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Bloom Energy

Downgrade to Underperform: possible volume-driven reset points to downside

Rating Change: UNDERPERFORM | PO: 10.00 USD | Price: 12.47 USD

29 January 2024

Equity

Order & conversion outlook growth a larger question

We downgrade shares of hydrogen manufacturing supplier Bloom Energy (BE) from Neutral to Underperform with an expectation that 2023-2025 revenues will be approximately flat versus accelerating previously. Bloom has historically had low visibility into orders and growth when we downgraded to Neutral in December (details here) and we have not seen evidence of the anticipated commercial successes during the pivotal period of the years. Partner SK upsized & extended its order (details in full report) but there has been little else tangible to support an acceleration. A reset of expectations is not priced-in. Move PO lower from $16 to $10 on flat order assumptions in '24/'25 & still declining ASPs.

Management turnover cautious in critical ramp period

In early January 2024 Bloom terminated its Chief Commercial Officer (COO), opting to hire an external replacement from General Electric (GE). The change and timing only adds uncertainty with 4Q23 requiring growth for FY24 Consensus and building momentum to FY24. Management had previously alluded to need to make up ground in the final stretch of 2023 to achieve FY23 targets and set a path for 2024 growth.

2024 and 2025 product revenue growth negative YoY

Our updated $1.4Bn 2024 revenue estimate shows a -3% decline YoY and trails Visible Alpha consensus by -20%. The delta widens in 2025 with our consolidated estimate reflecting just 3% YoY growth, nearly -37% below Street. We acknowledge some margin uplifts as possible but there are risks to the overall hydrogen outlook with draft 45V regs from IRS in late December meaningfully reducing scale of future electrolyzer sales, adding further caution to 2026 sales composition as well.

PO reduced to $10 – 4Q backlog reset is key risk

Our new $10 PO ($16 prior) has an unchanged 18% discount rate. We see BE trading at 50x+ 2024-2025 EV/EBITDA and ~20x 2026 on our new reduced estimates. This is meaningfully higher than many clean energy peers in the 5-15x range. The deterioration in profitability and cash generation we forecast counters the consensus narrative that BE could be less exposed to risk of compression and lower margins in 2024 and beyond relative to other cleantech equipment names. Profit offsets from data center, international projects will be key.

Estimates (Dec) (US$)	2021A	2022A	2023E	2024E	2025E
EPS	(0.53)	(0.41)	0.08	(0.13)	(0.16)
GAAP EPS	(0.92)	(1.64)	(1.05)	(0.60)	(0.53)
EPS Change (YoY)	8.6%	22.6%	NM	NM	-23.1%
Consensus EPS (Bloomberg)			(0.20)	0.13	0.65
DPS	0	0	0	0	0
Valuation (Dec)					
P/E	NM	NM	155.9x	NM	NM
EV / EBITDA*	NM	94.8x	39.9x	54.2x	58.4x
Free Cash Flow Yield*	-2.8%	-11.7%	-6.1%	-0.9%	-1.4%

* For full definitions of *iQmethod*SM measures, see page 13.

Key Changes

(US$)	Previous	Current
Inv. Opinion	C-2-9	C-3-9
Inv. Rating	NEUTRAL	UNDERPERFORM
Price Obj.	16.00	10.00
2024E Rev (m)	1,647.2	1,398.5
2025E Rev (m)	1,916.6	1,440.0
2024E EPS	0.24	-0.13
2025E EPS	0.55	-0.16

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Stock Data

Price	12.47 USD
Price Objective	10.00 USD
Date Established	29-Jan-2024
Investment Opinion	C-3-9
52-Week Range	9.51 USD - 26.55 USD
Mrkt Val (mn) / Shares Out (mn)	2,630 USD / 210.9
Free Float	87.8%
Average Daily Value (mn)	56.66 USD
BofA Ticker / Exchange	BE / NYS
Bloomberg / Reuters	BE US / BE.N
ROE (2023E)	6.2%
Net Dbt to Eqty (Dec-2022A)	126.5%
ESGMeter™	High

ASP – Average selling price

Timestamp: 29 January 2024 06:00AM EST

iQprofile[SM] Bloom Energy

iQ**method*[SM] – **Bus Performance

(US$ Millions)	2021A	2022A	2023E	2024E	2025E
Return on Capital Employed	-7.6%	-16.9%	-11.5%	-5.2%	-4.7%
Return on Equity	-85.0%	-30.1%	6.2%	-5.9%	-4.9%
Operating Margin	-13.2%	-26.3%	-16.6%	-9.2%	-7.6%
Free Cash Flow	(73)	(309)	(160)	(25)	(37)

iQ**method*[SM] – **Quality of Earnings

(US$ Millions)	2021A	2022A	2023E	2024E	2025E
Cash Realization Ratio	NM	NM	-3.4x	NM	NM
Asset Replacement Ratio	1.4x	1.9x	1.5x	0.8x	0.8x
Tax Rate	NM	0.4%	15.0%	15.0%	15.0%
Net Debt-to-Equity Ratio	273.8%	126.5%	262.7%	24.5%	30.8%
Interest Cover	-1.3x	-5.3x	-4.3x	-2.1x	-1.8x

Income Statement Data (Dec)

(US$ Millions)	2021A	2022A	2023E	2024E	2025E
Sales	972	1,198	1,438	1,399	1,440
% Change	22.4%	23.2%	20.0%	-2.7%	3.0%
Gross Profit	198	147	211	342	376
% Change	19.2%	-25.5%	43.2%	62.0%	10.0%
EBITDA	(48)	37	88	65	60
% Change	-67.0%	NM	137.6%	-26.4%	-7.1%
Net Interest & Other Income	(77)	(44)	(44)	(44)	(44)
Net Income (Adjusted)	**(103)**	**(76)**	**17**	**(28)**	**(34)**
% Change	**1.8%**	**26.5%**	**NM**	**NM**	**-22.2%**

