BofA SECURITIES

SunRun

4Q23 Preview: Still room to RUN, but investors will need to see cash

Reiterate Rating: BUY | PO: 20.00 USD | Price: 17.78 USD

Maintain Buy; lower materials, borrowing costs, rates

We maintain our Buy rating on RUN and raise our estimates for NPV of growth asset cash flows, though we expect growth in 2024 to be more muted as residential solar demand begins recovering. We see lower rates (US 10-yr treasury down 80bps since our last update) supporting both lower project level borrowings and less onerous discount rates for future cash flows. We also see creation costs benefitting from 20% lower hardware costs by year-end 2024 (full benefit realized in 2025) and higher net margins from strong storage attach rates (see in-depth storage assessment here). After doubling since early November on growth optimism, the next bogey will likely be read-throughs to RUN's sustainable cash generation target of \$200-\$500Mn by year-end 2024, with contributions from adders that could accelerate tender of convertibles.

Reducing 2024 growth estimate; 2025+ estimates intact

We expect a shallow bottoming of MWs deployed in 2024, reducing our year-over-year growth estimate to -4% versus -2% prior to account for a potential demand recovery lag following indications of improved borrowing conditions. This caution follows RUN's 3Q23 reduction in FY23 volume targets to just 2-5% year-over-year growth. Our 2024 estimate of 980 MW deployed slightly trails consensus of 990 MW, with low expectations possibly cushioning the impact of potentially weaker guidance on the 4Q23 call. Our MW estimates for 2025 to 2029 remain unchanged given we do not see growth being limited by any severe supply or capacity constraints.

PO to \$20; growth no longer free, but still undervalued

We update our valuation for higher expected cash flows on growth assets as lower borrowing and discount rates provide a compounding benefit to our new PO of \$20/sh versus \$17/sh prior. We now estimate DevCo value of \$10/sh versus \$7/sh prior, also reflecting a modest benefit to creation costs from less expensive hardware. After RUN has doubled from early November to late December, assumptions for growth have now begun to embed within the valuation, though we contend there is still double-digit upside from current levels with reasonable assumptions for borrowing costs and discount rates for future cash flows. Our valuation does not explicitly contemplate renewal value, which would represent an incremental contribution to our assessment. We also identify visible upside to our estimates, which reflect modest low-to-mid single digit MW growth from 2025 to 2030.

Estimates (Dec) (US\$)	2021A	2022A	2023E	2024E	2025E
EPS	(0.39)	0.79	(1.86)	(3.95)	(4.15)
EPS Change (YoY)	68.5%	NM	NM	-112.4%	-5.1%
Consensus EPS (Bloomberg)			(4.47)	(1.14)	(0.89)
DPS	0	0	0	0	0
Valuation (Dec)					
P/E	NM	22.5x	NM	NM	NM
EV/EBITDA*	NM	NM	NM	254.5x	203.3x
Free Cash Flow Yield*	-64.6%	-73.8%	-88.3%	-75.2%	-79.4%
* For full definitions of <i>IQ</i> method SM measures, see page 8.					

Bof A Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. Refer to important disclosures on page 9 to 11. Analyst Certification on page 6. Price

Objective Basis/Risk on page 6.

04 January 2023

Equity

Key Changes		
(US\$)	Previous	Current
Price Obj.	17.00	20.00
2024E Rev (m)	2,693.1	2,661.9
2025E Rev (m)	2,945.0	2,941.6
2023E EPS	-1.35	-1.86
2024E EPS	-3.00	-3.95
2025E EPS	-2.76	-4.15

Julien Dumoulin-Smith

Research Analyst **BofAS**

+1 646 855 5855

julien.dumoulin-smith@bofa.com

Tanner W. James, CFA Research Analyst BofAS +1 646 855 2689

tanner.w.james@bofa.com

Dimple Gosai, CFA Rsch Analyst & ESG Strategist **BofAS**

+1 646 855 3491 dimple.gosai@bofa.com

Stock Data

Price	17.78 USD
Price Objective	20.00 USD
Date Established	4-Jan-2024
Investment Opinion	C-1-9
52-Week Range	8.43 USD - 29.72 USD
Mrkt Val (mn) / Shares Out	3,874 USD / 217.9
(mn)	
Free Float	97.0%
Average Daily Value (mn)	262.57 USD
BofA Ticker / Exchange	RUN / NAS
Bloomberg / Reuters	RUN US / RUN.OQ
ROE (2023E)	-6.2%
Net Dbt to Eqty (Dec-2022A)	95.1%
ESGMeter™	High

ESGMeter is not indicative of a company's future stock price performance and is not an investment recommendation or rating. ESGMeter is independent of BofA Global Research's equity investment rating, volatility risk rating, income rating, and price objective for that company. For full details, refer to

