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PROMOTING ALTERNATE CAPITAL ECOSYSTEM

India's Climate & Sustainability Moment: Capital, Opportunity and the Road Ahead

November 2026



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Established in 1993, the Indian Venture and Alternate Capital Association (IVCA) is a non-profit organization that serves as the apex industry body dedicated to promoting the alternate capital industry and nurturing a thriving investment environment in India. IVCA is resolutely committed to bolstering the ecosystem by advocating regulatory interventions and facilitating constructive dialogue with the Government of India, policymakers, and regulators. This collaborative approach fosters increased entrepreneurial activity, innovation, job creation, and contributes to positioning India as a leading global fund management hub.

With over 500 members and a combined AUM exceeding $350 Bn, IVCA's esteemed membership comprises the most active domestic and global entities, including VCs, PEs, Infrastructure Funds, Real Estate Funds, Credit Funds, Limited Partners, Investment Companies, Family Offices, Corporate VCs, Category III Funds / Hedge Funds, and Knowledge Partners.

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Foreword – BCG

Every growing economy is faced with the climate dilemma: how to continue to invest in its growth while balancing its impact on climate. For countries like India, which have high exposure and susceptibility to climate risks, the stakes become even more stark.

We are still building our factories, cities and farms, and the choices made now will impact generations to come.

Across Asia Pacific, our work with governments and companies clearly shows that the key to achieving our climate ambitions is the ability to bring in climate capital at scale, which in turn hinges on investors being able to see a credible path from innovative green technology to bankable projects and returns.

We have seen this play out in the renewable space, where India has moved from small-scale pilot deployments to large utility-scale projects with demonstrable financial returns. However, many wide spaces still remain, not only in more advanced mitigation technologies but also in adaptation, which is becoming increasingly crucial as climate impacts affect assets across sectors.

Each of these areas requires a bespoke, unique approach to structure the capital across risk tranches, required to efficiently move from pilot to scale.

This report is an attempt to give investors an evidence-based view of this landscape. We have tried to recognize both the promise of transition and the real difficulty of financing it, and to encourage an informed conversation among stakeholders.

We hope it prompts new conversations and commitments to building a competitive, resilient and inclusive climate economy in India.



Anirban Mukherjee

Managing Director and Senior Partner,
India Leader, Climate & Sustainability Practice Area,
BCG

Private capital has been quick to follow opportunity and cautious to commit where the path to returns is unclear. C&S in India sits on that line. The transition is no longer a question of intent – capital is arriving, but unevenly. Many businesses that will matter most still await funding that fits their stage, timelines and risks.

In our work with investors, we see growing conviction that climate is a long-term, commercial theme rather than a niche. Capital has followed returns into renewable power, EVs, etc. where economics stand on their own. Policies supporting domestic manufacturing also shape investment opportunities in low-carbon sectors. Where returns are not yet viable, that alignment will be needed to bring capital. Many investors ask where the next opportunities lie beyond today's most funded sectors, questions this report seeks to answer.

We hope it serves as a practical companion for those decisions, drawing on data, experience of Indian companies and their investors, and conversations across the ecosystem.

Closing the gaps will take investors, government, regulators, corporates and development finance working together and IVCA bringing investors together to discuss these challenges. I thank IVCA and all contributors for making this collaboration possible.

I hope this report helps investors see India's climate transition with greater clarity and move from interest to action.



Roshni Rathi

Managing Director and Partner,
PIPE Practice Area,
BCG

India is at an inflection point when it comes to energy. By 2030, it has the potential to become a substantial exporter of low-carbon fuels. India aims for 500 GW of non-fossil capacity and to produce 4–6 Mt / year of green hydrogen by 2030. C&S investments have ranged from $3.5–6.5 Bn per annum since 2021. At the same time, central and state policies and regulations have evolved to support India's Nationally Determined Contributions (NDCs), Viksit Bharat and Net Zero goals.

India's capital requirement is estimated at ~$22–24 Tn by 2070. This investment is expected to flow into C&S technologies and low-carbon projects, supporting GDP growth and job creation. However, it is imperative to focus on adaptation and resilience investments to protect the value created.

COP31 at Antalya, Türkiye, India emphasized developed countries' climate finance obligations under Article 9.1 of the Paris Agreement and the need for predictable adaptation finance. Overall, both domestic and international finance are required to achieve our balanced growth, advancing GDP while protecting the environment.

This report provides an overview of investments in C&S and future opportunities, with case studies offering an evidence base on economics and returns. I hope stakeholders find these insights useful and that C&S investment accelerates over the next decade.



Ashish Kulkarni

Partner and Director,
Climate and Sustainability Practice Area,
BCG

Foreword – IVCA

As Founding Chair of IVCA's Climate and Sustainability Council in 2022, I had the privilege of setting the early vision: India's climate transition represents a generational opportunity to strengthen industrial competitiveness, energy security and long-term economic growth. The Council was formed within IVCA as a recognition that this area will require a focused thematic approach to capital.

Since then, the Council has grown from strength to strength, with a network of 40+ investors committed to mobilizing climate capital.

This report captures both progress and opportunity, building on the imperative outlined in NITI Aayog's landmark Scenarios Towards Viksit Bharat and Net Zero study. India has attracted ~$31 Bn in C&S equity funding since 2021, yet over 90% remains concentrated in power and transport. The next phase demands greater investment in frontier technologies and deeptech innovation that strengthens climate resilience across critical sectors like energy, mobility, supply chains, and food systems.

This report maps the next wave of climate opportunities and lays out a clear roadmap for investors, industry and policymakers to unlock capital, accelerate innovation and drive India's transition towards low-carbon growth.



Anjali Bansal
Founding Chair, IVCA Climate and Sustainability Council
Founder, Avaana Capital
Board Member, Tata Power, Nestlé, Maruti Suzuki, GIFT City

For much of the last century, energy transitions unfolded over several decades, supported by gradual changes in infrastructure, financing and technology. India faces a different trajectory. As its economy grows and demand for energy and infrastructure rises, it must simultaneously decarbonize its economy and strengthen resilience to climate change.

This compressed transition presents a generational investment opportunity. India has the potential to build its future energy, mobility and agricultural systems around cleaner technologies rather than replicate carbon-intensive development pathways.

Policy initiatives across renewable energy, battery storage, green hydrogen and critical minerals are laying important foundations. However, the opportunity extends beyond technology deployment to the enabling infrastructure, business models and financing mechanisms required to scale adoption.

Mobilizing capital from domestic markets, global institutional investors and development finance will be critical to translating India's climate ambitions into commercially viable solutions.

I hope this report offers readers valuable perspectives on India's climate and sustainability landscape, the investment opportunities emerging across sectors, and the role of capital in shaping the road ahead.



Nakul Zaveri
Co-chair,
IVCA Climate & Sustainability Council
Partner, Global Co-Head,
Climate Investment,
LeapFrog Investments

India's climate transition represents a fundamental transformation of its industrial and economic landscape. As one of the world's fastest-growing major economies, India has the opportunity to establish a globally competitive, resource-efficient and low-carbon growth model.

This convergence is creating attractive investment opportunities across industrial decarbonization, clean manufacturing, energy transition, water management, sustainable agriculture and resource efficiency. India's expanding manufacturing base, rising domestic consumption and growing integration into global supply chains provide structural tailwinds for businesses delivering these solutions.