Free Cash Flow Data (Dec)

(US$ Millions)	2021A	2022A	2023E	2024E	2025E
Net Income from Cont Operations (GAAP)	(179)	(305)	(219)	(127)	(114)
Depreciation & Amortization	53	62	65	71	71
Change in Working Capital	(25)	(49)	31	10	4
Deferred Taxation Charge	NA	NA	NA	NA	NA
Other Adjustments, Net	153	101	64	76	60
Capital Expenditure	(75)	(117)	(101)	(56)	(58)
Free Cash Flow	**-73**	**-309**	**-160**	**-25**	**-37**
% Change	**46.5%**	**-322.3%**	**48.2%**	**84.4%**	**-49.2%**
Share / Issue Repurchase	255	387	0	527	0
Cost of Dividends Paid	0	0	0	0	0
Change in Debt	(20)	(159)	507	(547)	(20)

Balance Sheet Data (Dec)

(US$ Millions)	2021A	2022A	2023E	2024E	2025E
Cash & Equivalents	396	348	646	601	544
Trade Receivables	88	251	216	208	213
Other Current Assets	323	456	519	500	495
Property, Plant & Equipment	604	600	686	670	657
Other Non-Current Assets	315	290	290	290	290
Total Assets	**1,726**	**1,947**	**2,357**	**2,270**	**2,200**
Short-Term Debt	0	0	0	0	0
Other Current Liabilities	335	542	600	583	588
Long-Term Debt	963	828	1,335	788	768
Other Non-Current Liabilities	221	198	160	137	117
Total Liabilities	**1,519**	**1,568**	**2,095**	**1,508**	**1,472**
Total Equity	**207**	**379**	**262**	**762**	**727**
Total Equity & Liabilities	**1,726**	**1,947**	**2,357**	**2,270**	**2,200**

* For full definitions of *iQmethod*[SM] measures, see page 13.

Company Sector

Alternative Energy

Company Description

Founded in 2001, Bloom Energy manufactures, installs, and operates solid-oxide fuel cell generators, primarily to commercial-scale customers. The company operates primarily through a financing partnership model where it conducts a direct sale with a partner, who then holds a lease PPA with the end-customer. The majority of the company's deployments have been in the US with a small portion in Korea, Japan, and India.

Investment Rationale

We are Underperform rated on BE. We see near-term growth expectations to be too high and assess BE to be trading above approximate fair value relative to intrinsic valuation. We still view the long-term opportunity set to be attractive, though the ultimate upside available in the hydrogen, CCUS, and marine businesses remains opaque.

Stock Data

Average Daily Volume	4,451,381

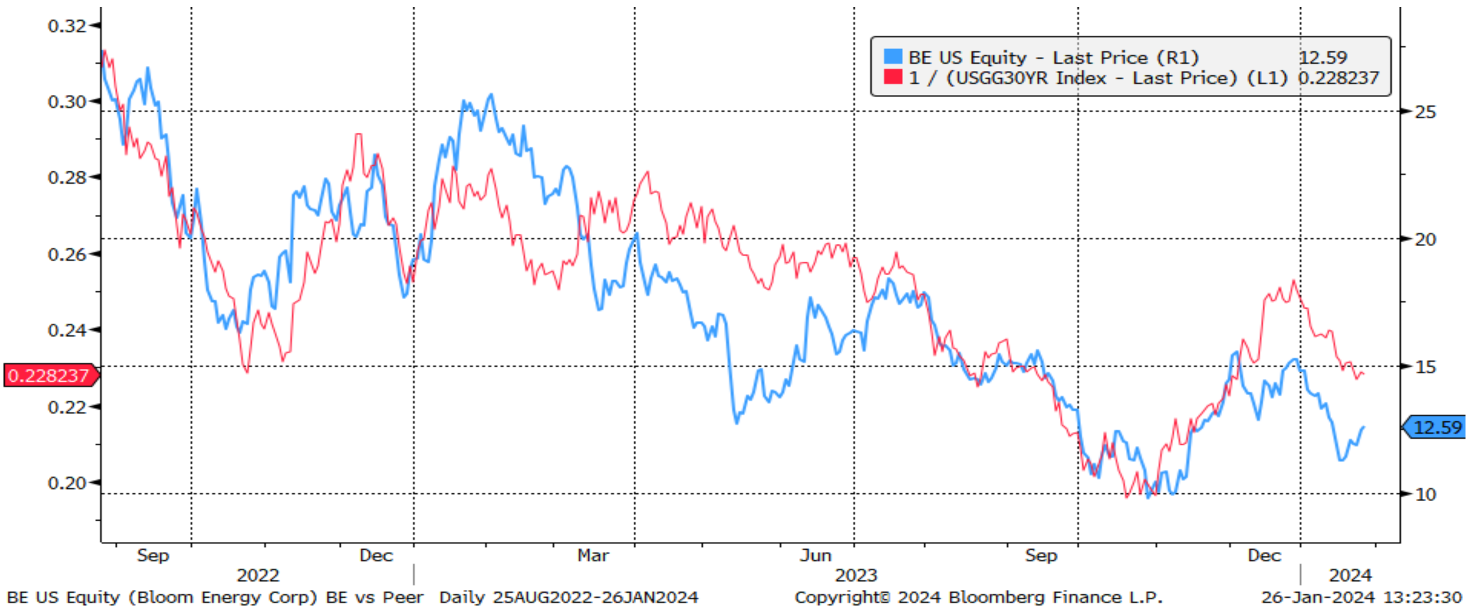
Quarterly Earnings Estimates

	2022	2023
Q1	-0.32A	-0.22A
Q2	-0.24A	-0.19A
Q3	-0.20A	-0.06A
Q4	0.31A	0.52E

Too much optimism embedded today

Bloom has relatively underperformed both clean energy peers and the implied move in interest rates in recent weeks but we see more downside not yet priced in. Bloom has generally benefitted from the position as a leader and one of the few public hydrogen-oriented companies. With sentiment and demand seemingly souring for the asset class, the combination of stagnant revenue in a growth-oriented sector makes shares expensive as shown later in the note. *We are in the minority as one of just two Underperforms/Sells on Bloomberg versus 17 Buys and 8 Holds/Neutral.*

