

Enphase Energy

Still channel surfing at the start of '24 –
reiterate Underperform

Reiterate Rating: UNDERPERFORM | PO: 72.00 USD | Price: 97.80 USD

Cautious on the set-up as right-sizing efforts underway

Enphase Energy (ENPH) remains a challenged story for the time being, in our view, as high inventory levels at distribution partners pressure microinverter shipment volumes. ENPH previously indicated it expected to under-ship units relative to demand by \$150Mn for 4Q23, split evenly across the US and Europe. Additionally, recall ENPH announced a downsizing of its manufacturing footprint and headcount reductions, suggesting to us expectations for a protracted return to prior underlying demand levels (see our report here: [ENPH: Tough times call for tough decisions](#)). Data out of California seems to support this, with applications for new residential interconnections dropping ~80% from May to November of last year. Internationally, Europe remains in disarray on elevated channel inventory levels. We see this as a key factor driving our forecast relative to consensus. We expect these broader challenges to more than offset margin tailwinds afforded by Inflation Reduction Act (IRA) credit benefits and cost savings.

4Q Preview: Expecting in-line quarter, see risk to 1Q

We forecast 4Q23 revenue of \$392Mn, which compares to consensus of \$328Mn and guidance of \$300-350Mn. For gross margin, we forecast 49.9% in 4Q23, which includes ~800bps of IRA credits and compares to consensus/guidance of 49.0%/ 48-51%. Our attention is focused on 1Q24 where we remain below consensus on shipments and revenue. We forecast 1Q23 shipments of 776 megawatts (MW) and revenue of \$292Mn, which compares to consensus of 905MW/\$318Mn. While we are focused on the US dynamics (and California in particular) considering the higher contribution for ENPH, we believe the primary delta in our forecast vs. consensus is International. We estimate a precipitous decline in international shipments in 4Q23 to ~200MW and hold this flat in 1Q24 as elevated inventory levels in Europe are worked through.

Shares still screen expensive; PO to \$72

Shares continue to trade well-above both our DCF and relative valuations. At current levels, the stock trades ~50% above DCF value and ~35% above relative valuation. We continue to apply a 25% weighting to our DCF valuation and a 75% weighting to our EV/EBITDA valuation. We also continue to layer in ~\$11/sh in value from IRA benefit (calculated on an NPV basis through 2033). Our PO moves from \$76 to \$72 on our latest mark-to-market and model recalibration.

| Estimates (Dec) (US\$) | 2021A | 2022A | 2023E | 2024E | 2025E |
|---------------------------|-------|--------|-------|-------|-------|
| EPS | 2.05 | 4.37 | 4.41 | 4.29 | 5.81 |
| GAAP EPS | 0.98 | 2.68 | 3.02 | 2.48 | 3.94 |
| EPS Change (YoY) | 54.1% | 113.2% | 0.9% | -2.7% | 35.4% |
| Consensus EPS (Bloomberg) | | | 4.39 | 3.75 | 5.54 |
| DPS | 0 | 0 | 0 | 0 | 0 |
| Valuation (Dec) | | | | | |
| P/E | 47.7x | 22.4x | 22.2x | 22.8x | 16.8x |
| GAAP P/E | 99.8x | 36.5x | 32.4x | 39.4x | 24.8x |
| EV / EBITDA* | 37.0x | 19.2x | 18.6x | 21.6x | 14.1x |
| Free Cash Flow Yield* | 2.2% | 5.8% | 3.8% | 5.9% | 6.1% |

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

06 February 2024

Equity

Key Changes

| (US\$) | Previous | Current |
|---------------|----------|---------|
| Price Obj. | 76.00 | 72.00 |
| 2023E Rev (m) | 2,326.6 | 2,317.4 |
| 2024E Rev (m) | 1,749.7 | 1,705.6 |
| 2025E Rev (m) | 2,108.1 | 2,146.0 |
| 2023E EPS | 4.42 | 4.41 |
| 2024E EPS | 4.31 | 4.29 |
| 2025E EPS | 6.81 | 5.81 |

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

Stock Data

| | |
|---------------------------------|------------------------|
| Price | 97.80 USD |
| Price Objective | 72.00 USD |
| Date Established | 6-Feb-2024 |
| Investment Opinion | C-3-9 |
| 52-Week Range | 73.49 USD - 247.00 USD |
| Mrkt Val (mn) / Shares Out (mn) | 13,355 USD / 136.6 |
| Free Float | 96.7% |
| Average Daily Value (mn) | 396.81 USD |
| BofA Ticker / Exchange | ENPH / NAS |
| Bloomberg / Reuters | ENPH US / ENPH.OQ |
| ROE (2023E) | 55.4% |
| Net Dbt to Eqty (Dec-2022A) | 99.0% |
| ESGMeter TM | Medium |

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"](#).

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.