The experience of investing in sustainability and climate-focused solutions for over a decade has strengthened the fundamental conviction: the most enduring climate solutions are those where environmental impact and commercial competitiveness reinforce each other. Private equity and venture capital can play a critical role in accelerating this transition by providing growth capital, strengthening governance and enabling businesses to scale sustainably.

I hope this report encourages stronger investment dialogue and reinforces the conviction that India's climate transition represents a generational opportunity to create lasting economic and environmental value.



Raj Pai
Co-chair, IVCA Climate & Sustainability Council
Founding Partner & Managing Director, GEF Capital Partners

India imports ~90% of its crude oil. Our choices today shape our energy security and strategic autonomy for decades.

India crossed 50% non-fossil installed capacity in June '25, five years ahead of its 2030 target. Solar grew from under 3 GW in 2014 to 140–160 GW by the end of FY26, driven by >225 GW of domestic module capacity.

Batteries are the next chapter. They make up 35–40% of an EV's bill of materials turning daytime solar into round-the-clock power. Yet China accounts for over 90% of global LFP cell production and a large share of battery-mineral refining that go into them.

Battery demand will come from the road, where EV sales could reach 10 million units by FY30. As demand grows, diversified sourcing and domestic production could strengthen supply resilience.

Building these capabilities at home deserves our collective focus, and patient private capital.

I welcome this report from IVCA and BCG.



Yash Kela
Co-chair, IVCA Climate & Sustainability Council
Founder & Chief Investment Officer, Singularity AMC

A Note to the Reader

This report aims to give a clear, fact-based view of where capital is flowing in India's **Climate and Sustainability (C&S) sector**, and where it could flow next. Before turning to the findings, it helps to know how the numbers were put together, so that they can be read in the right context.

We deliberately took a broad and comprehensive view of the **climate and sustainability sector** and technologies that are shaping the sector. Our scope spans renewable power and low-carbon fuels, energy storage and grids, electric and green mobility with its charging infrastructure, manufacturing (including heavy industry such as steel and cement, industrial processes, plant upgrades, etc.), waste and recycling, carbon capture, water and air management, sustainable agriculture, and green buildings and materials, as well as adaptation and resilience solutions that help people, assets and businesses withstand climate impacts. It also includes the enabling layers of climate and sustainability finance, insurance and sustainability services. This is wider than standard definitions, which center on core climate technologies. We chose the wider lens because India's transition depends on the whole ecosystem of infrastructure, services and financing that lets technologies scale, and a narrower view would understate the capital supporting it.

To build a comprehensive view of investment, we combined deals from two data sources, Tracxn and Venture Intelligence, into a single dataset for 2021 to 2026 YTD, with a cut-off of Oct 2026. Deals appearing in both sources were analyzed and deduplicated. The report covers equity investments into companies with a major presence in India, as reported by both sources, and excludes debt and IPOs.

Together, these choices give a consistent and carefully cleaned picture of the sector. Figures are indicative and rounded, and are best read as a guide to trends, concentration and relative scale rather than exact totals. We hope this foundation helps readers engage with the sections that follow.

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Executive Summary



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Executive summary (I / III): Landscape of C&S capital today and the macro case for accelerated transition

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India's C&S capital market has reached scale but remains concentrated, while the accelerated transition ahead needs larger and more blended investment

Capital infusion since 2021 has been strong, though it is concentrated

- **Scale:** ~$31 Bn of C&S equity funding since 2021, holding at $3.5–6.5 Bn a year, with fewer but larger rounds in 2026
- **Concentration:** Most of that capital has gone to two sectors, power & low-carbon fuels and transport, which together account for over 90% of funding by value, where returns became viable with the help of early policy support
- **Maturity:** As the power & low-carbon fuels and transport sectors have matured, they now draw growth and later-stage capital, while agriculture remains early-stage and manufacturing & waste is broadening into growth rounds
- **LP base:** Across select India-focused C&S funds, LPs range from development finance institutions to corporates, foundations and family offices; most typically look for market-rate returns, a credible track record, strong governance and impact reporting

The transition is structural, and the investment needs are in multiples of what has been deployed so far

- **Emissions and commitment:** Emissions are rising with demand growth, and India has moved from ambitious international commitments including net zero by 2070, to sector-specific pledges
- **Investment need:** Meeting these commitments would mean a funding requirement of $22–24 Tn by 2070, ~$500 Bn a year against ~$135 Bn today
- **Policy:** So far, capital has followed policy, which improves returns by supporting demand visibility, lowering costs or sharing risk; support is strongest where climate and national development priorities overlap
- **Physical risk:** Beyond cutting emissions, climate impacts are already imposing real costs, hence protecting value through adaptation and resilience-related investment matters alongside mitigation-related investment
- **India's base and global shifts:** A large part of India's growth is to be built, with proven delivery at scale; with recent emphasis on energy security, supply chains and trade reinforcing the case

Executive summary (II / III): Where the next wave of C&S deal flow is emerging

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In mitigation, the next set of opportunities lies in making low-carbon power reliable, scaling electric transport and mandate-led compliance markets, while adaptation and resilience offer a second emerging market

In mitigation, opportunities differ by sector, with mature but less-funded technologies standing out

- **Power and low-carbon fuels:** With solar and wind now the cheapest new power, storage and grid will drive the next build-out; biofuels will grow on mandates; green hydrogen & its derivatives are gaining their first buyers
- **Transport:** Three-wheelers have largely gone electric and two-wheelers are scaling, so the next gains lie in fast charging infra, fleet electrification and indigenous battery supply chain
- **Manufacturing, waste and agriculture:** Here, mandates create buyers for recycling today; greening heavy industry awaits a carbon price and additional support from international carbon markets; and agricultural solutions grow where payback is quick
- **Across sectors:** Technologies that are mature but less funded may offer the next set of opportunities, though most still depend on policy support to be economically viable

Adaptation and resilience is shaping up as a second emerging market

- **How it earns:** Returns come from avoided losses and services that buyers pay for; sectors such as insurance, water (given the scarcity expected in the near future) and cooling (given the extreme heat expected in India) are in play; with an expected benefit of $2–19 on every $1 invested, forward-looking companies across the globe are strategically giving adaptation a serious look
- **Where buyers exist:** Adaptation is most investable where companies can secure revenue streams from clear buyers, across water and air, agriculture and food, urban and infrastructure resilience, and risk analytics and transfer
- **Outlook:** Investment is small today and is expected to grow as physical risks rise and more buyers emerge

Encouragingly, Indian C&S companies show these opportunities can be built: Solutions scale when they remove the green premium, early capital positions companies for policy-led demand, and profits are arriving first in proven technologies deployed at scale

Executive summary (III / III): Capital frictions and structural mitigants: Accelerating deployment

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Funding follows the attainment of four stages of the investment journey; strengthening each, on a common foundation, could unlock the next phase

Four stages towards funding, all resting on a common foundation

Foundation: What counts as green / climate finance is not yet fully defined

- **Technology validation:** Test sites, first customers and specialist capacity are still being built
- **Risk assessment:** Track records and climate risk data are being documented
- **Capital mobilization:** The first set of plants / projects required for scaled transition falls between venture and infrastructure finance, and projects need 12–15 years while funds offer 7–10
- **Project bankability:** Revenue is not always contracted; land, grid, sourcing delay revenues, and returns on capital remain thin for many newer technologies without policy support

Coordinated action across government, regulators, investors and industry could strengthen each stage

Foundation: A published climate finance taxonomy for India, green product standards, labels and standardized monitoring, reporting and verification (MRV) framework at national level

