



Pioneering *the*
Future of Energy
With **SOLAR GLASS**

BOROSIL

renewables

Q2/H1FY24 Investor Presentation

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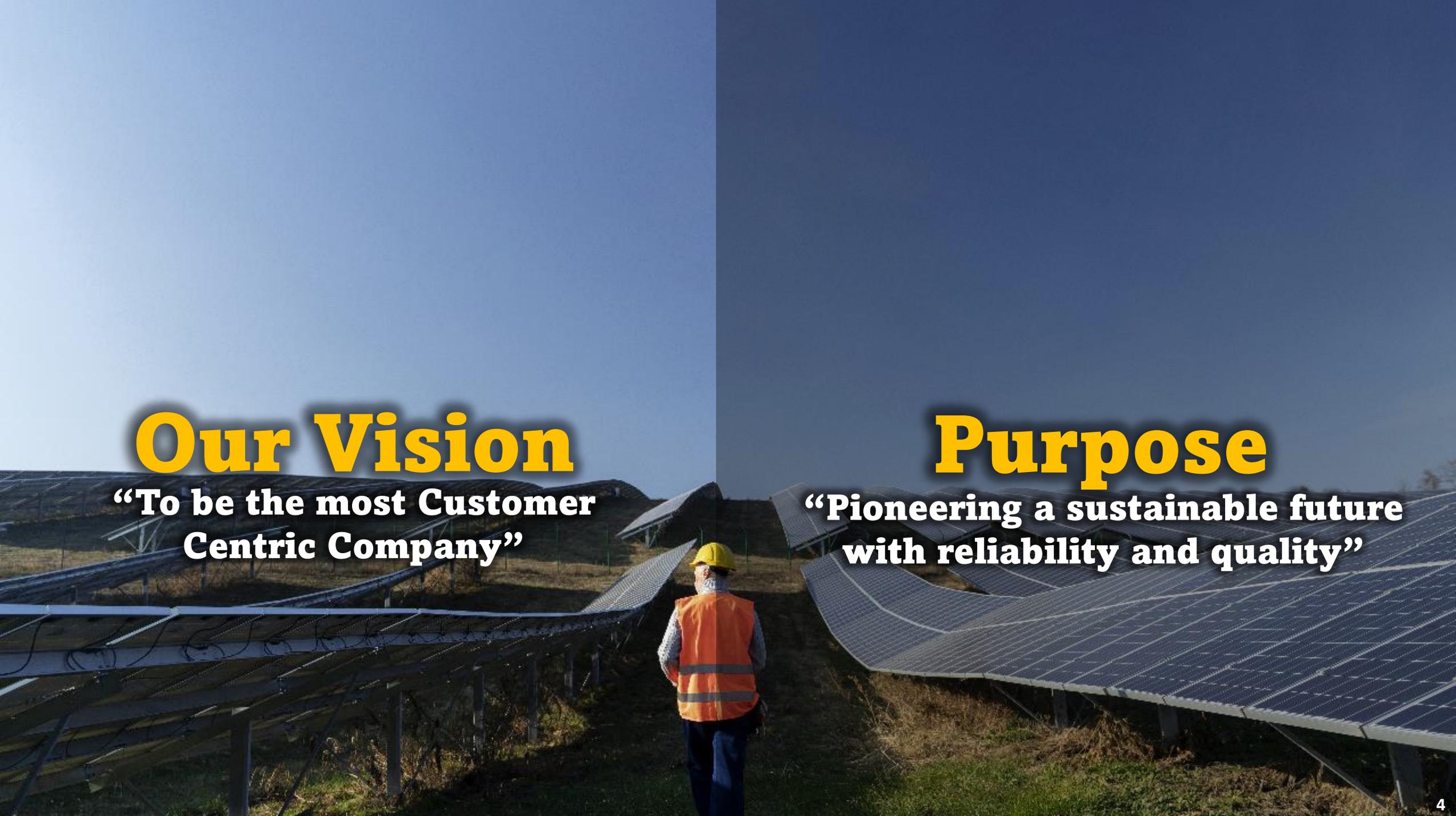
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Our Vision

**“To be the most Customer
Centric Company”**

Purpose

**“Pioneering a sustainable future
with reliability and quality”**

More than 60 Years of Excellence

Borosil Group

Borosil Renewables Limited

INDIA's first and largest solar glass manufacturer with a combined capacity of 1350 TPD² (~8.5GW)

~₹5480¹ cr Market Cap

Borosil Limited

One of the Market leaders in Consumer ware and Kitchen appliances, scientific & industrial glassware products

~₹4602¹ cr Market Cap

1. As on 6th Nov 2023 - BSE
2. Includes 350 TPD capacity of German Subsidiary

Q2/H1FY24 P&L

Particulars	Standalone Profit & Loss Snapshot								Consolidated	
	Q2FY24	Q1FY24	Q2FY23	YoY Change%	QoQ Change%	H1FY24	H1FY23	FY23	Q2FY24	H1FY24
Revenue	280.17	237.82	169.26	66%	18%	517.99	339.24	688.17	401.66	756.16
EBITDA	26.60	56.52	44.11	-40%	-53%	83.12	95.42	176.55	37.14	71.58
EBITDA %	9.5%	23.8%	26.1%	-64%	-60%	16.0%	28.1%	25.7%	9.2%	9.5%
Interest	7.76	7.46	0.44			15.21	0.89	7.43	9.61	18.62
Depreciation	25.74	30.59	10.75			56.33	21.35	49.98	30.97	63.39
PBT	-6.90	18.47	32.92	-121%	-137%	11.58	73.18	119.14	-3.43	-10.43
Share of profit in associate	0.00	0.00	0.00			0.00	0.00	0.00	0.46	0.71
PBT before exceptional items	-6.90	18.47	0.00			11.58	73.18	119.14	-2.97	-9.72
Exceptional items*	0.00	0.00	0.00			0.00	0.00	0.00	-32.34	-32.34
PBT after exceptional items	-6.90	18.47	32.92			11.58	73.18	119.14	29.37	22.62
PAT	-5.80	13.68	24.28	-124%	-142%	7.88	54.39	88.54	30.47	18.94

*Consolidated results include an exceptional item being an amount received by a subsidiary pursuant to a claim filed by them under insolvency proceedings of a customer relating to an annual contract before the acquisition of subsidiary by the company, which was fully written off in 2017.

Notes to Quarterly Results

- ❖ During Q2FY24, the Net Revenue grew by 66% over the corresponding quarter in FY23 though the Sales volumes were higher by 111%. Export Sales during Q2FY24 (including to customers in SEZ) were INR 95 Cr., comprising 33.9% of the turnover, an increase of 98.2% over Q2FY23 (INR 47.93 CR).
- ❖ Average selling prices during the quarter were about INR 110/mm as compared to INR 139/mm in the corresponding quarter in FY23, a sharp decline of 21%. The domestic selling prices declined by 29% in the same period post discontinuation of Anti-dumping duty against China in August 2022 as the dumping from China/Vietnam /Malaysia intensified despite rise in the input prices thereby eroding the margins in the domestic markets.
- ❖ The overseas subsidiaries including the step-down subsidiaries generated net revenue of INR 121.49 Crs and EBITDA of INR 10.54 Crs for the Q2FY24.

