

EcoEdge Consulting Challenge

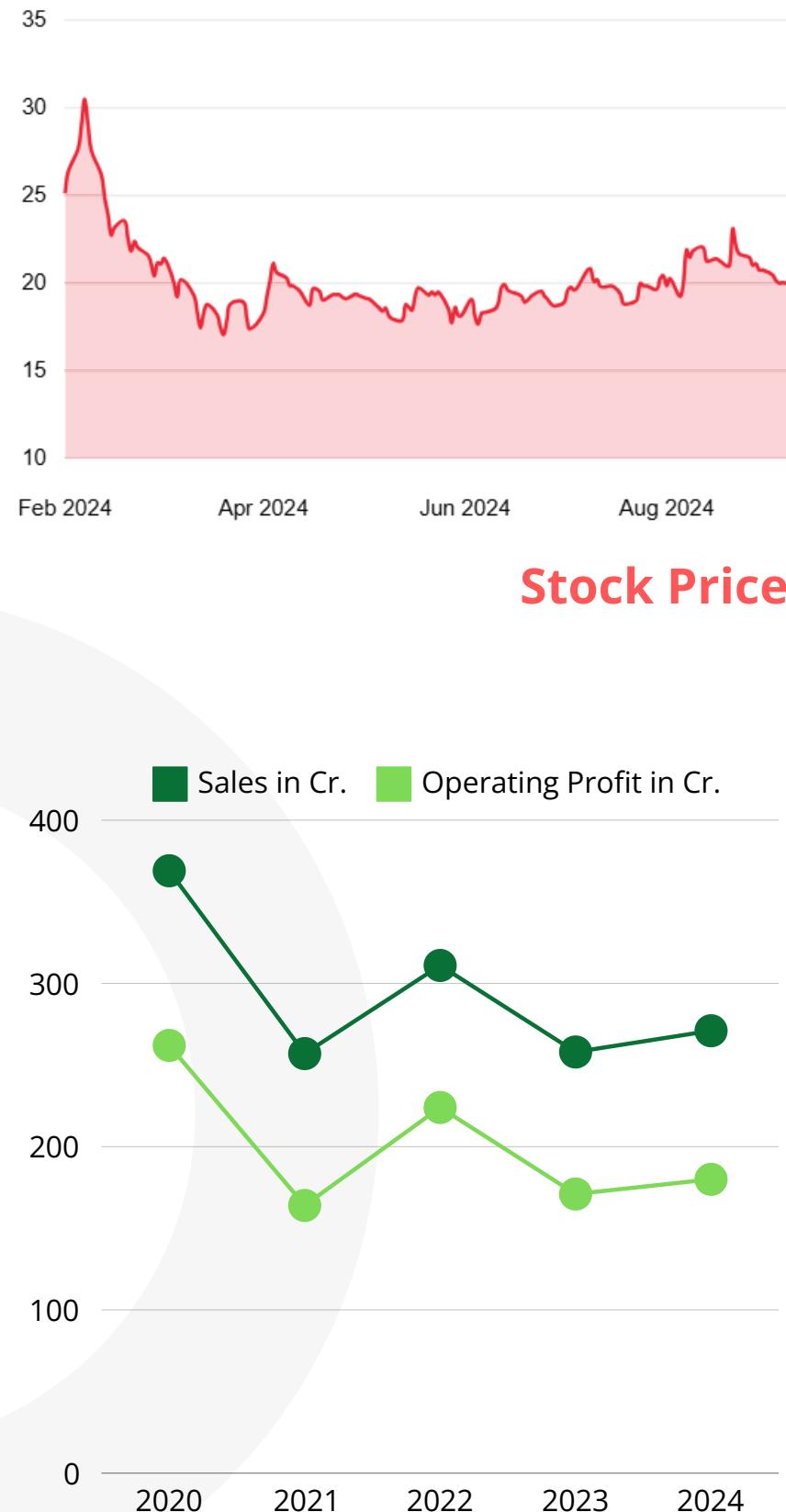
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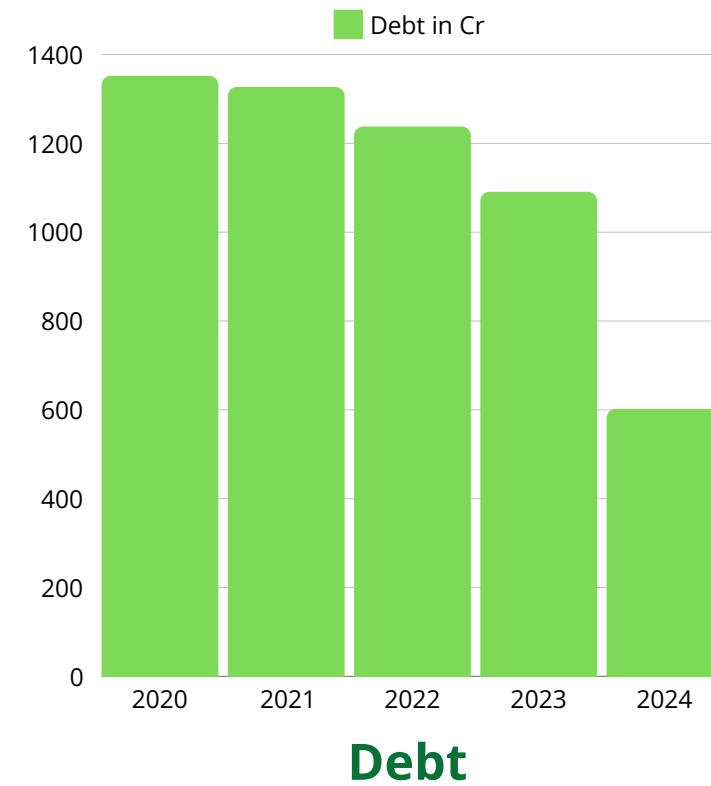