- **Technology validation:** Shared test facilities set up by both public and private institutions, anchor customers and deeper technical talent
- **Risk assessment:** Platform for transparent sharing of performance and climate-risk data, and stronger risk-transfer instruments
- **Capital mobilization:** Larger pools of catalytic and long-tenor capital, potentially including a dedicated green financing institution with windows offering blended structures
- **Project bankability:** Strengthened mandates, green public procurement, payment security, streamlined land, grid and permitting

Underlying every stage is whether projects earn a reasonable return on the capital invested; some gaps will narrow as the market matures, while others are structural and are likely to persist unless addressed together

1.
Landscape of C&S Capital in India Today



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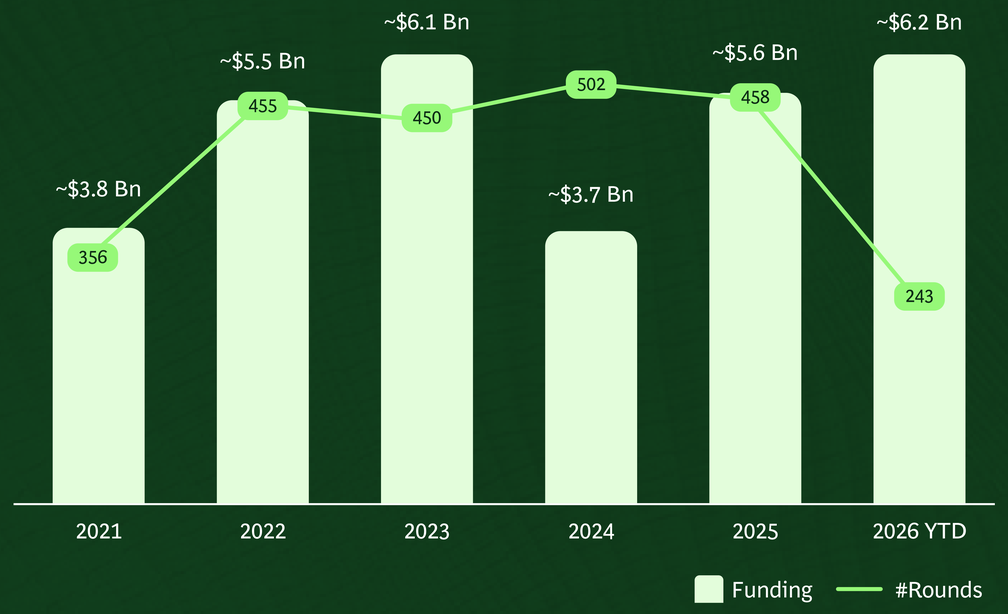
India has attracted ~$31 Bn of C&S equity funding since 2021, driven predominantly by power and transport sectors

C&S funding has remained within a range of $3.5–6.5 Bn a year, with fewer but larger rounds seen in 2026

C&S FUNDING ($ Bn) AND NUMBER OF ROUNDS IN INDIA, 2021 TO 2026 YTD



Power and transport account for over 90% of C&S funding

C&S FUNDING BY SECTOR IN INDIA ($ Bn), 2021 TO 2026 YTD



Capital has concentrated where early policy support helped returns become viable: Power and transport have attracted ~$28.5 Bn, while manufacturing, waste and agriculture, where returns are still being established, have drawn far less

Note: Figures based on equity investments into companies with a major presence in India across C&S categories, 2021–2026 YTD (until Oct 2026). Deal data from Venture Intelligence and Tracxn were combined into a single dataset, and deals reported by both sources were de-duplicated and counted once. Figures reflect total equity investments as reported; excludes IPOs and debt financing.

C&S funding is highly concentrated, with a few large rounds accounting for over half of the total

Non-exhaustive

Key funding rounds by deal size, 2021–2026 YTD

COMPANY	$ Mn	YEAR	INVESTORS
Erisha E Mobility	1,000	2025	UAE-based industrial investor
NexGen Energia	1,000	2025	Capital Edge
Tata Passenger Electric Mobility	1,000	2021	TPG Rise Climate, ADQ
Axis Energy Ventures	845	2023	Brookfield
Greenko Energy Holdings	700	2023	GIC, ADIA and others
ReNew	664	2022	Mitsui & Co. Ltd.
Gentari Renewables India	632	2026	KKR
ACME Cleantech	600	2026	Brookfield
Lumara	600	2026	Brookfield
Leap Green Energy	550	2024	Brookfield
Tata Power Renewable Energy	525	2022	Mubadala Investment Company and others
Hexa Climate Solutions	500	2023	I Squared Capital
Vayona Energy	500	2025	TPG Rise Climate, MAVCO
Avaada Energy	478	2021	GPSC
Hero Future Energies	450	2022	KKR, Hero MotoCorp
Vertelo	405	2024	Macquarie and others
Serentica Renewables	400	2022	KKR
Sunsure Energy	400	2022	Partners Group
CleanMax	360	2023	Brookfield, MGA Ventures
INOX Clean Energy	344	2026	SUN Group Global, Authum, CalPERS, Akash Bhansali

COMPANY	$ Mn	YEAR	INVESTORS
Aditya Birla Renewables	335	2025	Global Infrastructure Partners
Fortum India	334	2021	Actis
PMI Electro Mobility Solutions / Allfleet	310	2026	KKR
North Star Renewable Energy	300	2026	BII, CIP
Fourth Partner Energy	275	2024	IFC, DEG, ADB
ReNew	268	2023	CPP Investments
Sun King	260	2022	BeyondNetZero
Ampin Energy Transition	250	2023	AIIB and others
Serentica Renewables	250	2023	KKR
Mahindra Electric Automobile	240	2022	BII
Avaada Energy	233	2023	GPSC and others
CleanMax	222	2021	Augment Infrastructure
Greaves Electric Mobility	220	2022	Abdul Latif Jameel
ACME Solar Holdings	204	2023	Actis
Juniper Green Energy	200	2021	AT Capital, Vitol
Ola Electric Mobility	200	2022	Alpha Wave Global and others
	200	2021	SoftBank Corp and others
ReNew	193	2024	Edelweiss ARC
Ather Energy	184	2026	Hero MotoCorp
Simple Energy	180	2026	Dr. Velumani Family Office



Concentrated in two sectors: All the top rounds went to power and low-carbon fuels, and transport



Led by large institutional and strategic capital: Most of the largest rounds involve global infrastructure funds, sovereign and pension funds, DFIs and strategic investors



Capital concentrated in a few leaders: Ten companies account for nearly half of the value of the top rounds



Investors return to established players: Five companies raised more than once among the top rounds, often from returning investors

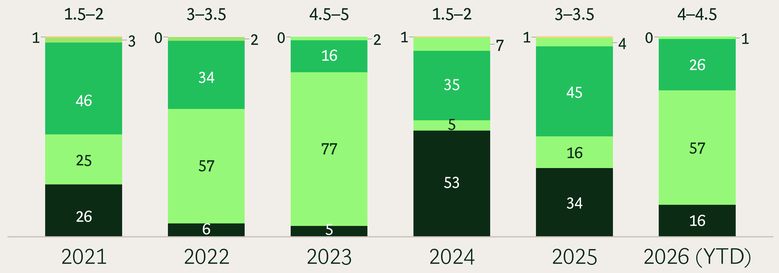
Note: Indicative figures based on equity investments into companies with a major presence in India across C&S categories, 2021–2026 YTD (until Oct 2026). Deal data from Venture Intelligence and Tracxn were combined, and deals reported by both sources were de-duplicated. Figures reflect total equity investments as reported; excludes IPOs and debt financing. Investors shown where disclosed.