Notes to Half Yearly Results

- ❖ During H1FY24, the Net Revenue from Operations grew by 53% over the corresponding H1 FY23 though the Sales volumes were higher by 87%. Export Sales during H1FY24 (including to customers in SEZ) were INR 167.12 Cr., comprising 32.3% of the turnover, an increase of 91.1% over H1FY23 (INR 87.47 Cr).
- ❖ Average selling prices during the half year were about INR 118/mm as compared to INR 140/mm in the corresponding H1FY23, a sharp decline of 16%. The domestic selling prices declined by 23% in the same period post discontinuation of Anti-dumping duty against China in August 2022 as the dumping from China/Vietnam/Malaysia intensified despite rise in the input prices thereby eroding the margins in the domestic markets.
- ❖ The overseas subsidiaries including the step-down subsidiaries generated net revenue of INR 238.17 Crs and a negative EBITDA of INR 11.54 Crs for the H1FY24.

DISRUPTION DUE TO FALL IN PRICES ACROSS SOLAR MODULE VALUE CHAIN GLOBALLY

- The prices of Solar grade Polysilicon in China dropped by a whopping 78% from **RMB 303/ kg** in Nov'22 to **RMB 67/ kg** in Jul'23 although the same recovered to **RMB 87/kg** in October'23.
- Huge capacity additions by the Chinese across the value chain to maintain/grow the Turnover and EBIDTA have been responsible for the creation of overcapacity causing distressed prices. A huge inventory of solar modules is held by manufacturers /importers at their end for future use.
- This has resulted in a continuous fall in prices of products higher in the solar value chain like Ingots, wafers, solar cells, and solar modules over the last 3-6 months.
- The rapid fall and uncertainty have caused disturbances in module manufacturing due to the postponement of procurement by developers creating ripples in the Industry

DISRUPTION HAS ALSO IMPACTED SOLAR GLASS

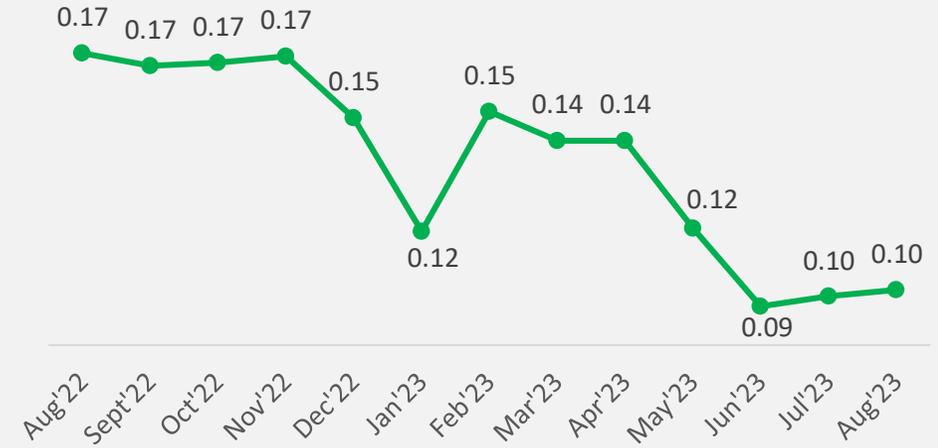
- Solar glass prices have also fallen significantly due to intensified dumping by China/Vietnam/Malaysia despite the increase in input costs.
- Due to the dumping of Modules in the EU by China/South East Asia, local manufacturing has come to a virtual halt towards the end of September and is waiting for suitable measures from the Government. This has impacted the demand for solar glass in the EU.
- The demand in Turkey has considerably slowed down as local manufacturing took a hit towards the end of September due to the ongoing financial situation which affected the availability of funds for solar installations and the rise in the cost of funds due to high inflation.

Falling prices across the solar module value chain

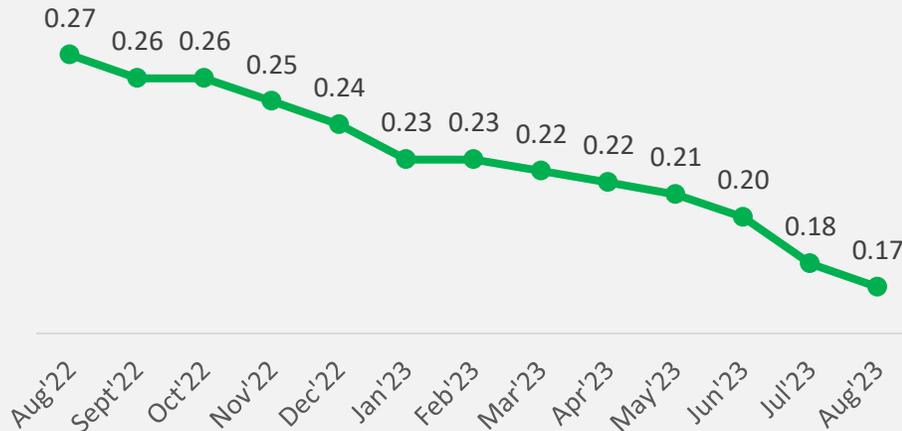
Polysilicon (RMB/ Kg)



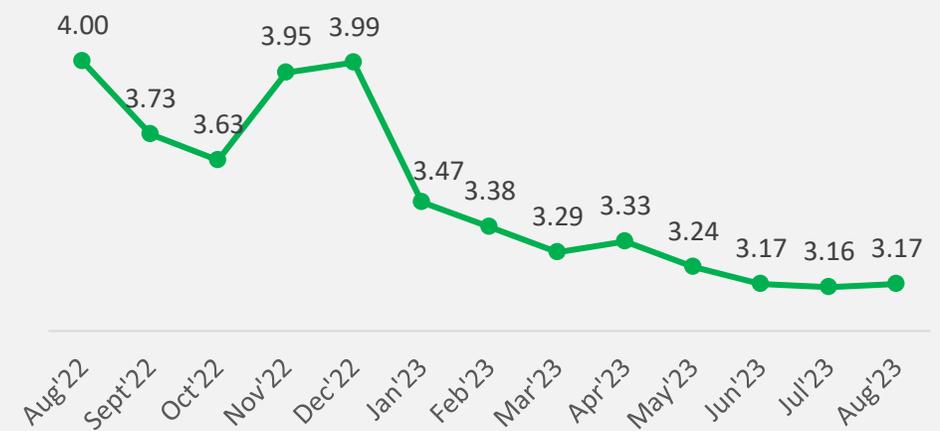
Mono Perc cell - 182mm (USD/ Wp)



Monofacial Module - 182mm (USD/ Wp)