Exhibit 1: BE Equity (Blue) vs 30Yr US Treasury Rates (Red)
Clean energy equities typically have a high correlation with interest rates



Source: Bloomberg

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Exhibit 2: BE Equity (Blue) vs Clean Energy Peers (Red)
Bloom has been more volatile than overall clean energy equities

Source: Bloomberg

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How does this look vs sector comps?

Below we also detail a comparative assessment of Bloom Energy's valuation on an enterprise value (EV) /Sales and EV/EBITDA basis relative to consensus estimates and peer clean tech companies. Our assessment highlights the significant valuation delta implied by a revision in near-term growth estimates, and their corresponding effect to margins and cash generation. Reversion of consensus toward our estimates could imply significant downside to current trading levels, perhaps as high as -50% or more.

Exhibit 3: Relative EV/EBITDA Valuation for Bloom Energy and Select Clean Tech Companies
BofA estimates imply significant downside tied to fundamental profitability in event volumes stagnate

		EV/Sales				EV/EBITDA			
Companies	**Ticker**	**2023**	**2024**	**2025**	**2026**	**2023**	**2024**	**2025**	**2026**
Bloom Energy (BofA)	**BE**	**2.3x**	**2.3x**	**2.3x**	**1.8x**	**36.8x**	**50.0x**	**53.8x**	**19.6x**
Bloom Energy (Consensus)	**BE**	**2.2x**	**1.8x**	**1.4x**	**1.1x**	**32.4x**	**17.8x**	**10.4x**	**6.9x**
Fuel Cells									
Plug Power	PLUG	2.3x	1.6x	1.1x	0.8x	-3.2x	-6.5x	32.8x	6.7x
Ballard Power	BLDP	2.5x	1.8x	1.2x	0.8x	-1.5x	-1.7x	-1.9x	-2.3x
MLPE + Industrials									
SolarEdge	SEDG	1.1x	1.5x	1.1x	1.0x	10.2x	38.0x	8.2x	7.0x
Enphase	ENPH	6.1x	7.7x	5.7x	4.8x	18.9x	23.1x	15.2x	13.3x
Generac	GNRC	2.1x	1.9x	1.7x	1.6x	13.1x	10.4x	8.9x	7.5x
Fluence	FLNC	1.7x	1.2x	0.9x	0.7x	-39.8x	50.8x	16.0x	10.3x
Clean Energy									
Array Technologies	ARRY	1.9x	1.6x	1.3x	1.3x	10.6x	9.0x	7.4x	7.4x
Ormat	ORA	7.0x	6.3x	5.5x	4.5x	12.1x	11.1x	9.8x	8.8x
Stem Inc.	STEM	1.8x	1.2x	1.0x	0.9x	-49.1x	67.7x	12.9x	9.4x
SunPower	SPWR	0.5x	0.5x	0.4x	0.4x	-24.8x	31.3x	8.6x	6.3x
FirstSolar	FSLR	4.2x	3.2x	2.6x	2.2x	12.7x	7.4x	4.8x	3.6x

Source: BofA Global Research estimates, Company filings, Bloomberg

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Sales and order trends worsening and could recover slowly

Public datapoints for end market demand, active customer composition, and general order activity remain elusive and uncertain. There is very little clarity for the pace of order activity and backlog conversion given a rolling off of lumpier sales in 2024, which could ultimately result in flat or negative YoY volumes and sales without replacement in backlog and timely conversion. Other than further collaboration with strategic partner SK ecoplant, there are no specific indications of order and backlog conversion activity in what has historically been the pivotal quarter for annual backlog build with total figure disclosure with 4Q23 results. We see this as cause for concern given investor consternation over health of the order pipeline following unfavorable 45V guidelines in early December, though fears were not quelled in the absence of an incremental large order or project announcement. Total backlog was $8.5Bn exiting 2021 and $10.0Bn exiting 2022; other than the "blend and extend" type announcement with SK ecoplant (greater detail here) in December, there are no other positive public disclosures to point to.

Top sales executive departs ahead of pivotal 4Q call

In early January, BE issued an 8K indicating that Aman Joshi had been appointed as the new Executive Vice-President and Chief Commercial Officer, effective January 5, 2024. He will replace Guillermo "Billy" Brooks, whose employment will end on January 16, 2024, as per a Separation and General Release Agreement. Mr. Joshi will receive an annual base salary of $575,000 along with a guaranteed incentive bonus for 2024 and 2025 equivalent to 50% of his base salary. In addition, upon Board approval, Mr. Joshi will receive a $400,000 sign-on bonus, 150,000 restricted stock units (RSUs), and 225,000 performance stock units (PSUs). Mr. Brooks will receive $477,000 (equivalent to 12 months of his base salary) within 45 days of the Separation Agreement's Effective Date, along with 12 months of continued health coverage. As mentioned, the timing sends a cautious tone, especially in the context of management's 3Q callout that there was a significant amount of pipeline conversion yet to be accomplished heading into year-end. We appreciate the need to emphasize a 'push' sales strategy by reinvesting in the commercialization aspect of the business (many investors nor prospective users appreciate how a fuel cell can fit as an alternative to smaller gas turbines and engines). On balance, this downgrade is principally about a lack of visibility in the core fuel cell biz than electrlolyzer biz which we see as at risk of 'kicking out' in parallel with 4Q reset as well

Estimates lower as sales flatten with decremental margin

Previously we had maintained that volume growth could merely step back on timing uncertainty and a slight reduction in hydrogen demand given less construction 45V guidelines (see our initial assessment of draft 45V guidelines here and our takes from our annual hydrogen conference here.

