatts (MWs) of information technology (IT) capacity in operation. Despite the high pricing and cost of total operation, Silicon Valley, as a world-famous epicenter for technology, continues to attract demands for proximity and low latency to data center deployments from large technology companies, and the market is constrained with limited opportunities for expansion. According to the appraiser, Silicon Valley wholesale rates range from $110 to $186.25 per kW per month due to limited supply in 2023. The current lease rates for the Silicon Valley properties in the pool are generally within this range.

Chicago

Chicago is the primary connectivity hub of the Midwest and the second-largest data center market in the U.S., behind Northern Virginia, according to the appraiser. The market has experienced an influx of capacity since 2017, largely driven by several Fortune 500 companies relocating to the area and requiring network-dense, low latency connectivity to both coasts. Since 2019, large data center developments are also incentivized by data center-specific tax breaks, including a 20-year sales tax exemption for equipment and building in an impoverished area, and the deregulation of the energy industry, which offers affordable electricity, ranging from $0.08 to $0.09 per kW per hour.

According to the appraiser, the wholesale turnkey modified gross leases range from $150 to $180 per kW per month in the Downtown Chicago area and can be as low as $115 per kW per month in the suburbs. The current lease rates for the Chicago properties in the pool are slightly lower than that range because certain leases are triple net where operating expenses are reimbursed, and 24 MW is leased to a hyperscaler with 10-year lease terms.

Dallas

Dallas is the fourth-largest data center market in North America behind Northern Virginia, Chicago, and the New York Metro area. Dallas has experienced significant economic growth since 2016, and several Fortune 500 companies have relocated to the area. The Dallas data center market appeals to operators and users seeking a central location, a strong local economy, favorable climate, reliable power grid, and relatively low risks of natural disasters. Dallas offers inexpensive land, development incentives, low tax rates, and other factors, making development

less expensive than other markets. According to the appraiser, the rent on wholesale leases in Dallas typically range from $80 to $110 per kW per month. The current lease rates at the Dallas properties in this pool are generally within this range.

Portland

Portland is the third-largest city in the Pacific Northwest region and one of the fastest-growing data center markets in the recent years. Demand comes primarily from cloud users and managed hosting services from neighboring states. Many California enterprises look to Portland to save costs on primary space and geographically redundant backup space. It also offers inexpensive and renewable power, a growing tech-workforce, low-latency connectivity to subsea cable infrastructure, and a supportive government without sales tax. Per the appraiser, electricity rates in the area can be as low as $0.04 per kW per hour. Rent on wholesale leases generally range from $120 to $140 per kW per month. The current rents of Portland properties in pool are generally within this range.

Northern Virginia

Northern Virginia is home to the largest data center market in the world in terms of operational square footage and MWs, and approximately 70.0% of the world's internet traffic runs through this area. This region has the highest density of dark fiber in the world, providing low latency to the internet backbone. As of 2023, 451 Research estimates that Northern Virginia has over 12 million sq. ft. and more than 2,260 MWs of data center space and capacity, respectively. The market continues to grow due to its relatively low power rates, affordable land, data center-specific tax incentives, general safety from natural disasters, and proximity to a primary internet exchange connectivity point on the East Coast.

More than half of data center development in the U.S. is concentrated in Northern Virginia. In July 2022, Dominion Energy informed developers that it wouldn't be able to provide expected power to some new data center developments and that the delayed delivery of power may last until 2026. The power delays are expected to increase rents and benefit operators with customer leases expiring over the next two years.

Business Description: Stack

Stack is an owner, developer, and operator of large, multitenant wholesale data centers. It is owned by IPI Partners LLC, a joint venture sponsored by ICONIQ Capital LLC and Iron Point Partners LLC (the latter, a real estate fund manager formed in 2007). Stack has invested in 22 multitenant wholesale data centers across 10 North American markets. The employees on Stack's management team have over 20 years of experience on average. The company has a staff of roughly 30 employees, with teams dedicated to sales, legal, accounting, etc. The ABS portfolio includes over 137 MW of leased capacity and approximately $190 million of AABR in ABS.

Stack's customer base includes tenants across a range of sectors such as telecommunications, big data, media, cloud computing, and software.

Transaction Structure

Chart 1 shows an overview of the transaction's structure.