Power & transport draw growth & later-stage capital; agriculture stays early-stage, while manufacturing & waste is broadening into growth rounds

Shifting share (%) of funding amounts by stage, 2021–2026 YTD

Non-exhaustive

POWER & LOW-CARBON FUELS (in $ Bn)



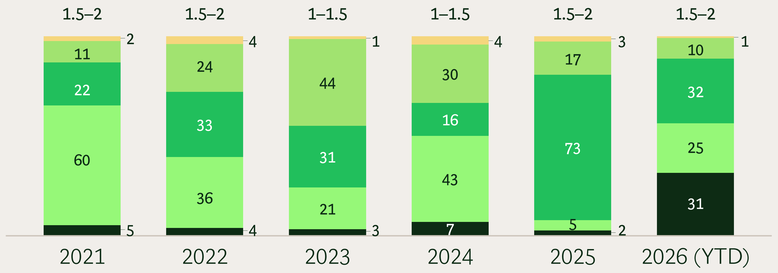
KEY INVESTORS

BROOKFIELD
KKR
BRITISH INTERNATIONAL INVESTMENT

Global infra funds and DFIs lead

Growth and later-stage deals account for most power funding every year

TRANSPORT SECTOR (in $ Bn)



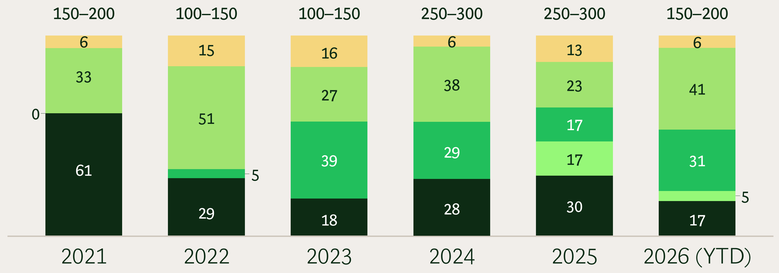
KEY INVESTORS

BLUME VENTURES
HERO MOTOCORP
YAMAHA MOTOR VENTURES

OEM strategics plus domestic VCs anchor

Transport funding has moved upmarket, with growth-stage deals now taking the largest share

MANUFACTURING & WASTE (in $ Mn)



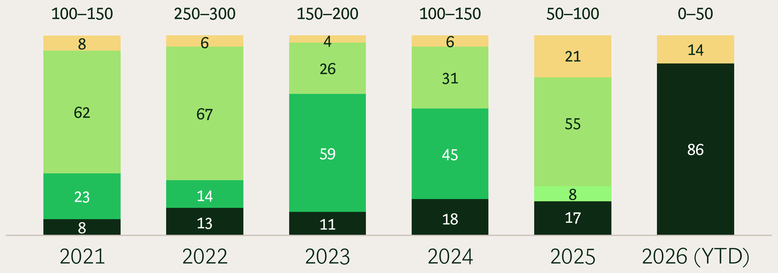
KEY INVESTORS

RAINMATTER CAPITAL
SBI VENTURES
CIRCULATE CAPITAL
SOCIAL ALPHA

Domestic C&S specialists & impact investors lead

Funding has broadened across early and growth stages since 2022, led by recycling

AGRICULTURE (in $ Mn)



KEY INVESTORS

BLUME VENTURES
AVAANA
OMNIVORE
TIAA

Early-stage VC, including C&S-focused & multi-sector strategies

Agriculture funding remains largely early-stage and has fallen in value since 2022, with few growth-stage rounds

Seed | Early | Growth | Late | Pre-IPO & others

Note: Figures based on equity investments into companies with a major presence in India across C&S categories, 2021–2026 YTD (until Oct 2026). Deal data from Venture Intelligence and Tracxn were combined into a single dataset, and deals reported by both sources were de-duplicated. Figures reflect total equity investments as reported; excludes IPOs and debt financing. Investors shown where disclosed.

India's C&S investments draw capital from diverse investor types, with dedicated climate funds complementing broader mandates

Non-exhaustive

Key C&S investors among those participating in the largest rounds, 2021–2026 YTD

INVESTOR	INVESTOR TYPE	TOP INVESTMENTS
3one4 Capital	VC	Exponent Energy, Fasal, Fermbox
Accel	VC	Bounce, Optimist, Fibmold
Actis	Infra fund	Fortum India, ACME Solar Holdings
Alpha Wave Global	Growth equity / PE	Ola Electric Mobility, Absolute
Anicut Capital	Growth equity / PE	River
Avaana Capital	VC	Amperehour, Kazam, Aerem, Tsuyo, Enlite, Dreamfly
Blume Ventures	VC	Euler Motors, Jai Kisan, Battery Smart
British International Investment (BII)	DFI	Mahindra Electric Automobile, Euler Motors and others
Brookfield	Infra fund	Axis Energy Ventures, ACME Cleantech, Lumara
GEF Capital Partners	Growth equity / PE	Yulu, Membrane Group and others
GIC	Sovereign WF	Greenko Energy Holdings, Ather Energy and others
Good Capital	VC	SolarSquare
Gruhas	VC	SolarSquare
Hero MotoCorp	Strategic	Ather Energy, Hero Future Energies and others
International Finance Corporation (IFC)	DFI	Fourth Partner Energy, Hygenco and others

INVESTOR	INVESTOR TYPE	TOP INVESTMENTS
KKR	Infra fund	Gentari Renewables, Serentica Renewables and others
LeapFrog Investments	Growth equity / PE	ReNew, Battery Smart
Micelio Fund	VC	ePlane, Newtrace, Moonrider
Mitsui & Co. Ltd.	Strategic	ReNew, River, EKA Mobility
Mubadala Investment Company	Sovereign WF	Tata Power Renewable Energy
National Investment and Infrastructure Fund (NIIF)	Infra fund	Ather Energy, EKA Mobility, Mahindra Last Mile Mobility
Norfund	DFI	Fourth Partner Energy, SAEL
Omnivore	VC	Varaha, Niqo Robotics, Fasal
Rainmatter by Zerodha	Corporate VC	SolarSquare
Singularity AMC	Growth equity / PE	River, HEG Advanced Materials
Speciale Invest	VC	Ultraviolette
Spectrum Impact	Family office	GPS Renewables
Temasek Holdings	Sovereign WF	Mahindra Electric Automobile
TPG Rise Climate	PE	Tata Passenger Electric Mobility, Vayona Energy
Trifecta Capital	VC	Euler Motors, Jai Kisan

A BROAD INVESTOR BASE

VCs, PE and infrastructure funds, sovereigns, strategics, family offices and DFIs all participate in India's largest C&S rounds

INSTITUTIONAL INVESTORS LEAD, WITH C&S TECH FUNDS BRINGING IN SPECIFIC EXPERTISE

Most active investors are large multi-sector institutional investors having C&S as one of several windows, while C&S-specific funds invest selectively with focused mandates and sector expertise

GLOBAL CAPITAL PLAYS A LARGE ROLE

International investors feature in many of the largest rounds, a sign of India's growing appeal as a destination for C&S investment

Note: Based on investors in the 100 largest C&S equity investments in India by value, 2021–2026 YTD (combined, de-duplicated Tracxn and Venture Intelligence data, until Oct 2026); DFIs and corporates included where they invest directly. Selection of key investors shown.