However, we see even deeper potential for possible volume declines in 2024 and 2025 as demand pushes out to later in the decade. We expect management will only technically provide an update on 2024, however given the expiration of federal tax credit at year end for fuel cells (fully acknowledge an extension), we conservatively believe a flattish year again in 2025 is appropriate for now. Returning to growth in 2026 requires belief.

> We appreciate that achieving gross margins through higher ASPs on remaining sales could the positive pushback from bulls, and we acknowledge growing scale of the business.

Implications to profitability and cash flow are significant: lack of volume leverage delays meaningful operating margin profitability to 2026 and FCFE breakeven to 2028, per our estimates. With consensus pointing to 11% operating margin in 2025 versus our -1% assumption, we view the depth of a potential volume-driven reset to be underappreciated.

Conversely, we could see a bear case suggesting that sales are *not* sufficiently reduced to reflect the risk of pushouts and lack of clear backlog in 2024. We could yet see a down year in revenue in '24. We fully acknowledge that deals completed in December may not have been all individually press released, but we perceived sizable wins (that would put mileage towards) achieving backlog in '24 would likely have been released. Lack of visibility remains a concern.

Below we present our updated estimates for revenue, non-GAAP gross margin, and non-GAAP operating margin. We outline a slight revenue decline in 2024 and modest regression in 2025 that results in 3 years of flat volumes, which would undoubtedly pushout or reduce the 30-35% revenue target CAGR through 2031 outlined in the analyst day just in May. In general, we see profitability declining heavily on lower volumes, made most apparent in 2025 with negative non-GAAP operating margin. Our estimates are significantly below near-dated Street estimates calling for 20% YoY revenue growth in 2024, which significantly lag the 30-35% revenue CAGR target through 2031 provided at the analyst day in May of this year (we've adjusted this CAGR downward to 25-30% to account for the demand impact of unfavorable 45V guidelines on hydrogen). Implications of the revenue shortfall to meeting the 30% GM and 15%

operating margin targets are stark and, in a low volume growth situation through 2025, would likely require a reassessment or pushout of the long-term target operating model.

Exhibit 3: See growth ramp being pushed out another year with potentially declining revenue in 2023

Profitability improvement limited by decremental margin in 2024 and weaker top line in 2025

	2021A	2022A	1Q23	2Q23	3Q23	4Q23	2023E	2024E	2025E	2026E
Metrics										
Revenue	$972	$1,198.1	$275	$301	$400	$461	$1,438	$1,399	$1,440	$1,825
Previous	*$972*	*$1,198.1*	*$275*	*$301*	*$400*	*$461*	*$1,438*	*$1,647*	*$1,917*	*$2,401*
Growth	*22%*	*23%*					*20%*	*-3%*	*3%*	*27%*
Guidance (2023 Analyst Day Guidance)							$1.4-1.5bn	*25-30% CAGR**	*30-35% CAGR*	*through 2031*
Consensus - Visible Alpha	$972	$1,199	$275	$301	$400	$474	$1,452	$1,741	$2,269	$2,882
Non-GAAP GM	23%	23%	21%	20%	31%	25%	25%	26%	27%	29%
Previous	*23%*	*23%*	*21%*	*20%*	*31%*	*25%*	*25%*	*28%*	*30%*	*31%*
Guidance (2023 Analyst Day Guidance)	25%	24%					25%		30% by 2025	
Consensus - Visible Alpha	22%	23%	22%	21%	29%	27%	25%	27%	28%	30%
Non-GAAP Operating Margin	-3%	-2%	-12%	-9%	13%	7%	2%	0%	-1%	5%
Previous	-3%	-2%	-12%	-9%	13%	7%	2%	5%	9%	13%
Guidance (2023 Analyst Day Guidance)	3%	1%					Positive		15% by 2025	
Consensus - Visible Alpha	-4%	-4%	-12%	-9%	5%	9%	0%	7%	11%	14%
Embedded Assumptions										
Product GM	29%	30%					33%	35%	36%	37%
Install GM	-15%	-14%					-14%	-14%	-14%	-14%
Services GM	-3%	-12%					-22%	-10%	0%	5%
Guidance										20% LT Margin
Volume Growth	41.0%	22.0%					32.0%	0.0%	10.0%	30.0%
Product ASP Deflation	-12%	9%					-7%	-8%	-10%	-10%
Product Cost Deflation	-1%	12%					-15%	-10%	-12%	-11%
OpEx (% of Revenue)	32%	34%					30%	32%	32%	27%
R&D (% of Revenue)	11%	13%					11%	12%	12%	10%
Guidance									R&D 8% by '25	
SG&A (% of Revenue)	21%	22%					19%	20%	20%	17%
Guidance									SG&A 7% by '25	

Source: BofA Global Research estimates, Company filings

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Consensus expects BE to transition from historical adjusted net losses to profitability in 2024 ($0.13 EPS Consensus) and acceleration in the future. The ~20x 2025 Consensus P/E has been a bull pitch with the company set to have ~400% growth on Street targets. With flattish revenue we have lower conviction in that favorable view. We forecast negative earnings in 2024-2025.