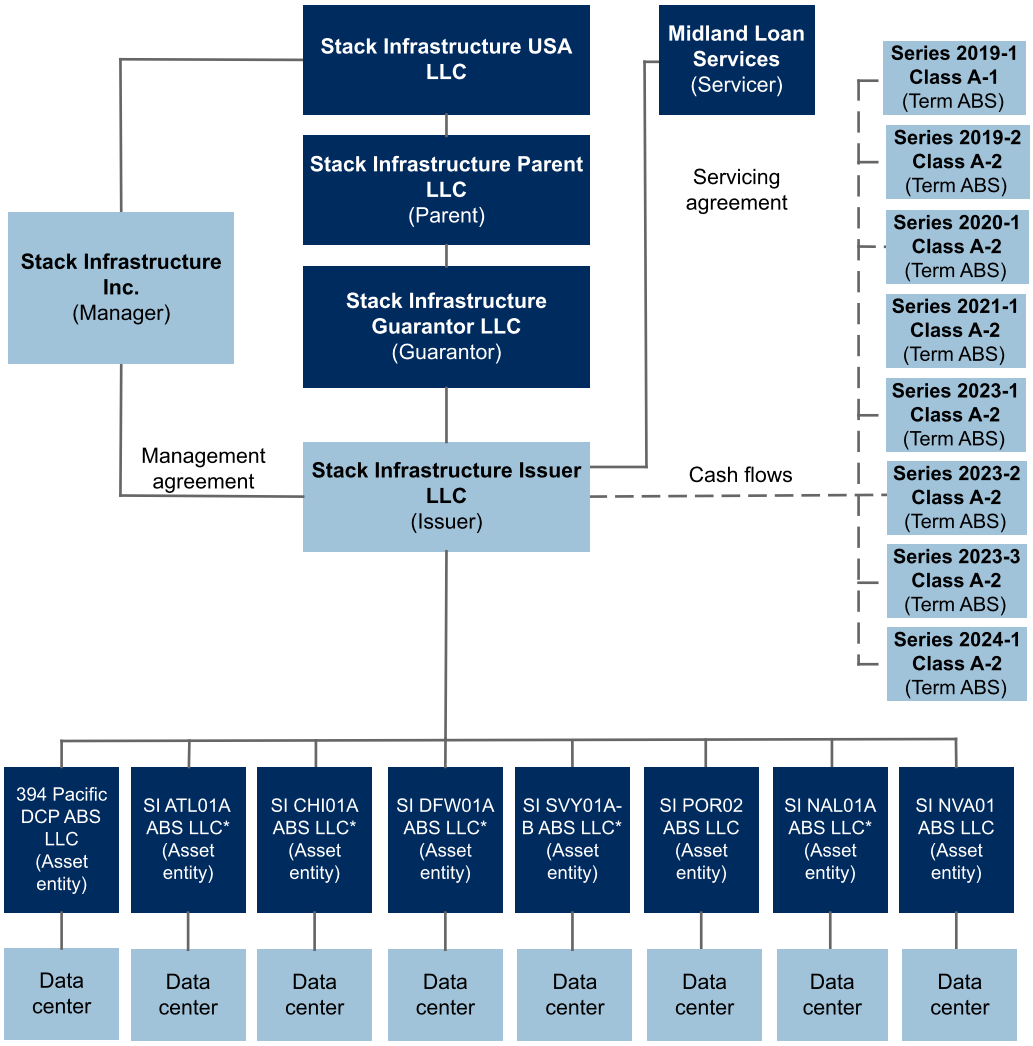
The issuer is a bankruptcy-remote, Delaware limited-liability company formed solely to hold the equity interests and to issue notes. The issuer will be a direct, wholly owned subsidiary of Stack Infrastructure Guarantor LLC, the guarantor, and an indirect wholly owned subsidiary of Stack

Infrastructure Parent LLC, the parent. Each asset entity is a direct wholly owned subsidiary of the issuer. The issuer has granted a security interest in all of the equity interest in each asset entity to the indenture trustee on behalf of the noteholders as collateral security for the notes.

The series 2024-1 class A-2 notes are issued in addition to the existing series (2019-1, 2019-2, 2020-1, 2021-1, 2023-1, 2023-2 and 2023-3). The issuer may issue additional (subject to the satisfaction of certain conditions, including DSCR and LTV ratio tests) that are secured by the entire collateral pool. Future issuance will share collateral within this master trust.

Chart 1

Transaction structure



*There was a change in name of the asset entity, and the new name is reflected. ABS--Asset-backed securities. VFN--Variable funding note.