India's dedicated C&S funds draw on a broadening LP base, from development and public capital to corporates, foundations and family offices

Non-exhaustive

A growing set of dedicated funds is investing in India's C&S sectors

Fund	GP	Approx Size ($Mn), vintage
Green Growth Equity Fund (GGEF)	EVERSOURCE CAPITAL	741 | 2018
NIIF India-Japan Fund	NIIF	590 | 2023
GEF South Asia Growth Fund III	GEF CAPITAL PARTNERS	380 | 2023
Neev II Fund	SBI VENTURES	281 | 2022
GEF South Asia Growth Fund II	GEF CAPITAL PARTNERS	200 | 2018
Omnivore India Fund III	OMNIVORE	150 | 2023
Avaana Climate & Sustainability Fund	AVAANA CAPITAL	135 | 2022
Infuse Ventures	INFUSE VENTURES	20 | 2014

LPs span development finance, domestic institutions, corporates, foundations & family offices

DEVELOPMENT FINANCE (INTERNATIONAL)	BII · BIO · EIB · FMO · Green Climate Fund · IFC · JICA · KfW · RVO · Dutch Good Growth Fund · Proparco · SIFEM · Swedfund · UK Government · US DFC
DOMESTIC PUBLIC INSTITUTIONS	BIRAC · NABARD · NIIF · SIDBI
DOMESTIC BANKS	Bank of India · ICICI Bank · IndusInd Bank · RBL Bank · State Bank of India · Union Bank of India
INSURERS AND PENSION FUNDS	General Insurance Corporation of India · LIC · TIAA
CORPORATES AND CORPORATE VCS	BASF · BP · Godrej · Louis Dreyfus · Murugappa · Torrent · Yara
FOUNDATIONS AND FAMILY OFFICES	Azim Premji Foundation · Ceniarth · Gates Foundation · MacArthur Foundation · Rockefeller Foundation · Self Reliant India
ASSET MANAGERS AND IMPACT INVESTORS	AXA IM · CHECK24 Impact · Sarona · SBI Ventures

More recent funds have drawn private LPs alongside development & sovereign capital

LPs investing in Climate & Sustainability funds in India

PRE-2022

- FMO
- UK GOVERNMENT
- BRITISH INTERNATIONAL INVESTMENT
- BP

POST-2022

- EUROPEAN INVESTMENT BANK GROUP
- GODREJ
- GREEN CLIMATE FUND
- AZIM PREMJI FOUNDATION

Expanding beyond development-finance and sovereign-backed capital, with growing participation from private LPs

Note: Illustrative; non-exhaustive. LPs as disclosed in PitchBook for the India-focused C&S funds shown.
Source: PitchBook (Oct 2026); fund announcements; BCG analysis.

LPs expect market-rate returns and institutional-grade funds, with requirements that differ by LP type

	Development finance	Pension funds and insurers	SWFs and banks	Corporates and strategics	Foundations and family offices
Typical role	Often **anchor or cornerstone** LPs, frequently at first close	**Large, long-horizon LPs**; Indian pension and insurer allocations to AIFs are capped	SWFs as **large anchors**; **banks as smaller LPs**, capped by RBI rules	**Strategic minority LPs** alongside other investors	**Catalytic or early** LPs
What they commonly assess	• **Measurable development** and climate impact • **Manager track record** and team • Fund **E&S management** system • Gender and inclusion practices	• **ESG due diligence** at selection and in ongoing monitoring • **Long-term, partner-**like relationships	• Investment **guidelines and risk controls** • **Manager sector expertise** and ESG reporting	• **Strategic fit** and co-investment access • **Access to technology** and deal flow in their sector	• **Impact targets** set up front • **Mission fit**, with impact weighed alongside returns
Frameworks often referenced	• IFC Performance Standards • EDFI / IFC exclusion lists • 2X Challenge • Operating Principles for Impact Management	• UN PRI • ESG Data Convergence Initiative (EDCI) • TCFD / ISSB (IFRS S2) • PFRDA master circulars; IRDAI investment rules	• RBI (Investment in AIF) Directions, 2025 • Santiago Principles (SWFs) • TCFD / ISSB (IFRS S2)	• GHG Protocol • UN Global Compact	• IRIS+ • Catalytic Capital Consortium (C3)

LPS EXPECT MARKET-RATE RETURNS

Institutional LPs evaluate C&S funds alongside mainstream venture and PE funds, and largely target market-rate returns

PATIENT CAPITAL STILL ANCHORS

Development and catalytic capital, which accepts longer holding periods, continues to anchor many C&S funds

Across LP types, track record, institutional-grade governance and robust impact reporting commonly form part of fund due diligence

Note: Indicative; requirements vary by LP and fund, and are not exhaustive.
Source: GIIN, Annual Impact Investor Survey (2023); Business Today (2025); LP, DFI and framework-owner disclosures (BII, DFC, SIFEM, BIO, Swedfund, CPP Investments, MacArthur Foundation, EDCI, 2X Global, Impact Principles); RBI, PFRDA and IRDAI circulars; BCG analysis.

2.

India’s Climate & Sustainability Story: Why the Transition is Here to Stay



AI GENERATED IMAGE(S)

India's emissions are rising with growth, led by power (~40%), with agricultural methane and transport next

Emissions have grown with the economy, but each unit of GDP now emits less

EMISSIONS ROSE OVER THE LAST ~2 DECADES

Emissions have risen by ~70% over the past ~2 decades, driven by rising energy use in power, manufacturing & transport

THE ECONOMY HAS BECOME LESS EMISSIONS-INTENSIVE

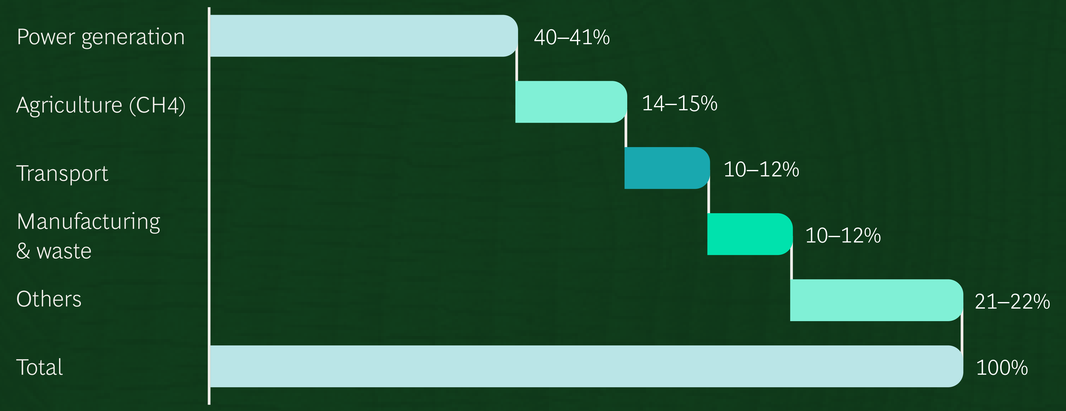
Emissions / unit of GDP have fallen by over a third from 2005 to 2022, putting India on course for NDC targets of a 45% reduction by 2030 & 47% by 2035, helped by the build-out of renewable power & efficiency gains