MW-megawatt

iQprofile[™] SunRun

iQmethod [™] – Bus Performance*					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025
Return on Capital Employed	-4.1%	-3.5%	-3.0%	-2.3%	-2.0%
Return on Equity	-1.3%	2.7%	-6.2%	-14.1%	-16.9%
Operating Margin	-41.4%	-28.5%	-30.5%	-21.8%	-19.2%
Free Cash Flow	(2,503)	(2,860)	(3,423)	(2,912)	(3,075
iQmethod [™] – Quality of Earnings*					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025
Cash Realization Ratio	NM	-4.9x	NM	NM	NN
Asset Replacement Ratio	4.4x	4.5x	5.4x	3.9x	4.0
Tax Rate	NM	NM	NM	NM	NN
Net Debt-to-Equity Ratio	79.2%	95.1%	104.0%	111.2%	117.3%
Interest Cover	-2.0x	-1.5x	-1.1x	-0.8x	-0.7
Income Statement Data (Dec)					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025
Sales	1,610	2,321	2,221	2,662	2,942
% Change	74.6%	44.2%	-4.3%	19.9%	10.5%
Gross Profit	244	299	270	348	428
% Change	36.8%	22.2%	-9.6%	28.8%	23.1%
EBITDA	(278)	(211)	(153)	67	84
% Change	-25.2%	24.1%	27.4%	NM	25.29
Net Interest & Other Income	(305)	(185)	(590)	(690)	(781
Net Income (Adjusted)	(79)	173	(404)	(858)	(902
% Change	54.2%	NM	NM	-112.3%	-5.1%
Free Cash Flow Data (Dec)					
(US\$ Millions)	2021A	2022A	2023E	2024E	2025
Net Income from Cont Operations (GAAP)	(981)	(850)	(1,271)	(1,274)	(1,348
Depreciation & Amortization	388	451	524	649	649
Change in Working Capital	(485)	(411)	(4)	69	6.5
Deferred Taxation Charge	NA	NA	NA	NA	N/
Other Adjustments, Net	260	(39)	127	134	140
Capital Evpanditura	(1,686)	(2,011)	(2,799)	(2,488)	
Capital Expenditure		. , ,			(2,580
Free Cash Flow	-2,503	-2,860	-3,423	-2,912	(2,580 - 3,07 5
Free Cash Flow % Change	-2,503 -94.4%	-2,860 -14.2%	-3,423 -19.7%	-2,912 14.9%	(2,580 - 3,07 5 - 5.6 %
Free Cash Flow % Change Share / Issue Repurchase	- 2,503 - 94.4% 0	- 2,860 - 14.2% 0	- 3,423 - 19.7% 0	- 2,912 14.9% 0	(2,580 - 3,07! - 5.6 %
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid	- 2,503 - 94.4% 0	- 2,860 - 14.2% 0	-3,423 -19.7% 0	- 2,912 14.9% 0	(2,580 - 3,075 - 5.6%
Free Cash Flow % Change Share / Issue Repurchase	- 2,503 - 94.4% 0	- 2,860 - 14.2% 0	- 3,423 - 19.7% 0	- 2,912 14.9% 0	(2,580 -3,075 -5.6% ((2,137
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec)	-2,503 -94.4% 0 0 1,609	-2,860 -14.2% 0 0 1,850	-3,423 -19.7% 0 0 2,578	-2,912 14.9% 0 0 2,003	(2,580 - 3,075 - 5.6% ((2,13)
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions)	-2,503 -94.4% 0 0 1,609	-2,860 -14.2% 0 0 1,850	-3,423 -19.7% 0 0 2,578	-2,912 14.9% 0 0 2,003	(2,580 -3,075 -5.6% (2,137
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents	-2,503 -94.4% 0 0 1,609	-2,860 -14.2% 0 0 1,850	-3,423 -19.7% 0 0 2,578 2023E 2,012	-2,912 14.9% 0 0 2,003	(2,580 -3,075 -5.6% (2,137 2025 3,644
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables	-2,503 -94.4% 0 0 1,609 2021A 850 146	-2,860 -14.2% 0 0 1,850 2022A 953 214	-3,423 -19.7% 0 0 2,578 2023E 2,012 204	-2,912 14.9% 0 0 2,003 2024E 2,781 244	(2,580 -3,075 -5.6% ((2,137 2025 3,644 270
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables Other Current Assets	-2,503 -94.4% 0 0 1,609 2021A 850 146 551	-2,860 -14.2% 0 0 1,850 2022A 953 214 931	-3,423 -19.7% 0 0 2,578 2023E 2,012 204 995	-2,912 14.9% 0 0 2,003 2024E 2,781 244 973	(2,580 -3,075 -5.6% ((2,137 2025 3,644 27(984
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables Other Current Assets Property, Plant & Equipment	-2,503 -94.4% 0 0 1,609 2021A 850 146 551 57	-2,860 -14.2% 0 0 1,850 2022A 953 214 931 67	-3,423 -19.7% 0 0 2,578 2023E 2,012 204 995 86	-2,912 14.9% 0 0 2,003 2024E 2,781 244 973 104	(2,580 -3,075 -5.6% ((2,137 2025 3,644 270 984 122
