

TPI Composites

Embracing Renewed Wind Demand: Reit Buy as Bounce off the Lows

Reiterate Rating: BUY | PO: 5.00 USD | Price: 3.08 USD

Inflection Ahead: Reiterate Buy Case on New Day in '25

We expect 2024 to be a year of transition with top line declining as six new lines start up and four lines transition. EBITDA improvement will likely be a function of overcoming operational challenges and returning to 'normalcy.' On balance, gradual delay in wind recovery has been an ongoing theme but reaching EBITDA inflection in '25 ('north of \$100Mn') should suffice to ease acute ongoing investor concerns around company viability. We believe that recent contract expansions and extensions with GE Vernova in Mexico and Nordex in Türkiye will be instrumental in driving growth in '25.

Key customers continue to indicate confidence into '24

Incremental demand keeps us comfortable with the fundamental inflection ahead. At the GE Vernova investor day mgmt. suggested that at the beginning of 2024, they are fully committed and have a line of sight to more than half of next year's volume (with a 10 pts higher margin). On EU colleagues' recent roadshow, Vestas mgmt. also, mentioned that there encouraging signs on demand across Europe and North America, and mgmt. are seeing rational behavior from peers in the market. See investor focus on Vernova spin in coming month as boding well for investors to revisit TPIC and its discounted valuation alongside its approaching recovery .

2025 increasingly derisked with orders

We flag further upside from an upsized domestic manufacturing footprint with GE, as incremental lines are GM and EBITDA accretive. Additionally, any concerns about transitioning lines are expected to be minimized by 2025. GE Vernova has streamlined its product variants, and earlier this year, it secured its largest onshore wind turbine order from the SunZia Wind project to supply 674 of 3.6MW-154m workhorse turbines. We feel assured that any potential line transitions should be relatively seamless, given TPIC have expertise in building this specific model. Stay slightly above Street '25 ests.

Valuation: Rolling forward to '25/'26, PO Stays at \$5/sh

We maintain our blended DCF / EV/EBITDA valuation methodology, and we roll forward our multiples-based method to 2025/ 2026. After a mark to market (MtM), we apply 4x / 2.5x to 2025 / 2026 (vs. 8x / 7.5x prior on 2024 / 2025) EBITDA. Maintain PO of \$5/sh. We continue to believe in the structural drivers of US wind demand and tailwinds from the IRA, particularly in meeting domestic content requirements. Reiterate Buy.

Estimates (Dec) (US\$)	2021A	2022A	2023E	2024E	2025E
EPS	(3.78)	(1.67)	(4.16)	(0.28)	1.75
GAAP EPS	(3.64)	(1.67)	(4.16)	(0.28)	1.75
EPS Change (YoY)	-600.0%	55.8%	-149.1%	93.3%	NM
Consensus EPS (Bloomberg)			(4.87)	(1.24)	(0.16)
DPS	0	0	0	0	0
Valuation (Dec)					
P/E	NM	NM	NM	NM	1.8x
EV / EBITDA*	250.3x	10.8x	NM	16.2x	4.2x
Free Cash Flow Yield*	-78.9%	-55.7%	-80.5%	43.6%	20.8%

* For full definitions of *IQmethod*SM measures, see page 11.

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Timestamp: 15 March 2024 06:50AM EDT

15 March 2024

Equity

Key Changes

(US\$)	Previous	Current
2023E Rev (m)	1,500.4	1,455.2
2024E Rev (m)	1,517.3	1,344.0
2025E Rev (m)	2,051.7	2,047.8
2023E EPS	-5.34	-4.16
2024E EPS	0.03	-0.28
2025E EPS	1.80	1.75

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Stock Data

Price	3.08 USD
Price Objective	5.00 USD
Date Established	6-Nov-2023
Investment Opinion	C-1-9
52-Week Range	1.63 USD - 13.68 USD
Mkt Val (mn) / Shares Out (mn)	146 USD / 47.2
Free Float	97.0%
Average Daily Value (mn)	3.37 USD
BofA Ticker / Exchange	TPIC / NAS
Bloomberg / Reuters	TPIC US / TPIC.OQ
ROE (2023E)	-149.2%
Net Dbt to Eqty (Dec-2022A)	-20.1%
ESGMeter TM	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".