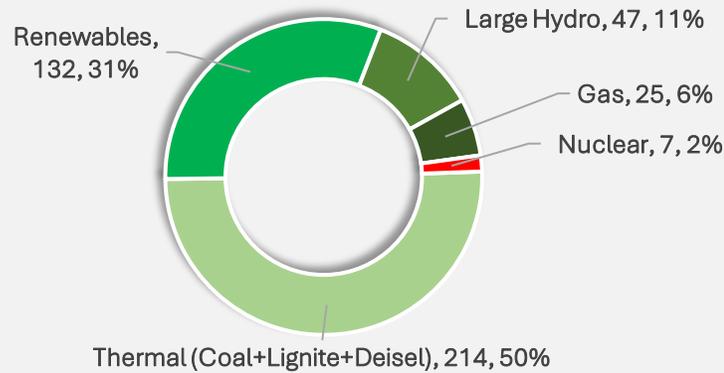
3.2 mm coated PV Glass (USD/ sqm)



Note: These are all FoB prices in China | Source: PvInfolink & Industry Estimates

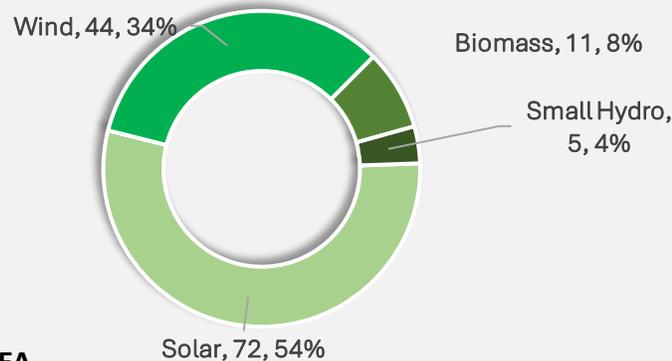
Increasing Share of Solar in Rising Renewables

Total Installed Power Generation Capacity in India 425 GW as of Sep'23 (in GW)

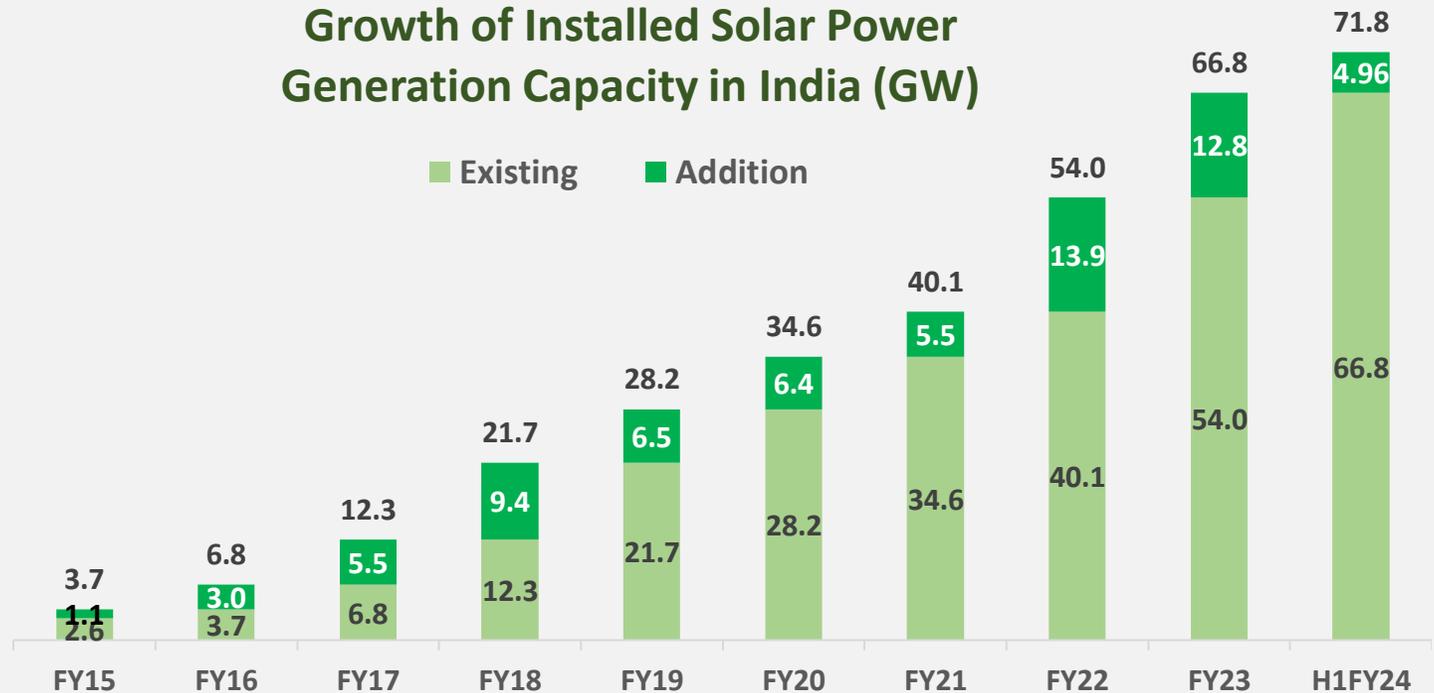


- Out of the total installed power generation capacity of **425 GW** as of Sep'23 in India, the share of renewables has reached 31% (132 GW). The share of solar (72 GW) has further increased to about 54% of the renewable capacity
- The target for solar has since been raised to install **280 GW** by 2030 indicating a huge potential.
- FY23 has witnessed the 2nd highest annual Solar installations of **12.8 GW**. Pace of Installations is steady at **5 GW** in H1 FY24. Despite the push from the government, the desired acceleration in solar capacity addition has not taken place yet.

Renewable Power Generation capacity in India 132 GW as of Sep'23 (in GW)



Growth of Installed Solar Power Generation Capacity in India (GW)



Our Worldwide Presence

Europe

- Netherlands
- Germany
- France
- Portugal
- Italy
- Bulgaria
- Turkey
- Jordan
- Greece
- Croatia