EMISSIONS ARE EXPECTED TO KEEP RISING IN THE MEDIUM TERM

With India's energy demand projected to grow 2.1–2.6× by 2070 depending on policy scenario, emissions are expected to increase in the medium term, while low-carbon energy & efficiency gains drive longer-term reduction

Power generation accounts for ~40% of India's emissions, followed by agriculture, transport, manufacturing and waste

SECTORAL SHARE IN INDIA GHG EMISSIONS EXCL. LULUCF



Burning fossil fuels for energy is the dominant source for ~three-quarters of India's emissions. Power generation alone contributes ~40%, as coal still meets most of India's growing power demand, followed by agriculture (~15%, mainly methane from livestock and rice), transport, and manufacturing and waste

Note: LULUCF (Land Use, Land-Use Change and Forestry) excluded from emissions. Manufacturing & waste covers emissions from industrial processes and product use (IPPU) and from waste. Emissions from fuel burnt in manufacturing are reported under energy and shown in Others, along with fuel used in refineries, buildings and fugitive emissions.
Source: MoEFCC, India's First Biennial Transparency Report to the UNFCCC (2024); MoEFCC, Fourth Biennial Update Report (2024); NITI Aayog, Scenarios Towards Viksit Bharat and Net Zero, Vol. 1 (2026) for projections; CEA generation; BCG analysis.

India's 2070 net-zero target now has sector pathways, creating room for long-term institutional capital

India's C&S commitments have evolved from intensity pledges to a net-zero date and sector requirements

2015 — INTENSITY PLEDGE

IT BEGAN WITH THE PARIS AGREEMENT, FRAMED AROUND GROWTH RATHER THAN CUTS

Committed to lowering emissions per unit of GDP & raising the non-fossil power share, letting emissions rise with development

2021 — NET-ZERO DATE

INDIA ADDED THE END-POINT: NET ZERO BY 2070

Announced at Glasgow & backed by a 500 GW non-fossil target for 2030; the 2022 long-term strategy set the sector pathways given in the table

2022 onwards — SECTOR RULES

SINCE THEN, THE COMMITMENT HAS BECOME PATHWAYS FOR EACH SECTOR

Rather than a national cap, India urges buyers in each market to shift, from utilities & manufacturers to refineries & new buildings

2026 — 2035 TARGETS

INDIA HAS NOW SET HIGHER GOALS FOR 2035

Its new climate pledge (NDC 3.0) commits to a 47% cut in emissions per unit of GDP from 2005 levels & about 60% non-fossil power capacity by 2035

NET ZERO REQUIRES A STEP-CHANGE IN EVERY SECTOR BY 2070

SECTORS	REQUIREMENTS	UNITS	CURRENT (YEAR)		2070
POWER & LOW-CARBON FUELS	Non-fossil % of electricity generation	%	23 (2025)	→	100
	Solar and wind capacity	GW	164 (2025)	→	~6K
	Battery storage	GW	5-5.5 (FY27)	→	2.5–3K
TRANSPORT	Electricity % of transport energy	%	2 (FY24)	→	45
MANUFACTURING & WASTE	Electricity share of industrial energy	%	~16 (FY25)	→	55
	Waste-sector emissions	$MtCO_2e$	76 (2020)	→	11
AGRICULTURE	Solar irrigation pumps	% pumps	~2 (2020)	→	60
	Natural / chemical-free farming	% area	~6 (2019)	→	25
	Crop residue burnt	Mt / yr	~92 (2019)	→	~37 (–60%)
OTHERS	Electricity share of building energy	%	~24 (2020)	→	70

Note: Battery storage value for FY27 as at 30th Sept 2026.
Source: NITI Aayog, Scenarios Towards Viksit Bharat and Net Zero, Vols. 1, 3–8 (2026); MoEFCC (BTR-1, 2024; LT-LEDS, 2022); MNRE (PM-KUSUM and National Green Hydrogen Mission progress, 2026); CEA (2026); BEE; IEA; BCG analysis.

Delivering this transition needs $22–24 Tn of investment, an opportunity with over 50% of the investment needed concentrated in power & low-carbon fuels

SECTOR	SEGMENT	INVESTMENT NEEDS 2050 ($TN)	INVESTMENT NEEDS 2070 ($TN)
Power & low-carbon fuels	Grid storage	1.30–1.35	4.70–4.85
	Transmission & distribution	1.40–1.45	3.60–3.70
	Utility renewables	1.05–1.10	3.00–3.10
	Green hydrogen	0.80–0.85	2.20–2.25
	Nuclear	0.14–0.16	0.30–0.40
	Offshore wind	0.02–0.03	0.05–0.15
Transport	EVs, batteries, charging	1.50–1.55	4.20–4.35
Manufacturing & waste	Industry (incl. captive power)	1.30–1.35	2.45–2.60
	Carbon capture (CCUS)	0.01–0.03	1.25–1.30
	Waste & recycling	0.30–0.50 (indicative)	
Agriculture		0.60–0.80 (indicative)	
Others		-	-

Investment needed to 2050 and 2070, by sector and segment

THE SCALE OF INVESTMENT NEEDS A SEVERAL-FOLD STEP-UP
$22–24 Tn over 2026–70 works out to about **$500 Bn a year**, against current annual flows of **~$135 Bn.**

POWER AND LOW-CARBON FUELS MAKE UP THE LARGEST SHARE AND MOST OF IT IS EXPECTED TO FLOW INTO SUB-SECTORS OF POWER BEYOND GENERATION
Of the **$13.9–14.5 Tn** 2070 requirement, **~$3.5 Tn** is expected to flow into generation. **Storage, grid & green hydrogen** are expected to absorb the other **$10.5–10.8 Tn** in order to store and move low-carbon power, and ensure its availability round the clock.

TRANSPORT AND MANUFACTURING & WASTE ARE THE NEXT $8-9 TN
$4.2–4.35 Tn of investments will flow into **EV factories, batteries and chargers** by 2070. As factories are rebuilt to run on low-carbon energy, it is expected that investments of $4-4.4 Tn would flow into manufacturing & waste, of which **$1.25-1.3 Tn** will be utilized for capturing carbon where process emissions cannot be avoided.

MOST OF THE SPEND COMES AFTER 2050
~$8 Tn is needed before 2050 and **$14–16 Tn** after, because the later technologies, such as **carbon capture, hydrogen at scale and long-duration storage**, only reach deployment in the second half.

CAPITAL WILL COME FROM A MIX OF DEBT AND EQUITY
NITI Aayog projects that India can mobilize about **two-thirds of the investment** needed for net zero. Equity is expected to fund about **half of this**, from institutional investors, FDI, corporate balance sheets, FPI and **PE / VC. PE / VC is expected to provide ~3–5% of equity,** which will require annual PE / VC inflows to rise from today's level.

Note: Green hydrogen is classified under "Industry" by NITI Aayog; 2050 and segment values estimated from NITI Aayog charts; waste & recycling and agri are BCG indicative estimates.
Source: NITI Aayog, Scenarios Towards Viksit Bharat and Net Zero: Financing Needs, Vol. 9 (2026) and Vol. 1 (2026); BCG analysis.