12655704

Timestamp: 06 February 2024 05:00AM EST

iQprofileSM Enphase Energy

iQmethodSM – Bus Performance*

| (US\$ Millions) | 2021A | 2022A | 2023E | 2024E | 2025E |
|----------------------------|-------|--------|-------|-------|-------|
| Return on Capital Employed | 23.2% | 28.3% | 22.9% | 17.0% | 19.6% |
| Return on Equity | 64.0% | 101.1% | 55.4% | 35.0% | 34.3% |
| Operating Margin | 25.3% | 29.3% | 31.3% | 35.1% | 43.9% |
| Free Cash Flow | 300 | 776 | 503 | 789 | 814 |

iQmethodSM – Quality of Earnings*

| (US\$ Millions) | 2021A | 2022A | 2023E | 2024E | 2025E |
|--------------------------|--------|-------|-------|--------|--------|
| Cash Realization Ratio | 1.2x | 1.3x | 0.9x | 1.3x | 1.0x |
| Asset Replacement Ratio | 1.6x | 1.0x | 1.4x | 0.9x | 0.8x |
| Tax Rate | NM | 12.3% | 15.7% | 13.5% | 11.1% |
| Net Debt-to-Equity Ratio | 213.5% | 99.0% | 21.2% | -22.7% | -43.8% |
| Interest Cover | 7.7x | NM | NM | 46.5x | NM |

Income Statement Data (Dec)

| (US\$ Millions) | 2021A | 2022A | 2023E | 2024E | 2025E |
|------------------------------|--------------|---------------|-------------|--------------|--------------|
| Sales | 1,383 | 2,346 | 2,317 | 1,706 | 2,146 |
| % Change | 78.6% | 69.6% | -1.2% | -26.4% | 25.8% |
| Gross Profit | 548 | 975 | 1,087 | 895 | 1,253 |
| % Change | 58.4% | 77.8% | 11.5% | -17.6% | 39.9% |
| EBITDA | 382 | 736 | 759 | 655 | 1,001 |
| % Change | 82.0% | 92.9% | 3.1% | -13.8% | 52.9% |
| Net Interest & Other Income | (94) | (7) | 62 | 82 | (6) |
| Net Income (Adjusted) | 292 | 635 | 639 | 625 | 863 |
| % Change | 55.1% | 116.9% | 0.7% | -2.1% | 38.0% |

Free Cash Flow Data (Dec)

| (US\$ Millions) | 2021A | 2022A | 2023E | 2024E | 2025E |
|--|--------------|---------------|---------------|--------------|-------------|
| Net Income from Cont Operations (GAAP) | 140 | 389 | 438 | 362 | 585 |
| Depreciation & Amortization | 32 | 50 | 49 | 55 | 60 |
| Change in Working Capital | 15 | 123 | (117) | 129 | (88) |
| Deferred Taxation Charge | (31) | 0 | (60) | 0 | 0 |
| Other Adjustments, Net | 196 | 265 | 264 | 293 | 307 |
| Capital Expenditure | (52) | (50) | (70) | (50) | (50) |
| Free Cash Flow | 300 | 776 | 503 | 789 | 814 |
| % Change | 53.1% | 159.0% | -35.2% | 56.7% | 3.2% |
| Share / Issue Repurchase | 0 | 0 | 0 | 0 | 0 |
| Cost of Dividends Paid | 0 | 0 | 0 | 0 | 0 |
| Change in Debt | 612 | 253 | 0 | 0 | 0 |

Balance Sheet Data (Dec)

| (US\$ Millions) | 2021A | 2022A | 2023E | 2024E | 2025E |
|---------------------------------------|--------------|--------------|--------------|--------------|--------------|
| Cash & Equivalents | 119 | 473 | 976 | 1,765 | 2,579 |
| Trade Receivables | 334 | 441 | 508 | 350 | 441 |
| Other Current Assets | 1,010 | 1,350 | 1,384 | 1,263 | 1,287 |
| Property, Plant & Equipment | 82 | 111 | 103 | 97 | 87 |
| Other Non-Current Assets | 535 | 709 | 774 | 774 | 774 |
| Total Assets | 2,079 | 3,084 | 3,745 | 4,250 | 5,168 |
| Short-Term Debt | 86 | 91 | 91 | 91 | 91 |
| Other Current Liabilities | 354 | 547 | 531 | 382 | 408 |
| Long-Term Debt | 952 | 1,199 | 1,199 | 1,199 | 1,199 |
| Other Non-Current Liabilities | 258 | 421 | 465 | 510 | 554 |
| Total Liabilities | 1,649 | 2,259 | 2,287 | 2,182 | 2,252 |
| Total Equity | 430 | 826 | 1,482 | 2,092 | 2,940 |
| Total Equity & Liabilities | 2,079 | 3,084 | 3,769 | 4,274 | 5,192 |

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

Company Sector

Alternative Energy

Company Description

Enphase Energy sells micro-inverters, energy storage, and software solutions catered to residential (rooftop) solar applications.

Investment Rationale

We are Underperform rated on ENPH as the core business growth is uncertain and at risk of deceleration over the next two years. ENPH is a profitable, FCF-generating engine with a strong financial position, but we argue fundamentals are strained while shares face significant multiple compression risk. We look for further growth from international expansion and new strategic initiatives, but gradual materialization does not offset further negative re-rating catalysts in the near term.