N. America

USA
Canada

S. America

Mexico
Brazil

Africa

Egypt

Asia

India
Sri Lanka

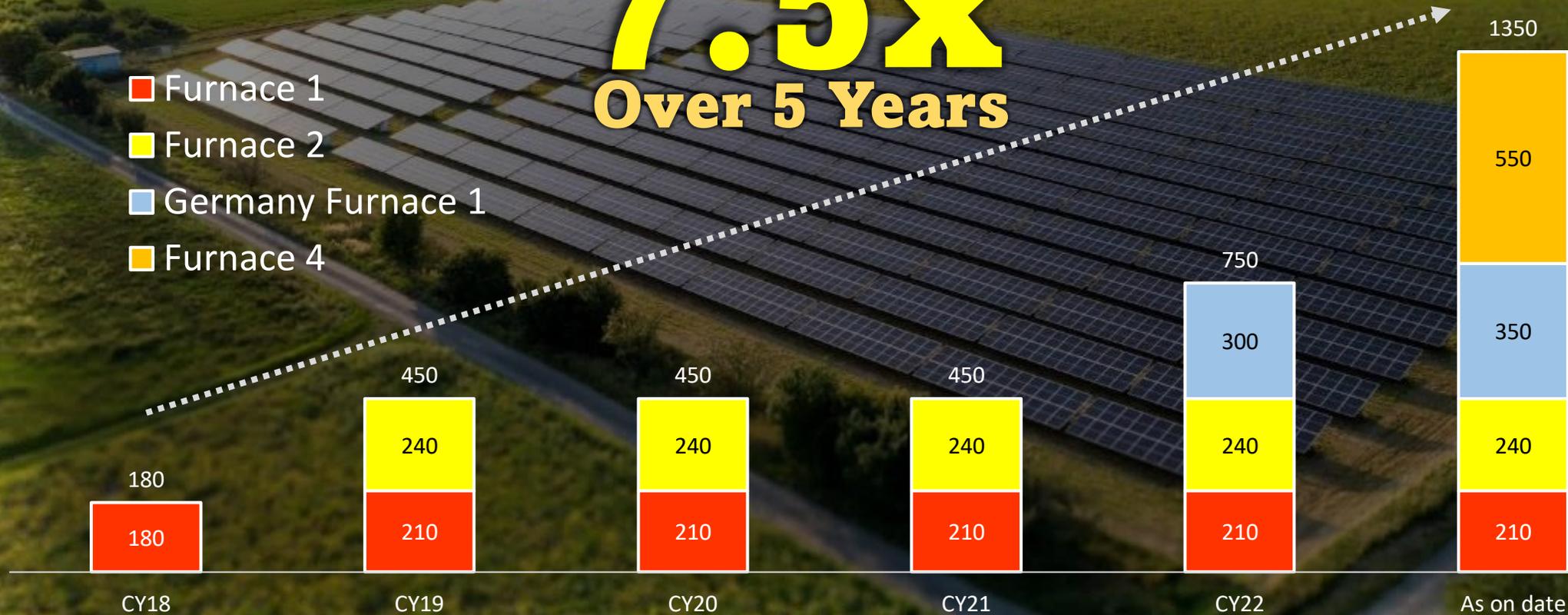
Russia

- A Global Presence with products matching international standards and quality requirements with over 25% of revenue coming from exports
- Largest Manufacturer of Solar Glass in India supplying to over 100 domestic customers
- Majority of international customers currently are based in Western Europe/Turkey
- Huge export opportunity in Europe, the USA, and Turkey due to preference for local production of modules in the respective countries
- New segments being developed: Glass for greenhouses and BIPV etc

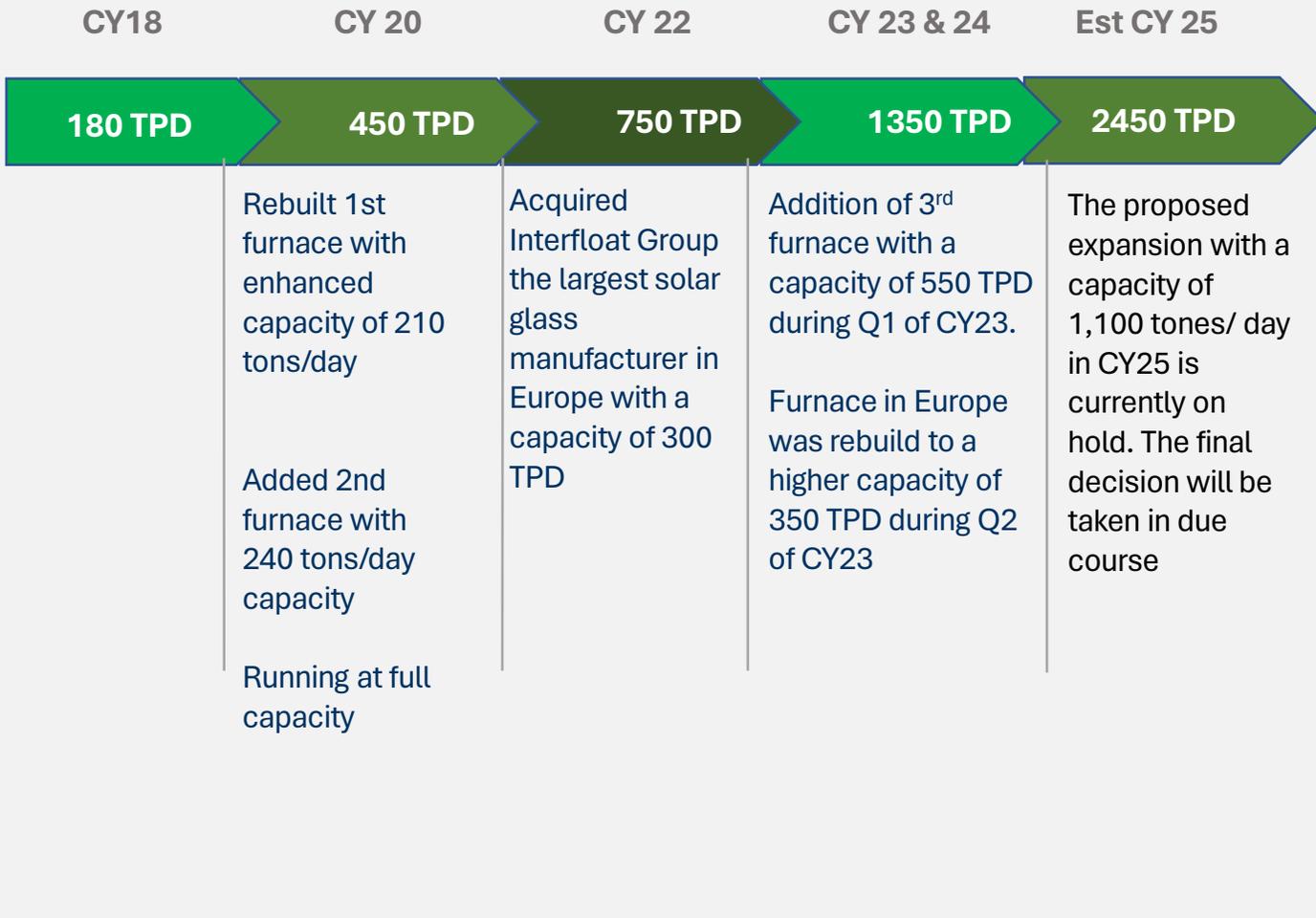
Our Capacity (TPD)