IRA – Inflation Reduction Act

iQprofileSM TPI Composites

iQmethodSM – Bus Performance*

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Return on Capital Employed	-14.9%	-3.2%	-27.9%	6.1%	22.7%
Return on Equity	-57.7%	-19.1%	-149.2%	NM	NM
Operating Margin	-5.6%	-1.3%	-11.2%	2.5%	6.6%
Free Cash Flow	(115)	(81)	(117)	63	30

iQmethodSM – Quality of Earnings*

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Cash Realization Ratio	NM	NM	NM	NM	2.5x
Asset Replacement Ratio	0x	0.4x	0.9x	0.5x	5.6x
Tax Rate	NM	15.0%	NM	15.0%	15.0%
Net Debt-to-Equity Ratio	-44.9%	-20.1%	NM	NM	NM
Interest Cover	-7.2x	-4.4x	-13.5x	11.1x	44.5x

Income Statement Data (Dec)

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Sales	1,733	1,699	1,455	1,344	2,048
% Change	3.7%	-2.0%	-14.3%	-7.6%	52.4%
Gross Profit	(32)	24	(88)	68	185
% Change	NM	NM	NM	NM	173.7%
EBITDA	2	55	(86)	37	140
% Change	-97.5%	NM	NM	NM	282.4%
Net Interest & Other Income	(35)	(14)	3	(2)	(2)
Net Income (Adjusted)	(166)	(70)	(178)	(12)	75
% Change	-770.3%	57.8%	-154.1%	93.2%	NM

Free Cash Flow Data (Dec)

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Net Income from Cont Operations (GAAP)	(160)	(11)	(196)	28	115
Depreciation & Amortization	53	45	39	32	28
Change in Working Capital	(47)	(96)	33	50	68
Deferred Taxation Charge	17	11	(12)	0	0
Other Adjustments, Net	22	(12)	55	(29)	(24)
Capital Expenditure	0	(19)	(36)	(17)	(157)
Free Cash Flow	-115	-81	-117	63	30
% Change	-308.6%	29.4%	-44.4%	NM	-52.3%
Share / Issue Repurchase	5	(1)	(21)	0	0
Cost of Dividends Paid	0	0	0	0	0
Change in Debt	216	(9)	144	(21)	0

Balance Sheet Data (Dec)

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Cash & Equivalents	242	134	161	204	234
Trade Receivables	158	185	138	122	187
Other Current Assets	252	327	204	204	208
Property, Plant & Equipment	170	137	129	114	243
Other Non-Current Assets	178	180	172	170	168
Total Assets	999	962	804	814	1,039
Short-Term Debt	66	60	70	50	50
Other Current Liabilities	403	397	316	349	486
Long-Term Debt	8	1	415	415	415
Other Non-Current Liabilities	157	144	125	125	125
Total Liabilities	635	602	926	939	1,076
Total Equity	373	360	(122)	(125)	(37)
Total Equity & Liabilities	1,008	962	804	814	1,039

* For full definitions of iQmethodSM measures, see page 11.

Company Sector

Alternative Energy

Company Description

TPI Composites (NASDAQ: TPIC) is an independent manufacturer of composite wind turbine blades. TPIC has sold over 65,000 wind blades to some of the largest wind turbine original equipment manufacturers (OEM), including Vestas, GE, Nordex, and Enercon. TPIC is headquartered in Scottsdale, Arizona and employs over 15,000 associates across 19 facilities in the US, China, Mexico, Türkiye, Denmark, India, and Germany. TPIC has also begun applying its composite technology to the transportation market.

Investment Rationale

While near-term challenges remain, early indications of a recovery are now clear following passage of US IRA legislation last year. We see orders for new manufacturing lines as a prelude to improving utilization and order ramp coming in the 2025-2026 period. Sizable operating leverage improves EBITDA off low single digits seen in 2023 (2-3%) towards 6%+ EBITDA margin in coming years. Structural rate of change drives our Buy rating.

