

Ormat Technologies

Back-end weighted growth leaves ramp risk: Reiterate Neutral

Reiterate Rating: NEUTRAL | PO: 71.00 USD | Price: 70.63 USD

Storage to drive real growth, but more needed still

We reiterate our Neutral rating on shares of Ormat Technologies (ORA) while reducing our PO to \$71 following our latest MtM and estimate revisions. Historically focused on developing geothermal power assets, ORA has made considerable progress of late building out a fleet of battery storage (BESS), with more to come. Mgmt. targets BESS capacity growth of ~6x by YE25, and we expect the asset class to contribute \$50-60Mn in EBITDA by 2026. While the trajectory is indeed notable, this still only represents ~10% of our consolidated EBITDA forecast, and we remain below mgmt.'s '26 target range of \$650-700Mn on a consolidated basis despite Street being at \$717Mn Mgmt. last provided a four-year outlook at the '22 Investor Day; expect roll to '28 at next update this June. Expect likely robust implied growth in '27-'28, supporting shares.

Lowering '24 in interim; growth clearly weighted to 2026

In addition to updating our long-term forecast, we refine our '24 estimates following the recent acquisition. On Jan. 1st, ORA closed on the previously announced acquisition of a portfolio of operating and development assets from Enel. ORA indicated average EBITDA for the assets was \$24Mn from '20 to '22. When layering this on top of a full-year's contribution from assets brought online in '23 and a partial-year's contribution from '24 COD's, we arrive at a '24 EBITDA estimate of \$523Mn, below Street of \$536Mn: implies 9% growth y/y vs 4-yr CAGR of 9%. Kenya appears near-term overhang: look for further renegotiation again with win-win blend/extend and shift in parameters possible (curtailment/fixed terms) & position USD vs Local Shillings. A bit of risk in '24.

Reit. Neutral: See '24 as transition year, guide pressure

We reiterate Neutral as view shares of ORA as fairly valued at current levels, which imply ~10.5x EV/EBITDA on our '25E estimate and ~10.0x '25E Consensus. We continue to utilize a blended valuation approach for ORA, valuing the existing assets and growth (DevCo) separately. Our \$71 PO (\$87 prior) reflects our moderated estimates and a MtM on our discount rate. Watch balance sheet needs – albeit mgmt. doesn't appear too fixed on equity anew despite fully leveraging latest Enel tuck-in acquisition in US West. Admittedly see 46% of total value ascribed to DevCo business vs. 54% ascribed to DCF of OpCo. Our 13% DevCo discount rate is increased 100bps since our mid-'23 update. See sustained rate pullback of late as a positive for other DevCo valuations in our coverage.

Estimates (Dec) (US\$)	2021A	2022A	2023E	2024E	2025E
EPS	1.39	1.63	2.22	2.68	3.67
EPS Change (YoY)	-15.8%	17.3%	36.2%	20.7%	36.9%
Consensus EPS (Bloomberg)			1.99	2.46	3.25
DPS	0.48	0.48	0.48	0.53	0.58
Valuation (Dec)					
P/E	50.8x	43.3x	31.8x	26.4x	19.2x
Dividend Yield	0.7%	0.7%	0.7%	0.7%	0.8%
EV / EBITDA*	17.1x	15.7x	14.2x	13.1x	11.9x
Free Cash Flow Yield*	-3.8%	-6.6%	-3.8%	0.1%	-0.7%

* For full definitions of *IQmethod*SM measures, see page 10.

BofA 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 11 to 13. Analyst Certification on page 8. Price Objective Basis/Risk on page 8.

12645093

Timestamp: 12 January 2024 02:21AM EST

12 January 2024

Equity

Key Changes

(US\$)	Previous	Current
Price Obj.	87.00	71.00
2023E Rev (m)	827.7	825.5
2024E Rev (m)	941.4	913.8
2025E Rev (m)	1,010.7	993.7
2023E EPS	1.67	2.22
2024E EPS	2.39	2.68
2025E EPS	4.14	3.67

Julien Dumoulin-Smith

Research Analyst
BofAS
+1 646 855 5855
julien.dumoulin-smith@bofa.com

Cameron Lochridge

Research Analyst
BofAS
+1 337 962 0696
cameron.lochridge@bofa.com

Paul Zimbardo

Research Analyst
BofAS
+1 646 855 1470
paul.zimbardo@bofa.com

Stock Data

Price	70.63 USD
Price Objective	71.00 USD
Date Established	12-Jan-2024
Investment Opinion	B-2-7
52-Week Range	58.73 USD - 94.49 USD
Mkt Val (mn) / Shares Out (mn)	4,263 USD / 60.4
Free Float	85.1%
Average Daily Value (mn)	30.09 USD
BofA Ticker / Exchange	ORA / NYS
Bloomberg / Reuters	ORA US / ORA.N
ROE (2023E)	7.0%
Net Dbt to Eqty (Dec-2022A)	77.6%
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 ["BofA ESGMeter Methodology"](#).

