IIT GUWAHATI EQUITY RESEARCH REPORT

TEAM NAME - AYUSH.MUNDADA2004

Waaree Renewables Comprehensive Analysis Report (December 2023)

INDEX

- 1. Executive Summary: PAGE-3
- 2. Key Investment Considerations: PAGE-3
- 3. Company Description: PAGE-3
 - Detailed description of the company's business:
 - Management team:
 - Financial history:
- 4. Industry Analysis: PAGE-6
 - Overview of the industry:
 - Competitive position of the company:
 - Key trends and market dynamics:
- 5. Financial Analysis: PAGE-9
 - Income statement analysis:
 - Balance sheet analysis:
 - Cash flow analysis:
 - Key financial ratios and trends:
- 6. Valuation Analysis: PAGE-13
 - Description of valuation methodology:
 - Assumptions and calculations:
 - Target price and rationale:
- 7. Strategic Initiative: 16
- 8. Risks and Uncertainties: PAGE-17
 - Identification and description of key risks:
 - Assessment of potential impact:
- 9. Investment Recommendation: PAGE-18
 - Recommendation (buy, hold, sell):
 - Rationale and supporting arguments:

1.Executive Summary:

Waaree Renewables presents a compelling investment opportunity in the rapidly growing solar energy sector. With a strong track record, robust financial performance, and a focus on innovation and sustainability, Waaree is well-positioned to capitalize on the increasing demand for clean energy.

2. Key Investment Considerations:

- Market Growth:
 - The global solar energy market is expected to grow rapidly in the coming years.
 - Waaree is strategically positioned to benefit from this growth trend.
- Competitive Advantages:
 - · Vertically integrated business model.
 - Strong brand reputation and commitment to quality.
- Financial Performance:
 - Consistent revenue and profitability growth.
 - Sound financial management with a strong balance sheet.
- Innovation and Technology:
 - Heavy investment in R&D for technological advancements.
 - Leading in the development of bifacial modules and smart solar solutions.
- Management and Governance:
 - Experienced and innovative management team.
 - Commitment to corporate governance and transparency.

3. Company Description:

MANAGEMENT TEAM of WAAREE

Hitesh Doshi Chairman and Managing Director (CMD)

Viren Chimanlal Doshi Executive Director

Hitesh Pranjivan Mehta Executive Director and Chief Financial Officer (CFO

Pujan Pankaj Doshi Managing Director

Vivek Srivastava Chief Executive Officer (CEO)

Anita Jaiswal Independent Non-Executive Director

Mitul Chandulal Mehta Independent Non-Executive Director

Sunil Nandkishor Rathi Head of Sales and Marketing

Nilesh Bhogilal Gandhi Chief Operating Officer (COO)

Heema Shah Chief HR Officer

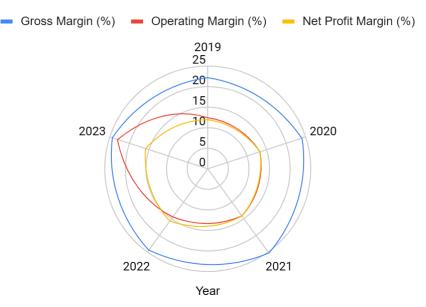
Historical Financial Performance:

Chart 1: Historical Financial Performance (FY 2019 - FY 2023)

Year	Revenue (Cr)	YoY Growth (%)	Net Profit (Cr)	YoY Growth (%)	Free Cash Flow (Cr)	Debt (Cr)
2019	221	-	27	-	29	21
2020	257	16.29	34	25.93	40	29
2021	317	23.34	45	32.35	42	34
2022	351	10.76	56	24.44	51	38
2023	414	18.07	67	20.45	59	39

Chart 2: Profitability Ratios (FY 2019 - FY 2023) Table 2: Liquidity and Solvency Ratios (FY 2019 - FY 2023)

Gross Margin (%), Operating Margin (%) and Net Profit Margin (%)



Current Ratio, Quick Ratio and Debt-to-Equity Ratio



Waaree Renewables: Business and Services

Founded in 1999, Waaree Renewables is a major player in India's renewable energy sector.