Stock Data

Average Daily Volume 1,113,604

Quarterly Earnings Estimates

	2022	2023
Q1	-0.71A	-0.72A
Q2	-0.48A	-1.90A
Q3	-0.39A	-1.71E
Q4	-1.00A	0.15E

Looking through 2024, inflecting recovery from 2025

At our 2024 Utilities & Clean Energy Conference, Mgmt. reiterated that they feel confident about reaching the \$100 million EBITDA level (and margins in the high single digits), especially with no transitions planned for 2025. We think this should suffice to ease acute ongoing investor concerns around company viability. We believe that recent contract expansions and extensions with GE Vernova in Mexico and Nordex in Türkiye will be instrumental in driving growth in 2025.

We think 2024 will be a transitional year for TPIC, where the turnaround is expected to stem largely from overcoming operational challenges and returning to 'normalcy', rather than solely relying on incremental demand. Profitability is set to pivot from mid-single digit losses in H1 to mid-single digit profits in H2. This shift is attributed to the resolution of Proterra impairment charges and warranty obligations, coupled with proactive cost reduction efforts that counteract inflationary pressures. Liquidity has been a concern for investors, but we believe this has largely been resolved, with the recent refinancing of Oaktree's Series A Preferred Stock holdings.

Industry data points to an improved demand picture

Industry data suggests US onshore wind buildout will grow from 8.5GW in 2024 to ~14GW or more. Commentary from OEMs are broadly in line. Last month, BofA hosted Vestas management for a roadshow on the East Coast. It seems clear that after several very challenging years, execution is moving in the right direction. There are encouraging signs on demand across Europe and North America, and management are seeing rational behavior from peers in the market. Management highlighted there has been a major shift of commercial mentality across the market in the past few years, with better pricing, improving risk management on contracts and less aggressive competitiveness on terms and conditions of contracts. Recent commentary and/or datapoints from key customers corroborates this.

GE Vernova mgmt. also pointed to demand visibility improving at their analyst day. Entering 2022, GE Vernova had half of that year's backlog, with very little for the next year in hand. At the beginning of this year however, they are fully committed and have a line of sight to more than half of next year's volume (with a 10 pts higher margin). Similarly, Nordex's expanding backlog appears set to lift 2024-26 profitability. Nordex reported 4Q orders of 2.5 gigawatts -- up ~30% vs. 4Q22. We think improved visibility will enable key customers to position themselves accordingly with TPIC.

Overall, the demand picture looks to be improving at a time when the OEMs have rationalised product portfolios and have become more disciplined in their commercial approach which is encouraging.

GE Vernova partnership is key to execution

At GE's investor day, mgmt. noted that their current strategy is largely focused on the US onshore market. We think TPIC's capacity are well equipped to meet these needs, where they have the lions share. TPIC continues strengthening its relationship with GE, regarding its domestic manufacturing facility in Newton, IA, which is expected to begin production in 2024. They also recently extended 10 lines with GE in Mexico through 2025. After this transaction we TPIC will have 14 lines with GE in Jaurez generating a little more than 1GW at each of the three facilities. Production will ramp up in Q1 2024 with revenue ramping in Q2 2024. Separately, we think the US and Mexico manufacturing footprint is a competitive advantage post the IRA, particularly in meeting domestic content requirements.



2025 largely derisked with a limited number of transitions tabled

As per the recent GE Vernova analyst day, mgmt highlighted that have reduced their number of product variants. For the recent SunZia project in New Mexico (the largest project in U.S. history) GE Vernova will supply 674 3.6MW 154-meter rotor Workhorse turbines. We feel assured that TPIC have expertise in building this specific model where any potential line transitions should be relevantly quick and seamless. TPIC mgmt. also suggested that they do not foresee any significant line transitions for 2025. Separately, we think the recent GE Vernova spin will increase visibility for TPIC as investors look to better understand comps.

Estimate Revisions & Outlook Updates

We update our TPIC model after 4Q23 results and reflect the still inflecting outlook from 2025 onward. We reduce our expectations for FY24, falling near the middle of TPIC's topline guidance (\$1.3-1.4 bn). On the pricing side, we do expect TPIC are benefitting from higher ASPs due to inflation and the composition of the blade mix. Essentially, they have repriced every quarter based on market pricing of raw materials, which have come down from their peak post pandemic. We have implied ASPs per MW increasing from \$123,000 to \$130,000.

On volumes, previously, mgmt. expected a weaker outlook in 2023, due to muted demand and operational difficulties, but the latest update suggests an acceleration towards the end of 2024 and into 2025. We believe that recent contract expansions and extensions with GE Vernova in Mexico and Nordex in Türkiye will be instrumental in driving volume growth in 2024.