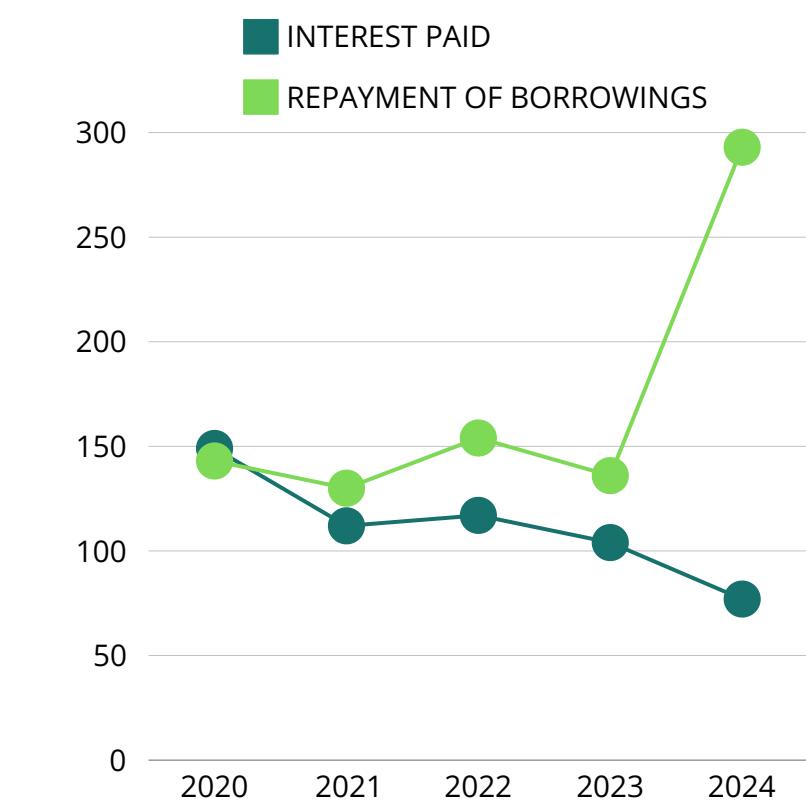
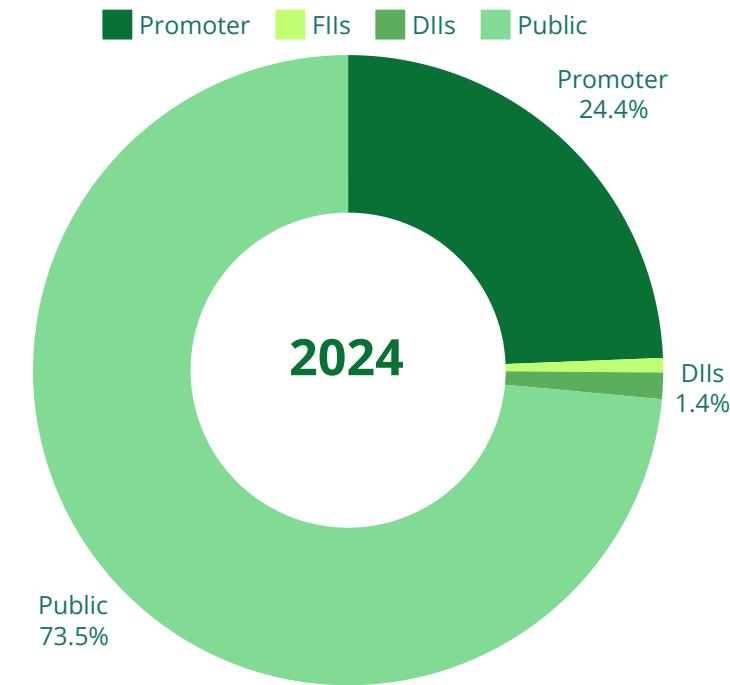
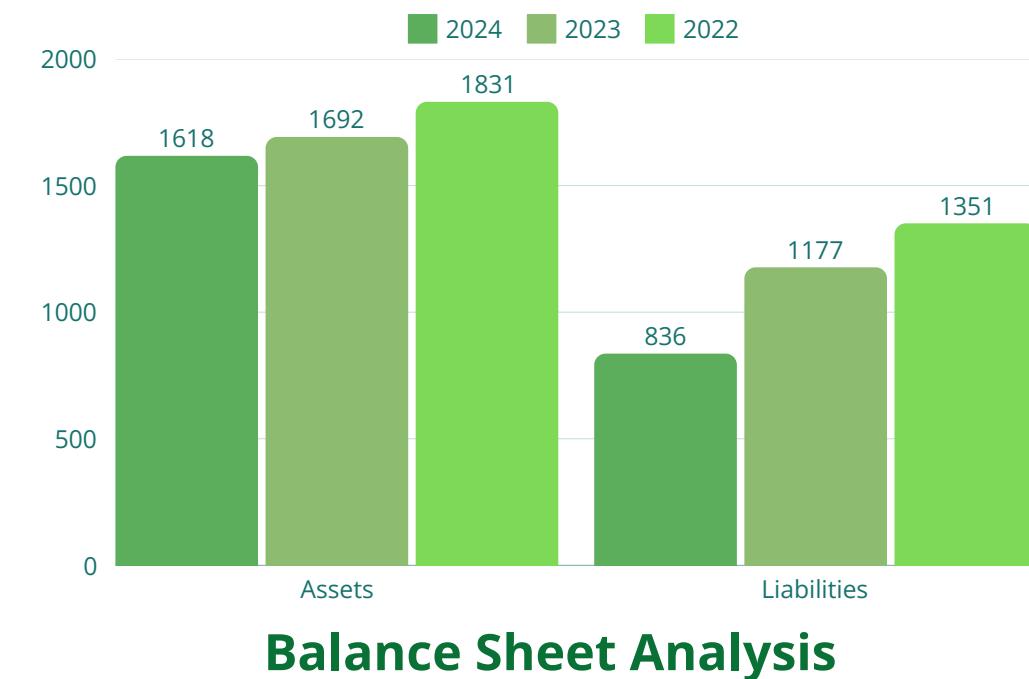
PROBLEM STATEMENT AND OVERVIEW