International more constructive, but less significant

We have a modestly favorable view of Bloom's extension of its Preferred Distributor Agreement (PDA) with SK Ecoplant, which has committed to purchase 500MW of Energy Servers from BE through 2027, though acknowledge the agreement may represent a modest slowing in the pace of partnership development. The 500MWs under arrangement includes the remaining ~250MW allocation for 2024 and supplements an incremental 250MW allocation over three years from 2025 to 2027. In total this represents a $4.5Bn of revenue, comprised of $1.5Bn in product revenue and $3Bn of service revenue over 20 years. On the positive, we expect this and other regional activity could lead to further market penetration in Asia, specifically Korea, which appears to be feature a relatively stronger demand profile than the U.S. as of current.

Downside on stagnant growth from 2023 to 2025

We reduce our PO to $10 from $16 prior, reflecting the flow through of our assumed 0% net revenue growth from 2023 to 2025. A summary of our updated valuation assessment is shown below. We continue to use a discounted cash flow (DCF) with an unchanged discount rate of 18%, which while elevated reflects the low forward visibility for the fuel-cell business and clear hydrogen pushout rendering the electrolyzer portion of the story more opaque.

With meaningful YoY revenue growth pushed out to 2025 in our estimates, we see an even more dramatic back-weighting of the DCF value from long-dated cash flows, concentrated within the exit valuation given negative cash flows through 2027. As such, we currently view Bloom to be trading above the intrinsic value implied by its cash flows. We stress the long-term opportunity set remains intact, yet we see a clear overextension in expectations and consensus estimates for near-term growth, and therefore assess there to be meaningful shortfall risk to meeting Bloom's long-term growth guidance.

Exhibit 4: Updated Bloom DCF yields $10 PO

Delay in revenue growth and impact to profitability in 2024 and 2025 results in negative cumulative DCF Value through 2030

	2016A		2024E	2025E	2026E	2027E	2028E	2029E	2030E
DCF - less Stock Based Compensation and Debt Amortization									
Free Cash Flows ($Mn)			**($25)**	**($37)**	**($157)**	**$57**	**$72**	**$365**	**$684**
Less: Stock Based Compensation			$99	$80	$65	$55	$59	$59	$53
Adjusted Free Cash Flows ($Mn)			**($124)**	**($117)**	**($222)**	**$2**	**$12**	**$306**	**$632**
Free Cash Flows to Equity ($Mn)			**($144)**	**($137)**	**($242)**	**($18)**	**$4**	**$306**	**$632**
Discount Rate- Cost of Equity			*18%*	*18%*	*18%*	*18%*	*18%*	*18%*	*18%*
Discount Factor			*1.00*	*0.85*	*0.72*	*0.61*	*0.52*	*0.44*	*0.37*
Discounted Free Cash Flows			**($144)**	**($116)**	**($174)**	**($11)**	**$2**	**$134**	**$234**
Cash Flows pre-SBC			*($45)*	*($36)*	*($109)*	*$44*	*$61*	*$193*	
DCF Value 2024 through 2030		**($74)**							
Exit Valuation									
Exit Multiple off 2030		*12.0x*							
Terminal FCFE		*$7,579*							
Discount Factor		*0.31*							
PV of Terminal FCFE Value		**$2,379**							
Less: Recourse Debt 3Q23		(842)							
More: Cash on Balance Sheet at 3Q23		638							
Net Debt balance		**($204)**							
Total FCFE		**$2,101**							
DCF Value/Share		**$10.00**							
Shares O/S (Fully Diluted)		*211*							
Price as of close 01/25/2024		$12.47							
Total Potential Return		**-20%**							
Discount Rate	**18%**								

Source: BofA Global Research, Company filings, Bloomberg

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No major balance sheet concerns; cash healthy for now

Despite the push back in positive free cash flow generation in our estimates out to 2027, we do *not* view there to be an excessively worrisome depletion of cash balances. From 2024 to 2026, we see approximately -$220Mn of free cash burn. After being supplemented in May by the offering of $550Mn of green convertible senior notes, we see cash balances exiting 2023 at $646Mn, providing ample liquidity to bridge to eventual free cash flow breakeven later in the decade. This represents a key bull point to the story in our minds that ultimately provides a floor to the stock in the event of a deep reset. The clean balance sheet limits downside in the sense that insolvency risk is relatively minor compared to many clean tech peers.

Exhibit 6: BE Balance Sheet Forecast

Expect cash to remain healthy, though not much room for incremental weakness; well-funded for several years