We maintain in utilization rates for 2024 below levels of 2023 (sub 80%). Our earlier conversations suggested that TPIC was looking for softer utilization rates in 2024 vs. 2023 on lines in transition/ start up. Currently, TPIC are operating 37 lines (including the four for Nordex and Matamoros that will transition back in mid-2024) as well as six new lines starting up and four lines transitioning, all in 2024.

For 2025, latest guidance suggests improving utilization (85-90%). Ultimately, TPIC believes it will increase its blade volume from continuing operations y/y. We see the emerging signs of industry recovery, especially in combination with the latest update from Vestas and GE and its burgeoning wind pipeline. See commentary above.

Liquidity has been a focus area for investors, but we believe this has largely been resolved. TPIC concluded the year with unrestricted cash totaling \$161.1mn. The recent refinancing of Oaktree's Series A Preferred Stock holdings has bolstered the balance sheet, providing an approximate \$190mn boost throughout the loan's tenure. This move not only reduced future obligations by up to \$90mn but also grants enhanced financial flexibility in 2024. We have a strengthening cash position of \$204mn in 2024. We also raise our estimates to reflect capex guidance of \$25 million to \$30 million, with about half related to startups and transitions expense.

EBITDA margin inflection ahead, expansion is upside`

We highlight latest guidance from mgmt. that it believes TPIC can achieve EBITDA margins in the range of 1% to 3% for the full year 2024. While we do not model quarterly estimates, adjusted EBITDA margin is expected to be a mid-single-digit loss in the first half and mid-single digits in the second half. We reduce our estimates to reflect this, while increasing COGS slightly to better align with guidance. While raw material costs continue to decline from 2023 levels, logistics costs have returned to pre-pandemic norms due to the ongoing Red Sea situation.

For 2025, management reiterated they are on a trajectory to get back to EBITDA levels north of \$100 million in 2025 into our target EBITDA margin of high single digits. We presently model 2.7% adj. EBITDA margins, which is 1.5ppt ahead of consensus. Arguably, TPIC still has room to outperform our expectations next year. We credit 7%

adj. EBITDA margins in 2025, and we see latitude for further expansion to low double digit in 2026 and 2027.

We see upside to '25 and beyond on not just improved operating leverage but actual upside relative to high single digit guidance once achieved 44-lines. On balance we view estimates as conservative. This EBITDA margin accretion is possible without further manufacturing line expansions, and we flag potential through the decade. EBITDA growth and expansion remains underappreciated by the Street and supports our continued optimism.

Exhibit 1: BofA Updated Estimates vs Prior Expectations and Consensus

Tweaking estimates modestly lower on '24, but largely holding the line on '25 – remain above Street still on both on critical EBITDA margin line... and below the high single digits 'guide' previously articulated too.

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
	12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027
Revenue Drivers						
MWs Produced	-	-	-	-	-	-
Prior	12,094	11,369	9,870	13,693	13,658	13,940
Consensus - Visible	12,637	11,345	11,354	13,693	13,658	13,940
Alpha	11,685	11,382	11,021	12,944	13,595	15,068
Manufacturing lines installed	-	-	-	-	-	-
Dedicated	29	37	26	39	42	42
manufacturing lines	36	37	36	42	42	42
Consensus - Visible	40	37	36	39	39	39
Alpha	40	37	36	39	39	39
Utilization	98%	87%	78%	86%	85%	85%
Prior	85%	81%	77%	86%	85%	85%
Blade Capacity	-	-	-	-	-	-
Capacity per Line	-	-	-	-	-	-
Installed (MW)	-	-	-	-	-	-
Consensus - Visible	-	85%	-	-	-	-
Alpha	-	80-85%; Prior: 85-90% (based on 37 lines installed)	75-80% on 36 lines	-	-	-
Guidance	-	-	-	-	-	-
ASP (\$ 000's/blade)	130	123	130	144	142	142
Consensus - Visible	130	123	130	144	142	142
Alpha	130	123	130	144	142	142
Revenue (\$mn)	1,698.8	1,455.2	1,344.0	2,047.8	2,033.1	2,094.8
Prior	1,703.0	1,500.4	1,517.3	2,051.7	2,037.7	2,100.4
Consensus - Visible	1,703.0	1,500.4	1,517.3	2,051.7	2,037.7	2,100.4
Alpha	1522.7	1455.2	1353.1	1660.1	1774.1	1931.9
Guidance	1522.7	\$1.5 bn; Prior: '\$1.525-1.575 bn, \$1.6-1.7 bn	\$1.3 - 1.4bn	1660.1	1774.1	1931.9
COGS Drivers						
Cost of Sales (% of rev)	97%	103%	94%	90%	90%	90%
Prior	96%	103%	93%	90%	90%	90%
Cost of Sales - Consensus	-	105%	97%	93%	93%	94%
Cost of Sales	1,640.9	1,500.9	1,263.3	1,843.0	1,809.4	1,864.4
Startup and Transition Costs	33.7	14.2	13.1	20.0	19.8	20.4
Total Cost of Goods Sold	1,674.6	1,515.1	1,276.5	1,863.0	1,829.3	1,884.8
Consensus	1,674.6	1,515.1	1,276.5	1,863.0	1,829.3	1,884.8