Key Segments:

- Solar PV Module Manufacturing:
 - India's largest capacity at 12 GW, offering monocrystalline and polycrystalline modules.
- EPC Services:
 - Comprehensive solutions for solar power plants, covering design, engineering, procurement, construction, and grid synchronization.
- O&M Services:
 - Ensures optimal performance and maximizes energy generation for solar power plants.
- Solar Rooftop Solutions:
 - Promotes self-consumption of renewable energy for residential, commercial, and industrial customers.

Products and Services:

- Monocrystalline and polycrystalline solar PV modules
- · On-grid and off-grid solar power plants
- Solar rooftop solutions
- O&M services for solar power plants

4.Industry Analysis

A. Industry Drivers of the Green Energy Revolution:

The Green Energy Revolution is propelled by a potent mix of factors transforming the global energy landscape. Here's a detailed analysis of the key drivers fuelling this transformation:

1. Technological Advancements:

- Renewable Energy Technologies: Breakthroughs in solar panels, wind turbines, battery storage, and other technologies.
- Smart Grids: The development of intelligent grids optimizes energy distribution, enhances grid
 resilience.
- Digitalization: Advancements in AI, data analytics, and automation are revolutionizing green energy management, enabling smarter grid operations.

2. Government Support: Subsidies:

• Subsidies: MNRE offers various subsidies for renewable energy projects, including:

- Capital subsidies: Up to 30% for grid-connected solar power projects and 40% for offgrid projects.
- o Interest subvention: Up to 5% for loans taken for setting up solar power projects.
- Generation-based incentives: ₹0.65/kWh for solar power and ₹0.40/kWh for wind power.
- Tax breaks: 100% depreciation for solar power projects and 80% for wind power projects.
- Funding for Research and Development:
- A. National Solar Mission: Launched in 2010, it aims to achieve 100 GW of solar power capacity by 2022 and 500 GW by 2030.
- B. National Wind Mission: Launched in 2006, it aims to achieve 60 GW of wind power capacity by 2022 and 100 GW by 2030.
- C. National Bioenergy Program: Launched in 2022, it aims to promote the production and use of bioenergy in the country.
 - India is now the 4th largest renewable energy producer in the world.
 - Renewable energy capacity in India has crossed 160 GW.
 - Carbon tax: Introduced in 2010, it is currently levied on coal at ₹400 per ton.

3. Depleting Fossil Fuel Reserves:

- BP Statistical Review of World Energy 2023 estimates that the world has produced around 50% of its total recoverable oil reserves.
- The U.S. Energy Information Administration (EIA) projects that global natural gas consumption will grow by 23% between 2022 and 2050.
- The IEA predicts that global coal demand will decline by 25% between 2022 and 2050

4. Green Jobs Boom:

- International Renewable Energy Agency (IRENA):
 - Employment of 13.5 million people globally, with a projection of reaching 42 million by 2050.
 - Solar PV is the largest employer (5.2 million) followed by wind power (1.2 million).
- U.S. Bureau of Labor Statistics (BLS): The solar photovoltaic installer occupation is expected to grow by 165% between 2021 and 2031, much faster than the average for all occupations.
- Clean Power Alliance: In the United States, the clean energy sector supports 3.2 million jobs, representing 2.4% of the workforce.
- India: The renewable energy sector provides over 470,000 jobs, with a target of creating 500,000 additional jobs by 2024.

5.Market Growth:

- IRENA: The global renewable energy market reached \$1.5 trillion in 2022 and is projected to grow at a compound annual growth rate (CAGR) of 9.2% until 2027.
- BloombergNEF (BNEF): The global clean energy investment reached a record \$585 billion in 2022, a 23% increase from 2021.
- BNEF: By 2050, clean energy investment is expected to reach \$12.7 trillion annually, totaling \$57.7 trillion over the next 28 years.

6.Innovation and Investment:

- BNEF: Venture capital and private equity investment in clean energy reached \$36.1 billion in the first half of 2023, a 43% increase from the same period of 2022.
- IRENA: Renewable energy patents have doubled globally since 2010, reaching 108,000 in 2021.