Balance Sheet ($ Mn), except per share data	2021A	2022A	2023E	2024E	2025E	2026E	2027E
Assets							
Cash and cash equivalents	$396	$348	$646	$601	$544	$367	$404
Restricted Cash	$93	$52	$52	$52	$52	$52	$52
ST Investments	$0	$0	$0	$0	$0	$0	$0
Accounts receivable and Contract Assets	$88	$251	$216	$208	$213	$268	$316
Inventories	$143	$268	$315	$299	$301	$372	$431
Deferred Cost of Revenue	$25	$46	$48	$47	$41	$52	$51
Customer Financing receivables	$6	$0	$0	$0	$0	$0	$0
Prepaid Exp and Other Current Assets	$56	$90	$105	$102	$101	$129	$147
Current Assets	**$806**	**$1,056**	**$1,381**	**$1,309**	**$1,252**	**$1,239**	**$1,402**
Net PP&E Total	$604	$600	$686	$670	$657	$791	$831
Operating Leases	$107	$127	$127	$127	$127	$127	$127
Customer Financing receivables	$39	$0	$0	$0	$0	$0	$0
Restricted Cash	$127	$118	$118	$118	$118	$118	$118
Deferred Cost of Revenue	$1	$5	$5	$5	$5	$5	$5
Other current and long term assets	$41	$40	$40	$40	$40	$40	$40
Total Assets	**$1,726**	**$1,947**	**$2,357**	**$2,270**	**$2,200**	**$2,320**	**$2,523**
Liabilities, Convertible Preferred Stock and Deficit							
Accounts payable	$73	$162	$191	$183	$186	$232	$271
Accrued warranty	$12	$17	$21	$20	$21	$26	$31
Accrued other current liabilities	$114	$144	$169	$161	$162	$201	$234
Deferred revenue and customer deposits	$82	$159	$159	$159	$159	$159	$159
Current portion of debt	$17	$30	$30	$30	$30	$30	$30
Current portion of debt from related parties	$8	$0	$0	$0	$0	$0	$0
Other Obligations	$28	$30	$30	$30	$30	$30	$30
Current Liabilities	**$335**	**$542**	**$600**	**$583**	**$588**	**$678**	**$755**
Preferred Stock Warrnt Liab	$0	$0	$0	$0	$0	$0	$0
Derivative Liabilities	$0	$0	$0	$0	$0	$0	$0
Deferred Revenue & Customer Deposits	$64	$56	$56	$56	$56	$56	$56
LT portion of debt	$963	$828	$1,335	$788	$768	$748	$728
LT portion of debt from related parties	$0	$0	$0	$0	$0	$0	$0
Other current and long term liabilities	$157	$142	$103	$81	$61	$58	$72
Total Liabilities	**$1,519**	**$1,568**	**$2,095**	**$1,508**	**$1,472**	**$1,541**	**$1,611**
Redeemable noncontrolling interest	$0	$0	$0	$0	$0	$0	$0
Convertible redeemable preferred stock	$209	$0	$0	$0	$0	$0	$0
Common Stock	$0	$0	$0	$0	$0	$0	$0
Paid-in Capital	$3,219	$3,906	$3,906	$3,906	$3,906	$3,906	$3,906
Retained Earnings	($3,263)	($3,566)	($3,682)	($3,183)	($3,217)	($3,165)	($3,033)
NCI	$42	$38	$38	$38	$38	$38	$38
Total Equity	**$207**	**$378.814**	**$262**	**$762**	**$727**	**$780**	**$912**
Total Liabilities & Equity	**$1,725.581**	**$1,947**	**$2,357**	**$2,270**	**$2,200**	**$2,320**	**$2,523**

Source: Company Filings, Bloomberg, & BofA Global Research estimates

BofA GLOBAL RESEARCH

Despite negative free cash flow through 2026, we expect cash balances could remain comfortably above 15-20% of annual sales, which we benchmark as a reasonable go forward assumption given the needs of the business. However, we can envision a scenario in which ongoing cash generation could be materially impacted, especially if the potential 2024 reset is deeper than anticipated and an administration change in the US introduces a greater threat of IRA repeal. Absent significant disruption from US renewable policy change, we generally assess the long-term market opportunity to be strong, with Bloom bound to deliver steadily rising volumes as fuel cell generation takes incremental share over the next several decades. We think Bloom will eventually ramp volumes to the point where it can develop into a more mature business with sustainable cash generation and entrenched competitive advantages; however, our near-term concerns for nominal volume growth from 2023 to 2025 delay this eventuality and push out the attractive investment opportunity to later in the decade.

Exhibit 7: BE Cash Flow Statement Forecast – ample cash even thru multi-year burn cycle from what we can tell.
Modestly negative free cash flow through 2026; risk to downside on working capital assumptions too given inventory dynamics.

Cash Flow Statement ($ Mn), except per share data	2021A	2022A	2023E	2024E	2025E	2026E	2027E	2028E
Operating Activities								
Net Income (loss) attributable to Bloom Energy (incl. SBC)	($103)	($315)	($219)	($127)	($114)	($12)	$77	$280
Loss attributable to noncontrolling and redeemable noncontrolling interests								
Depreciation & Amortization	$53	$62	$65	$71	$71	$71	$75	$73
Stock Based Compensation	$76	$112	$103	$99	$80	$65	$55	$59
I/S Taxes Addback	$1	($1)	($39)	($22)	($20)	($2)	$14	$49
Cash Taxes	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Other								
Net changes in Working Capital	($25)	($49)	$31	$10	$4	($74)	($48)	($132)
Net cash provided by Operating Activities	**$2**	**($192)**	**($59)**	**$31**	**$20**	**$48**	**$172**	**$329**
Investing Activities								
Capital Additions	($75)	(117)	(101)	(56)	(58)	(55)	(65)	(58)
% of Revenue	-8%	-10%	-7%	-4%	-4%	-3%	-3%	-2%
Capacity Additons ($200mm per 1GW)		$0	($50)			($150)	($50)	($200)
Other								
Net cash provided by Investing Activities	**($75)**	**(117)**	**(151)**	**(56)**	**(58)**	**(205)**	**(115)**	**(258)**
Free Cash Flow	**($73)**	**($309)**	**($210)**	**($25)**	**($37)**	**($157)**	**$57**	**$72**
YoY Growth	*-46%*	*322%*	*-32%*	*-88%*	*49%*	*323%*	*-136%*	*25%*
	-2%	-10%	-6%	-1%	-1%	-5%	2%	2%
Financing Activities								
Net Debt Issuance from related party	$0	$0	$527	($527)	$0	$0	$0	$0
Net Debt Issuance	($20)	($124)	($20)	($20)	($20)	($20)	($20)	($8)
Proceeds from financing obligations (MSAs)								
Repayment of financing obligations (MSAs)		($36)						
Debt Issuance Costs	$0	$0	$0	$0	$0	$0	$0	$0
Net distribution noncontrolling and redeemable noncontrolling interests	$0	$0	$0	$0	$0	$0	$0	$0
Equity Issuance	$255	$387	$0	$527	$0	$0	$0	$0
Preferred Issuance	$0	$0	$0	$0	$0	$0	$0	$0
Other	$0	($16)	$0	$0	$0	$0	$0	$0
Net cash provided by Financing Activities	**$235**	**$211**	**$507**	**($20)**	**($20)**	**($20)**	**($20)**	**($8)**
FX								
Net cash increase (decrease)	**$162**	**($97)**	**$298**	**($45)**	**($57)**	**($177)**	**$37**	**$64**
Cash at Beginning of Period	$416	$615	$518	$815	$771	$713	$536	$573
Cash at End of Period	**$615**	**$518**	**$815**	**$771**	**$713**	**$536**	**$573**	**$637**