Exhibit 1: BofA Updated Estimates vs Prior Expectations and Consensus

Tweaking estimates modestly lower on '24, but largely holding the line on '25 – remain above Street still on both on critical EBITDA margin line... and below the high single digits 'guide' previously articulated too.

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Cost of Sales	1482.4	1522.5	1306.1	1546.1	1645.5	1816.0
Startup and Transition Costs	25.7	20.2	41.5	34.8	29.8	39.4
Total Cost of Goods Sold	1508.1	1542.7	1345.8	1579.6	1675.3	1855.4
GM%	1.4%	-6.0%	5.0%	9.0%	10.0%	10.0%
Prior	1.7%	-4.2%	5.8%	9.1%	10.1%	10.1%
GM% Consensus		-6.0%	0.2%	4.8%	5.6%	4.0%
Adj EBITDA	55.0	-85.9	36.6	140.0	232.3	239.1
Prior	59.2	-72.4	59.8	145.4	204.3	209.9
Adj EBITDA Consensus	55.7	-89.8	16.2	85.8	94.5	87.6
Adj EBITDA Margin	3.2%	-5.9%	2.7%	6.8%	11.4%	11.4%
Adj EBITDA Margin Consensus		-6.2%	1.2%	5.2%	5.3%	4.5%
Adj. EBITDA Growth, %		-256.3%	-142.6%	282.4%	65.9%	2.9%
Guidance		Loss of ~5%; Prior: Loss of <1%, Low single digit	High single digits			

Source: BofA Global Research estimates, Visible Alpha

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Valuation

We apply modest estimate changes, and we continue to calculate our PO with a 50-50 blend between DCF value and EV/EBITDA and roll our EV/EBITDA valuation to an average of 2025E / 2026E from 2024E / 2025E prior. We mark to market (MtM) our peer group EBITDA multiples and maintain our DCF assumptions. Maintain PO of \$5/sh.

Exhibit 2: TPIC DCF Valuation Update

We maintain our DCF assumptions and keep our blended discount rate at 22%

TPIC DCF Valuation	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Free Cash Flows (\$Mn) (Cash from Operations minus CapEx)	\$63	\$30	\$146	\$188	\$186	\$206	\$209
Less: Stock Based Compensation	\$9	\$14	\$14	\$14	\$15	\$15	\$16
Adjusted Free Cash Flows (\$Mn)	\$54	\$16	\$133	\$174	\$171	\$190	\$193
Increase in Net Debt (-) New Issuances	(\$21)	\$0	\$0	\$0	\$0	\$0	\$0
Free Cash Flows to Equity (\$Mn)	\$34	\$16	\$133	\$174	\$171	\$190	\$193
Discount Factor	0.82	0.67	0.55	0.45	0.37	0.30	0.25
Discounted Free Cash Flows	\$28	\$11	\$73	\$79	\$63	\$58	\$48

Discount Rate	22%
Shares Outstanding	42.7
DCF Value through '30	\$359
DCF Value through 25	\$39
Terminal Value	
Terminal Exit Multiple	5.0x
Discount Factor	0.25
Terminal Value	\$967
PV of Terminal FCFE Value	\$154
Less: Recourse Debt (incl Preferred)	(\$485.2)
More: Cash on Balance Sheet	\$161.1
Net Cash / (Debt)	(\$324)
Total FCFE	\$189