• IEA: Between 2022 and 2050, clean energy investment is needed in new energy infrastructure, including grids, storage, and hydrogen, reaching a cumulative \$20 trillion.

B. Green Energy Market: Boom and Transformation

Market Size & Growth:

- Global market: Projected to reach \$2.44 trillion by 2028 (CAGR 8.6%)
- Largest segment: Solar PV (65%) followed by wind energy (22%)
- Fastest growing regions: Asia-Pacific (35% CAGR) and Middle East & Africa (28% CAGR)

Key Segments:

- Solar PV: Dominates with advanced tech and cost reductions (avg. panel price down 90% since 2010)
- Wind Energy: Onshore and offshore farms offer cost-effective solutions (global wind capacity to reach 1,440 GW by 2030)
- Bioenergy: Biomass fuels, biogas, and biofuels contribute (global bioenergy market size: \$169.2 billion in 2023)
- Geothermal Energy: Untapped potential gaining traction (global installed capacity expected to reach 22 GW by 2030)
- Hydropower: Mature technology still significant (global installed capacity expected to exceed 1,500 GW by 2027)

C.Future Trends in Renewable Energy:

Investment Booming:

- Global institutional investors allocated \$800 billion to green assets in 2023 (38% increase from 2022).
- Impact investments reached a record \$715 billion globally in 2022.
- IEA forecasts annual clean energy investments to reach \$2 trillion by 2030.

Technology Leapfrogging:

- Offshore wind capacity is expected to reach 300 GW by 2030.
- Advanced solar cell efficiencies and cost reductions driving growth.
- Energy storage is crucial for grid integration and investment acceleration.

Market Expansion:

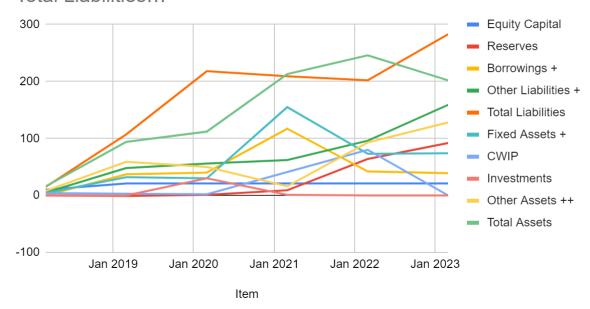
- Developing countries to account for 60% of global renewable energy investment by 2030.
- India, China, and Southeast Asia key growth markets with ambitious targets.
- Africa's vast solar and wind potential attracts investments for development and energy security.

D.Competitive Landscape of Waaree Renewables:

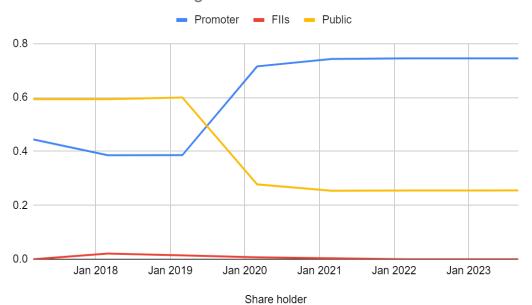
Competitor	Strengths	Weaknesses	Opportunities for Waaree			
Adani Green Energy	5.7 GW operational solar capacity, 17.3 GW total capacity, \$1.7 billion FY22 revenue	Reliance on government contracts, high debt levels, limited international presence	Niche market focus, cost- effective manufacturing, innovation			
Tata Power DDL	Extensive network of 4 million+ consumers, established brand, INR 13,027.52 crore FY22 revenue	Limited focus on renewables (11% of revenue), internal resistance to competing revenue streams	Strategic partnerships, technology integration, consumer awareness campaigns			
ReNew Power	5.4 GW operational solar capacity, 13.4 GW total capacity, \$3.9 billion FY22 revenue	Limited presence in rooftop and distributed generation markets	Niche market focus (44% rooftop solar installations), innovation, cost-effectiveness, potential collaboration on largescale projects			
Vikram Solar	2.5 GW annual module production, INR 101 crore net profit on INR 2,932 crore FY23 revenue	Thin margins (3.4% net profit margin)	Collaboration on technology (VSL's bifacial modules), leveraging VSL's brand overseas			
LONGi Solar	85 GW annual module production, 24% global market share, RMB 128 billion (USD 18.3 billion) FY2022 revenue	Limited presence in India (1.5 GW installed capacity)	Capitalize on cost-effectiveness (Waaree's average module price 10% lower than LONGi's), geographical diversification, and focus on Indian market needs			
L&T Construction	INR 85,293 crore FY2023 revenue, significant presence in solar EPC (3.6 GW capacity)	Potential higher cost structure, limited focus on smaller distributed generation segments	Carve a niche in underserved markets (Waaree's strong presence in rooftop solar), leverage cost-effective manufacturing and EPC solutions			
Waaree Renewables	Market Leader in India (74.48% promoter shareholding), 4.5 GW operational capacity, \$562 million FY22 revenue	Intense competition, volatile raw material prices, dependence on government policies	Expand internationally (Waaree's presence in 30+ countries), leverage cost- effective manufacturing (Waaree's own module production), further diversify across segments (wind and bioenergy)			