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables Other Current Assets Property, Plant & Equipment Other Non-Current Assets	-2,503 -94.4% 0 0 1,609 2021A 850 146 551 57 14,878	-2,860 -14.2% 0 0 1,850 2022A 953 214 931 67 17,104	-3,423 -19.7% 0 0 2,578 2023E 2,012 204 995 86 19,360	-2,912 14.9% 0 0 2,003 2024E 2,781 244 973 104 21,182	(2,580 -3,075 -5.6% ((2,137 2025 3,644 270 984 122 23,095
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables Other Current Assets Property, Plant & Equipment Other Non-Current Assets Total Assets	-2,503 -94.4% 0 0 1,609 2021A 850 146 551 57 14,878 16,483	-2,860 -14.2% 0 0 1,850 2022A 953 214 931 67 17,104 19,269	-3,423 -19.7% 0 0 2,578 2023E 2,012 204 995 86 19,360 22,656	-2,912 14.9% 0 0 2,003 2024E 2,781 244 973 104 21,182 25,284	(2,580 -3,075 -5.6% ((2,137 2025 3,644 27(984 122 23,095 28,115
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables Other Current Assets Property, Plant & Equipment Other Non-Current Assets Total Assets Short-Term Debt	-2,503 -94.4% 0 0 1,609 2021A 850 146 551 57 14,878 16,483 208	-2,860 -14.2% 0 0 1,850 2022A 953 214 931 67 17,104 19,269	-3,423 -19.7% 0 0 2,578 2023E 2,012 204 995 86 19,360 22,656 186	-2,912 14.9% 0 0 2,003 2024E 2,781 244 973 104 21,182 25,284 186	(2,580 -3,07: -5.6% ((2,13: 2025 3,64 27(98- 12: 23,09: 28,11: 18(
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables Other Current Assets Property, Plant & Equipment Other Non-Current Assets Total Assets Short-Term Debt Other Current Liabilities	-2,503 -94.4% 0 0 1,609 2021A 850 146 551 57 14,878 16,483 208 804	-2,860 -14.2% 0 0 1,850 2022A 953 214 931 67 17,104 19,269 186 970	-3,423 -19.7% 0 0 2,578 2023E 2,012 204 995 86 19,360 22,656 186 909	-2,912 14.9% 0 0 2,003 2024E 2,781 244 973 104 21,182 25,284 186 920	(2,580 -3,075 -5.6% ((2,133 2025 3,644 270 984 122 23,099 28,115 186 949
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables Other Current Assets Property, Plant & Equipment Other Non-Current Assets Total Assets Short-Term Debt Other Current Liabilities Long-Term Debt	-2,503 -94.4% 0 0 1,609 2021A 850 146 551 57 14,878 16,483 208 804 6,638	-2,860 -14.2% 0 0 1,850 2022A 953 214 931 67 17,104 19,269 186 970 8,548	-3,423 -19.7% 0 0 2,578 2023E 2,012 204 995 86 19,360 22,656 186 909 11,126	-2,912 14.9% 0 0 2,003 2024E 2,781 244 973 104 21,182 25,284 186 920 13,129	(2,580 -3,075 -5.6% ((2,137 2025 3,644 27(984 122 23,095 28,115 186 945 15,265
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables Other Current Assets Property, Plant & Equipment Other Non-Current Assets Total Assets Short-Term Debt Other Current Liabilities Long-Term Debt Other Non-Current Liabilities	-2,503 -94.4% 0 0 1,609 2021A 850 146 551 57 14,878 16,483 208 804 6,638 1,260	-2,860 -14.2% 0 0 1,850 2022A 953 214 931 67 17,104 19,269 186 970 8,548 1,387	-3,423 -19.7% 0 0 2,578 2023E 2,012 204 995 86 19,360 22,656 186 909 11,126 1,497	-2,912 14.9% 0 0 2,003 2024E 2,781 244 973 104 21,182 25,284 186 920 13,129 1,574	(2,580 -3,075 -5.6% ((2,137 2025 3,644 27(984 122 23,095 28,115 945 15,265 1,651
Free Cash Flow % Change Share / Issue Repurchase Cost of Dividends Paid Change in Debt Balance Sheet Data (Dec) (US\$ Millions) Cash & Equivalents Trade Receivables Other Current Assets Property, Plant & Equipment Other Non-Current Assets Total Assets Short-Term Debt Other Current Liabilities Long-Term Debt	-2,503 -94.4% 0 0 1,609 2021A 850 146 551 57 14,878 16,483 208 804 6,638	-2,860 -14.2% 0 0 1,850 2022A 953 214 931 67 17,104 19,269 186 970 8,548	-3,423 -19.7% 0 0 2,578 2023E 2,012 204 995 86 19,360 22,656 186 909 11,126	-2,912 14.9% 0 0 2,003 2024E 2,781 244 973 104 21,182 25,284 186 920 13,129	(2,580 -3,075 -5.6% ((2,137 2025 3,644 27(984 122 23,095 28,115 186 945 15,265