Table 2

Pool characteristics

	Stack 2024-1	Stack 2023-3(i)	VDCR 2023-1/2023-2	CyrusOne 2023-2	Sabey 2023-1	Vantage 2023-1	Aligned 2023-1
Appraised value of data centers (mil. $)	2,583	2,544	2,068	1,780	2,144	3,718	3,813
No. of data center campuses	8	8	8	6	6	13	6
No. of tenants	25	24	11(ii)	54	109	18(ii)	32
S&P Global Ratings' value (mil. $)(iii)	1,467	1,445	1,138	923	936	1,883	1,803
S&P Global Ratings' weighted average cap rate (%)(iv)	8.7	8.7	8.8	8.6	8.7	8.8	8.7
CLP leased (kW)	137,235	136,965	169,173	109,983	94,774	174,422	236,496
Capacity ramped (kW)	130,550	129,500	152,674	109,983	79,498	163,071	185,128
Total potential CLP (kW)	147,130	147,130	169,173	110,250	94,774	176,100	236,496
AABR (mil. $)	189.9	187.4	159.0	130.4	137.4	272.9	254.8
Turnkey (%)(iv)	100.0	100.0	100(v)	100.0	83.2	100(vi)	100.0
Powered Shell (%)(iv)	0.0	0.0	0.0	0.0	16.8	0.0	0.0
% leases triple-net(iv)	38.2	38.7	4.5	0.0	16.8	0.0	0.0
% leases modified gross(iv)	61.8	61.3	95.5(v)	100.0	83.2	100.0 (vi)	100.0
Weighted average original lease term (years, weighted by AABR)	11.0	10.9	8.1	10.3	11.8	11.8	7.5
Weighted average remaining lease (years, weighted by AABR)	6.3	6.3	6.6	6.0	6.3	7.7	5.4
Range of original lease (mos.)	36-206	36-206	36-180	12-183	7-420	36-240	36-180
Range of remaining lease (mos.)	1-130	4-133	3-173	1-134	1-199	2-163	3-179
Closing date DSCR	1.93	1.96	1.64	1.60	1.92	2.47	2.47
% of investment-grade tenants(iv)	92.2	92.2	94.2	77.2	78.0	89.2	74.0

Table 2

Pool characteristics (cont.)

	Stack 2024-1	Stack 2023-3(i)	VDCR 2023-1/2023-2	CyrusOne 2023-2	Sabey 2023-1	Vantage 2023-1	Aligned 2023-1
Largest five tenants (% of AABR)	80.6	80.5	93.1	88.3	49.2	83.3	75.8
Largest five tenants(iv)	Tenant 1 (42.4%), tenant 2 (20.3%), tenant 3 (8.1%), tenant 4 (5.0%), tenant 5 (4.9%)	Tenant 1 (42.0%), tenant 2 (20.2%), tenant 3 (8.2%), tenant 4 (5.0%), tenant 5 (5.0%)	Tenant 1 (31.1%), tenant 2 (22.9%), tenant 3 (21.9%), tenant 4 (12.7%), and tenant 5 (4.5%)	Tenant 1 (56.7%), tenant 2 (15.8%), tenant 3 (6.8%), tenant 4 (5.7%), and tenant 5 (3.4%)	Tenant 1 (19.9), tenant 2 (11.2), tenant 3 (7.9), tenant 4 (5.3), tenant 5 (4.9)	Tenant 1 (57.3%), tenant 2 (12.4%), tenant 3 (4.8%), tenant 4 (4.7%), and tenant 5 (4.0%)	Tenant 1 (25.6%), tenant 2 (21.5%), tenant 3 (13.4%), tenant 4 (8.2%), and tenant 5 (7.1%)
Largest three business sectors(iv)	Big data (53.3%), media (20.3%), telecommunications (12.7%)	Big data (53.1%), media (20.2%), telecommunications (12.6%)	Cloud (42.9%), software (31.1%), and social media (22.9%)	IT (91.9%), other (5.3%), and financials (2.2%)	Technology (73.5%), telecom (6.3%), and health care (5.3%)	Cloud (60.6%), tech hardware (16.4%), and software (6.3%)	Tech (43.3%), cloud (34.5%), and financial services (11.1%)
State concentrations(iv)	California (33.1%), Texas (18.0%), Oregon (17.4%), Illinois (16.0%), Virginia (9.9%), Georgia (4.8%), Ohio (0.8%)	California (33.4%), Texas (18.2%), Oregon (17.3%), Illinois (15.2%), Virginia (10.0%), Georgia (5.1%), Ohio (0.8%)	Virginia (57.6%) and Canada (42.4%	Virginia (73.1%), and Texas (26.9%)	Washington (77.7), Virginia (14.7), and New York (7.6)	California (71.5%), Washington (11.8%), and Quebec (16.7%)	Virginia (39.6%), Arizona (34.9%), Utah (20.3%), and Texas (5.2%)

(i)Distressed tenant leases are excluded. (ii)Not including enterprise tenants. (iii)Represents the liquidation value estimated in accordance with "CMBS Global Property Evaluation Methodology," published Sept. 5, 2012. (iv)By annualized adjusted base rent. (v)Including 0.9% etnerprise leases. (vi)Including 2.0% enterprise leases. Aligned--Aligned Data Centers Issuer LLC. Sabey- Sabey Data Center Issuer LLC. Stack--Stack Infrstrastructure Issuer LLC. Vantage--Vantage Data Centers Issuer LLC. VDCR--Retained Vantage Data Centers Issuer LLC CLP--Critical load power. DSCR--Debt service coverage ratio. kW--Kilowatt.