For the **EcoEdge Consulting Challenge**, choose **one of the failing, publicly listed green energy firms** in India. Identify its **ills**, contrast it with **good performers**, and provide **cost-efficient, sustainable remedial measures**. Design a **financial model**, define an **implementation schedule**, and convey **actionable insights** as a report and presentation. It will cover critical areas such as **selection of firm, identification of root causes for underperformance, and economic outlooks**.

We Chose Orient Green Power Ltd.



P/E	69.5
Debt to Equity	0.54
ROCE %	6.97
ROE %	4.44
Pledged %	3.50
OPM %	66
Int Coverage	1.35
Mkt Cap/Debt Cap	0.62



CONCERNS

- **Limited Growth Capital:** The company has been unable to compete effectively with its industry peers due to limited capital for expansion.
- **Stagnant Sales:** The company has experienced a **negative sales growth** of -3.47% over the last five years, which indicates a challenge in revenue generation.
- OGPL generates major of its profits during the September quarter, driven by increased wind activity in the **monsoon season**. Outside this period, the company faces lower profits or potential losses, highlighting its **seasonal reliance**.
- **High Valuation Concerns:** The company is trading at a high P/E ratio of **69.5**, significantly above the industry average of 25, while also sporting a low interest coverage ratio, raising concerns over valuation and financial flexibility.
- **Operational Shortcomings:** There is no Battery Energy Storage System (BESS), and the **maintenance of windmills and equipment is inadequate**, which can impact operational efficiency and long-term sustainability.



WHY ORIENT GREEN?

POTENTIAL

- **SVL Ltd (Originally incorporated as Shriram Industrial Holdings Limited)** is a valued investing partner of OGPL, bringing strategic expertise and robust financial support to advance sustainable energy initiatives, reflecting strong fundamentals.
- The company boasts a strong **Operating Profit Margin (OPM%) of 65%**, demonstrating its ability to **efficiently manage expenses**.
- The company's **significant debt reduction** over the past five years, from **Rs. 1352 Cr** in Mar'2020 **to Rs. 602 Cr** in Sept'2024, reflects its financial strength and strong potential for future expansion.
- OGPL has achieved remarkable improvements in its financial efficiency, **significantly reducing debtor days** and cash conversion cycle from **194 days** in 2022 to just **110 days** in 2024.
- **Offshore wind farms** remain an untapped opportunity for the company. Venturing into this sector could unlock new growth avenues and revenue streams.