Company Sector

Alternative Energy

Company Description

Founded in 2007, SunRun finances, installs and services solar power arrays on customer premises. The company acquires customers directly as well as through a partnership model. The majority of the company's solar installations are leased from SunRun by its customers, with a smaller portion of the business comprised of systems sold to customers outright.

Investment Rationale

We are Buy rated seeing underappreciated attribution to future value creation and prospective renewal value reflected in the shares. While we note the confluence of current macro headwinds, we note RUN's history on execution navigating a series of policy headwinds in the past.

Stock Data

Average Daily Volume 14,767,845

Quarterly Earnings Estimates

	2022	2023
Q1	-0.42A	-1.12A
Q2	-0.06A	0.25A
Q3	0.95A	-4.92A
04	0.29A	-1.42E



* For full definitions of $\emph{IQ}\textit{method}^{\,\text{SM}}$ measures, see page 8.

Estimates tweaked for 2024 bottom

We have tweaked our forward estimates ahead of RUN's 4Q23 earnings. We have reduced our assumption for 2024 MW leased to 832 MW versus 850 MW prior, reflecting an incremental headwind of 200 bps to total MW for the year. This reflects greater conservatism in the near-term market recovery, although from 2025 to 2029 our assumptions for total MW remain unchanged. Conversely, starting in 2025 we have further reduced our assumptions for installation cost per watt, reflecting the expectation that hardware costs are expected to decline by over 20% from 2Q23 peaks. While some of the overall benefit to creation cost could be obscured by unfavorable mix for higher storage, the impact should be more visible to net margins, where higher battery mix represents a tailwind. We have also reduced our project-level interest rate by 80bps, relatively in line with the decline in yield for 10-year treasury note since November 1. Our estimates remain conservative, with little credit given to tax credit adder value at this point. Our baseline ITC assumed in the model is 31%-32% on average versus RUN's indications of 34% on a run rate potential and >\$400Mn in annual cash generation from adders alone.

Exhibit 1: RUN Growth Assumptions

Step-back in 2024 followed by 2025 recovery; 2025-2028 MWs deployed unchanged from prior estimates

	2021E	2022E	1Q23E	2Q23E	3Q23E	4Q23E	2023E	2024E	2025E	2026E	2027E	2028E
Total New MWs growth Guidance	792 31% 30%	991 25% 20%+	240 12%	297 20%	258 1%	226 -18%	1,021 3% +2-5%	980 -4%	1,050 <mark>7%</mark>	1,103 5%	1,147 <mark>4%</mark>	1,181 3%
MWs Leased % share	643 81%	715 72%	188 78%	247 83%	229 89%	203 90%	867 85%	832 85%	892 85%	937 85%	974.20 85%	1,003 85%
System sales % share	149 19%	276 28%	52 22%	50 17%	29 11%	23 10%	154 15%	148 <i>1</i> 5%	158 <i>1</i> 5%	166 <i>1</i> 5%	172.77 15%	178 15%
Total	792	991	240	297	258	226	1,021	980	1,050	1,103	1,147	1,181
New Customers growth	110,234 30.4%	136,985 24%	32,413 10%	39,755 16%	33,806 -5%	29,511 -21%	134,634 -2%	129,249 -4%	138,555 7%	145,482 5%	151,302 4%	155,841 3%
New Subscribers	88,834	99,497	25,154	32,389	29,303	26,026	110,926	106,489	114,156	119,864	124,659	128,399
Cumulative Customers	660,311	797,296	829,709	869,464	903,270	932,781	931,930	1,190,428	1,328,983	1,474,465	1,625,767	1,781,608

Source: BofA Global Research, Company filings, Bloomberg, Visible Alpha

BofA GLOBAL RESEARCH

Valuation: PO higher on tighter cost structure, lower rates

We increase our PO to \$20/sh from \$17/sh prior. We value the current portfolio and cash and work in progress (WIP) at \$10/sh, with net cash/WIP representing \$8 of the \$10. For the remainder, we use a DCF to estimate RUN's levered cash flows today at a 15% discount (we compare this conservatively to the 14% yield on RUN's convertible debt, which has declined 200 basis points since our last PO update in November). We now apply a 15% discount rate for RUN's DevCo versus 17% earlier, reflecting lower cost of capital evidenced by the lower yield on the convert versus our prior update. Our higher expectations for growth reflect 80bps of lower project-level borrowing costs for the Devco from 2024 and beyond. We have also slightly reduced our creation cost estimates in line with expectations for flow-through of lower hardware costs, partially offset by unfavorable mix from higher storage attachment.