Charts 2-6 show additional details about the underlying portfolio, which excluded the distressed tenant and its related leases.

Chart 2

Portfolio distribution by tenant

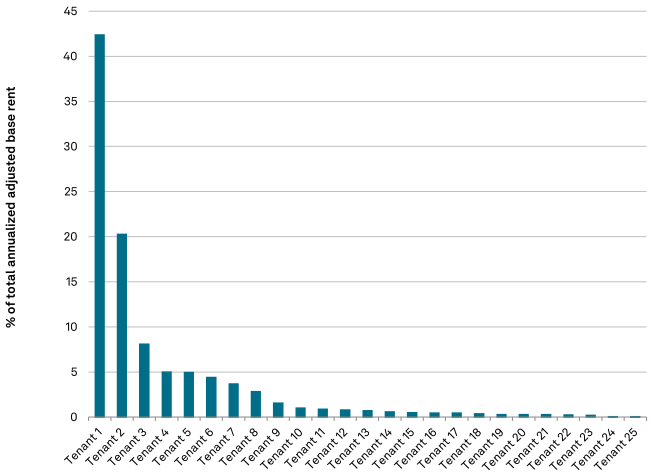


Chart 3

Tenant credit rating

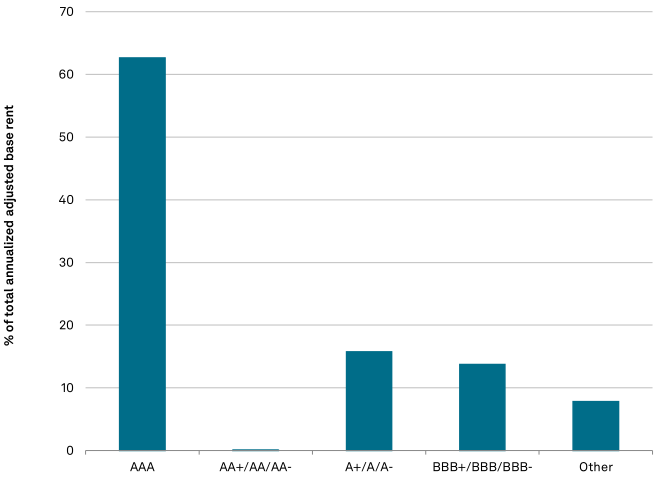


Chart 4

Portfolio distribution by industry

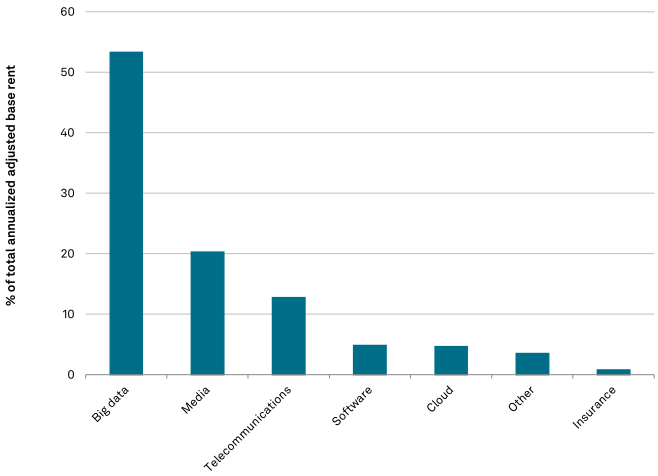
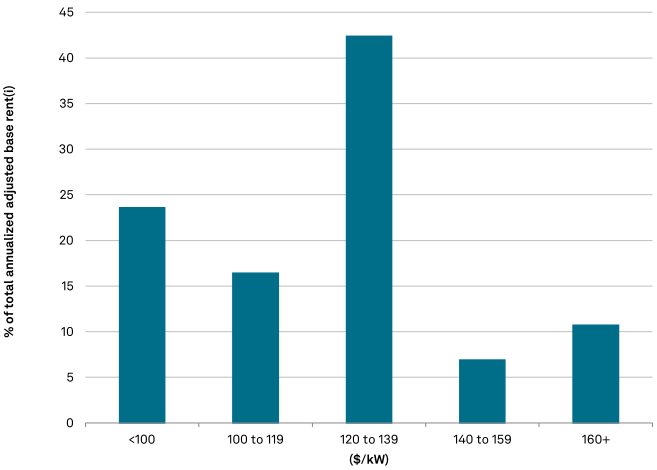