COD: Commercial operations date

MtM: Mark to market

BESS: Battery Energy Storage System

W

iQprofileSM Ormat Technologies

iQmethodSM – Bus Performance*

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Return on Capital Employed	3.3%	3.0%	4.1%	4.4%	5.2%
Return on Equity	4.3%	5.0%	7.0%	7.9%	10.0%
Operating Margin	25.5%	20.8%	28.8%	29.3%	34.7%
Free Cash Flow	(161)	(283)	(162)	6	(28)

iQmethodSM – Quality of Earnings*

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Cash Realization Ratio	3.3x	3.0x	3.0x	2.5x	2.0x
Asset Replacement Ratio	2.3x	2.8x	3.1x	2.0x	2.7x
Tax Rate	24.0%	15.4%	19.7%	17.2%	17.6%
Net Debt-to-Equity Ratio	63.9%	77.6%	75.2%	68.3%	59.7%
Interest Cover	2.0x	1.7x	2.6x	3.2x	4.0x

Income Statement Data (Dec)

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Sales	663	734	826	914	994
% Change	-6.0%	10.7%	12.4%	10.7%	8.7%
Gross Profit	264	269	325	362	444
% Change	-4.3%	1.7%	21.1%	11.1%	22.9%
EBITDA	401	435	481	523	577
% Change	-4.5%	8.5%	10.5%	8.6%	10.3%
Net Interest & Other Income	(66)	(57)	(54)	(55)	(58)
Net Income (Adjusted)	79	92	134	162	223
% Change	-8.1%	17.4%	45.8%	20.8%	37.0%

Free Cash Flow Data (Dec)

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Net Income from Cont Operations (GAAP)	76	78	149	177	237
Depreciation & Amortization	183	199	181	200	178
Change in Working Capital	3	(22)	39	(3)	(17)
Deferred Taxation Charge	(3)	(19)	36	37	51
Other Adjustments, Net	0	45	(6)	(2)	(2)
Capital Expenditure	(419)	(563)	(561)	(403)	(474)
Free Cash Flow	-161	-283	-162	6	-28
% Change	-188.0%	-76.0%	42.8%	NM	NM
Share / Issue Repurchase	0	(18)	0	0	0
Cost of Dividends Paid	(27)	(27)	(29)	(32)	(35)
Change in Debt	182	151	237	16	72

Balance Sheet Data (Dec)

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Cash & Equivalents	387	227	415	474	616
Trade Receivables	141	161	165	183	199
Other Current Assets	74	69	51	55	55
Property, Plant & Equipment	2,295	2,493	2,873	3,076	3,373
Other Non-Current Assets	1,529	1,661	1,667	1,673	1,678
Total Assets	4,426	4,612	5,171	5,460	5,921
Short-Term Debt	389	184	184	184	184
Other Current Liabilities	156	160	185	204	203
Long-Term Debt	1,280	1,619	1,856	1,872	1,944
Other Non-Current Liabilities	593	618	784	881	1,057
Total Liabilities	2,418	2,581	3,010	3,141	3,388
Total Equity	2,008	2,031	2,162	2,319	2,533
Total Equity & Liabilities	4,426	4,612	5,171	5,460	5,921

* For full definitions of iQmethodSM measures, see page 10.

Company Sector

Alternative Energy

Company Description

Ormat Technologies develops, owns, and operates a portfolio which primarily consists of geothermal and recovered energy power plants (REG) and has recently begun expanding into the solar PV and battery storage markets.

Investment Rationale

We see strong growth prospects from geothermal expansion efforts as well as buildout of the nascent battery storage business. We highlight a strong development pipeline, in addition to sufficient liquidity. However, we see growing risk of near-term renewable development delays due to cost inflation and supply chain issues.

Stock Data

Average Daily Volume

426,091

Quarterly Earnings Estimates

	2022	2023
Q1	0.35A	0.51A
Q2	0.22A	NA
Q3	0.33A	NA
Q4	0.73A	NA

How to frame shares from here?