Exhibit 2: Asset level IRRs - still challenged in 2024 but improving thereafter with higher storage attachment, lower hardware costs

Pricing pressure in 2024/2025 abating through end of decade with cost-out supporting higher profitability

	2022	2023	2024	2025	2026	2027	2028	2029
Unlevered IRR	11%	12%	11%	12%	12%	12%	12%	12%
Unlevered IRR Contracted	9%	11%	10%	11%	11%	11%	11%	11%
Unlevered Profitability, \$/W								
PV-5 / W	1.56	1.86	1.51	1.59	1.64	1.54	1.47	1.37
PV-6 / W	1.17	1.44	1.16	0.92	0.99	0.92	0.88	0.80
PV-8 / W	0.57	0.79	0.60	0.66	0.74	0.68	0.65	0.58
Cost of Debt	5.50%	7.25%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Levered Profitability, \$/W								
PV-5 / W	1.48	1.41	1.17	1.24	1.30	1.21	1.16	1.07
PV-7 / W	1.25	1.21	1.00	1.07	1.14	1.06	1.01	0.92
PV-10 / W	0.49	0.51	0.42	0.50	0.58	0.52	0.49	0.42

Source: BofA Global Research, Visible Alpha

BofA GLOBAL RESEARCH

Below we deconstruct how our model changes increase our PO from \$17/sh to \$20/sh:

- Reduced DevCo loan interest from 2024 to 2029 by 80bps, in line with lower cost of debt (\$1.00/sh)
- Lower installation cost per watt in 2025 reflecting less expensive hardware, down 6% year-over-year now versus down 4% prior (+50c/sh)
- Reduced assumed discount rate on DevCo cash flows to 15% from 17%, in line with yield on RUN's 2026 converts (+\$1/sh)
- Reduced assumed discount rate on PowerCo retained value to 15% from 16% (+50c/sh)

In our view, RUN continues to look attractive, with its prospective growth still undervalued at current levels. Though not contemplated in our estimates or our PO, we identify further potential upside from renewal value at the opco as long-term contracts mature. With the prospect of lower cost of capital and discount rates providing comfort to investors in residential solar and enabling RUN to double since early November, there are still watch items that may drive share price performance in the coming months. A primary focus will be RUN's ability to show progress toward its annualized recurring cash generation goal of \$200-\$500Mn by 4Q2024. Investor attention will also gravitate toward progress of storage attachment and flow through of adders supporting higher margins.

Exhibit 4: RUN SOTP

 $PO\ to\ \$20;\$10/sh\ for\ existing\ book\ and\ \$10/sh\ for\ growth,\ which\ has\ become\ more\ priced\ in\ with\ 4Q\ runup.\ Still\ double-digit\ \%\ upside$

Sunrun: Consolidated Sum of the Parts Valuation													
											Contracted	Renewal	Renew
											Value	Value	Vali
Power Co (Retained Lease Value) - as of 4Q22 (at 10% Unl	evered Dis	count Rate)							NPV (\$Mn)	(\$/Sh)	Attributed	(\$/S
Levered FCF Contract Period - RUN (ind. VSLR)										\$405	\$1.86	0%	\$0.0
Total Power Co				1						\$405	\$1.86		\$0.0
	Growth Es	timates an	d Unlevered									Renewal	Value
		PV-5 (NPV/\	W)	Levere	d PV-10 (Con	tracted)			Contracted	Value Creation		Creation (I	PV-10)
							NPV	Storage					
			NPV/W				(\$Mn)-	NPV -			Contracted	Renewal	Renew
	MW	YoY	Unlevered				Pre	Pre	NPV %	NPV (\$Mn)-	Value	NPV (\$Mn)-	Valu
Dev Co @ 15% Discount Rate	Leased	Growth	PV-5	Solar	Storage	SBC & R&D	Discount	Discount	Storage	Discounted	(\$/Sh)	Pre Discount	(\$/Sł
DevCo 2023: NPV (Consolidated)	867	-	1.48	0.46	0.18	(0.10)	\$470	\$155	25%	\$355	\$1.63	-	Ψ0.0
DevCo 2024: NPV (Consolidated)	832	-4%	1.21	0.34	0.18	(0.13)	\$330	\$151	31%	\$217	\$1.00	-	\$0.0
DevCo 2025: NPV (Consolidated)	892	7%	1.29	0.36	0.25	(0.12)	\$437	\$224	34%	\$250	\$1.15	-	\$0.0
DevCo 2026: NPV (Consolidated)	937	5%	1.36	0.44	0.26	(0.11)	\$550	\$240	30%	\$273	\$1.26	-	\$0.0
DevCo 2027: NPV (Consolidated)	974	4%	1.26	0.41	0.22	(0.12)	\$501	\$213	30%	\$217	\$1.00	-	\$0.0
DevCo 2028: NPV (Consolidated)	1,003	3%	1.19	0.40	0.19	(0.12)	\$470	\$186	28%	\$177	\$0.81	-	\$0.0
										Terminal Value Multiple	i		
										6.0x			
DevCo 2029: NPV (Consolidated)	1,023	2%	\$1.10	\$0.36	\$0.16	(\$0.13)	\$392	\$159		\$770	\$3.54	-	\$0.0
Total Post DevCo Value										\$2,258.04	\$10.39		\$0.0
Current Cash Balance (as of 3Q23)										\$952	\$4.38		
Construction in Progress (as of 3Q23										\$814	\$3.74		
Total Equity Value Per Share										\$4,728.08	\$20.37		\$0.0
												•	
Equity Value Summary									% Storage		Contracted	Net Cash	Tot
Total PowerCo Value (Incl. Renewal) + Net Cash											\$1.90	\$8.12	
Total DevCo Value								\$2,258	23%		\$10.39		\$10.0
Total Equity Value Per Share (Contracted)													\$20.0
Source: BofA Global Research, Company filings, Blo	omherg												

Source: BofA Global Research, Company filings, Bloomberg

BofA GLOBAL RESEARCH



Price objective basis & risk

SunRun (RUN)

We arrive at our \$20/share price objective in two pieces: PowerCo and DevCo. Our PowerCo attribution of \$10/sh remains unchanged, reflecting the DCF of existing home contracts benchmarked against a 15% discount rate plus net cash / debt at the corporate level. We have reduced our discount rate by 100bps reflecting lower cost of capital assumptions in line with lower rates.