7.5x
Over 5 Years

- Furnace 1
- Furnace 2
- Germany Furnace 1
- Furnace 4

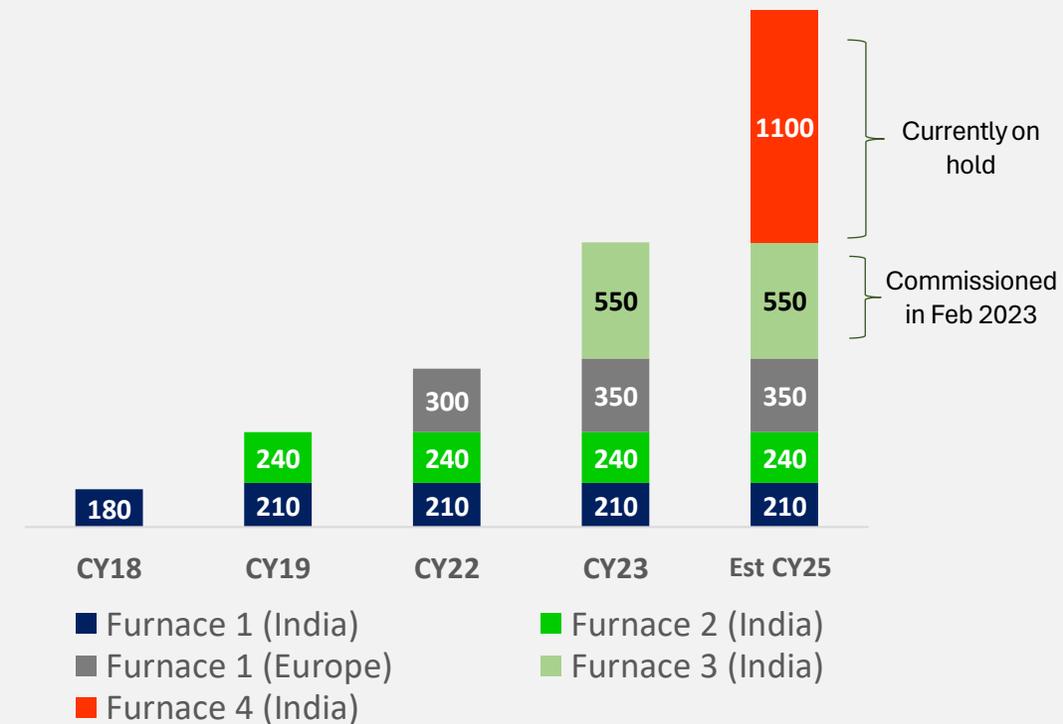


Capacity Planning



Combined Installed Capacity (TPD)-Projected

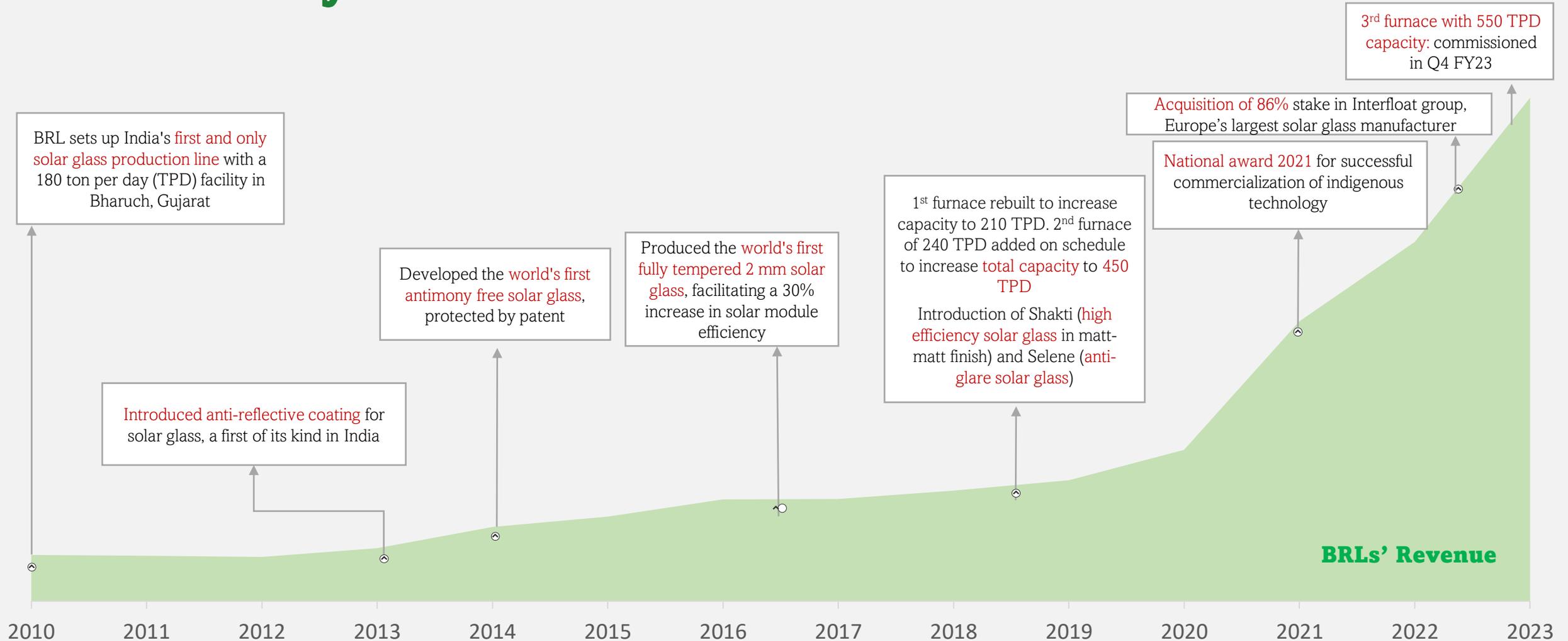
Combined Solar Glass Capacity Planned 2450 TPD (~ 16 GW)



* Solar glass demand outlook stable looking at robust growth in the sector in manufacturing of modules. Current high share of imports and high growth in exports augur well for further expansion. However, the expansion is on hold due to the absence of any duties on imports of solar glass and prevailing low selling prices.

Our Growth

BRL's journey has been marked with innovation and firsts in the industry...



OUR USP

ENGINEERED FOR LONG TERM DURABILITY

- Low sodium. Low PID (Potential Induced Degradation)
- High chemical durability: superior glass performance
- Very High hydrolytic resistance

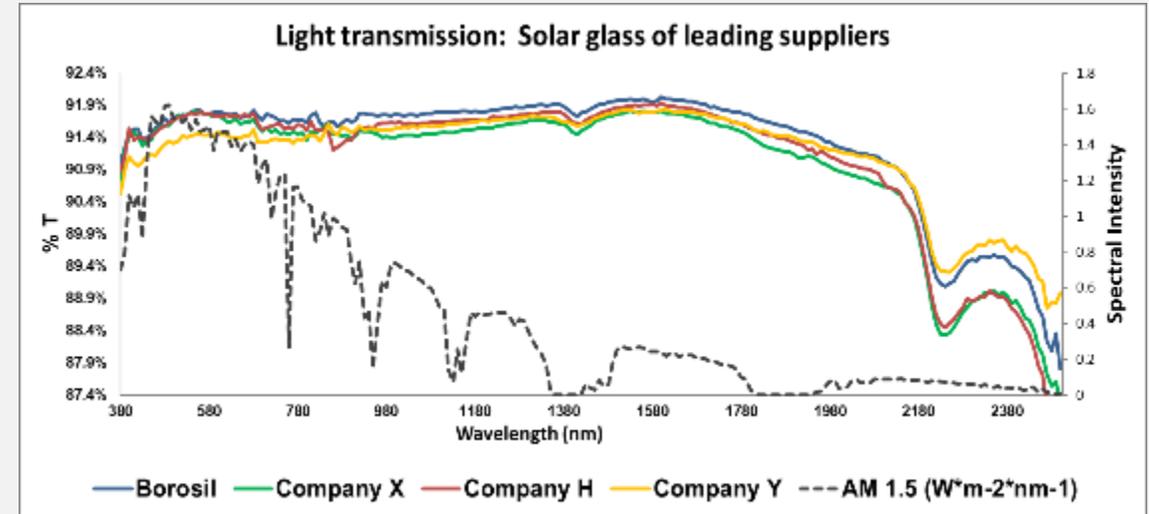
ENHANCED MECHANICAL STRENGTH

- Withstood > 180 Mpa, (Standard 90 Mpa as per EN 12150-1)
- 2 x more strength than heat-strengthened glass
- 4 x more strength than annealed glass