Competitor Benchmarking

PROFITABILITY

	ORIENT GREEN POWER LTD	SUZLON ENERGY LIMITED	ADANI GREEN ENERGY LTD	SJVN LIMITED
PROFITABILITY	Profit Growth = - 12.8 %	Profit Growth = 136 %	Profit Growth = -12.8 %	Profit Growth = - 10.8 %
	OPM (3 YR)= 72 %, 66 % , 66 %	OPM (3 YR)= 14 %,14 %, 16 %	OPM (3 YR) = 68 %, 64 %, 79 %	OPM (3 YR) = 68 %, 47 %, 74 %
	PROFIT VAR.(5 YR) = 21.5 %	PROFIT VAR.(5 YR) = 19.7 %	PROFIT VAR.(5 YR) = 36.1 %	PROFIT VAR.(5 YR) = - 10.1 %
MARKET SHARE	1,765 Crore	78,762 Crore	1,57,950 Crore	38,315 Crore
OPERATIONAL EFFICIENCY	Tamil Nadu, Andhra P, GUJ, Karnataka	GUJ, RJ, Tamil N, AP, Karnataka	GUJ, Tamil Nadu, MH, RJ	GUJ, Tamil Nadu, MH, RJ
CURRENT STRATEGIC INITIATIVES	LOW EFFICIENT TECHNOLOGY <ul style="list-style-type: none"> Aged equipment Lack of maintenance 	ADVANCED TECHNOLOGY <ul style="list-style-type: none"> Advanced turbine tech Blade and tower technology 	DIGITIZATION AND MONITORING <ul style="list-style-type: none"> ENOC , N3uron (AI powered plateform) Bifacial solar photovoltaics (PV) 	TECHNOLOGICAL ADVANCEMENT <ul style="list-style-type: none"> Bifacial solar photovoltaics (PV) PERC solar cell
	UNDERUTILIZED CAPACITY <ul style="list-style-type: none"> Grid connectivity issues 	MANUFACTURING CAPABILITIES <ul style="list-style-type: none"> extend service and working network automation 	LARGE SCALE PRODUCTION <ul style="list-style-type: none"> lower operation cost per unit energy 	PROJECT OPTIMIZATION <ul style="list-style-type: none"> Investing In Operation & maintenance
	WEATHER DEPENDENCY <ul style="list-style-type: none"> Currently dependent on Monsoons for operations 	ADVANCE MONITORING TECHNOLOGY <ul style="list-style-type: none"> SCADA, CMS, • AI-ML / IoT 	ENERGY STORAGE INTEGRATION <ul style="list-style-type: none"> Particularly Solar through BESS. 	Strong Government Support (A PSU)
INTERNATIONAL EXPANSION	INTERNATIONAL EXPANSION <ul style="list-style-type: none"> 10.5MW wind farm in Croatia, Europe 2MW and 25.2 MW wind farm in Rajasthan 	INTERNATIONAL EXPANSION <ul style="list-style-type: none"> 17 countries across Asia, Australia, Europe, Africa, and the Americas 	INTERNATIONAL EXPANSION <ul style="list-style-type: none"> Middle East partnerships 	INTERNATIONAL EXPANSION <ul style="list-style-type: none"> Nepal and Bhutan
TECHNOLOGICAL UPGRADATION	TECHNOLOGICAL INNOVATION <ul style="list-style-type: none"> Suzlon has a technology center in Germany for R&D 	ENERGY STORAGE = BESS SYSTEM	Doing PPAs <ul style="list-style-type: none"> Public-Private Partnerships 	
CAPACITY EXPANSION	<ul style="list-style-type: none"> target to reach an installed capacity of 1 GW of wind farm 	OFFSHORE WIND & HYBRID MODEL	SCALING SOLAR + PPAs	LONG TERM PPAs

DEBT ISSUE



Debtors Days = 109.56 (High)

Interest Coverage Ratio = 1.35 (Too Low)

Reason: Overdependence on government DISCOMS = delayed payments = increased debtor days = increased short term loans on high interest.



Debt = Rs. 602 Crores

Pledged % = 3.50 (High)

Sales Growth = -7.66 %

Reason: Sales are declining due to **seasonality**, (sales are high in monsoon season) while debt remains high due to capital expansion and long debtor days.



ROOT CAUSE ANALYSIS- I

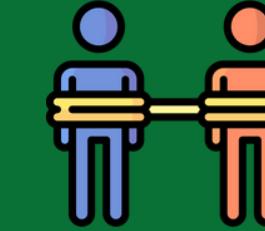


Repowering Old Windmills = High Cost

Lifetime of a Windmill = 25 Years

Reason: Many windmills are outdated (approx 40%), and renovation costs are currently unaffordable for the company.