We are raising our DevCo attribution to \$10/sh from \$7/sh prior, reflecting DCF of future years of subscribing new customers benchmarked to a 15% discount rate. We had previously used a 17% discount rate, but have reduced this to account for lower cost of capital assumptions, comparing conservatively to the 300bps decline in yield on RUN's convertible debt maturing in December 2026. We discount the value creation of the future years of subscribing customers at a 15% discount rate and apply an 6x terminal value multiple on our 2029E NPV discounted back to 2023. We have reduced this discount rate to 15% from 17%, similarly reflecting lower capital costs as evidenced by a decline in yield on RUN's convertible debt maturing in 2026 since our last assessment. We net out holding company recourse debt and cash within our PowerCo valuation.

Downside risks: are associated with the ability to meet cost reduction expectations, MW deployment guidance, Net Energy Metering (NEM), and access to debt capital markets given the highly leveraged strategy employed.

Analyst Certification

I, Julien Dumoulin-Smith, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

North America - Utilities and Alt Energy Coverage Cluster

Investment rating	Company	Bof A Ticker	Bloomberg symbol	Analyst
BUY				
	Alliant Energy Corporation	LNT	LNT US	Julien Dumoulin-Smith
	Array Technologies	ARRY	ARRY US	Julien Dumoulin-Smith
	Atlantica Sustainable Infrastructure	AY	AY US	Julien Dumoulin-Smith
	Atmos Energy Corporation	ATO	ATO US	Julien Dumoulin-Smith
	CenterPoint Energy	CNP	CNP US	Julien Dumoulin-Smith
	Cheniere Energy Inc	LNG	LNG US	Julien Dumoulin-Smith
	Clearway Energy	CWENA	CWEN/A US	Julien Dumoulin-Smith
	Clearway Energy	CWEN	CWEN US	Julien Dumoulin-Smith
	CMS Energy	CMS	CMS US	Julien Dumoulin-Smith
	Consolidated Edison	ED	ED US	Julien Dumoulin-Smith
	DTE Energy	DTE	DTE US	Julien Dumoulin-Smith
	Duke Energy	DUK	DUK US	Julien Dumoulin-Smith
	Enlight Renewable Energy Ltd	ENLT	ENLT US	Julien Dumoulin-Smith
	Enlight Renewable Energy Ltd	XENLF	ENLT IT	Julien Dumoulin-Smith
	Entergy	ETR	ETR US	Paul Zimbardo
	First Solar, Inc.	FSLR	FSLR US	Julien Dumoulin-Smith
	Fluence Energy	FLNC	FLNC US	Julien Dumoulin-Smith
	Hannon Armstrong	HASI	HASI US	Julien Dumoulin-Smith
	Hydro One	YH	H CN	Dariusz Lozny, CFA
	MDU Resources Group, Inc.	MDU	MDU US	Dariusz Lozny, CFA
	Nextracker Inc	NXT	NXT US	Julien Dumoulin-Smith
	NiSource Inc	NI	NI US	Julien Dumoulin-Smith
	NorthWestern Corporation	NWE	NWE US	Julien Dumoulin-Smith
	NRG Energy	NRG	NRG US	Julien Dumoulin-Smith
	PG&E Corporation	PCG	PCG US	Julien Dumoulin-Smith
	PNM Resources Inc.	PNM	PNM US	lulien Dumoulin-Smith