Stock Data

Average Daily Volume 4,057,391

Quarterly Earnings Estimates

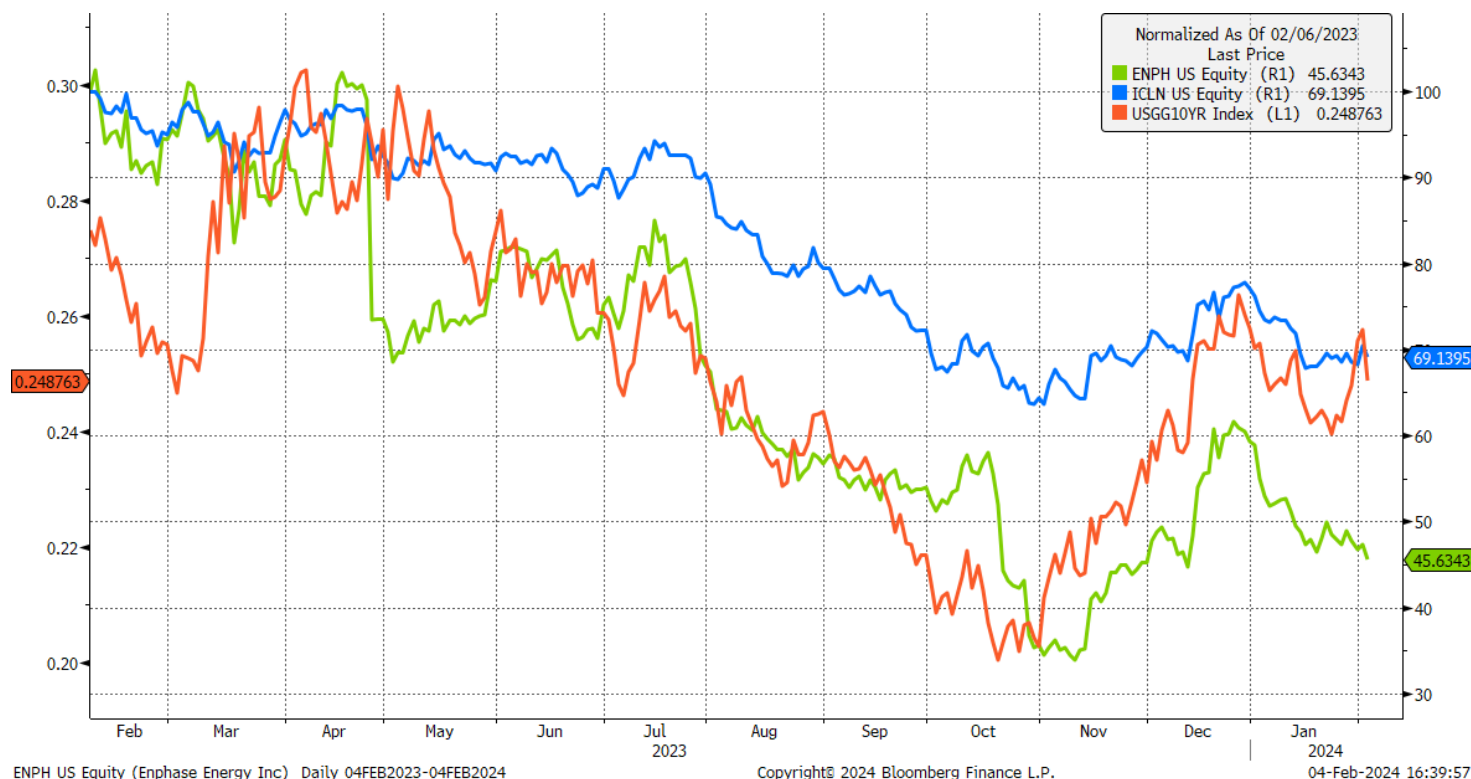
| | 2022 | 2023 |
|----|-------|-------|
| Q1 | 0.76A | 1.32A |
| Q2 | 1.04A | 1.42A |
| Q3 | 1.20A | 0.99A |
| Q4 | 1.45A | 0.67E |

How to frame shares from here?

The outlook for shipments is challenged for ENPH microinverters as channel inventory levels remain elevated. We note data points in both the US and Europe which seem to suggest a protracted recovery through at least the first half of 2024. California has historically accounted for 20% of ENPH revenue, and new residential solar installations in the state have significantly declined following changes in net metering policy (NEM 3.0). Elsewhere, European demand is equally pressured, albeit for different reasons. Elevated channel inventory, particularly panels, continues to pressure sell-through volumes. We perceive this as an underappreciated angle and reflect our concerns in our International shipment expectations which are well-below consensus. We see the decision to resize the manufacturing footprint as supporting our view for a protracted recovery in volumes. While we do not subscribe to the IRA repeal risk narrative, we nonetheless see this as an additional pressure point limiting shares. On balance, we look for a muted 1Q24 guide with limited visibility to a recovery through 1H24. We see the ongoing distress among the 'long tail' and corresponding consolidation of market positions by the larger operators in resi solar in the US as likely working against ENPH strategy on the margin. On the balance, we expect a challenged backdrop and remain surprised by recent broader recovery considering recent datapoints.

Exhibit 1: ENPH price performance vs. peers and rates (UST 10Yr inversed)

Look for sustained underperformance vs. peers and rates ahead as end market dynamics remain challenged



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](#)
[Enphase Energy: Tough times call for tough decisions – Reiterate Underperform](#)
[Enphase Energy: Despite already weak sentiment, 2024 looks softer than previously expected](#)
[Enphase Energy: Cautious pressure points still stacking up: Reduce forward estimates, PO further](#)
[Enphase Energy: Demand Headwinds are Here, and They Will Linger. Move to Underperform](#)
[Enphase Energy: US Resi Growing Pains & ENPH is at the Center of the Debate: 1Q23 Preview](#)

Primary Author

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

Date Published

09 January 2024
 19 December 2023
 22 November 2023
 21 September 2023
 26 April 2023
 11 April 2023



Recalibrating the model to reflect cautious set-up

Our cautious view on end market dynamics is reflected in our estimates for shipments through our forecast. In the US, we look for sequential declines in both 4Q23 and 1Q24 for microinverter shipments as end markets remain pressured. Internationally, we expect an even steeper decline in 4Q23 followed by no growth in 1Q24 and only modest growth in 2Q24 as channel inventory levels normalize. We are essentially in-line with consensus for microinverter pricing at 30c/watt in 2024 and 28c/watt in 2025. We continue to credit ENPH with IRA benefits which provide sizable margin uplift. We forecast IRA benefits of \$41Mn in 2023, \$162Mn in 2024, and \$327Mn in 2025. Our 2025 forecast is reduced from \$495Mn in 2025 as we recalibrate our model to better align with demand trends. We had previously assumed full utilization of ENPH's 5M units/quarter US manufacturing capacity in 2025. We now reduce this to 3.3Mn considering the broader challenges facing the sector.