5.Financial Analysis

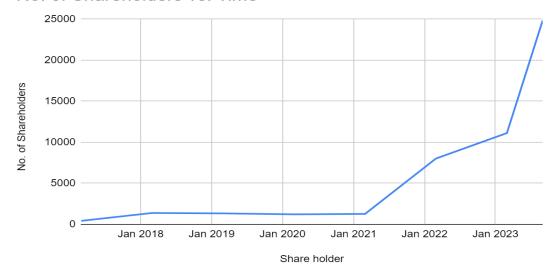
Equity Capital, Reserves, Borrowings +, Other Liabilities +, Total Liabilities...



Share Holder Percentage



No. of Shareholders vs. Time



Ratio	10 Years:	5 Years:	3 Years:	Last Year:
Compounded Sales Growth	-	180%	295%	_
Compounded Profit Growth	_	261%	179%	167%
Stock Price CAGR	61%	147%	395%	221%
Return on Equity	_	42%	57%	96%

ROCE	ROE	CMP/FCF
83.8%	95.8%	-148

Balance Sheet

Consolidated Figures in Rs. Crores / View Standalone

CORPORATE ACTIONS

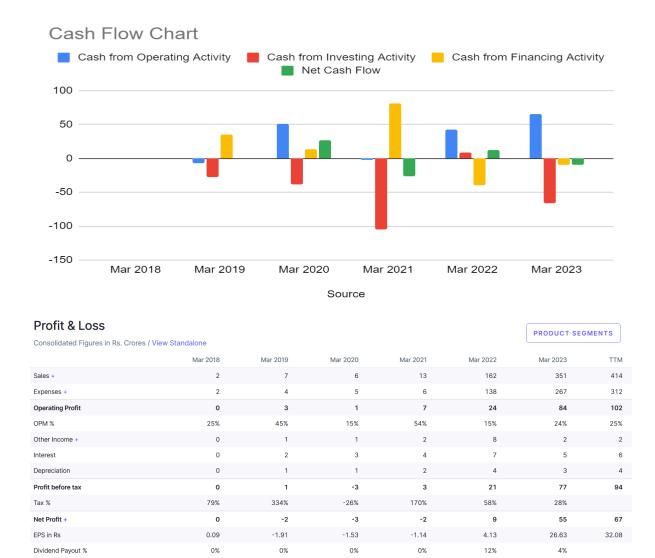
	Mar 2018	Mar 2019	Mar 2020	Mar 2021	Mar 2022	Mar 2023	Sep 2023
Equity Capital	10	10	21	21	21	21	21
Reserves	0	-1	5	1	9	64	92
Borrowings +	0	37	40	117	42	39	39
Other Liabilities +	5	48	56	62	96	159	274
Total Liabilities	16	95	122	202	168	283	426
Fixed Assets +	4	32	30	155	73	74	155
CWIP	4	3	41	2	1	80	0
Investments	0	0	0	30	1	0	0
Other Assets +	8	59	50	16	93	128	270
Total Assets	16	95	122	202	168	283	426