BOROSIL'S FULLY TEMPERED GLASS IS SAFER AND STRONGER

- Tempered glass has a breakage of small particles
- Much safer than the large & sharp pieces resulting from broken heat strengthen glass

HIGHER TRANSMISSION



Wavelength range (nm)			
Supplier	380-780	380-1100	380-2500
BOROSIL	91.76%	91.68%	91.31%
Company X	91.73%	91.51%	91.00%
Company H	91.74%	91.58%	91.08%
company Y	91.41%	91.39%	91.18%



Normal heat strengthen glass



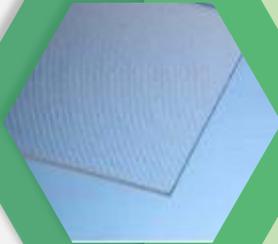
Borosil's fully tempered glass

OUR INNOVATIONS

INNOVATIONS: NEW PRODUCTS



- First solar glass manufacturer to have successfully produced without using Antimony (a harmful chemical) in its solar glass production
- Technology has been patented

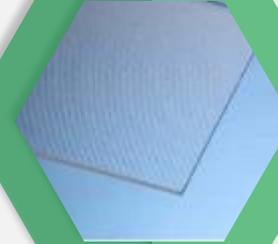


- Matt finish on both sides
- Meeting specific customer requirements



- Anti-glare solar glass for PV projects near airports
- Prevents glare from interfering with the pilot's vision

UPGRADING EXISTING PRODUCT LINES



- Flagship product with low PID, high mechanical strength, and chemical durability
- Have developed lowest iron content solar glass



- World's 1st fully tempered 2mm solar glass
- Poised to capture industry trends and result in cost efficiency for customers



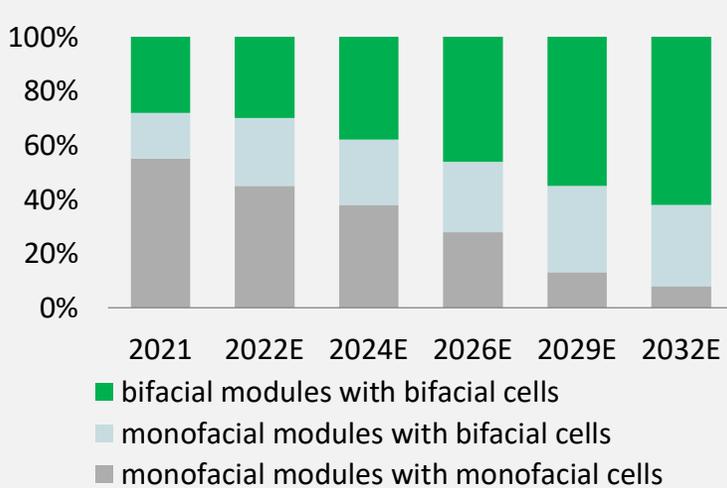
- Use of world-class anti-soiling (ASC) and anti-reflective coating (ARC)
- Leads to direct performance improvements and indirect maintenance savings

CONSTANT EVOLUTION

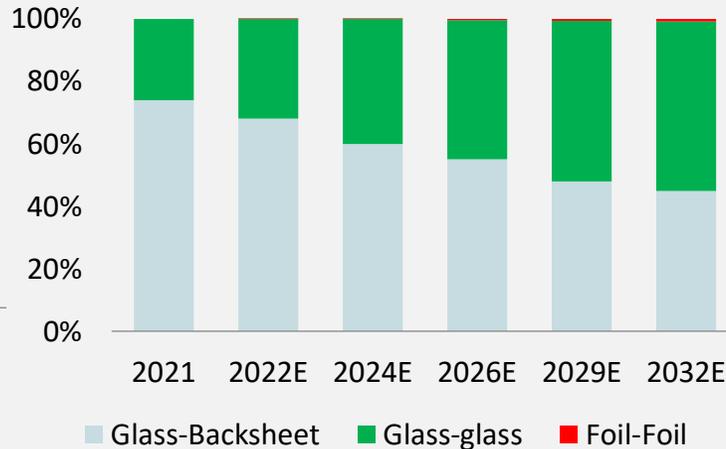
Products designed to align with changing demands and emerging needs

Solar PV market is moving towards use of bifacial modules and glass-glass modules which has accelerated the use of thinner solar glass to optimize module weight

Growth of bifacial modules

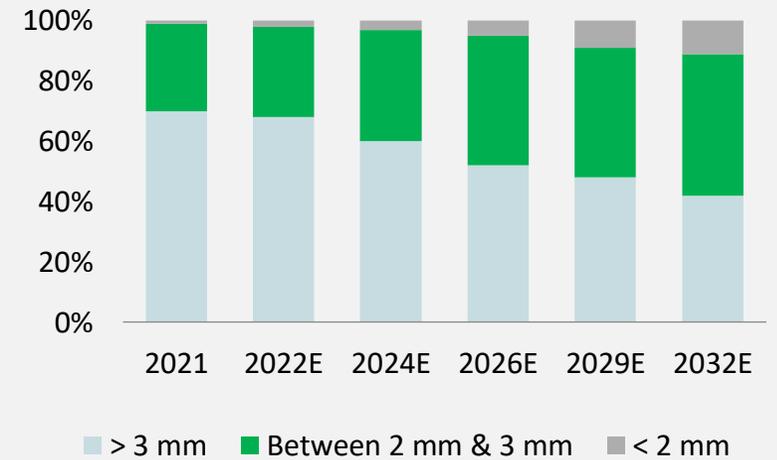


Growth of Glass-Glass modules



Ref: ITRPV 2023

Growth of thinner glass

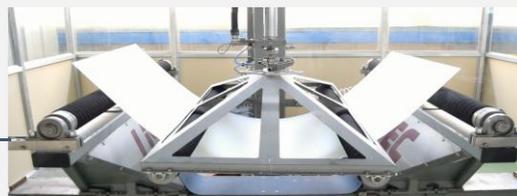


BRL is the only supplier of fully tempered 2mm glass with proven product quality

Advanced Applications

- Bifacial solar modules
- Floating solar modules
- Upcoming segments of BIPV

Tempered 2 mm glass



USPs

- Lower in weight
- Enhanced mechanical strength
- Long term durability with least degradation

Growth Drivers

National Solar Mission

Targets of **280 GW** installed solar capacity to be achieved by 2030. Need annual solar installations of 30 +GW to achieve the target

SECI/IREDA Tenders

Tenders by SECI /IREDA for large ISTS connected projects assuring offtake and payment security to the project developers

Kusum Program

The Union Budget 2018–19 has allocated a total of **Rs. 48,000 crores** over the following ten years for this effort. The government has extended PM-KUSUM scheme till March 2026 as its implementation was significantly affected due to the pandemic.