North America - Utilities and Alt Energy Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Portland General Electric Company	POR	POR US	Julien Dumoulin-Smith
	PPL Corporation	PPL	PPL US	Paul Zimbardo
	Public Service Enterprise Group	PEG	PEG US	Julien Dumoulin-Smith
	Sempra Energy	SRE	SRE US	Julien Dumoulin-Smith
	Sunnova Energy	NOVA	NOVA US	Julien Dumoulin-Smith
	SunRun	RUN	RUN US	Julien Dumoulin-Smith
	TPI Composites	TPIC	TPIC US	Julien Dumoulin-Smith
	·	VST	VST US	•
	Vistra Energy			Julien Dumoulin-Smith
	Xcel Energy Inc	XEL	XEL US	Julien Dumoulin-Smith
NEUTRAL				
	AES	AES	AES US	Julien Dumoulin-Smith
	Algonquin Power & Utilities Corp	AQN	AQN US	Dariusz Lozny, CFA
	Algonquin Power & Utilities Corp	YAQN	AQN CN	Dariusz Lozny, CFA
	AltaGas	YALA	ALA CN	Dariusz Lozny, CFA
	Ameren Corporation	AEE	AEE US	Julien Dumoulin-Smith
	Ameresco	AMRC	AMRC US	Julien Dumoulin-Smith
				•
	American Electric Power	AEP	AEP US	Julien Dumoulin-Smith
	Bloom Energy	BE	BE US	Julien Dumoulin-Smith
	ChargePoint Holdings	CHPT	CHPT US	Cameron Lochridge
	Constellation Energy Corp	CEG	CEG US	Paul Zimbardo
	Emera Inc	YEMA	EMA CN	Dariusz Lozny, CFA
	Essential Utilities	WTRG	WTRG US	Julien Dumoulin-Smith
	Evergy, Inc	EVRG	EVRG US	Julien Dumoulin-Smith
	Exelon	EXC	EXC US	Paul Zimbardo
	Generac Holdings Inc.	GNRC	GNRC US	Iulien Dumoulin-Smith
			IDA US	Paul Zimbardo
	ldacorp	IDA		
	Maxeon Solar Technologies	MAXN	MAXN US	Julien Dumoulin-Smith
	New Fortress Energy	NFE	NFE US	Cameron Lochridge
	NextEra Energy	NEE	NEE US	Julien Dumoulin-Smith
	NextEra Energy Partners	NEP	NEP US	Julien Dumoulin-Smith
	OGE Energy Corp	OGE	OGE US	Julien Dumoulin-Smith
	Ormat Technologies	ORA	ORA US	Julien Dumoulin-Smith
	Pinnacle West	PNW	PNW US	Julien Dumoulin-Smith
	Southern Company	SO	SO US	Julien Dumoulin-Smith
	Southwest Gas Holdings	SWX	SWX US	Julien Dumoulin-Smith
	TransAlta Corp	TAC	TACUS	Dariusz Lozny, CFA
	TransAlta Corporation	YTA	TA CN	Dariusz Lozny, CFA
	Transanta Corporation	IIA	TA CIV	Danusz Lozny, Cr A
UNDERPERFORM				
	Allete Inc	ALE	ALE US	Julien Dumoulin-Smith
	American Water Works	AWK	AWK US	Julien Dumoulin-Smith
	Avangrid	AGR	AGR US	Paul Zimbardo
	Avista	AVA	AVA US	Julien Dumoulin-Smith
	Black Hills Corporation	BKH	BKH US	Julien Dumoulin-Smith
	Dominion Energy	D	D US	Paul Zimbardo
	Edison International	EIX	EIX US	Paul Zimbardo
	Enphase Energy	ENPH	ENPH US	Julien Dumoulin-Smith
	Eversource Energy	ES	ES US	Paul Zimbardo
	FirstEnergy	FE	FE US	Julien Dumoulin-Smith
	Fortis	YFTS	FTS CN	Dariusz Lozny, CFA
	Fortis Inc	FTS	FTS US	Dariusz Lozny, CFA
	FREYR Battery	FREY	FREY US	Julien Dumoulin-Smith
	FTC Solar	FTCI	FTCLUS	Julien Dumoulin-Smith
	Hawaiian Electric Industries	HE	HE US	Julien Dumoulin-Smith
	MGE Energy	MGEE	MGEE US	Iulien Dumoulin-Smith
	63			Iulien Dumoulin-Smith
	New Jersey Resources Corp	NJR	NJR US	,
	ONE Gas, Inc.	OGS	OGS US	Julien Dumoulin-Smith
	SolarEdge Technologies	SEDG	SEDG US	Julien Dumoulin-Smith
	Spire	SR	SRUS	Julien Dumoulin-Smith
	Stem, Inc.	STEM	STEM US	Julien Dumoulin-Smith
	SunPower Corp.	SPWR	SPWR US	Julien Dumoulin-Smith
	UGI Corp.	UGI	UGIUS	Julien Dumoulin-Smith
	WEC Energy Group Inc	WEC	WEC US	Julien Dumoulin-Smith
			20 00	,



Qmethod ³⁴ Measures Definitions

Business Performance	Numerator	Denominator
Return On Capital Employed	NOPAT = (EBIT + Interest Income) \times (1 - Tax Rate) + Goodwill Amortization	Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill
		Amortization
Return On Equity	Net Income	Shareholders' Equity
Operating Margin	Operating Profit	Sales
Earnings Growth	Expected 5 Year CAGR From Latest Actual	N/A
Free Cash Flow	Cash Flow From Operations – Total Capex	N/A
Quality of Earnings	Numerator	Denominator
Cash Realization Ratio	Cash Flow From Operations	Net Income
Asset Replacement Ratio	Capex	Depreciation
Tax Rate	Tax Charge	Pre-Tax Income
Net Debt-To-Equity Ratio	Net Debt = Total Debt - Cash & Equivalents	Total Equity
Interest Cover	EBIT	Interest Expense
Valuation Toolkit	Numerator	Denominator
Price / Earnings Ratio	Current Share Price	Diluted Earnings Per Share (Basis As Specified)
Price / Book Value	Current Share Price	Shareholders' Equity / Current Basic Shares
Dividend Yield	Annualised Declared Cash Dividend	Current Share Price
Free Cash Flow Yield	Cash Flow From Operations — Total Capex	Market Cap = Current Share Price × Current Basic Shares
Enterprise Value / Sales	EV = Current Share Price × Current Shares + Minority Equity + Net Debt +	Sales
Enterprise value / Jaics	Other LT Liabilities	Suics