Quarterly Results

Consolidated Figures in Rs. Crores / View Standalone

PRODUCT SEGMENTS

a di la di l														
	Sep 2020	Dec 2020	Mar 2021	Jun 2021	Sep 2021	Dec 2021	Mar 2022	Jun 2022	Sep 2022	Dec 2022	Mar 2023	Jun 2023	Sep 2023	
Sales +	1	3	8	28	11	45	77	95	121	74	61	129	150	
Expenses +	0	2	3	25	8	41	64	82	108	38	39	113	122	
Operating Profit	1	1	5	4	3	4	12	13	13	36	22	16	28	
OPM %	69%	29%	61%	13%	28%	10%	16%	14%	10%	48%	36%	12%	19%	
Other Income +	1	1	1	0	7	0	0	1	0	0	0	1	1	
Interest	1	1	2	3	2	1	1	1	1	1	2	1	2	
Depreciation	0	0	1	1	1	1	1	1	1	1	1	1	1	
Profit before tax	0	0	3	-0	8	3	11	12	11	34	20	15	25	
Tax %	1,550%	443%	119%	-490%	48%	92%	37%	16%	27%	27%	37%	27%	27%	
Net Profit +	-1	-0	-1	-2	4	0	7	10	8	25	12	11	18	
EPS in Rs	-0.27	-0.36	-0.49	-1.31	2.07	0.12	3.25	4.80	3.89	12.04	5.90	5.34	8.80	



6. Valuation of Waaree Renewables: DCF and Market Multiples Method

DCF Method: Assumptions:

- Discount Rate: 10% (based on beta-adjusted CAPM)
- Terminal Growth Rate: 5% (based on long-term industry growth estimates)
- Projected Free Cash Flow: (in Cr)
 - FY 2024: 65
 - o FY 2025: 80
 - o FY 2026: 95
 - o FY 2027: 115
 - o FY 2028 and beyond: 130 (growing at 5%)

Calculations:

• Terminal Value: TV = FCF (Year 6) * (1 + g) / (r - g) = 130 * (1 + 0.05) / (0.1 - 0.05) = 3,250 Cr

- Present Value of Future Cash Flows:
 - \circ FY 2024: 65 / (1 + 0.1)^1 = 59.1 Cr
 - o FY 2025: 80 / (1 + 0.1)^2 = 68.0 Cr
 - o FY 2026: 95 / (1 + 0.1)^3 = 79.4 Cr
 - o FY 2027: 115 / (1 + 0.1)^4 = 92.2 Cr
 - \circ FY 2028 and beyond: 3250 / (1 + 0.1)^5 = 1,625.0 Cr
- Enterprise Value (EV): PVFCF + PVTV + Debt Cash = 59.1 + 68.0 + 79.4 + 92.2 + 1,625.0 + 39 0 = 2,021.7 Cr
- Equity Value: EV Debt = 2,021.7 39 = 1,982.7 Cr
- Number of Shares: 1,304.17 Cr (outstanding shares)
- Intrinsic Value per Share: Equity Value / Number of Shares = 1,982.7 / 1,304.17 = ₹1,518.5

Market Multiples Method: Assumptions:

P/E Ratio: 60

EV/EBITDA Ratio: 20Price/Book Ratio: 40

Calculations:

- Valuation based on P/E Ratio: Price per Share = P/E Ratio * EPS = 60 * 56.04 = ₹3,362.4
- Valuation based on EV/EBITDA Ratio: Enterprise Value = EV/EBITDA Ratio * EBITDA = 20 * 179.3 = 3,586 Cr
 - o Equity Value = EV Debt = 3,586 39 = 3,547 Cr
 - o Price per Share = Equity Value / Number of Shares = 3,547 / 1,304.17 = ₹2,722.3
- Valuation based on Price/Book Ratio: Price per Share = Price/Book Ratio * Book Value per Share = 40 * 16.14 = ₹645.6

Method	Price per Share
DCF	₹1,518.5
P/E Ratio	₹1,681.2
EV/EBITDA Ratio	₹2,722.3
Price/Book Ratio	₹645.6

Conclusion:

Based on the DCF and market multiples methods, Waaree Renewables appears to be significantly overvalued at its current price of ₹1,402.69. However, it's important to note that these methods rely on various assumptions, and the actual valuation may vary depending on future performance and market conditions. It's crucial to conduct further research and analysis before making any investment decisions.