Shares of ORA have recovered from their late-'23 lows, but valuation remains compressed on an EV/EBITDA basis vs. the (trailing-12 month) TTM average. Heading into '24, we look for BESS to drive the narrative as ORA commits to building out a fleet of assets across the US. In the first three quarters of 2023, ORA brought online 102MWh across five new BESS facilities. Mgmt. is focused on maximizing investment tax credit (ITC) opportunities under the Inflation Reduction Act (IRA), targeting projects with ITC's of 40%+. Mgmt. sees organic growth as the key driver of earnings following the latest acquisition, with no plans for equity for the next two years. Leverage remains below 4x, and sees ample opportunity to fund up to 2/3 of capex needs with ITC proceeds. Mgmt. sees pricing for transfers around \$0.90 on the dollar.

Kenya exposure carries some risk as receivables from Kenya Power and Lighting Co (KPLC) remain elevated. KPLC represented 13% of consolidated revenue through 3Q23 while receivables from ORA's customer in the country grew ~85% to \$50Mn from 4Q22 levels. Mgmt. sees payment delays as reflecting weak agricultural conditions in Kenya. ORA has allowed KPLC to make some payments in Kenyan Shillings (with KPLC bearing currency risk) in the interim as agriculture recovers. Longer-term, mgmt. continues to hold discussions with KPLC as the current power purchase agreement (PPA) remains under scrutiny. While timing of a resolution is uncertain, mgmt. is pursuing a win-win whereby PPA terms would be extended, payments would be guaranteed, and curtailments eliminated.

Exhibit 1: ORA share price and valuation (EV/EBITDA NTM +2)

See share price recovery and valuation as appropriately reflecting storage growth opportunity plus risk to LT targets



Source: Bloomberg

BofA GLOBAL RESEARCH

BofA Global Research Reports

Title: Subtitle

[US Utilities & Clean Tech: Our Clean Energy Year Ahead: Top 10 Trends in '24: Progress in Shadow of IRA](#)

[US Clean Tech: It's all about scale: 2023 Battery Technology Conference takeaways](#)

[US Clean Tech: Fully charged optimism at the '23 Energy Storage Conference](#)

[Ormat Technologies: California trends worth watching – Reiterate Neutral as execution risk lingers](#)

Primary Author

Julien Dumoulin-Smith
Julien Dumoulin-Smith
Julien Dumoulin-Smith
Julien Dumoulin-Smith

Date Published

09 January 2024
15 December 2023
13 December 2023
14 June 2023



Remain below Street, guidance through '26

We update our forecast for ORA earnings as shown below. We credit ORA with growth in both geothermal/solar (Electricity) and BESS (Storage) revenues and megawatts through our forecast. For '24, we layer in earnings from the recent Enel acquisition along with mgmt.'s expected COD's for '24 and a full-year of contribution from '23 CODs. ORA indicated average EBITDA for the assets was \$24Mn from '20 to '22. When layering this on top of a full-year's contribution from assets brought online in '23 and a partial-year's contribution from '24 COD's, we arrive at a '24 EBITDA estimate of \$523Mn, below Street of \$536Mn: implies 9% growth y/y vs 4-yr CAGR of 9%. Beyond '24, we model 90MW of annual geothermal/solar additions and 175MW of BESS additions annually. While BESS growth is notable, our forecast of 1.6 gigawatts (GW) cumulative capacity remains below mgmt.'s '26 target capacity of 1.85-2.25MW as announced at the '22 Investor Day. Look for a back-end loaded growth profile at next four-year outlook.