Source: BofA Global Research estimates, Company filings, Bloomberg

BofA GLOBAL RESEARCH

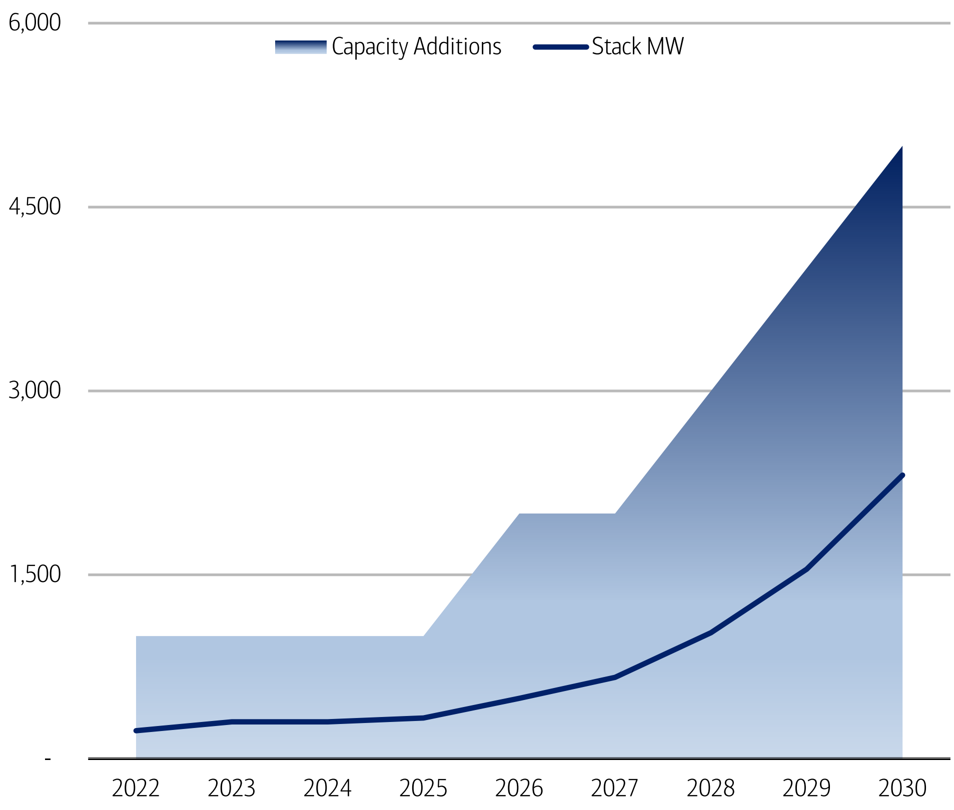
Counterpoints: data center, hydrogen guideline revisions

We consider there to be two major bull points that could present meaningful upside to our assessment and support shares higher. First, Bloom's potential exposure to data center level demand could provide incremental support to order and sales volumes. Demonstration of significant volumes from data center demand could rerate the stock higher as thematic investors identify BE as a potential vehicle to gain exposure. While we see BE as likely to garner some volumes from data center customers, we view their technology and relative economic proposition to be more supportive of backup power applications than primary electricity generation. Similarly, we also identify potential upside to our estimates in the event that 45V draft regulation eligibility requirements are meaningfully relaxed, thereby broadening the scope of investable opportunities in the hydrogen space. Deliberation of draft 45V guidelines remains ongoing and could potentially see significant revisions through the course of the year. While we do not consider this directly within our assessment, we acknowledge its potential to kickstart hydrogen demand and deliver upside for Bloom and other market participants.

Bottom line, watch AWS deployment of BE in Oregon closely for indicators of possible success and adoption across the industry. We see delays on this front as cautious to further orders but do see this angle in particular as among the most promising aspects to the story yet. Note SK is acting as EPC for this order, with BE having already booked the full sales to AWS in 2023. Delays in the installation of units in Oregon could result in the pushout of further orders from SK book, hence driving some of the risks in timing we describe earlier in the upsizing and extension of their arrangement.

Exhibit 8: Bloom Energy Capacity Ramp through 2030

Volumes accelerate late-decade, driving inflection in profitability and cash generation



Source: Company Filings, Bloomberg, & BofA Global Research

BofA GLOBAL RESEARCH

Price objective basis & risk

Bloom Energy (BE)

We arrive at our $10 price objective as follows. We do a Discount Cash Flow (DCF) of the Free Cash Flow to Equity (FCFE). Our forecast through '30 includes volumes from new opportunities without existing revenue today. We then discount FCFE by 18%, reflecting lower visibility in the fuel cell business relative to less risky renewable development businesses that in our mind merit a mid-teens discount rate. Given the high growth nature of the business, we assign a 12x exit multiple on terminal cash flows and discount it back. We then add net cash, to arrive at our PO.