Chart 5

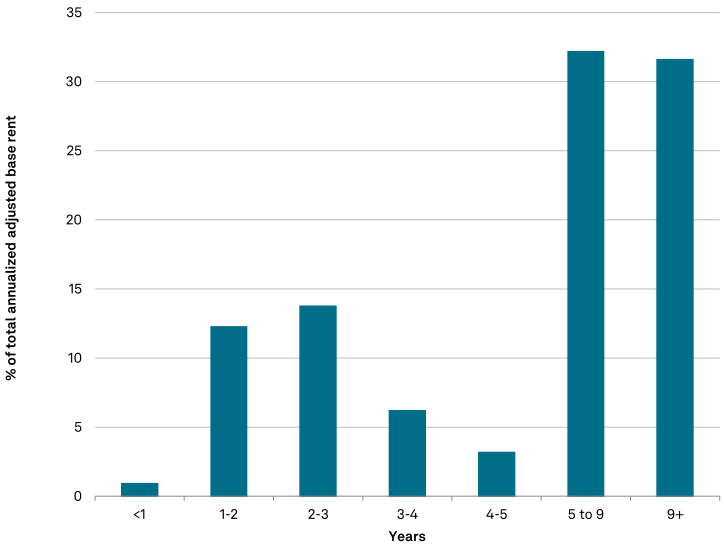
Portfolio distribution by monthly rent



(i)The concept of capacity leases in kW is not applicable to powered shell capacity. kW --Kilowatt.

Chart 6

Portfolio distribution by remaining term



Manager Operating Duties

Stack, as the transaction's manager, will have certain operating duties specified in the management agreement. Those duties include:

- Marketing the data center space to new tenants.
- Negotiating and executing new tenant leases and renewals.
- Administering tenant leases, including invoicing rent and other receipts, and managing delinquencies and defaults.
- Maintaining insurance (including property, casualty, and business interruption insurance).
- Paying real and personal property taxes.
- Keeping the data centers in compliance with applicable laws and regulations.
- Providing for necessary maintenance and arranging for utilities (including electricity), services, equipment, and supplies.
- Providing physical security to the data centers, including guards, fingerprint monitors, fencing, and other mechanisms to provide for the physical safety of tenants' infrastructure.
- Managing capital improvements and other construction in connection with the leasing of site space.

The issuer will pay the manager a monthly management fee equal to 3% of the aggregate base rent as compensation for those duties (not including the operating and maintenance capital expenses).

Manager Performance Obligation

For the turnkey arrangements in the portfolio, the tenant leases include service-level agreements (SLAs) that require the manager to provide uninterrupted levels of electricity, access, and cooling to the tenant. In support of that requirement, the manager maintains, as part of the data center infrastructure, backup batteries and generators that provide uninterrupted power in the event of temporary electric utility outages. Most SLAs provide remedies for the prolonged or repeated interruption of critical services.

These remedies are generally limited to the reimbursement of a portion of already-paid rent in proportion to the duration of the outage (although, in practice, no cash flows would be paid back to the tenant and would merely be netted against future rent obligations). Based on our assessment of the manager's operational procedures, the experienced management team, and the negligible number of SLA breaches during its operating experience, we believe SLA breaches represent a minimal risk to the cash flows.

Transaction Expenses

Transaction expenses, other than the management fee, fall into the three categories summarized in table 3. These expense categories are applied against the unreimbursed portion of the aggregate critical load power of the completed data centers.

Table 3

Expenses

Expense category	Payment priority	Expenses covered	Monthly budgeted expense amount
Priority expenses	First payment in application of funds	Taxes, insurance premiums, electricity (subsequently charged to the tenants), and, if applicable for future series, rents payable relating to any data center including any ground rents	$11.04 per kW for each data center, subject to an annual 2% escalator
Operating expenses	Fifth payment in application of funds (following the payment of note interest)	Site labor operations, repairs and preventative maintenance, utilities (excluding electricity), and security	$54.12 per kw for New Albany and $25.40 per kW for the other data centers, subject to an annual 2% escalator
Maintenance capital expenses	Fifth payment in application of funds (following the payment of note interest)	Maintenance and replacement of batteries, capacitors (uninterruptable power supply), electrical switches, generators, chiller plants, cooling towers, motors, compressors, and other infrastructure components	$4.51 per kW for each data center, subject to an annual 2% escalator

Kw--Kilowatt.

We believe the budgeted expenses in the payment priority are adequate, based on the manager's expense estimates, the expense estimates provided by the independent real estate appraiser in conjunction with the data center appraisals, and the comparable values we have seen in CMBS transactions. Furthermore, in our analysis, we assessed the break-even increase in operating and maintenance capital expenses (beyond the 2% annual escalation currently budgeted for in the transaction documentation) that the transaction can withstand while still paying timely interest and ultimate principal (see the Sensitivity Analysis section below).