Exhibit 2: ORA earnings dashboard

We refine our estimates through remain below Street and guidance through '26

\$mn	2021	2022	2023	2024	2025	2026
Electricity Revenues	586	632	667	736	788	839
Consensus - Revenue - Electricity	586	632	669	704	787	924
Guidance		630-638	670-675			
Product Revenues	47	71	125	131	131	131
Consensus - Revenue - Product	47	71	126	148	177	158
Guidance		60-67	125-130			
Storage Revenues	30	31	33	46	75	90
Consensus - Revenue - Other Services	30	31	32	63	84	96
Guidance		30	30-33			
Total Revenue	663	734	826	914	994	1,060
Prior Product estimates			828	941	1,011	
Chg vs. prior ests			(0.3%)	(2.9%)	(1.7%)	
Guidance		720-735	825-838			1.1-1.15B
Consensus - Total Revenue		734	828	926	1,075	1,234
BofA vs. Street - Revenue		(0.0%)	(0.2%)	(1.4%)	(7.6%)	(14.1%)
Electricity Gross Profit	249	251	289	329	393	422
Gross margin %	42.5%	39.8%	43.3%	44.7%	49.9%	50.4%
Product Gross Profit	6	11	31	27	27	27
Gross margin %	11.8%	15.3%	25.0%	20.5%	20.4%	20.4%
Storage Gross Profit	10	7	6	6	24	31
Gross margin %	33.0%	21.0%	16.7%	12.3%	32.4%	34.2%
Total Gross Profit	264	269	325	362	444	480
EBITDA - Electricity	316	326	378	423	455	485
Electricity EBITDA Margin (%)	53.9%	51.6%	56.7%	57.5%	57.7%	57.8%
EBITDA - Product	4	5	24	19	20	20
Product EBITDA Margin (%)	9.2%	7.4%	19.0%	14.8%	15.0%	15.0%
EBITDA - Storage	16	12	17	26	48	59
Storage EBITDA Margin (%)	52.5%	39.6%	51.1%	55.3%	64.2%	65.2%
Unallocated Adjustments	38	45	47	40	39	37
Total EBITDA	401	435	481	523	577	615
Prior EBITDA estimates			482	548	580	
Chg vs. prior ests			(0.2%)	(4.6%)	(0.6%)	
Guidance			480-495			650-700
Consensus - EBITDA			484	536	610	717
BofA vs. Street - EBITDA			(0.5%)	(2.5%)	(5.4%)	(14.2%)

Source: Company filings, BofA Global Research estimates

BofA GLOBAL RESEARCH

Valuation looks fair at current levels

We view shares of ORA as fairly valued at current levels, which imply ~10.5x EV/EBITDA on our '25E estimate and ~10.0x '25E Consensus. We continue to utilize a blended valuation approach for ORA, valuing the existing assets and growth (DevCo) separately. Our \$71 PO (\$87 prior) reflects our moderated estimates and a MtM on our discount rate. Key changes are as follows:

- DCF discount rate moves up 150bps on higher treasury yields and we remove a previous 100bps premium given Israel-related risks (ORA is headquartered in Israel along with primary production and manufacturing facilities).
- DCF and DevCo year-one rolled forward to 2024 and 2025, respectively.
- DevCo discount rate moves 100bps higher to 13% to reflect higher rates and geographic risk. DevCo NPV for Geothermal/Solar moves to \$1.50/W (from \$1.75) and Storage to \$0.28/Whr (from \$0.33) reflecting higher rates and geographic risk. The key question to confidence is whether management can execute consistently on new growth consider the meaningful Devco value reflected in the SOTP. Execution on evolving geographies beyond the US including Indonesia & New Zealand is intriguing however consistent execution remains well worth watching
- On balance, we see some modest risks in the near-term, but see offsets to '24 guide risk & Kenyan update on 4Q with mid-year Analyst Day that should provide a reinvigorated roll forward to 2028.

Exhibit 3: ORA Valuation Summary

We arrive at a \$71 PO

Ormat Technologies Valuation		Value per Share
DCF Methodology (Core Value)		\$38.00
DevCo Methodology (Growth Value)		\$33.00
Price Objective		\$71.00
Current Price		\$70.65
Premium (Discount) to Current Price		0.5%
2023E Dividend per Share		\$0.53
Total Potential Return		1.2%

Source: Company filings, BofA Global Research estimates

BofA GLOBAL RESEARCH



Exhibit 4: ORA DCF valuation

We arrive at a \$38/sh DCF valuation

DCF Valuation	\$Mn	Per Share
PV of Electricity Cash Flows	2,654	\$43.82
PV of Product Cash Flows	303	\$5.00
PV of ESMS Cash Flows	260	\$4.30
PV of Growth - 2024 CODs	160	\$2.64
PV of ORA Cash Flows	3,377	\$55.75
Less: PV of Corp Opex	(275)	(\$4.55)
Less: PV of Corp Debt Interest	(204)	(\$3.37)
Less: PV of Corp Debt Amort	(782)	(\$12.91)
Plus: Cash & Cash Equivalents	186	\$3.08
Total PV of Cash Flows (\$Mn)	2,302	\$38.00
Shares Outstanding (Mn)	60.6	
DCF per Share	\$38.00	
Current Price	\$70.65	
Premium / (Discount) to NPV	86%	
Discount Rate (CAPM)		
10-yr Treasury		4.01%
Equity Risk Premium		5.00%
Beta		1.00
YieldCo Discount Rate		8.99%
(Prem) disc vs yieldcos		0.00%
Cost of Equity		8.99%
Int'l Country Risk Premium		2.00%
Dev't Risk Premium		0.50%