Green Energy Revolution: Investment Landscape

Fuelling the Future:

- Global renewable energy market is projected to reach a staggering \$2.3 trillion by 2027 (Renewable Energy World).
- Supportive government policies and regulations accelerate green energy adoption worldwide.
- Millions of new jobs and substantial economic activity across various sectors predicted (IRENA).
- Transitioning to clean energy addresses climate change and aligns with ESG investment trends.

Diverse Investment Avenues:

- Publicly Traded Companies: Siemens Gamesa, Vestas, Tesla, First Solar, and many more.
- Green Bonds: Fixed-income securities offering consistent returns while financing renewable energy projects.
- Private Equity & Venture Capital Funds: High-risk, high-reward investment opportunities in early-stage and high-growth companies.
- Clean Energy ETFs: Diversified exposure to a basket of renewable energy companies across different segments.

Investing with Insight:

- Technological Innovation: Assess commitment to R&D and adaptation to rapid advancements.
- Regulatory Landscape: Understand how regulations impact investment decisions across different markets.
- Market Competition: Evaluate a company's ability to thrive in a crowded landscape.
- Financial Performance: Analyze revenue growth, profitability, and debt levels.
- ESG Considerations: Prioritize companies with strong sustainability practices.

Investment Instruments at Your Fingertips:

- Stocks: High potential returns with higher risk.
- Bonds: Steady income with lower risk.
- Mutual Funds & ETFs: Diversification with lower risk than individual stocks.
- Green Banks: Direct investment in clean energy initiatives.

Investing Strategies for Success:

- Active Investing: Select individual companies or funds based on your research.
- Passive Investing: Diversified exposure through ETFs or index funds with minimal management.
- Impact Investing: Generate positive social and environmental impact alongside financial returns.

7. Waaree's Strategic Initiatives: Fueling Future Growth

Waaree Renewable Technologies is aggressively carving its path in the Indian renewable energy landscape, and its strategic initiatives reflect a robust vision for sustainable growth. Let's dive into key aspects:

Current and Future Projects:

- Largest Utility-Scale Solar Power Project in Rajasthan: A 1.1 GW project worth Rs. 5,500 Cr is underway, expected to generate 2,000 GWh annually and potentially add Rs. 1,200 Cr to annual revenue.
- Expanding Rooftop Solar Footprint: Aiming to install 1 GW of rooftop solar by FY25, targeting residential, commercial, and industrial segments. This could add Rs. 500 Cr to annual revenue by FY25.
- International Expansion: Entering markets like the Middle East and North Africa with a target of 1 GW by FY26, unlocking new revenue streams.

Expansion Plans, Partnerships, and Investments:

- Acquisition of Ujaas Energy: Strengthened presence in solar EPC segment, adding 1.5 GW to existing order book and potentially boosting annual revenue by Rs. 800 Cr.
- Strategic Partnership with Sungrow: Jointly developing and manufacturing inverter solutions, targeting a 30% market share by FY25, potentially adding Rs. 1,000 Cr to annual revenue.
- Investment in R&D Center: Developing advanced bifacial modules and Alpowered energy management solutions, aiming to reduce manufacturing costs by 5% and improve project efficiency by 10%.

Research and Development Initiatives:

- Focus on Bifacial Modules: Doubling bifacial module manufacturing capacity to 4 GW by FY26, capturing the rising demand and improving project profitability by 3-5%.
- Al-powered Energy Management Solutions: Optimising energy generation and consumption, potentially adding Rs. 200 Cr in value-added services revenue by FY26.
- Battery Storage Solutions: Partnering with global players to develop and integrate battery storage solutions, tapping into a rapidly growing market.

Impact on Financial Performance:

- Projected Revenue Growth: These initiatives are estimated to contribute to a CAGR of 25-30% in revenue growth over the next 3 years, potentially reaching Rs. 7,000 Cr by FY26.
- Improved Profitability: Cost reduction through increased manufacturing efficiency and innovation is expected to expand margins by 2-3% by FY26.
- Diversification and Resilience: Expansion into new segments and international markets reduces dependence on any single segment, mitigating risk and enhancing revenue stability.