Payment Priority

The issuer may issue additional series of notes that are secured by the entire collateral pool (subject to satisfaction of certain conditions, including DSCR and LTV ratio tests). Each month, available funds will be paid in the priority shown in table 4.

Table 4

Waterfall

Priority	Payment
1	Priority expense reserve.
2	Prior payment dates' unpaid indenture trustee, servicing, and other servicing fees; then unreimbursed advances and interest; and then remaining unpaid indenture trustee, servicing, and other servicing fees.
3	Additional issuer expenses to the indenture trustee, servicer, and/or other applicable person so as not to exceed the annual additional issuer expense limit; and then the VFN agent fee.
4	Accrued note interest for all notes and accrued and unpaid commitment fees, as well as other fees, expenses, and other amounts due to the VFN notes (including LOC fees).
5	Monthly expense amount to the obligors' excess of amounts drawn from the liquidity reserve for operating and maintenance capital expenditures or liquidity LOCs.
6	Unpaid management fee to the manager.
7	Operating expenses and maintenance capital expenditures for current calendar month in excess of the amounts drawn from the liquidity reserve subaccount or liquidity LOCs, not including servicer-approved monthly expense amounts.
8	Required liquidity reserve amount.
9	If an amortization period is not then in effect and no event of default has occurred and is continuing, an amount equal to any class A LTV test sweep amount as of the application date.
10	If an amortization period is not then in effect, a cash trap condition is not then in effect, and no event of default has occurred and is continuing, an amount equal to the class A-2 monthly amortization amount for any series' class A-2 notes.
11	If an amortization period is not then in effect and no event of default has occurred and is continuing, the additional principal payment amount together with any applicable prepayment consideration.
12	If, after the ARD for any series of outstanding VFN or term notes, an amortization period is not in effect and no event of default is continuing, the aggregate unpaid principal balance of the series' outstanding VFN notes or term notes.
13	If a cash trap condition is continuing and no event of default has occurred and is continuing, the remaining amount of available funds to the cash trap reserve subaccount.
14	During an amortization period or continuation of an event of default, the principal balance of all outstanding notes.
15	To the debt service subaccount until the amount on deposit is equal to the amount of contingent interest, deferred contingent interest, post-ARD additional interest, and deferred post-ARD additional interest due to the notes for the relevant payment date.
16	Additional issuer expenses not paid in item 3 due to the annual additional issuer expense limit plus accrued interest to the indenture trustee, servicer, and/or other applicable person.
17	Operating expenses and maintenance capital expenditures of the asset entities not paid in items 5 and 7.
18	Executed forward starting lease reserve subaccount and/or qualified new amount at the direction of the manager.
19	Optional payments on the principal to the class A-1 noteholders at the issuer's direction.
20	Manager-determined amounts to the capital expenditures reserve subaccount.

Table 4

Waterfall (cont.)

Priority	Payment
21	Unreimbursed advances, including advance interest, to the manager.
22	The remaining available funds to the issuer.

VFN--Variable-funding note. LOCs--Letters of credit. LTV--Loan-to-value. ARD--Anticipated repayment date.

The transaction features a liquidity reserve account of approximately $18.7 million at closing, $12.5 million of which is supported by a letter of credit issued from the series 2019-1 class A-1 VFN. The liquidity reserve is sized to cover the greater of three months of note interest or 12 months of priority expense and maintenance capital expenses.

A cash trap condition will occur if the three-month average amortization DSCR is less than 1.30x (the cash trap amortization DSCR), and it will continue until it is above 1.30x for two consecutive determination dates. During a cash trap condition, excess cash flow otherwise payable to the issuer will be diverted to the cash trap reserve subaccount.

An amortization period will occur if the three-month average amortization DSCR is less than 1.20x (the minimum amortization DSCR), and it will continue until it is above 1.20x for two consecutive determination dates. During an amortization period, or after and during an event of default, all excess cash flow will be applied to the aggregate unpaid principal amount of the notes sequentially across classes and pro rata among outstanding notes of the same class.

The amortization DSCR is calculated as the ratio of the annualized adjusted net operating income to mandatory debt service, where mandatory debt service consists of interest on the class A notes to be paid over the succeeding 12 payment dates plus 30-year mortgage-style principal that would be paid over the succeeding 12 periods if class A note principal payments were determined, assuming a 30-year remaining term and an interest rate equivalent to the blended average rate of all outstanding class A notes.