Exhibit 2: ENPH earnings dashboard – we continue to see clear downside risk to 1Q guide as well as risk throughout '24

We look for a muted recovery in shipments pressure results through 2025

| | 2022 | 1Q23 | 2Q23 | 3Q23 | 4Q23 | 2023 | 1Q24 | 2Q24 | 3Q24 | 4Q24 | 2024 | 2025 |
|---------------------------------------|------------------|----------------|----------------|----------------|----------------|------------------|----------------|----------------|----------------|----------------|------------------|------------------|
| Key Metrics | | | | | | | | | | | | |
| Shipments & ASPs | | | | | | | | | | | | |
| Microinverter Shipments (MWdc) | 5,903.4 | 1,957.0 | 2,121.3 | 1,585.6 | 870.6 | 6,534.5 | 776.1 | 941.8 | 1,380.5 | 1,545.5 | 4,643.8 | 5,861.9 |
| Resi US | 4,288.9 | 1,223.1 | 1,230.4 | 983.1 | 663.6 | 4,100.1 | 564.0 | 705.0 | 987.1 | 1,085.8 | 3,341.9 | 4,010.3 |
| Resi International | 1,614.2 | 733.9 | 890.9 | 602.5 | 197.0 | 2,424.4 | 197.0 | 216.7 | 368.4 | 423.7 | 1,205.9 | 1,507.4 |
| Commercial | 0.4 | 0.1 | 0.1 | 0.1 | 10.0 | 10.0 | 15.0 | 20.0 | 25.0 | 36.0 | 96.0 | 344.2 |
| Storage Shipments (MWh) | 509.6 | 97.4 | 83.9 | 86.5 | 90.5 | 358.2 | 79.8 | 97.1 | 135.6 | 145.6 | 458.1 | 758.6 |
| Microinverter Blended ASP (\$/W) | \$0.33 | \$0.331 | \$0.304 | \$0.310 | \$0.306 | \$0.31 | \$0.304 | \$0.304 | \$0.297 | \$0.297 | \$0.30 | \$0.28 |
| VA Consensus | \$0.33 | \$0.33 | \$0.31 | \$0.30 | \$0.30 | \$0.31 | \$0.29 | \$0.29 | \$0.29 | \$0.29 | \$0.29 | \$0.29 |
| Storage ASP (\$/kWh) | \$738 | \$738 | \$738 | \$627 | \$627 | \$683 | \$615 | \$615 | \$615 | \$615 | \$615 | \$584 |
| Income Statement | | | | | | | | | | | | |
| Resi US Revenue | 1,422.7 | 399.6 | 376.6 | 311.0 | 205.7 | 1,292.9 | 174.9 | 218.6 | 301.1 | 331.2 | 1,025.6 | 1,169.2 |
| Resi International Revenue | 516.9 | 229.0 | 268.0 | 180.8 | 59.1 | 736.9 | 58.1 | 63.9 | 105.0 | 120.8 | 347.8 | 413.0 |
| Commercial Revenue | 0.1 | 0.0 | 0.0 | 0.0 | 1.9 | 2.0 | 2.7 | 3.6 | 4.5 | 6.5 | 17.3 | 58.9 |
| Storage Revenue | 376.3 | 71.9 | 61.9 | 54.3 | 56.8 | 244.8 | 49.1 | 59.7 | 83.4 | 89.5 | 281.7 | 443.2 |
| EV Charging Revenue | 30.0 | 6.1 | 4.7 | 5.0 | 5.7 | 21.5 | 6.8 | 7.4 | 8.8 | 10.2 | 31.4 | 61.7 |
| Total Revenue (\$mn) | \$2,346.0 | \$726.0 | \$711.1 | \$551.1 | \$329.2 | \$2,317.4 | \$291.5 | \$353.3 | \$502.8 | \$558.1 | \$1,705.6 | \$2,146.0 |
| YoY | 69.6% | 64.5% | 34.1% | -13.2% | -54.6% | -1.2% | -59.8% | -50.3% | -8.8% | 69.5% | -26.4% | 25.8% |
| Prior | \$2,346.0 | \$726.0 | \$711.1 | \$551.1 | \$338.4 | \$2,326.6 | N/A | N/A | N/A | N/A | \$1,749.7 | \$2,108.1 |
| Guidance | | \$700-740 | \$700-750 | \$550-600 | \$300-350 | | | | | | | |
| VA Consensus | 2,331 | 726 | 711 | 551 | 326 | 2,315 | 320 | 409 | 501 | 556 | 1,803 | 2,461 |
| Non-GAAP Gross Profit | \$991.9 | \$331.9 | \$328.6 | \$266.6 | \$164.2 | \$1,107.1 | \$158.8 | \$192.8 | \$267.4 | \$298.8 | \$917.8 | \$1,276.7 |
| VA Consensus | 993.8 | \$332.0 | \$328.7 | \$266.7 | \$159.8 | 1,086.9 | \$155.7 | \$198.7 | \$250.9 | \$281.2 | 890.2 | 1,261.9 |
| % Margin | 42.3% | 45.7% | 46.2% | 48.4% | 49.9% | 47.8% | 54.5% | 54.6% | 53.2% | 53.5% | 53.8% | 59.5% |
| VA Consensus (Implied) | 42.6% | 45.7% | 46.2% | 48.4% | 49.0% | 47.0% | 48.7% | 48.6% | 50.1% | 50.6% | 49.4% | 51.3% |
| Guidance (w/ IRA) | | 41-44% | 42-45% | 42-45% | 40-43% | | | | | | | 15% |
| Guidance (w/o IRA) | | | | | 48-51% | | | | | | | |
| Baseline Target: 35% | | | | | \$0.08 | | | | | | | |
| IRA Credits | | - | \$1.2 | \$14.5 | \$24.8 | \$40.5 | \$30.9 | \$37.1 | \$43.3 | \$50.1 | \$161.5 | \$326.7 |
| Prior | | - | \$1.2 | \$14.5 | \$24.8 | \$40.5 | N/A | N/A | N/A | N/A | \$161.5 | \$495.0 |
| Non-GAAP OpEx | 305.5 | 98.4 | 98.2 | 99.0 | 85.6 | 381.2 | 78.8 | 78.6 | 77.9 | 81.1 | 318.3 | 335.5 |
| VA Consensus | 305.0 | 98.4 | 98.0 | 98.8 | 88.3 | 383.5 | 78.2 | 82.1 | 83.4 | 84.2 | 328.0 | 372.8 |
| % Revenue | 13% | 13.5% | 14% | 18% | 26% | 16% | 27% | 22% | 15% | 15% | 19% | 16% |
| Guidance | | \$100-104 | \$98-102 | \$101-105 | \$85-89 | | | | | | | |
| Guidance Post 1H24 Restructuring | | | | | | | | \$75-80 | | | | |
| Baseline Target: 15% of Rev. | | | | | | | | | | | | |
| Non-GAAP Operating Income | \$686.4 | \$233.6 | \$230.5 | \$167.6 | \$78.6 | \$710.2 | \$80.0 | \$114.2 | \$189.5 | \$217.7 | \$599.5 | \$941.2 |
| VA Consensus | 688.8 | 233.5 | 230.2 | 167.4 | 70.6 | 701.4 | 75.0 | 114.4 | 163.9 | 193.5 | 546.8 | 888.8 |
| % Margin | 29% | 32% | 32% | 30% | 24% | 31% | 27% | 32% | 38% | 39% | 35% | 44% |
| Baseline Target: >20% | | | | | | | | | | | | |
| Adj. EBITDA (w/ IRA Credits) | \$736.4 | 242.6 | 248.3 | 187.0 | 81.5 | \$759.5 | 93.9 | 128.1 | 203.4 | 231.6 | \$654.9 | \$1,001.3 |