Policy shapes the economics of C&S investment through five levers, from creating demand to sharing risk

Each lever improves returns by supporting demand visibility, lowering cost or reducing risk, which is why investment follows where policy is strongest

1. DEMAND CREATION

Public procurement and consumption mandates can strengthen demand visibility; revenues still depend on contracts and payment performance

2. CAPEX AND PRODUCTION SUPPORT

Government shares the cost of building domestic capacity via subsidies or output-linked incentives, which can lower upfront investment

3. TRADE AND SOURCING PROTECTION

Tariffs and approved-supplier lists can protect domestic producers from import competition

4. INFRASTRUCTURE AND RISK-SHARING

Government builds shared infra or shares part of the financing risk, lowering the cost of capital

5. MARKET MECHANISMS

Government creates price / tradable tools to reduce emissions (e.g., carbon credits), turning decarbonization into a potential revenue line

Source: NITI Aayog, Vol. 1 (2026); BCG analysis

Investment has grown fastest where C&S policy and wider national priorities reinforce each other

Non-exhaustive

Sector	Power	Transport	Waste	Agriculture	Manufacturing
1 **Demand creation**	25-year PPAs Auctions; RCO, Open access rules	PM E-DRIVE; PM e-Bus Sewa; CAFE norms	EPR obligations; biogas blending mandate	Ethanol Blending Program	CCTS emission-intensity targets, Green Steel Taxonomy
2 **Capex support**	PLI for modules & cells; VGF for storage, PM Surya Ghar	PLI for auto and battery cells, SPMEPCI	GOBARdhan scheme for biogas plants	PM-KUSUM solar pumps; National Mission on Natural Farming	ADEETIE energy-efficiency scheme
3 **Trade protection**	Basic Customs Duty; ALMM	Duties on imported EVs			
4 **Infra & risk sharing**	Green Energy Corridors, ISTS charges waiver	Charging support; e-bus payment security	Swachh Bharat Mission	Agriculture Infrastructure Fund; PM Fasal Bima Yojana	CCU testbeds for cement
5 **Market mechanisms**	RECs, Green Day-Ahead		EPR certificate trading	Green Credit Program	Carbon Credit Trading Scheme
Investment landscape	Scaled	Scaled	Building	Building	Early
Policy pattern	• Both sectors combine mandated demand with capex support, trade protection and shared infra, much of it linked to Atmanirbhar and Viksit Bharat, and have attracted the most C&S investment		• Waste relies mainly on EPR rules and the biogas blending mandate, and agriculture on farm-infra finance, crop insurance and solar pump schemes • Waste is drawing growing investment, while agriculture has fallen since 2022		• Frameworks are in place, but tools that create demand visibility are limited, & investment remains at an early stage

C&S investment in India has been shaped by policy support as much as the C&S agenda – strongest where C&S goals and the Atmanirbhar and Viksit Bharat agendas reinforce each other

Note: Scheme outlays as notified (2021–2026). Investment-landscape ratings based on C&S funding by sector, 2021–2026 (Section 1).
Source: Ministry of Power; MNRE; Ministry of Heavy Industries; Ministry of Finance; Ministry of Agriculture and Farmers Welfare; MoEFCC / CPCB / BEE; MoPNG; MoHUA; Ministry of Steel; CERC; Ministry of Commerce and Industry (PIB, 2026); European Commission; NITI Aayog, Vol. 1 (2026); ICAP; Section 1 of this report; BCG analysis.

Beyond mitigation, adaptation and resilience will be important to protect value

Climate impacts are already imposing real costs, and India is among the most exposed

$3.6 Tn
climate-disaster damage since 2000

5–25%
of 2050 EBITDA at risk for unprepared businesses from physical climate risks

16–22%
lower global GDP by 2100 without decisive climate action

10–15%
of global GDP losses this century preventable by investing ~3% of GDP in mitigation & adaptation

$2–19
benefit over the life of the investment for every $1 companies put into adaptation

Lives
Heat and extreme weather are now a growing cause of death and displacement

- Heat & disasters have become some of the fastest-growing health risks worldwide. An estimated 546K people have died from heat each year over 2012–21, with the death rate up 23% since the 1990s, and 45.8 Mn people were displaced by disasters in 2024, the highest on record.
- India is at the sharp end of both. Extreme weather was recorded on 331 of 334 days in Jan–Nov 2025, claiming 4,419 lives; 5.4 Mn people were displaced in 2024 & 300 Mn+ Indians could face heatwaves by 2050.

Assets
Physical damage is mounting, and India's share of it is largely uninsured

- Even in a below-trend year, disasters destroyed $220 Bn of assets worldwide in 2025, roughly half of it uninsured, leaving the loss with households and governments
- In India, much of the damage falls on farms and homes. Extreme weather hit 17.4 Mn ha of cropped area and destroyed 181K+ houses in Jan–Nov 2025; with non-life insurance at ~1% of GDP against 4.3% globally, most of the loss is absorbed directly by families and the state.

Economy
The losses compound into lower productivity and growth

- Heat is already cutting what people can earn. A record 639 Bn work hours were lost to heat globally in 2024, worth $1.09 Tn in potential income.
- India carries nearly two-fifths of those lost hours, and the drag widens over decades. 247 Bn hours and $194 Bn were lost in 2024, two-thirds in agriculture; every 1°C of warming cuts crop yields by ~8%; and India's GDP is projected 24.7% below a no-climate-change baseline by 2070, against 16.9% for APAC.

High exposure and thin insurance cover mean a larger share of India's climate losses is uninsured than in most economies, creating demand for adaptation alongside mitigation

Source: WEF–BCG, The Cost of Inaction (2026); Lancet Countdown (2025); IDMC, Global Report on Internal Displacement (2025); CSE / Down To Earth (2025); Swiss Re Institute, sigma 1 / 2026; IRDAI Annual Report 2024–25; CSTEP–CSEP–Monash (2026); ADB, Asia-Pacific Climate Report (2024).

India is well placed to respond, with most of the infrastructure for future demand yet to be built and a proven ability to deliver at scale

Most of the infrastructure assets India will need are yet to be built



POWER

Electricity demand is set to grow 8-9× by 2070, from ~1,540 TWh in 2024 to 12,500-13,000 TWh



MANUFACTURING

Demand for steel and cement is set to grow 3-6× by 2070



BUILDINGS

85-90% of the floor space India will have in 2070 is yet to be built

Because most of this capacity is still to come, much of it can be built low-carbon from the outset rather than retrofitted later

India has already demonstrated the capability to build at scale



DEPLOYMENT

- Record non-fossil additions in FY26, nearly double the previous year
- Ethanol blending reached 20% in 2025, five years ahead of the original 2030 target



MANUFACTURING & LOCALIZATION

- Solar module manufacturing has scaled rapidly, giving India a strong base for build-out ahead
- Wind equipment is 70–80% localized, & low-carbon tech exports are emerging



TALENT

- Renewable energy already employs over a million people
- A large engineering base and 2,000+ global capability centers provide deep technical talent

Source: NITI Aayog, Vols. 1 and 5 (2026); CEA, National Electricity Plan 2022–32 (2023); MNRE / PIB (2026); MoPNG (2025); IWTMA (2026); IRENA–ILO, Renewable Energy and Jobs (2025); Zinnov–Nasscom (2026); BCG analysis.