Source: Company filings, BofA Global Research estimates

BofA GLOBAL RESEARCH

Exhibit 5: ORA DevCo valuation

We arrive at a \$33/sh DevCo valuation

DevCo Valuation	Downside	Base	Upside
Geothermal & Solar			
NPV/W (\$mn)	\$1.1	\$1.50	\$1.9
Battery Storage			
NPV/W/hr (\$mn)	\$0.23	\$0.28	\$0.33
NPV of Growth Projects (\$mn)	\$1,770.8	\$2,013.5	\$2,146.1
Value of Growth Projects, run-rate, net of SG&A (\$mn)	\$1,770.8	\$2,013.5	\$2,146.1
Total Share Count (mn)	60.6	60.6	60.6
DevCo Value - NPV/sh	\$29.24	\$33.24	\$35.43
OpCo	\$38.00	\$38.00	\$38.00
Value	\$67.00	\$71.00	\$73.00

	2025	2026	2027	2028	2029	2030	Terminal
Goothermal & Solar NPV/W	1.50	1.50	1.50	1.50	1.50	1.50	
MW/Year	90	90	90	90	90	90	
Goothermal & Solar NPV Created	135	135	135	135	135	135	
Storage MW/Year	175	175	175	175	175	175	
MWhr/year	463	463	463	463	463	463	
NPV/W/hr	\$0.28	0.28	0.28	0.28	0.28	0.28	
Storage NPV Created	127	127	127	127	127	127	
Total NPV Created	-	262.3	262.3	262.3	262.3	262.3	2,885.6

ORA Storage Capacity

	Discount Rate	Terminal Multiple	Total DevCo Value	BofAe Operational	Guided Operational	
	13%	11.0x	2,014			
By YE23				320	320	4Q22 guide (implied)
By YE24				660	900-1000	2022 Analyst Day guide
By YE25				1,123	1,070-1,140	4Q22 guide
By YE26				1,585	1,850-2,250	2022 Analyst Day guide

Source: Company filings, BofA Global Research estimates

BofA GLOBAL RESEARCH



Price objective basis & risk

Ormat Technologies (ORA)

Our \$71/sh PO is based on a DCF + DevCo methodology, with a DCF value of \$38/sh plus a DevCo value of \$33/sh.

In our DCF, we discount the existing portfolio's expected cash flows. Main assumptions include a 8.99% Cost of Equity with 1.00 adj. beta and 4.01% 10-yr Treasury under the CAPM (with project-specific adjustments, 2% international risk premium and 0.5% development premium).

In our DevCo, we value long-term growth prospects with the assumption of geothermal value at \$1.50mn/MW and battery storage at \$0.28Mn/MWhr. Our long-term assumptions are slightly lower than mgmt.'s Analyst Day targets given operational challenges. We apply an 11x terminal value, akin to where ORA has traded historically, and discount the value created in each year back to today at a 12% cost of equity capital. Additionally, we include the NPV of future storage investment tax credits. We also discount these credits back at a 13% rate.

Risks: 1) operational issues including planned/unexpected maintenance costs and shutdowns, 2) geological uncertainties and catastrophic events incl. earthquakes and volcanoes, 3) international exposure with higher credit, financial, political, and regulatory risks, and 4) re-contracting price risks 5) Ability to execute in a nascent storage segment.

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	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	Julien 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
	Vistra Energy	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	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	Julien Dumoulin-Smith
	Idacorp	IDA	IDA US	Paul Zimbardo
	Maxon 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	Dariusz Lozny, CFA
	TransAlta Corporation	YTA	TA CN	Dariusz Lozny, CFA
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	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



IQmethodSM Measures Definitions

Business Performance

Return On Capital Employed

Return On Equity
Operating Margin
Earnings Growth
Free Cash Flow

Numerator

NOPAT = (EBIT + Interest Income) × (1 – Tax Rate) + Goodwill Amortization
Net Income
Operating Profit
Expected 5 Year CAGR From Latest Actual
Cash Flow From Operations – Total Capex

Denominator

Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill
Amortization
Shareholders' Equity
Sales
N/A
N/A