Exhibit 2: ENPH earnings dashboard – we continue to see clear downside risk to 1Q guide as well as risk throughout '24

We look for a muted recovery in shipments pressure results through 2025

| | 2022 | 1Q23 | 2Q23 | 3Q23 | 4Q23 | 2023 | 1Q24 | 2Q24 | 3Q24 | 4Q24 | 2024 | 2025 |
|---|----------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|----------------|----------------|
| Prior | \$736.4 | \$242.6 | \$248.3 | \$187.0 | \$90.4 | \$768.4 | N/A | N/A | N/A | N/A | \$669.5 | \$1,161.5 |
| Adj. EBITDA (w/o IRA Credits) | \$736.4 | 242.6 | 247.1 | 172.6 | 56.8 | \$719.0 | 62.9 | 91.0 | 160.1 | 181.5 | \$493.4 | \$674.6 |
| Prior | \$736.4 | \$242.6 | \$247.1 | \$172.6 | \$65.7 | \$727.9 | N/A | N/A | N/A | N/A | \$508.0 | \$666.5 |
| Margin, % (w/ IRA Credits) | 31% | 33% | 35% | 34% | 25% | 33% | 32% | 36% | 40% | 41% | 38% | 47% |
| Margin, % (w/o IRA Credits) | 31% | 33% | 35% | 31% | 17% | 31% | 22% | 26% | 32% | 33% | 29% | 31% |
| Non-GAAP EPS, Diluted (w/ IRA Credits) | \$4.37 | \$1.32 | \$1.42 | \$0.99 | \$0.67 | \$4.41 | \$0.69 | \$0.88 | \$1.31 | \$1.47 | \$4.29 | \$5.81 |
| Prior | \$4.39 | \$1.32 | \$1.42 | \$0.99 | \$0.72 | \$4.42 | N/A | N/A | N/A | N/A | \$4.31 | \$6.81 |
| VA Consensus | \$4.58 | \$1.36 | \$1.46 | \$1.02 | \$0.55 | \$4.43 | \$0.56 | \$0.80 | \$1.10 | \$1.28 | \$3.81 | \$5.70 |

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

BofA GLOBAL RESEARCH

We forecast 4Q23 revenue of \$392Mn, which compares to consensus of \$328Mn and guidance of \$300-350Mn. For gross margin, we forecast 49.9% in 4Q23, which includes ~800bps of IRA credits and compares to consensus/guidance of 49.0%/ 48-51%. Our attention is focused on 1Q24 where we remain below consensus on shipments and revenue. We forecast 1Q23 shipments of 776 megawatts (MW) and revenue of \$292Mn, which compares to consensus of 905MW/\$318Mn. While we are focused on the US dynamics (and California in particular) considering the higher contribution for ENPH, we believe the primary delta in our forecast vs. consensus is International. We estimate a precipitous decline in international shipments in 4Q23 to ~200MW and hold this flat in 1Q24 as elevated inventory levels in Europe are worked through.