OPERATIONAL INEFFICIENCY



Dependence on OEMs and service providers for windmill repair and maintenance.

Reason: External dependence for maintenance often leads to a shortage of skilled workers and spare parts for windmill repairs.



ENERGY STORAGE ISSUE



Lack Of Energy Storage Solutions

Usual Price of energy = **Rs. 7.11 per kWh**

Peak Time price = **Rs. 8.53 per kWh**

Untapped profit potential: **Rs. 124.75 Crores**

Reason: The lack of energy storage forces producers to sell excess power cheaply during low-demand periods.



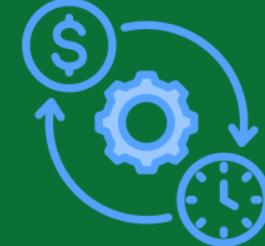
Current No. Of Employees = 129

Additional Requirement

(from operational data) =

32 to 53 full time employees

Reason: There are less skilled employees than required which is causing operational inefficiency.



Low transmission efficiency in Tamil Nadu's power grid

Estimated Loss = 15-20 %

Reason: Tamil Nadu experiences low grid efficiency with high transmission losses and congestion, hindered by outdated infrastructure.

ROOT CAUSE ANALYSIS- II

OPERATIONAL INEFFICIENCY

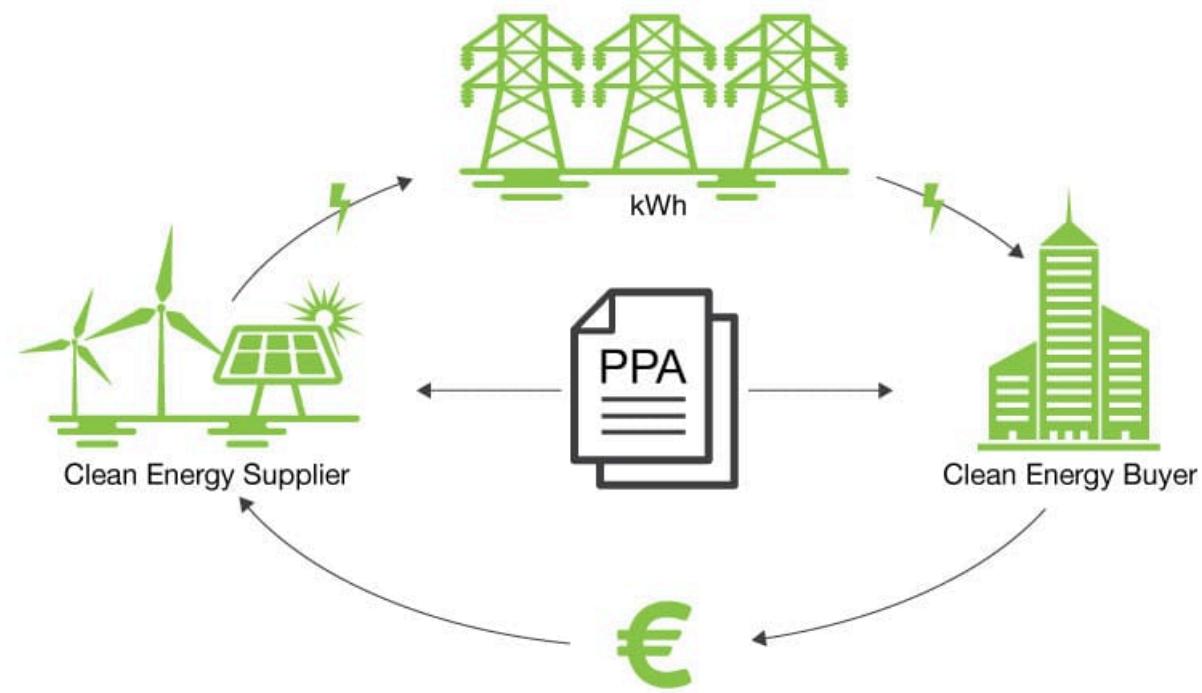


Operational Cost, Installation Cost :

Solar Energy < Wind Energy

Solar Energy = Faster Payback Period

Reason: Solar Energy has high cost benefit over wind, both have their own seasonal requirements.



SOLUTIONS (MAJOR)

01

Enhancing Financial Stability

Orient Green can obtain funding from **Shriram Finance**, an important player in energy investments that already has investments in OGLP. Also, selling low performing windmills in Tamil Nadu like: **Gamma Green Power Pvt. Limited (45.9MW)** will allow resources to be allocated towards more financially viable projects thus improving financial effectiveness.

02

Government DISCOMS X Corporate PPAs ✓

Orient Green must shift towards **Power Purchase Agreements (PPAs)** with private and corporate buyers, **reducing REC purchases and sales to DISCOMs**. This strategy ensures **greater independence from DISCOMs**, provides **stable revenue, lowers regulatory risks, eliminates payment delays**, and meets the growing demand for direct renewable energy procurement from businesses seeking reliable and cost-effective power solutions.