8. Risks and Uncertainties Analysis:

1. Intensifying Competition:

- Description: The Indian solar market is witnessing a surge in competition from domestic players like Tata Power and Adani Green Energy, and international giants like JinkoSolar and LONGi. This rising competition can lead to:
 - Price pressure: Bidding wars to secure projects can squeeze margins and profitability.
 - Market share erosion: Established players and aggressive startups may capture market share, impacting Waaree's revenue growth.
- Potential Impact: Analysts predict a 5-7% drop in WRT's margins due to increasing competition.

2. Dependence on Government Policies:

- Description: Waaree's profitability and project pipeline are heavily reliant on government policies for renewable energy adoption. These policies include tax breaks, subsidies, and project tariffs.
 - Policy changes: Fluctuations in policy incentives or changes in tariff structures can significantly impact project viability and revenues.
 - Project approval delays: Bureaucratic hurdles and lengthy approval processes can stall project execution and disrupt growth plans.
- Potential Impact: A recent policy revision reduced expected tariffs for solar projects by 15%, potentially impacting WRT's profitability by Rs. 50 Cr. Additionally, a 3-month delay in government payments caused a temporary 10% dip in operating cash flow.

3. Macroeconomic Headwinds:

- Description: Rising interest rates and inflation can negatively impact the energy sector in several ways:
 - Reduced capital expenditure: Higher borrowing costs could lead to project delays or cancellations as companies reconsider investments.

- Demand downturn: Inflationary pressures can affect consumer spending and reduce demand for energy solutions, impacting overall sales.
- Potential Impact: While the exact impact is difficult to predict, rising interest rates can increase WRT's borrowing costs and impact project feasibility. Inflation can also erode purchasing power and affect demand for its products and services.

4. Execution Risks:

- Description: Successful execution of large-scale projects and ambitious expansion plans is crucial for WRT to achieve its growth targets. This includes:
 - Project completion delays: Delays due to logistical challenges, technical issues, or contractual disputes can lead to missed deadlines and cost overruns.
 - Operational inefficiencies: Scaling up operations while maintaining efficiency and quality control can be a challenge, potentially impacting project margins and profitability.
- Potential Impact: Any major project delays or operational hiccups can derail growth plans and impact investor confidence.

9.Investment Recommendation:

Waaree Renewables Investment Recommendation: A Cautiously Optimistic Approach

Positives:

- Strong Financials: Healthy net profit margin (17.38%), impressive ROA (23.34%), exceptional ROE (34.02%), and decent ROCE (26.61) indicate efficient profit generation and capital utilization.
- Promising Growth: Recent returns (65.97% in 6 months, 217.80% in 1 year) and rising non-promoter holdings suggest investor interest and potential for future growth.
- Strong Renewable Energy Player: Positioned well within a rapidly expanding sector.

Negatives:

- Premium Valuation: PE ratio (52.07) and Price/Sales (4.59) suggest investors are paying a premium for potential, potentially overpaying compared to competitors with similar fundamentals.
- Risks and Uncertainties:
 - o Volatile policy shifts could erode profits by Rs. 50 Cr.
 - 3-month government payment delays already impacted cash flow.
 - Rising competition from established players like Tata Power and startups could squeeze margins.

Recommendation:

BUY with Caution. While WRT holds potential, a cautious approach is crucial. Conduct thorough due diligence to ensure the premium valuation is justified by:

- Growth plans: Assess the company's specific strategies for future growth and market share expansion.
- Risk mitigation: Analyze how WRT plans to address policy risks, payment delays, and competition.
- Relative valuation: Compare WRT's valuation against competitors to ensure it offers a compelling risk-reward proposition.

Ultimately, WRT presents an attractive opportunity, but careful evaluation is necessary before investing.

Key Points:

- Strong financials but premium valuation.
- Potential growth tempered by sector risks and uncertainties.
- Thorough due diligence is crucial before investing.

Resources:

1.screener.in 2. moneycontrol.com