Downside risks: (1) execution risks around cost reductions, deployment growth, margins, (2) risks around necessity of current subsidy schemes including the fuel cell investment tax credit (ITC) as well as state incentives (3) risk to margins as Bloom expands into new geographies with lower electricity rates to compete against as well as potentially less incentives, notably international markets where the company will need to expand to reach targets. (4) new opportunities do not meet expectations

Upside risks: allocation of future cash flow generated towards accretive purposes, further acceleration under ITC than contemplated, and further subsidies globally to encourage fuel cell adoption- including extension of ITC.

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	BofA 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	Julien Dumoulin-Smith
	MDU Resources Group, Inc.	MDU	MDU US	Julien Dumoulin-Smith
	Nextracker Inc	NXT	NXT US	Julien Dumoulin-Smith
	NiSource Inc	NI	NI US	Julien Dumoulin-Smith
	NorthWestern Energy Group	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	Julien Dumoulin-Smith
	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

North America - Utilities and Alt Energy Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Sempra	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
	Vistra Corp	VST	VST US	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	Paul Zimbardo
	Algonquin Power & Utilities Corp	YAQN	AQN CN	Paul Zimbardo
	AltaGas	YALA	ALA CN	Cameron Lochridge
	Ameren Corporation	AEE	AEE US	Julien Dumoulin-Smith
	Ameresco	AMRC	AMRC US	Julien Dumoulin-Smith
	American Electric Power	AEP	AEP US	Julien Dumoulin-Smith
	ChargePoint Holdings	CHPT	CHPT US	Cameron Lochridge
	Constellation Energy Corp	CEG	CEG US	Paul Zimbardo
	Emera Inc	YEMA	EMA CN	Julien Dumoulin-Smith
	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	Julien Dumoulin-Smith
	Idacorp	IDA	IDA US	Paul Zimbardo
	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	TAC US	Julien Dumoulin-Smith
	TransAlta Corporation	YTA	TA CN	Julien Dumoulin-Smith
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
	Bloom Energy	BE	BE 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	Julien Dumoulin-Smith
	Fortis Inc	FTS	FTS US	Julien Dumoulin-Smith
	FREYR Battery	FREY	FREY US	Julien Dumoulin-Smith
	FTC Solar	FTCI	FTCI US	Julien Dumoulin-Smith
	Hawaiian Electric Industries	HE	HE US	Julien Dumoulin-Smith
	MGE Energy	MGEE	MGEE US	Julien Dumoulin-Smith
	New Jersey Resources Corp	NJR	NJR US	Julien Dumoulin-Smith
	ONE Gas, Inc.	OGS	OGS US	Julien Dumoulin-Smith
	SolarEdge Technologies	SEDG	SEDG US	Julien Dumoulin-Smith
	Spire	SR	SR US	Julien Dumoulin-Smith
	Stem, Inc.	STEM	STEM US	Julien Dumoulin-Smith
	SunPower Corp.	SPWR	SPWR US	Julien Dumoulin-Smith
	UGI Corp.	UGI	UGI US	Julien Dumoulin-Smith
	WEC Energy Group Inc	WEC	WEC US	Julien Dumoulin-Smith

iQmethod SM Measures Definitions

Business Performance	Numerator	Denominator
Return On Capital Employed	NOPAT = (EBIT + Interest Income) × (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 + Other LT Liabilities	Sales
EV / EBITDA	Enterprise Value	Basic EBIT + Depreciation + Amortization

iQmethod SM is 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.

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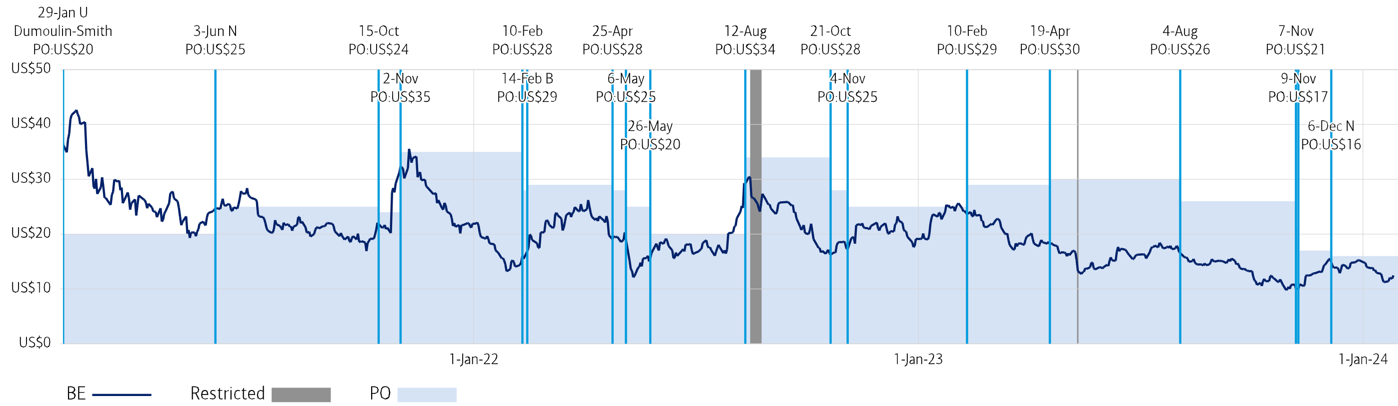
Disclosures

Important Disclosures

Bloom Energy (BE) 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%

[R1] 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.

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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%
Underperform	N/A	≥ 20%

[R2]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.

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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.

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