03

Entry into Rajasthan

Setting up a hybrid renewable energy facility in Rajasthan will enable Orient Green to **combine solar and wind power** for a **stable energy supply**. **Long-term PPAs** with corporate buyers like **Tata Power, ReNew Power, and Adani Green Energy** ensure stable revenue and reduce dependence on DISCOMs. Rajasthan's lower **land prices, government incentives, and strong renewable policies** make it an ideal location to meet the growing demand for direct renewable energy procurement.



Rajasthan Bound

OGLP can tap into Rajasthan's high solar potential and vast barren land to **establish a cost-effective hybrid solar-wind model**. Hybrid energy reduces reliance on expensive storage by balancing **solar (day) and wind (night) generation**. Rajasthan's low environmental impact, government incentives like capital subsidies (**13-28%**), faster project approvals, tax benefits like **100% exemption on land tax**, SGST reimbursement of **75%**, and **long-term PPAs** make it an ideal, sustainable investment for stable revenue and future growth.



Climate Resilience

Net Profit in Monsoon Months = **+ve**

Net Profit in Non-Monsoon Months = **-ve**

The wind energy company's growth was initially limited to **monsoon seasons**. However, a hybrid model ensures steady energy supply year-round, leveraging both sources to maximize profit. Rajasthan's stable climate minimizes disruptions compared to Tamil Nadu's cyclones and humidity.

SOLUTION (MAJOR)



Next-Gen Storage Solutions

Storage capabilities can be enhanced by implementing **Battery Energy Storage Systems (BESS)**, enable storage of energy for **short durations**, balancing generation and demand. This allows storage of excess energy during periods of low demand and sell it during peak hours, optimizing revenue. **Pumped Hydro Storage (PHS) systems** can be integrated in the coming years, complementing BESS by providing **long-duration storage**. This would improve climate resilience and lead to **growth and profit**.

Untapped profit potential: **Rs. 124.75 Crores (2025)**
(from peak time trade-off)



Minor Solutions

01

Trading of electricity

Trading Electricityvv03

Company can trade electricity via **IEX** and **PXIL** for better revenue and efficiency through short-term power trading.

02

Selling of CCs and REC's

Trading Electricityvv03

Company can sell **Carbon Credits** (**Verra, Gold Standard, CTX, CIX**) and **RECs** (**IEX, PXIL, REC Registry**) to help corporates in fulfillment of CSR and generate additional revenue and support sustainability goals.

03

Offshore wind mills

Offshore windmills produce more energy by tapping into **stronger** and **steadier** winds over the ocean. They also avoid seasonality related issue as offshores have strong winds for most of the day.

04

Expanding in African Countries

Ethiopia, Nigeria, and Zambia have high solar potential at **5.4, 4-6, and 5-6 kWh/m²/day**, respectively. The government offers **tax relief, duty waivers, and feed-in tariffs**, creating opportunities in untapped rural markets.

05

Collab for Turbine Installation and Maintenance

Trading Electricityvv03

Partnering with **Reliance Power** and **Wind World India** for installation, and **Inox Wind, Suzlon, and Nordex** for turbine upgrades and maintenance, will improve efficiency and performance.

Implementation RoadMap

Phase I :

Rebirth (Jan 2025-Jan 2026)

Phase II :

Break-Even (Jan 2026-Jan 2028)

Phase III :

Growth (Jan 2028-Jan 2030)



Funding

- Raise money either through **existing promoters or by issuing rights.**



Selling and Upgrading

- Identify **outdated windmills** and selling them off.
- Upgrade** the existing ones.



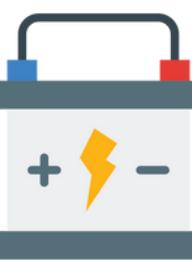
Corporate PPAs

- Initiate PPA negotiations targeting **100-150 MW**.
- Market assessment to identify top corporate clients (IT, FMCG, Data Centers).



Maintenance Collabs

- Collaborations with companies like **Tata power solar** and **Suryanarayana renewable energy training** will help in maintenance.



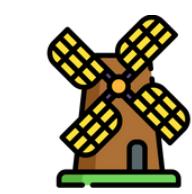
Setting up a Energy Trading Team

- Register on **IEX and PXIL** for energy trading.
- Set up a team for **trading, banking, and risk management**.
- Get a energy trading license from **CERC**.



Hybrid Projects

- Identify existing wind farms where solar can be integrated and enter Rajasthan with **hybrid model**.



Expansion of wind farms

- Achieve **700MW** of wind farm according to company's vision.



Corporate PPAs

- Expand PPA portfolio to **400-500 MW** with diversified sectors.