Exhibit 3: ENPH forecasts: BofAe vs. consensus

We remain below consensus for shipments and revenue on expectations for a protracted recovery across key end markets

| | 2022 | 1Q23 | 2Q23 | 3Q23 | 4Q23 | 2023 | 1Q24 | 2Q24 | 3Q24 | 4Q24 | 2024 | 2025 |
|---------------------------------------|---------|--------|--------|--------|--------|---------|--------|--------|--------|--------|---------|---------|
| BofA vs. Consensus Forecast | | | | | | | | | | | | |
| Microinverter Shipments (MWdc) | | | | | | | | | | | | |
| BofAe | 5,903.4 | 1,957 | 2,121 | 1,586 | 871 | 6,534.5 | 776 | 942 | 1,381 | 1,545 | 4,643.8 | 5,861.9 |
| Visible Alpha | 5,859.1 | 1,957 | 2,116 | 1,611 | 911 | 6,570.3 | 905 | 1,182 | 1,445 | 1,583 | 5,213.8 | 7,204.5 |
| % Delta | 1% | 0% | 0% | -2% | -4% | -1% | -14% | -20% | -4% | -2% | -11% | -19% |
| Revenue | | | | | | | | | | | | |
| BofAe | 2,346.0 | 726.0 | 711.1 | 551.1 | 329.2 | 2,317.4 | 291.5 | 353.3 | 502.8 | 558.1 | 1,705.6 | 2,146.0 |
| Bloomberg | 2,315.4 | 723.0 | 725.5 | 565.7 | 327.6 | 2,316.9 | 318.3 | 410.3 | 496.7 | 555.2 | 1,813.0 | 2,464.2 |
| % Delta | 1% | 0% | -2% | -3% | 0% | 0% | -8% | -14% | 1% | 1% | -6% | -13% |
| Solar Revenue - BofAe | 1,939.7 | 648.03 | 644.52 | 491.84 | 266.72 | 2,051.1 | 235.67 | 286.10 | 410.56 | 458.40 | 1,392.5 | 1,641.1 |
| Solar Revenue - VA | 1,920.1 | 641.69 | 647.11 | 490.57 | 260.82 | 2,042.9 | 258.32 | 343.26 | 418.29 | 455.93 | 1,491.8 | 2,020.4 |
| % Delta | 1% | 1% | 0% | 0% | 2% | 0% | -9% | -17% | -2% | 1% | -7% | -19% |
| Storage Revenue - BofAe | 376.3 | 71.86 | 61.90 | 54.25 | 56.77 | 244.8 | 49.09 | 59.71 | 83.40 | 89.53 | 281.7 | 443.2 |
| Storage Revenue - VA | 376.7 | 75.49 | 56.52 | 57.57 | 57.96 | 247.9 | 59.52 | 70.10 | 80.42 | 93.20 | 303.3 | 411.1 |
| % Delta | 0% | -5% | 10% | -6% | -2% | -1% | -18% | -15% | 4% | -4% | -7% | 8% |
| Adj. EBITDA | | | | | | | | | | | | |
| BofAe | 736.4 | 242.6 | 248.3 | 187.0 | 81.5 | 759.5 | 93.9 | 128.1 | 203.4 | 231.6 | 654.9 | 1,001.3 |
| Bloomberg | 718.5 | 220.0 | 231.4 | 168.7 | 81.1 | 746.8 | 87.5 | 129.3 | 177.3 | 209.6 | 601.6 | 928.9 |
| % Delta | 2% | 10% | 7% | 11% | 1% | 2% | 7% | -1% | 15% | 10% | 9% | 8% |

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

BofA GLOBAL RESEARCH

Shares not cheap despite pullback; PO to \$72

Shares continue to trade well above both our DCF and relative valuations. At current levels, the stock trades ~50% above DCF value and ~35% above relative valuation. We continue to apply a 25% weighting to our DCF valuation and a 75% weighting to our EV/EBITDA valuation. We also continue to layer in IRA benefits (calculated on an NPV basis through 2033) which we now value at \$10/sh (vs. ~\$11/sh previously). The decline in IRA NPV is driven by our reduced expectations for US manufacturing utilization as previously mentioned. Our PO moves from \$76 to \$72 on our latest mark-to-market and model recalibration. See below for a full summary of our valuation and key changes.

Exhibit 4: ENPH valuation summary

We arrive at a \$72 PO

ENPH Valuation

| | <i>Value/Sh</i> | <i>Weight</i> | <i>Weighted Value</i> |
|----------------------------------|-----------------|---------------|-----------------------|
| EV/EBITDA | \$65.00 | 75% | \$48.75 |
| DCF | \$53.00 | 25% | \$13.25 |
| NPV: IRA Credit Value | \$9.81 | | |
| ENPH Value/Share | | | \$72.00 |
| Share Price (As of 02/05/24) | | | \$101.76 |
| Premium (Discount) to Unit Price | | | (29.2%) |
| 2023E Dividend Yield | | | 0.0% |
| Total Potential Return | | | -29.25% |