CPSU Program

12 GW of Solar Projects proposed for Captive Power Consumption (2019 – 2023) with domestic content requirement for Solar Cells and Modules to boost Domestic Manufacturing.
5 GW capacity awarded recently to CPSUs.

PLI Scheme

Total Production Linked Incentive (PLI) granted in two tranches is about **Rs. 18,500 Cr.** This will propel domestic manufacturing of high efficiency solar modules and solar cells with further backward integration to create a robust eco system to ensure a robust supply chain for high growth.

Emergence of Electric Vehicles

Emergence of Electrical Vehicles along with viable battery storage expected to lead to considerable increase in demand

Demand for RTC Renewable Power

Upcoming Hybrid (Wind+Solar) tenders and falling prices of storage batteries are expected to drive demand for solar power

National Tariff Policy

Enforcing the Renewable Purchase Obligation targets to promote constant growth of Solar Energy

Solarization of Railways

500 MW of Rooftop Generation Capacity by 2022 and **20 GW** of Land Capacity to be installed by 2030 for self sustenance

Promising
Business *Drivers*

Indian Solar Module Manufacturing Industry

- India has a solar module manufacturing capacity of around **38 GW** as of Sep'23
- In FY23, the output of the domestic solar PV module manufacturing Industry has increased to **10 GW** from about **6 GW** in FY22 on the back of measures like BCD on import of modules, operation of ALMM, and manufacturing for exports.
- Manufacturing in India is on a rise in the FY 24 for domestic installations as also for exports. The output of domestic solar PV modules manufacturing Industry currently is estimated to be **18 GW PA** of which about 40% are for exports .
- Further large investments in domestic manufacturing The leading module manufacturers/ developers are continuing with a long term view on the sector
- As per our estimates, about **65 GW** of new capacity is expected to be added by various existing and new players taking the capacity to almost **100 GW** in nest 2-3 years.

On the Cusp of
Surge in Manufacturing

MARKET SEGMENTS

- High-Performance Solar Glass for
- Utility-scale ground solar PV
- High-Performance Green House
- Solar Rooftop
- Bifacial, Glass-glass, BIPV
- Solar Thermal projects

CUSTOMIZED SIZES

- Glass for 96/72/60 cells module (and other sizes specified by the customer)
- Capable to make larger sizes
- SAM Glass : Glass for Small Area Modules

GLASS COMPOSITION

- Borosil Solar Glass with low Antimony content
- NoSbEra: Borosil Solar Glass – without Antimony



ADDITION OF VALUE ADDED PRODUCTS

- Shakti / Clear : High Efficiency Matt – Matt Finish
- Selene / Deflect : Anti-Glare Solar Glass
- GMB Vetrasol: For Greenhouses

GLASS IN VARIOUS THICKNESSES

- 2 mm
- 2.5 mm
- 2.8 mm
- 3.2 mm
- 4 mm

SOLAR GLASS WITH COATINGS

- Anti Reflective Coatings (AR)
- High Transmission AR Coating (HTAR)
- Anti Soiling Coatings (AS)
- AR + AS coatings

Eco-Conscious Innovators



- Efficient and cost-effective, low Energy Intensive Process
- The Company has a 22% lower carbon footprint in comparison to the default score for glass manufacturing in Life Cycle Assessment. This value is the best value so far for glass manufacturing as per a very reputed European institute.
- Use of low-cost renewable energy. Owns 1.5 MW of wind farm and investment in 10 MW Wind-Solar Hybrid power plant which is commissioned in May'23. The renewables now contribute 30% of the power requirements.
- Additional investment in Wind-Solar Hybrid plant to be made in CY 2024.



- World's 1st company to develop a process to remove a toxic element Antimony (Sb) from solar glass (Patented technology)



- Use of reusable packing material thereby saving cutting of trees



- Received a patent to use the waste materials as a part of raw material
- Bag filters – For fine dust control
- Close loop water circuit system- For water treatment and reuse of water
- Installed sewage treatment plant

Our strategic ESG priorities

- Aim to achieve **Carbon neutral operations**
- Explore **waste management opportunities**
- Transition to **low carbon energy**

- Become an **equal-opportunity employer**
- Integrate **suppliers as business partners**
- Building **resilient communities**

- Focusing on **highest ethical standards**
- Creating a risk management framework
- Creating a **strong IT infrastructure**

Our Actions in FY24

- Plans to undertake **GHG monitoring and inventORIZATION** to track emissions
- Increase the ratio of sales in reusable packaging material and exploring further opportunities
- Exploring an **enhanced** renewable energy procurement

- Equal opportunity policy launched
- Company-wide strategic supply chain management program to be launched
- Multiple community development programs launched on a need basis

- A group-wide code of conduct applicable to all employees and leadership. Plans are in place to launch a mandatory training
- ESG risks are incorporated in the risk management framework
- A group-wide program on the evaluation of IT risks

Awards & Accolades



Mr. P. K. Kheruka received prestigious EY entrepreneur of the year award in a category-2023



Great Place to Work
Mar 22 to Mar-23



Top Exporter Award
from CAPEXIL for FY21-22



17th FGI AWARDS for EXCELLENCE
in the category of "Outstanding
Entrepreneur" in 2022