The servicer must make interest advances on the notes, if deemed recoverable. The advances are meant to cover any shortfalls resulting from timing mismatches because of missed lease payments and any interest shortfalls. This requirement excludes make-whole amounts, post-ARD additional interest, and deferred post-ARD additional interest. If the servicer fails to make an advance, the indenture trustee must make the advance in its place. These requirements for advances serve as a form of liquidity for the notes. Nevertheless, we do not give credit to the servicer advances in our cash flow analysis.

S&P Global Ratings' Stress Scenario Assumptions

To determine the appropriate preliminary rating for the series 2024-1, we analyzed the transaction's cash flows utilizing stress assumptions derived in part from "Methodology And Assumptions For Rating North American Single-Tenant Real Estate Triple-Net Lease-Backed Securitizations," published March 31, 2016. We ran various cash flow scenarios to test the transaction's sensitivity to changes in default timing, given the transaction's credit enhancement.

We believe the risk to the cash flow generated from the portfolio of data centers and their associated leases can be attributed certain factors. These include:

- Defaults from the initial pool of tenants (the lessees);

- The property manager's ability to fill the vacant space at a comparable lease rate upon a lessee default or lease expiration;
- The lease terms for new tenants (rental rate and lease term);
- The credit profile of new tenants; and
- The liquidation value of the data centers toward the legal final maturity of the transaction.

Our cash flow analysis includes the following key cash flow assumptions:

- All leases are rejected in the bankruptcy proceedings for defaulted tenants, given the lack of historical observations of defaulted wholesale data center tenants.
- No property liquidations until the disposition period defined in the transaction documents. We believe it would likely be more economical for the manager to continue operating the centers rather than liquidate them, even during periods of high vacancy rates.
- We assume 'CCC-' issuer credit ratings for tenants not rated by S&P Global Ratings, based on the lack of performance data for the wholesale data sector.
- That the average credit quality of the tenant pool will have migrated to 'CCC-' by the start of our second default wave, if applicable, from its current 'A', given the limited eligibility requirements for future tenants' credit quality.
- We applied re-lease haircuts for both performing and defaulted leases that are consistent with those that are one rating category above the haircut rates specified in the 2016 triple-net lease criteria, given the limited history of wholesale data center lease rates and the uncertainty around future supply and demand conditions. For example, at the 'A' rating category, we would assume a 20% loss in rental income upon lease renewal for a performing lease rather than the 15% specified in the criteria. Similarly, at the 'A' rating category, we would assume a 35% haircut to re-lease rental rates post-default for defaulted leases rather than the 30% specified in the criteria.

We applied two waves of default and used S&P Global Ratings' CDO Evaluator to determine the initial collateral pool's scenario default rate. We applied the following assumptions:

- For the first default wave, S&P Global Ratings' issuer credit rating on the initial lessee or 'CCC-' for unrated lessees;
- For the second default wave, 'CCC-' rating for the entire portfolio;
- The allocated collateral value per lease (calculated as each lease's total remaining scheduled payments);
- The leases current remaining terms; and
- The higher of portfolio default rate and the largest obligor default rate.

We determined the portfolio's property liquidation value using our commercial real estate methodology (see "CMBS Global Property Evaluation Methodology," published Sept. 5, 2012). We assumed rental income based on the in-place leases, the appraiser's estimate of market rent, and recent leasing data from the market; and then applied a vacancy deduction to the potential gross income. We estimated expenses and expense reimbursements based on information from the appraisal reports and comparable properties. These expenses included fixed items such as real estate tax and insurance, estimated management fees, and variable expenses, which were reimbursed in our income projections. We determined net cash flow after deducting estimated leasing commissions, tenant improvement expenses, and capital reserves and expenditures,

based on projected lease roll assumptions. We selected direct capitalization rates based on factors such as appraisal and market capitalization rates, property performance and tenant strengths, and property location.

Table 5 shows a summary of stress assumptions.

Table 5

Cash flow assumptions

Stress level	A-
Standard scenario default rate	
Portfolio scenario default rate (default wave 1)(i) (%)	13.7
Portfolio scenario default rate (default wave 2)(i) (%)	94.9
Nondefaulting leases	
Lease rate credit upon renewal (%)	81.7
Defaulting leases	
Accepted in bankruptcy (%)	0.0
Rejected in bankruptcy and re-leased (%)	100.0
Rejected leases--re-leased	
Re-leased lag--turnkey (months)	12
Lease rate credit (%)	66.7
Liquidation proceeds ($)	1,467,369,392

(i)We select the higher of the standard default rate and the largest-obligor test for each wave.

Cash Flow Analysis

We used various simulated cash flow scenarios to determine whether the available credit support is sufficient to withstand the assumed losses. In each scenario, we applied the cumulative effects of the assumptions outlined in table 5 with four default timing curves, where the first default wave starts in year one, the second default wave starts in year 16, and final liquidation starts one year before the notes' earliest legal final maturity date (see table 6).