Source: Company filings, Bloomberg, BofA Global Research estimates

BofA GLOBAL RESEARCH

Exhibit 5: ENPH EV/EBITDA valuation

We arrive at a \$65/sh EV/EBITDA valuation

Enphase EV/EBITDA Valuation

| | 2024 | 2025 |
|--|----------------|----------------|
| Revenues | | |
| Microinverters | \$1,424 | \$1,703 |
| Storage | \$282 | \$443 |
| Gross Margin | \$895 | \$1,253 |
| EBITDA Ex-IRA Credits | \$493 | \$675 |
| BOS Peer Group (A) | 10.5x | 9.0x |
| Previous BOS Peer Group | 11.0x | 9.5x |
| Relative Premium to BOS (B) - Base on 1-Yr Trailing EV/EBITDA vs Peers | 6.0x | 4.0x |
| EV/EBITDA (BOS Peer + BOS Premium, A+B) | 16.5x | 13.0x |
| Previous EV/EBITDA | 16.0x | 13.0x |
| Consensus EV/EBITDA | 22.0x | 14.0x |
| Illustrative Comparables | | |
| Power Electronics & Semis Group | 18.5x | 17.0x |
| Previous Power Electronics & Semis Group | 18.0x | 16.0x |
| Implied Relative Premium to Power Electronics, Semis | -2.0x | -4.0x |
| Enterprise Value | \$8,142 | \$8,769 |
| Net (Debt) Cash (Adj for Converts) | \$506 | \$506 |
| Equity Value | \$8,648 | \$9,275 |
| Shares Outstanding | 138 | 138 |
| Valuation | \$63 | \$68 |
| EV/EBITDA Value vs. Current Share Px | -38% | -34% |
| EPS | \$4.41 | \$4.29 |
| Implied P/E (excl. Net Cash) | 13.5x | 14.9x |
| ENPH Share Price | \$102 | \$102 |
| Average Valuation | \$65 | |

Source: Company filings, Bloomberg, BofA Global Research estimates

BofA GLOBAL RESEARCH

Exhibit 6: ENPH DCF valuation

We arrive at a \$53/sh DCF valuation – discount rate moves to 12.5% from 12.6% on MtM

| ENPH - DCF Methodology | 2020E | 2023E | 2024E | 2025E | 2026E | 2027E | 2028E | 2029E | 2030E |
|--|----------------|--------------|--------------|----------------|--------------|--------------|--------------|----------------|----------------|
| DCF - less Stock Based Compensation and Debt Amortization | | | | | | | | | |
| Free Cash Flows (\$Mn) | | \$83 | \$627 | \$487 | \$629 | \$744 | \$937 | \$1,079 | \$1,280 |
| Less: Stock Based Compensation | | \$62 | \$248 | \$263 | \$256 | \$250 | \$253 | \$257 | \$259 |
| Less Tax Credit Value | | \$25 | \$161 | \$327 | \$346 | \$429 | \$396 | \$363 | \$247 |
| Adjusted Free Cash Flows (\$Mn) | | (\$3) | \$217 | (\$102) | \$26 | \$65 | \$288 | \$459 | \$773 |
| Free Cash Flows to Equity (\$Mn) | | (\$3) | \$217 | (\$102) | \$26 | \$65 | \$288 | \$459 | \$773 |
| <i>Discount Rate- Cost of Equity</i> | | 12% | 12% | 12% | 12% | 12% | 12% | 12% | 12% |
| <i>Discount Factor</i> | | 0.89 | 0.79 | 0.70 | 0.62 | 0.56 | 0.49 | 0.44 | 0.39 |
| Discounted Free Cash Flows | | (\$3) | \$172 | (\$72) | \$16 | \$36 | \$142 | \$202 | \$302 |
| DCF Value through '30 | \$796 | | | | | | | | |
| DCF Value through 2025 | \$97 | | | | | | | | |
| Terminal Value | | | | | | | | | |
| Terminal Multiple | 20.00 | | | | | | | | |
| Discount Factor | 0.39 | | | | | | | | |
| Terminal Value | \$15,469 | | | | | | | | |
| Implied Exit Multiple off 2030 | 20.0x | | | | | | | | |
| Terminal FCF Yield | 5.0% | | | | | | | | |
| PV of Terminal FCFE Value | \$6,042 | | | | | | | | |
| Net Cash | \$506 | | | | | | | | |
| Total FCFE | \$7,344 | | | | | | | | |
| DCF Value/Share | \$53.00 | | | | | | | | |
| <i>Shares O/S (Fully Diluted)</i> | 143.863 | | | | | | | | |
| <i>Debt Included Convertible Note Dilution</i> | 6.228 | | | | | | | | |
| <i>Adjusted Diluted Share Count</i> | 137.635 | | | | | | | | |
| Price as of close 02/05/2024 | \$101.76 | | | | | | | | |
| DCF Value vs. Current Share Px | -48% | | | | | | | | |
| Discount Rate | 12.5% | | | | | | | | |

Source: Company filings, Bloomberg, BofA Global Research estimates

BofA GLOBAL RESEARCH

Exhibit 7: ENPH IRA benefit NPV

We arrive at a ~\$10/sh NPV of IRA tax credit benefits

| | 2023 | 1Q24 | 2Q24 | 3Q24 | 4Q24 | 2024 | 2025 | 2033 |
|------------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| IRA Credit c/W | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 11.00 | 0.00 |
| Panel Size, W | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| \$/panel | 33.00 | 33.00 | 33.00 | 33.00 | 33.00 | 33.00 | 33.00 | 0.00 |
| Percentage Retained | 75% | 75% | 75% | 75% | 75% | 75% | 75% | 50% |
| Retained Value, \$ | 24.75 | 24.75 | 24.75 | 24.75 | 24.75 | 24.75 | 24.75 | 0.00 |
| Micros/qtr Utilized Capacity | 1,635,000 | 1,250,000 | 1,500,000 | 1,750,000 | 2,025,000 | 2,025,000 | 3,300,000 | 5,000,000 |
| <i>Prior</i> | | | | | | 2,025,000 | 5,000,000 | 5,000,000 |
| COGS Offset \$mm | 40.5 | 30.9 | 37.1 | 43.3 | 50.1 | 161.5 | 326.7 | 0.0 |
| NPV | \$1,350.76 | | | | | | | |
| \$/sh | \$9.81 | | | | | | | |