Shares O/S (Fully Diluted) 42.7

Exhibit 2: TPIC DCF Valuation Update

We maintain our DCF assumptions and keep our blended discount rate at 22%

TPIC DCF Valuation	2024E	2025E	2026E	2027E	2028E	2029E	2030E
DCF Value/Share	\$4.50						
Price as of close 03/12/2024	3.08						
Implied Upside/Downside	46.10%						

Source: BofA Global Research estimates

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We roll forward our EV/EBITDA valuation methodology to be an average of 2025 and 2026 EV/EBITDA. We apply a 3x discount to peer group average multiples. TPIC's comparable universe is significantly larger, international wind companies, and in our view, it is appropriate to apply a discount to account for TPIC's higher risk profile and the stock's relative illiquidity. After a MtM, we apply 4x / 2.5x to 2025 / 2026 EBITDA. Coupled with modest estimate revisions, our growth-based valuation implies \$5/sh.

Exhibit 3: TPIC EV/EBITDA Valuation

EV/EBITDA valuation reflects (1) 2025/ 2026 valuation methodology and (2) a discount to wind peers, given TPIC's relative illiquidity and risk profile.

TPIC EV/EBITDA Valuation

Revenues	2025	2026
Blades	\$1,972	\$1,939
Others	\$76	\$94
Total	\$2,048	\$2,033
Gross Profit	\$185	\$204
EBITDA	\$140	\$232
EV/EBITDA	4.0x	2.5x
Premium (Discount)	-3.0x	-3.0x
Value (implied)	\$560	\$581
Net (Debt) Cash	(\$324)	(\$324)
Equity Value	\$236	\$257
Shares Outstanding	43	43
Valuation	\$5.50	\$6.00
TPIC Share Price	\$3.08	
Valuation (Average of 2025 & 2026)		\$5.75

Source: BofA Global Research estimates

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We maintain our Buy rating on TPIC, as we look ahead to an inflecting recovery. We continue to expect further ramping manufacturing footprint throughout 2024. We look through 2024 and point to a strengthening topline in 2025 and a stepwise function improvement in the EBITDA profile. We flag further upside from expanded partnerships with existing customers, namely GE and the shared domestic manufacturing plans, as well as IRS guidance on credit interpretation. We await communication around expected demand improvement and domestic manufacturing footprint expansion. We continue to embed execution risk in TPIC's inflection and model at the midpoint of guidance. Even still, we see a structural growth story that is poised to benefit from Inflation Reduction Act. Buy.

Exhibit 4: Blended Valuation

After model updates and valuation refresh, our PO suggests upside to current levels

TPIC Valuation

	Value/Sh	Weight	Weighted Value		
DCF	\$4.50	50%	\$2.25		
EV/EBITDA	\$5.75	50%	\$2.88		
TPIC Value/Share			\$5.00		
Share Price (As of 03/12/24)			\$3.08	3/12/2024	\$3.08
Premium (Discount) to Unit Price			62.3%		
2023E Dividend Yield			0.0%		
Total Expected Return			62.3%	Last PO	\$5.00
				% Change	0.00%



Exhibit 4: Blended Valuation
After model updates and valuation refresh, our PO suggests upside to current levels

TPIC Valuation

Source: BofA Global Research estimates

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Price objective basis & risk

TPI Composites (TPIC)

Our \$5/share PO is based on a 50/50 weighted Discounted Cash Flow (DCF) and EV/EBITDA multiple methodology. Our DCF valuation is \$6.50/share and our EV/EBITDA valuation is \$3.75/share based on 2024E / 2025E.

DCF approach:

- We derive FCFE by removing the contribution from stock-based compensation to FCF from 2023 through 2030
- FCFE discounted by 22% cost of equity
- We apply a terminal multiple of 5.0x (compared to 10.0x for solar semiconductor stocks, given less technical differentiation in TPIC's 'built-to-spec' model and lower growth rate forecast compared to solar)

EV/EBITDA approach:

- We value TPIC on an average of '24 / '25 EV/EBITDA multiple of 5x / 4x, which is a -3x discount to peer averages

Upside risks: (1) Budget reconciliation and direct pay provisions significantly boosting the wind installation outlook, (2) TPIC tapping into the wind repowering market in a meaningful way, (3) inflation cycle in resin and other raw materials reversing sooner than expected, (4) transportation business growth via major customer announcements.