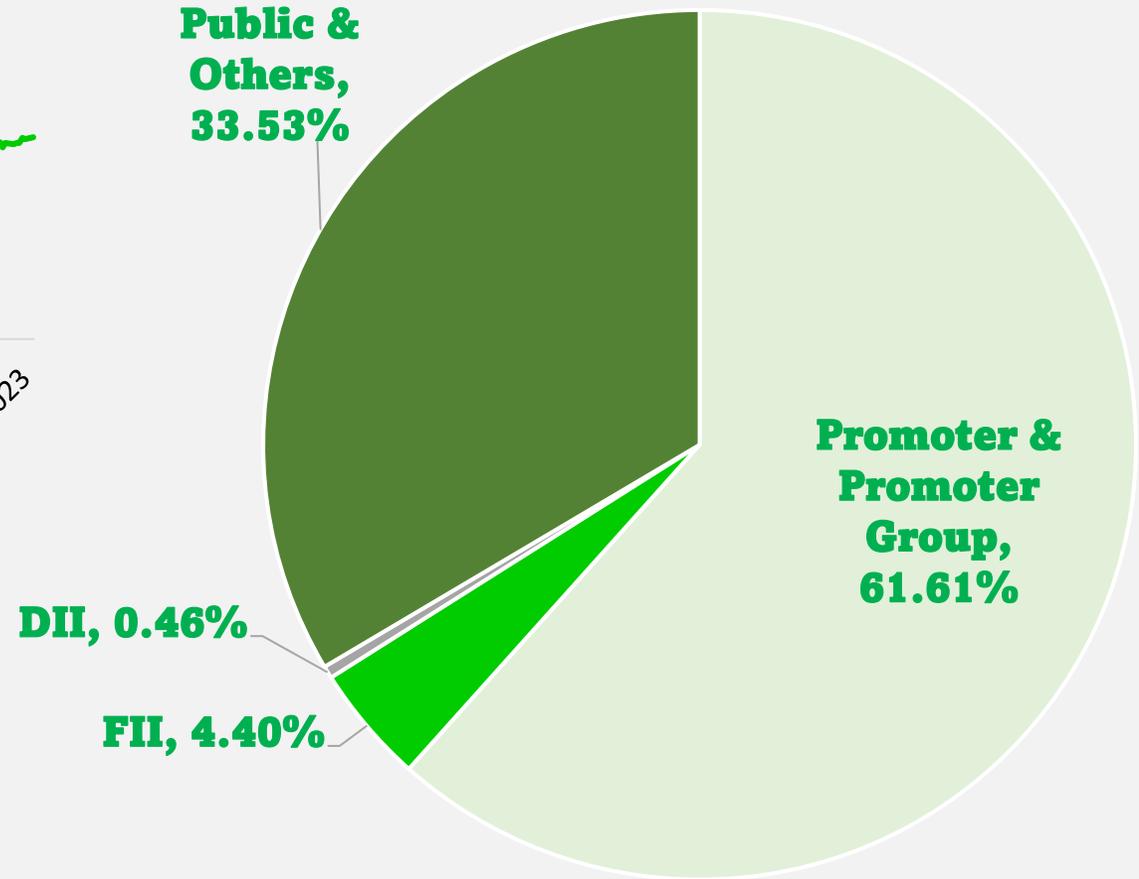
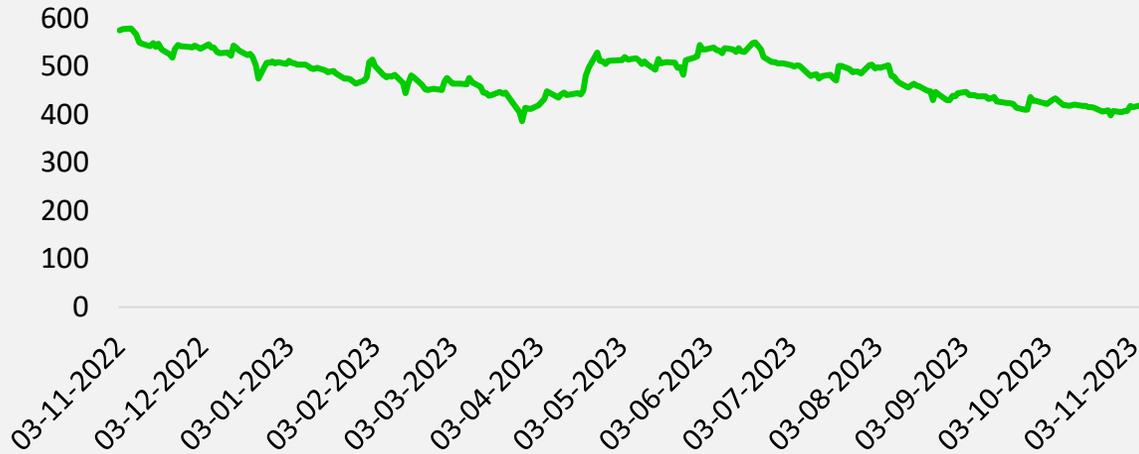
National Award
By Dept. of Science and Technology,
Govt. of India



AIGMFs
Balkrishna Gupta Award for
Exports for FY21

Shareholding Pattern

Borosil Renewables Limited
Stock Price BSE (₹)



As on 30th Sep 2023

₹5480_{cr}
Market Cap

BSE: as on 6th Nov'23

Board Of Directors



P.K. Kheruka

Executive Chairman

Industrialist having Rich experience in the Glass Industry



V. Ramaswami

Non-executive Director

41 years of experience in various industries in technical, production, projects and General Management



Pradeep Bhide

Independent Director

He is an I.A.S. (Retd.) and has a career spanning 40 years in the Indian Administrative Service



Shreevar Kheruka

Vice Chairman

Also the Managing Director and CEO of Borosil Limited with more than 16 years Corporate experience.



Raj Kumar Jain

Independent Director

Wide experience in Statutory Audit, Concurrent Audit, Revenue Audit, Stock Audit and has specialization in Investigation Audit.



Asif Ibrahim

Independent Director

Former Director of the Intelligence Bureau, the main internal intelligence agency of India.



Ashok Jain

Whole-Time Director

41 years in Corporate Sector – Finance, Commercial, Sales and General Management.



Shalini Kamath

Independent Director

Three decades of work experience in three distinct fields – Human Resources, Business Development and Social & Community Development.



Haigreve Khaitan

Independent Director

Partner of Khaitan & Co. and also heads the firms Merger and Acquisition Division

Key Abbreviations

ADD	: Anti-dumping Duty	GWh	: Gigawatt-hour	PA	: Per Annum
ARC	: Anti-Reflective Coating	INR	: Indian Rupee	PAT	: Profit after tax
AS	: Anti-soiling	IP	: Intellectual Property	PBT	: Profit before tax
BCD	: Basic Custom Duty	IPO	: Initial Public Offering	PID	: Potential Induced Degradation
BRL	: Borosil Renewables Limited	IPP	: Independent Power Producers	PLF	: Plant Load Factor
CAGR	: Compounded Annual Growth Rate	JNNSM	: Jawaharlal Nehru National Solar Mission	PPA	: Power Purchase Agreement
Capex	: Capital Expenditure	KUSUM	: Kisan Urja Suraksha evam Utthan Mahabhiyan	PPM	: Parts Per Million
CAR	: Corrective Action Request	KWh	: Kilowatt Hour	PV	: Photovoltaic
CEA	: Central Electricity Authority	kWp	: Kilo Watt peak	REC	: Renewable Energy Certificate
CP	: Consumer Product	mm	: Millimetre	ROCE	: Return on capital employed
CPSU	: Central Public Sector Undertakings	Mn	: Million	RPO	: Renewable Power Obligation
CSR	: Corporate Social Responsibility	MNRE	: Ministry of New and Renewable Energy	SECI	: Solar Energy Corporation of India
CVD	: Countervailing Duties	MT	: Metric Tons	SEZ	: Special Economic Zone
DGTR	: Directorate General of Trade Remedies	MW	: Megawatt	SG#1	: Solar Glass plant 1
EBITDA	: Earnings before interest, tax, depreciation and amortization	N.A.	: Not Available	SG#2	: Solar Glass plant 2
EU	: European Union	NAPCC	: National Action Plan on Climate Change	SG#3	: Solar Glass plant 3
EVA	: Ethylene Vinyl Acetate	NSM	: National Solar Mission	SG#4	: Solar Glass plant 4
FY	: Financial Year ending 31st March	OEE	: Overall Equipment Effectiveness	SGD	: Safeguard Duty
GW	: Gigawatt			SIP	: Scientific and Industrial Products
				TPD	: Ton per Day

BOROSIL
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Thank You

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