Quality of Earnings

Cash Realization Ratio
Asset Replacement Ratio
Tax Rate
Net Debt-To-Equity Ratio
Interest Cover

Numerator

Cash Flow From Operations
Capex
Tax Charge
Net Debt = Total Debt – Cash & Equivalents
EBIT

Denominator

Net Income
Depreciation
Pre-Tax Income
Total Equity
Interest Expense

Valuation Toolkit

Price / Earnings Ratio
Price / Book Value
Dividend Yield
Free Cash Flow Yield
Enterprise Value / Sales

Numerator

Current Share Price
Current Share Price
Annualised Declared Cash Dividend
Cash Flow From Operations – Total Capex
EV = Current Share Price × Current Shares + Minority Equity + Net Debt +
Other LT Liabilities
Enterprise Value

Denominator

Diluted Earnings Per Share (Basis As Specified)
Shareholders' Equity / Current Basic Shares
Current Share Price
Market Cap = Current Share Price × Current Basic Shares
Sales

Basic EBIT + Depreciation + Amortization

IQmethodSM 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.

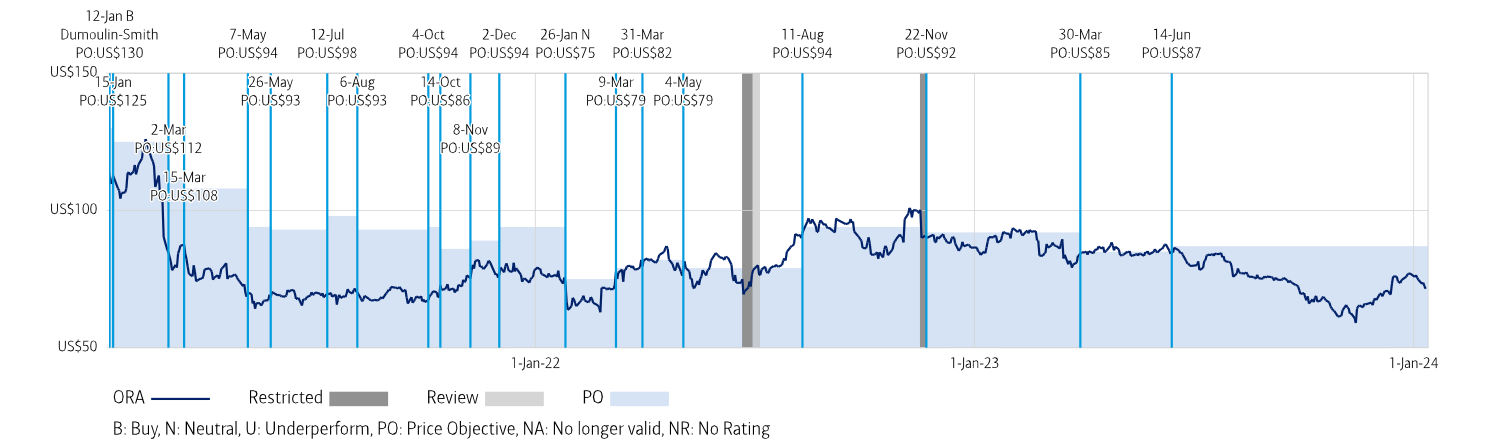
IQdatabase[®] is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Global Research.

IQprofileSM, *IQmethodSM* are service marks of Bank of America Corporation. *IQdatabase[®]* is a registered service mark of Bank of America Corporation.

Disclosures

Important Disclosures

Ormat Technologies (ORA) Price Chart



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.

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%
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.

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. BofAS or one of its affiliates acts as a market maker for the equity securities recommended in the report: Ormat Technologies. BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: Ormat. 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: Ormat. 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: Ormat Technologies. The issuer is or was, within the last 12 months, a securities business client (non-investment banking) of BofAS and/or one or more of its affiliates: Ormat. 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 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.bofam.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 Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSCF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa 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 Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): 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 HKSCF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS 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 of this information 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 prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

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.

BoFA or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BoFA 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 BoFA for the provision of research services for a separate fee, and in connection therewith BoFA may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BoFA has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BoFA). If such recipient uses the services of BoFA in connection with the sale or purchase of a security referred to herein, BoFA may act as principal for its own account or as agent for another person. BoFA 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 information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BoFA Securities in connection with the legal proceedings or matters relevant to such proceedings.

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 BoFA or 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 BoFA 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.