Downside risks: (1) Rising interconnection costs and tax-equity scarcity dampening the wind installation outlook further, (2) customers insourcing greater percentage of volume in light of declining demand, (3) TPIC customers ceding market share to the Chinese original equipment manufacturers (OEMs).

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
	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
	Evergy, Inc	EVRG	EVRG US	Julien Dumoulin-Smith
	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
	MDU Resources Group, Inc.	MDU	MDU US	Julien Dumoulin-Smith



North America - Utilities and Alt Energy Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	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	Julien Dumoulin-Smith
	Constellation Energy Corp	CEG	CEG US	Paul Zimbardo
	Duke Energy	DUK	DUK US	Julien Dumoulin-Smith
	Emera Inc	YEMA	EMA CN	Julien Dumoulin-Smith
	Essential Utilities	WTRG	WTRG US	Julien Dumoulin-Smith
	Exelon	EXC	EXC US	Paul Zimbardo
	Generac Holdings Inc.	GNRC	GNRC US	Julien Dumoulin-Smith
	Hydro One	YH	H CN	Julien Dumoulin-Smith
	Idacorp	IDA	IDA US	Paul Zimbardo
	Maxon Solar Technologies	MAXN	MAXN US	Julien Dumoulin-Smith
	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
	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
	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

North America - Utilities and Alt Energy Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	UGI Corp.	UGI	UGI US	Julien Dumoulin-Smith
	WEC Energy Group Inc	WEC	WEC US	Julien Dumoulin-Smith
RVW	New Fortress Energy	NFE	NFE 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

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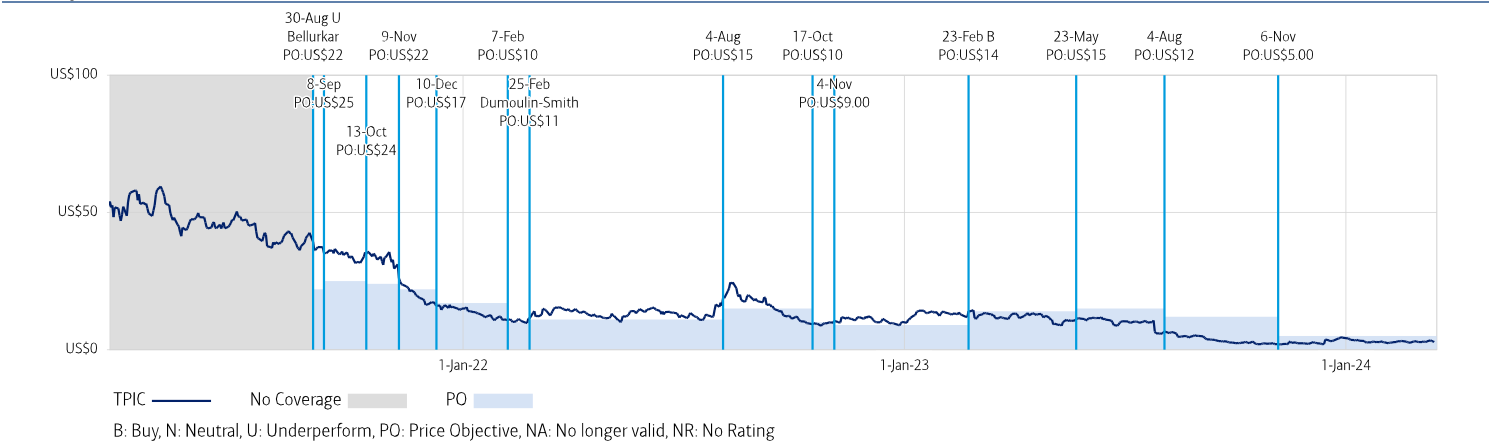
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TPI Composites (TPIC) Price Chart



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

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	8	47.06%	Buy	8	100.00%
Hold	5	29.41%	Hold	3	60.00%
Sell	4	23.53%	Sell	1	25.00%

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

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

^{R1} Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster ^{R2}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

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