In the rating runs, we excluded two distressed tenant leases that were rejected under bankruptcy proceedings. In each scenario, assuming the maximum commitment of $100 million on the VFN, the notes paid timely interest and full principal by their rated final maturity date, and there were no deferred expenses (priority, operating, or maintenance capital expenses). Although the transaction documents require the servicer or indenture trustee to make advances on interest payments (if deemed recoverable), no advances were assumed in the cash flow modeling scenarios.

Table 6

Default curves

Year	Curve 1 (%)	Curve 2 (%)	Curve 3 (%)	Curve 4 (%)
1	40	10	10	15
2	10	10	10	15

Table 6

Default curves (cont.)

Year	Curve 1 (%)	Curve 2 (%)	Curve 3 (%)	Curve 4 (%)
3	10	10	10	15
4	10	40	10	15
5	10	10	10	15
6	10	10	10	15
7	10	10	40	10

Sensitivity Analysis

We ran several break-even cash flow runs to measure the transaction's ability to withstand decreases in revenue or increases in expenses, assuming a base-case scenario in which we assumed contractual cash flows (excluding two distressed tenant leases) with no losses and renewals at the same lease rate following the initial lease term.

Sensitivity run 1: gross revenue reduction stress

We found that the transaction could withstand a 29% reduction in monthly gross revenue and still pay timely interest and full principal by the rated final maturity.

Sensitivity run 2: maintenance capital expense stress

We found that the transaction could withstand 8.3x increases in monthly budgeted maintenance capital expenses and still pay timely interest and full principal by the rated final maturity.

Sensitivity run 3: priority expense, operating expense, and maintenance capital expense stress

We found that the transaction could withstand 10% annual escalations of priority expenses, operating expenses, and maintenance capital expenses (instead of the 2% assumed in the rating scenario) and still pay timely interest and full principal by the rated final maturity date.

Legal Structure

We expect the issuers' special-purpose entity provisions to be consistent with our bankruptcy-remoteness criteria. In rating this transaction, we will review the legal matters we believe are relevant to our analysis, as outlined in our criteria.

Surveillance

We will maintain active surveillance on the rated notes until the notes mature or are retired. The purpose of surveillance is to assess whether the notes are performing within the initial parameters and assumptions applied to each rating category. The transaction terms require the

issuer to supply periodic reports and notices to S&P Global Ratings for maintaining continuous surveillance on the rated notes.

Related Criteria

- Criteria | Structured Finance | ABS: Advance Notice Of Proposed Criteria Change: Data Center Securitizations, Jan. 18, 2023
- General Criteria: Environmental, Social, And Governance Principles In Credit Ratings, Oct. 10, 2021
- Criteria | Structured Finance | General: Global Framework For Payment Structure And Cash Flow Analysis Of Structured Finance Securities, Dec. 22, 2020
- Criteria | Structured Finance | Legal: U.S. Structured Finance Asset Isolation And Special-Purpose Entity Criteria, May 15, 2019
- Criteria | Structured Finance | General: Counterparty Risk Framework: Methodology And Assumptions, March 8, 2019
- Criteria | Structured Finance | ABS: Methodology And Assumptions For Rating North American Single-Tenant Real Estate Triple-Net Lease-Backed Securitizations, March 31, 2016
- Criteria | Structured Finance | General: Global Framework For Assessing Operational Risk In Structured Finance Transactions, Oct. 9, 2014
- General Criteria: Global Investment Criteria For Temporary Investments In Transaction Accounts, May 31, 2012
- General Criteria: Principles Of Credit Ratings, Feb. 16, 2011

Related Research

- U.S. Economic Forecast Update: A Sturdy Job Market Keeps Growth Going, Feb. 21, 2024
- Credit FAQ: How U.S. Data Centers Are Navigating Inflation And Recession Risks, July 21, 2022
- ESG Credit Indicator Report Card: Real Estate, Dec. 14, 2021
- Field Of Data Streams: If You Build It, They Will Come, Sept. 20, 2019
- Cloud Disruption: Cloud Adoption And Digital Transformation Are Positives For The Data Center Industry, Sept. 7, 2018
- Despite Continued Growth, U.S. Data Centers May Face Long-Term Risks From Financial Pressures And Uncertain Tech Developments, Oct. 30, 2017
- Global Structured Finance Scenario And Sensitivity Analysis 2016: The Effects Of The Top Five Macroeconomic Factors, Dec. 16, 2016
- Credit FAQ: Analyzing The Real Estate Characteristics Of Data Centers, July 25, 2016