Solar Projects

- Achieve **100MW** of solar farms.
- Existing solar farms: **39.6MW**
- Plan for expansion into **solar-rich** regions like **Rajasthan**.



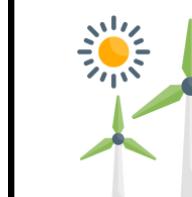
Energy storing systems

- Set-up energy storing systems like **BESS** and **Pump hydro-storage**.



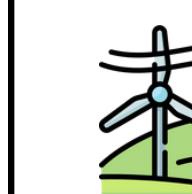
Employee recruitment

- Existing number of employees: **129**
- Recruit more employees to support expansion projects.
- Establish **O&M schools** to reduce external dependence.



Hybrid projects

- Achieve hybrid(solar+wind farms) capacity upto **200-300MW**.



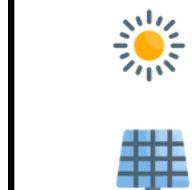
Expansion of wind farms

- Achieve **1GW** of wind farm according to company's vision.



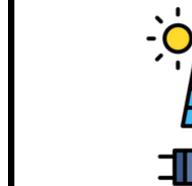
Corporate PPAs

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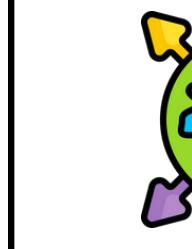
Solar Projects

- Ramp up solar projects upto **500MW** in Rajasthan .



Collab with Solar Tech

- Collaborations with companies like **Waree energies, Vikram solar** etc. can increase project efficiency.



Global expansion

- Planning global expansion into African countries like **Ethiopia, Zambia, and Nigeria**- high growth markets to meet rising energy demand.

McKinsey 3-Horizon Matrix

Value ↑

Anticipated Outcomes

Horizon-III:

Global Expansion & Innovation

Focus Area: Self Sufficiency, Go global, hybrid project optimization, and AI-powered solutions.

Horizon-II:

Scale-up & Diversification

Focus Area: Scale up renewable energy, integrate storage, and enhance market presence.

Horizon-I: Immediate Priorities

Focus Area: Strengthen financials, optimize operations, and set growth foundations.

- Q1 2025: Raise funds, pay off debt, sell underperforming assets.
- Q3 2025: Scale up wind to 700 MW; close PPAs of 100-150 MW.
- Q1 2026 - Establish Hybrid Model in Rajasthan and wind offshores.

- Q3 2026: Expand PPA portfolio to 400-500 MW, integrate 100 MW solar.
- Q1 2027: Ingrate **BESS & Pumped Hydro Storage** for energy stability.
- Q4 2027: Form strategic partnerships for cost-effective solar & wind expansion.

- Q2 2028: Entry into Africa, Ethiopia, Zambia, Nigeria; Offshore wind.
- Q4 2028: Scale solar to 500 MW, hybrid capacity to 1 GW.
- 2029-2030: AI-based maintenance, grid optimization, and automation

Time (Quarter-Wise) →

2026:

- Wind farm capacity: 700 MW
- Secured 150 MW in PPAs
- Established energy trading on IEX & PXIL
- Secure Corporate PPAs
- No dependency on Seasonality or timing.

2028:

- Hybrid energy capacity: 200-300 MW
- Solar projects expanded to 100 MW
- Solid Market in Rajasthan.
- Storage integration (BESS, PHS) operational.
- Owned Maintenance and operational team, No outsourcing.

2030:

- Total capacity: 1 GW (solar + wind)
- 500 MW solar in Rajasthan
- Expansion into Africa for solar & wind
- AI-driven predictive maintenance & automation.

COST ANALYSIS

Initiation Phase			Shift of operations in Rajasthan cost						
2 Farms Sold at 400 Cr. Initially (Clarion and Udumalpet Wind Farm)	Hybrid model setup in rajasthan								
	Initaion Phase Metrics	solar	wind						
	initial investment	3-6 cr per MW	5 -7 cr per MW						
	operational cost	10k-15k per MW	25k-30k per MW						
	ROI	5-7 yrs	7-10 yrs						
Initial Investment Requirements in order to shift operations									
Parameters		Shifting and setting up charges(in Cr)	Fundraising from Sriram Financials(in Cr)	Selling two Wind mill parks(in cr)	Tax rebate fram rajasthan GOV(in Cr)				
2019		720	80	600	approx 40				
2020		Trading:- 20% which on correct values account to 12 Cr							
2021		PPA model Increase in Sales- 23 Cr							
2022		Offshore wind parks = -560 Cr Increase in Sales-41Cr							
RAJASTHAN INCENTIVES									
Capital Subsidy:	13% - 28% of the investment.						Rajasthan Investments required		
SGST Reimbursement:	75% for 7 years.						Name of equipment	number of equipment: Type	
Electricity Duty Exemption:	100% for 7 years.						Solar Panel	176471 panels	340W/each
Stamp Duty & Land Conversion Fee Exemption.							inverter	20	2MW/each
Full Forms of Important Terms							transformers	1(main) + 5	
SCADA - Supervisory Control and Data Acquisition							mounting structure	24	
CMS- Condition Monitoring System							Warehouse	1	
PPA - Power Purchase Agreement.									
PPPs- Public-Private Partnership									
ENOC- Energy Network Operations Center									
O&M - Operation and maintenance									
PERC Solar Cell - Passivated Emitter and Rear Cell									
REC – Renewable Energy Certificate									
EX – Indian Energy Exchange									
PXIL – Power Exchange India Limited									
CTX- Carbon Trade Exchange									
CERC – Central Electricity Regulatory Commission									
BESS – Battery Energy Storage System									