EV/EBITDA Enterprise Value Basic EBIT + Depreciation + Amortization

Monethod Suis the set of BofA Global Research standard measures that serve to maintain global consistency under three broad headings: Business Performance, Quality of Earnings, and validations. The key features of iQmethod are: A consistently structured, detailed, and transparent methodology. Guidelines to maximize the effectiveness of the comparative valuation process, and to identify some common pitfalls.

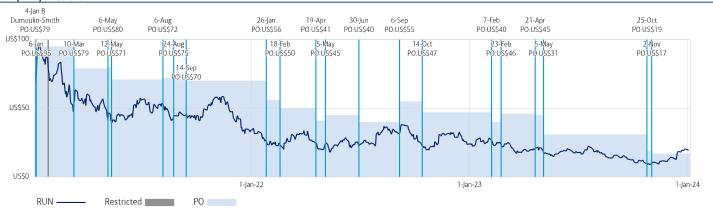
Redatabase is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Global Research.

IQprofile M, IQmethod M are service marks of Bank of America Corporation. IQdatabase is a registered service mark of Bank of America Corporation.

Disclosures

Important Disclosures

SunRun (RUN) Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of a date no more than one trading day prior to the date of the report.

Equity Investment Rating Distribution: Alternative Energy Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	8	47.06%	Buy	8	100.00%
Hold	5	29.41%	Hold	3	60.00%
Sell	4	23 53%	Sell	1	25.00%

Equity Investment Rating Distribution: Global Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	1895	53.62%	Buy	1083	57.15%
Hold	832	23.54%	Hold	454	54.57%
Sell	807	22.84%	Sell	383	47.46%

RI Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. VOLATILITY RISK RATINGS, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. INVESTMENT RATINGS reflect the analyst's assessment of both a stock's absolute total return potential as well as its attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). Our investment ratings are: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster, 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. An investment rating of 6 (No Rating) indicates that a stock is no longer trading on the basis of fundamentals. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster ^{R2}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%

Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. Coverage Cluster is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Global Research report referencing the stock.

Price Charts for the securities referenced in this research report are available on the Price Charts website, or call 1-800-MERRILL to have them mailed.

N/A

BofAS or one of its affiliates acts as a market maker for the equity securities recommended in the report: SunRun.

The issuer is or was, within the last 12 months, an investment banking client of BofAS and/or one or more of its affiliates: SunRun.

BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: SunRun.

The issuer is or was, within the last 12 months, a non-securities business client of BofAS and/or one or more of its affiliates: SunRun.

BofAS or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: SunRun.

BofAS or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer or an affiliate of the issuer within the next three months: SunRun. BofAS or one of its affiliates is willing to sell to, or buy from, clients the common equity of the issuer on a principal basis: SunRun.

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall



Underperform

≥ 20%

profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Global Research policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments. Refer to BofA Global Research policies relating to conflicts of interest.

"BofA Securities" includes BofA Securities, Inc. (*BofAS*) and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. 'BofA Securities' is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofaml.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI, BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch (Forgalized (Australia): Merrill Lynch (Hong Kong): Merrill (H (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch (Canada): Merrill Lynch (Canada) in Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch (Mexic de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch (Israel): Merrill Lynch (Israel): Merrill Lynch (International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution or distribution or distribution in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information in Germany and is regulated by Merrill Lynch (DIFC) is done so in accordan

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or



financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information. In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

BofA ESGMeter Methodology:

ESGMeter is a proprietary metric based on quantitative analysis and fundamental analyst inputs that reflects our assessment of a company's Environmental, Social and Governance-related attributes. The ESGMeter is intended to indicate a company's likelihood of experiencing stronger financial stability (higher return on equity and lower earnings and price volatility) over the next three years relative to peer group. There are three ESGMeter levels - Low, Medium, and High - which indicate whether a company has attributes most likely to translate into superior financial stability (in the case of a High level) or weaker financial stability (in the case of a Low level) over the next three years relative to its peer group. A Medium level suggests that a company exhibits ESG characteristics that are likely associated with financial stability results in line with its peer group over the next three years. Full details of our methodology, financial stability definition and disclaimers are available at BofA ESGMeter methodology. ESGMeter is not indicative of a company's future stock price performance and is not an investment recommendation or rating. ESGMeter is independent of the BofA Global Research fundamental equity analyst's investment rating, volatility risk rating, income rating or price objective for that company.

Copyright and General Information:

Copyright 2024 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities. Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public inform

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Securities policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.