Source: Company filings, BofA Global Research estimates

BofA GLOBAL RESEARCH



Price objective basis & risk

Enphase Energy (ENPH)

Our \$72/share PO is based on an 75/25 weighted avg of EV/EBITDA and discounted cash flow (DCF) methodology - DCF embedded at 25% to keep the valuation anchored to the intrinsic valuation and EV / EBITDA at 75% to reflect the investor sentiment on the Cleantech space and ENPH. Weighted EV/EBITDA/share value is \$65 and weighted DCF/share is \$53. We add an incremental \$10/share of NPV value from IRA credits (12.5% discount rate through 2033).

EV/EBITDA approach:

- Comps based on solar Balance of System (BOS) universe given more tech differentiation and somewhat similar margin profiles
- ENPH at a premium multiple using relative premium observed to the rest of the BOS comp universe
- Average value between '24 and '25 implied EV/EBITDA valuation of '24 at 16.5x and '25 at 13.0x respectively vs our EBITDA est.

DCF approach:

- Derive FCFE by removing the contribution from stock-based compensation to FCF through 2030
- FCFE discounted by 12.5% given rising risk free rate expectations
- Given high growth and expanding opportunity set, we attribute a 20x terminal multiple

Downside risks: (1) execution risks around financial/growth targets, (2) product risks around performance, (3) competitive risk and ability to maintain share, (4) partner risk around reliance on contract manufacturers, (5) policy risk around shifts in subsidy and incentives for resi solar. Upside risks: (1) policy implementation supporting acceleration in solar adoption, (2) increase in organic US/Europe demand.

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 |

North America - Utilities and Alt Energy Coverage Cluster

| Investment rating | Company | BofA Ticker | Bloomberg symbol | Analyst |
|-------------------|---------------------------------|-------------|------------------|-----------------------|
| | 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 |
| | PPL Corporation | PPL | PPL US | Paul Zimbardo |
| | Public Service Enterprise Group | PEG | PEG US | Julien Dumoulin-Smith |
| | 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 | EVERG | EVERG 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 |
| | Portland General Electric Company | POR | POR 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 |



North America - Utilities and Alt Energy Coverage Cluster

| Investment rating | Company | BofA Ticker | Bloomberg symbol | Analyst |
|-------------------|----------------------|-------------|------------------|-----------------------|
| | 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

Quality of Earnings

Cash Realization Ratio

Asset Replacement Ratio

Tax Rate

Net Debt-To-Equity Ratio

Interest Cover

Valuation Toolkit

Price / Earnings Ratio

Price / Book Value

Dividend Yield

Free Cash Flow Yield

Enterprise Value / Sales

EV / EBITDA

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

Numerator

Cash Flow From Operations

Capex

Tax Charge

Net Debt = Total Debt – Cash & Equivalents

EBIT

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

Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill

Amortization

Shareholders' Equity

Sales

N/A

N/A

Denominator

Net Income

Depreciation

Pre-Tax Income

Total Equity

Interest Expense

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.

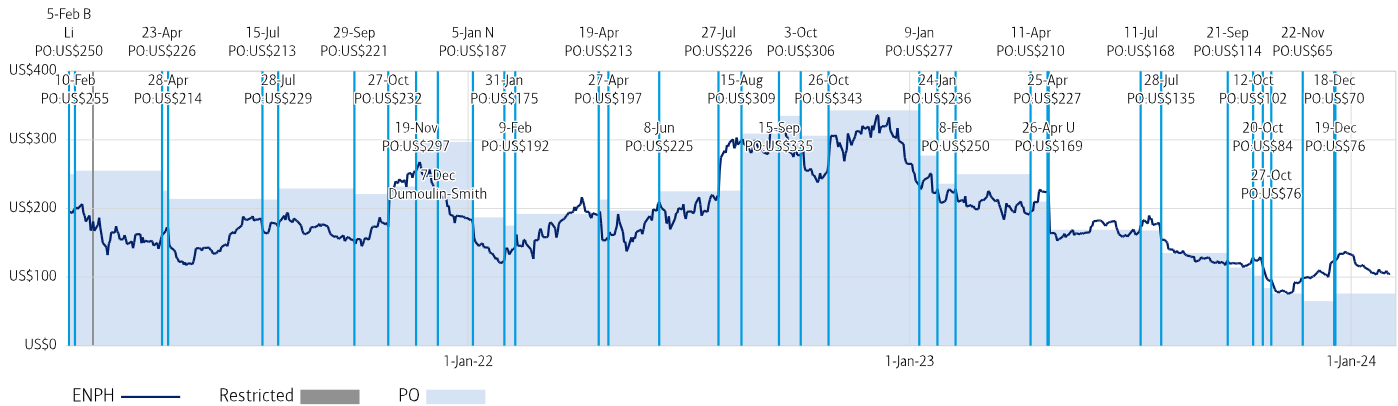
iQdatabase[®] is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Global Research.

iQprofileSM, **iQmethodSM** are service marks of Bank of America Corporation. **iQdatabase[®]** is a registered service mark of Bank of America Corporation.

Disclosures

Important Disclosures

Enphase Energy (ENPH) 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.

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: Enphase Energy.

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

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: Enphase Energy.

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: Enphase Energy.

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: Enphase Energy.

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 BofA 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.