S No.	Year	Base Sale (Actual)	Projected Sale (Projected Revenue Increase)	opm	sales * opm%	current debt	debt payoff	interest on debt+ depreciation	+ Base Profit	projected profit/loss
1	2019	323	290	-33	60	175.4	1500	100	25	0
2	2020	369	400	31	60	240	1400	150	35	70
3	2021	257	300	43	50	150	1250	80	70	10
4	2022	311	350	39	60	210	1170	100	50	186
5	2023	258	320	62	70	224	1070	100	50	83

Sales are projected based on an increment of 8 to 25 %, i.e if sales were 100 initially then in first year of solution adoption sale will reach 108.4 Cr and in 5 years the sales could have been boosted by 25 %

Projected P/L in our Paradigm		Note- All Values in Crores
Year	projected profit/loss	
2019	-20	
2020	75	
2021	20	
2022	60	
2023	74	

Rajasthan And Hybrid Model Cost Analysis
Excel Sheet

Revenue Estimates
Excel Sheet

FINANCIAL MODELLING (DCF MODEL)

(Note- All Values in Crores)

S NO	Year	EBIT	Tax	D&A	CapEX	FCF (Yearly)
1	2019	-20	-5	113.73	0.27	98.46
2	2020	75	18.75	91.52	2.4	145.37
3	2021	20	5	90.99	3.16	102.83
4	2022	60	15	88.62	2.7	130.92
5	2023	74	18.5	82.95	3.59	134.86

FCF=EBIT-Taxes+(Depreciation and Amortization)- CapEX

Note:- Negative Tax returns are useful in the case of rebating previous taxes and offset them

Parameter	Growth rate of the industry in 2019	Historical Growth Rate	Revenue Growth rate
Value	3.70%	8.5%	18.51%
Weight	50%	30%	20%
Approximated Growth of the Company			8.10200%

Free Cash Flow
Excel Sheet

Year	Equity	Debt	Cost Of Debt	Cost of Equity
2019	495.81	1353	11.01%	17.24%
Beta				2.12
10Yr Treasury				7.36%
Tax Rate				25%
2019 Market return				12.02%
WACC=				10.6672913

$WACC = \left(\frac{E}{E+D} \right) R_e + \left(\frac{D}{D+E} \right) R_D * (1 - T)$

CAPM Formula: E(R_i) = R_f + \beta(E(R_m) - R_f)

Growth Rate Percentage
Excel Sheet

WACC
Excel Sheet

FINANCIAL MODELLING CONTINUED.... (DCF MODEL)

(Note- All Values in Crores)

Terminal value Calculation						
Assumptions						
WACC	10.6673					
Growth Rate	8.102					
EV/EBITDA	2.41					
Years	2019	2020	2021	2022	2023	
Period	1	2	3	4	5	
EBITDA	246	282	170	228	203	
FCF	98.46	145.37	102.83	130.92	134.86	
Perpetuity Growth Rate					478.5015019	
EV/EBITDA TV					489.23	

Terminal Value

[Excel Sheet](#)

Enterprise Value	
Enterprise Value	740.3635
Cash	21
Marketable Securities	616
Short term Debt	26
Long Term Debt	1253
Equity value	98.36354

Equity Value
[Excel Sheet](#)

Discounting Cash Flows					
Assumption					
WACC	10.6673				
Years	2019	2020	2021	2022	2023
Period	1	2	3	4	5
FCF	98.46	145.37	102.83	130.92	134.86
Terminal Value					478.571
PV of FCF	88.97	118.6960401	75.86859	87.28284	81.24315
PV of TV					288.30354
Discount Factor	0.904	0.816509872	0.738	0.666688	0.602
Discount Factor=1/(1+r)^n					
Enterprise Value					740.3635

Discount Factor
[Excel Sheet](#)

Thank You

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- [BSEIndia.com](#)
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- [Mckinsey 3 Horizon Model](#)
- [OGPL- Money Control](#)
- [BESS System](#)
- [Articles](#)

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