Global shifts in energy security, supply chains and trade further reinforce the case for the green transition

Global shift	What is happening	Impact on India's climate economy	What it means for capital
Energy security	India imports **~90% of its crude oil**; 2026 supply disruptions in West Asia pushed **import bill sharply higher**	Strengthens the case for **renewables, storage, EVs & biofuels**	Every unit of low-carbon energy reduces import exposure, giving **transition durability beyond C&S policy**
Supply chains & critical minerals	China accounts for **a large share of low-carbon production**; capacity expansion has increased supply and lowered prices	**Localization opportunity,** with price pressure on domestic manufacturers	Investment is moving upstream into **cells, wafers & refining**
Green trade rules	**EU carbon border measures** apply from 2026; traceability rules are extending to agri commodities	**Low-carbon** & **traceable production** becomes a condition of market access	**Measurement, reporting and verification** (**MRV**) & traceability emerge as investable layers
Circularity rules	**Recycled-content & producer-responsibility** rules are spreading globally	Waste becomes **a regulated feedstock**	**Recycling** moves towards an **industrial asset class** with growing regulated demand
Trade agreements	New trade deals and frameworks with **38 countries** including EFTA and EU member states, widen market access; some carry investment commitments, such as **EFTA's $100 Bn objective**	Wider export access & **new sources of capital, technology** & **critical minerals**, alongside tougher import competition	**Export-oriented manufacturers, technology joint ventures** and **critical-mineral partnerships** gain access to new markets and capital

Note: Trade deals include the EU-27 (agreement concluded Jan 2026, awaiting signature) and the US (framework for an interim trade agreement, Feb 2026).
Source: NITI Aayog, Vol. 1 (2026); PPAC; Carnegie Endowment (2026); IEA, Energy Technology Perspectives (2026); European Commission; MoEFCC; Ministry of Commerce and Industry (PIB, 2026); Invest India.

3.

Where the Next Investable Opportunities Emerge

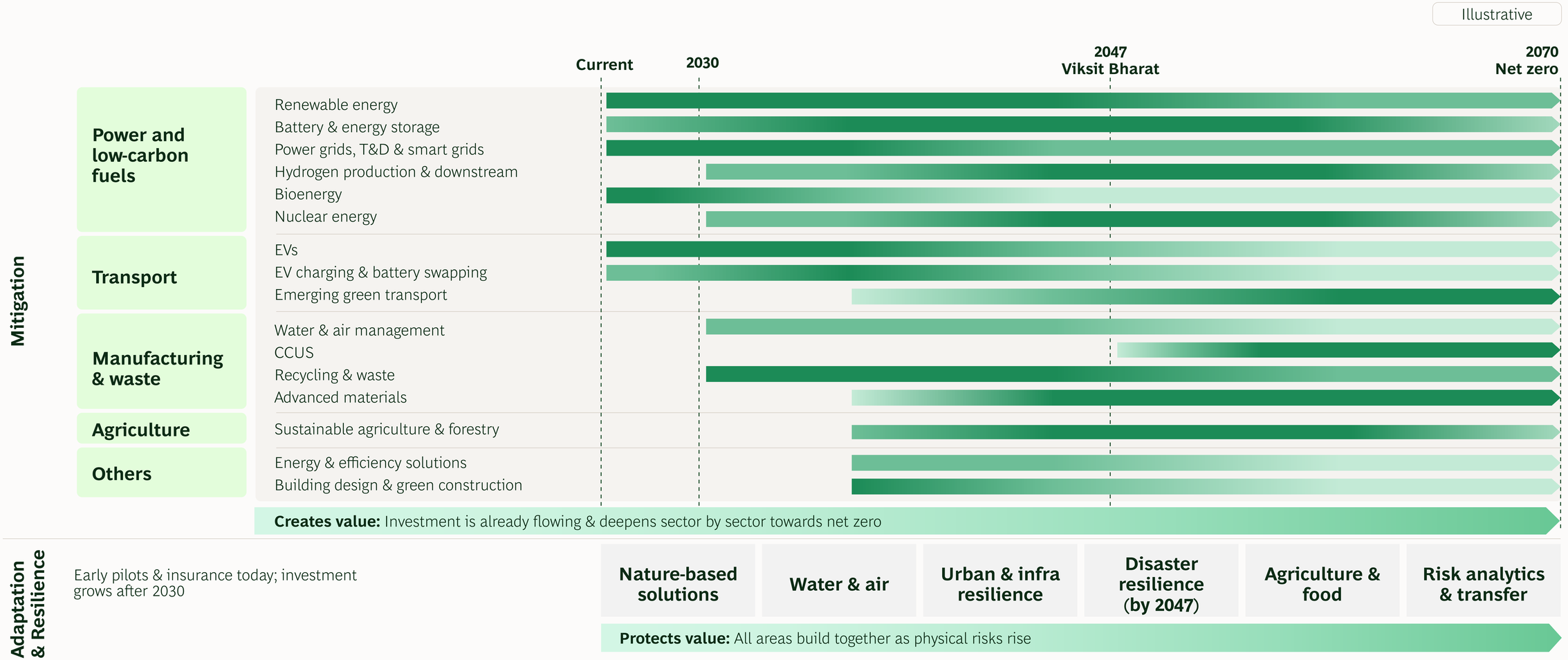


AI GENERATED IMAGE(S)

C&S opportunities fall into two groups, mitigation and adaptation and resilience, which earn returns in different ways

	WHAT IS IT?	SECTORS	HOW DO THEY EARN RETURNS?
Mitigation How do we cut the emissions causing the problem?	Technologies that **cut or remove** greenhouse gas emissions **3 levers to achieve this:** • Use **less energy & materials** (efficiency, demand reduction) • Switch supply to low-carbon sources (renewables, nuclear, green H2) • Capture or store carbon (CCUS, nature-based sinks)	Power and low-carbon fuels Transport Manufacturing & waste Agriculture Others	**Revenue from selling low-carbon energy, products or services**, often with **measurable output**
Adaptation & Resilience How do we protect people & assets from impacts already under way?	Technologies that help **systems cope with climate impacts** that are already locked in **2 functions:** • Adaptation: **Adjust to new conditions** (water efficiency, cooling) • Resilience: **Recover from shocks** (early warning, risk analytics)	Nature-based solutions Water & air Urban & infra resilience Disaster resilience Agriculture & food Risk analytics & transfer	Returns come from **avoided losses and services** that buyers pay for, such as insurance, water and cooling, though **cash flows are often less direct**

Mitigation creates value and is already scaling; adaptation and resilience protect it as climate impacts build



Note: Bars start when investment is expected to scale and continue to 2070; darker shading means higher investment intensity; axis not to scale; Water & air under adaptation covers solutions that help cope with water scarcity, floods and poor air quality, such as water recycling, efficient irrigation, stormwater storage and air-quality monitoring.
Source: NITI Aayog, Scenarios Towards Viksit Bharat and Net Zero (2026); BCG analysis.

On the mitigation side, technologies span five sectors, from power and transport to manufacturing, agriculture and buildings

A — POWER AND LOW-CARBON FUELS (INCL. GRID AND STORAGE)

- Renewable energy (incl. solar, wind, hydro & tidal, synthetic & e-fuels)
- Battery and energy storage (incl. BESS and battery management systems)
- Power grids (C&S focused, e.g. smart grids)
- Hydrogen production & downstream
- Bioenergy
- Nuclear energy

B — TRANSPORT

- EVs (incl. powertrains)
- EV charging & battery swapping
- Emerging green transport (incl. hybrid mobility, VTOLs & hyperloop)

C — MANUFACTURING & WASTE

- Water & air management (incl. CCUS)
- Recycling & waste (incl. critical minerals, plastic, organic waste)
- Advanced materials (incl. biomaterials, sustainable packaging)

D — AGRICULTURE

- Sustainable agriculture & forestry

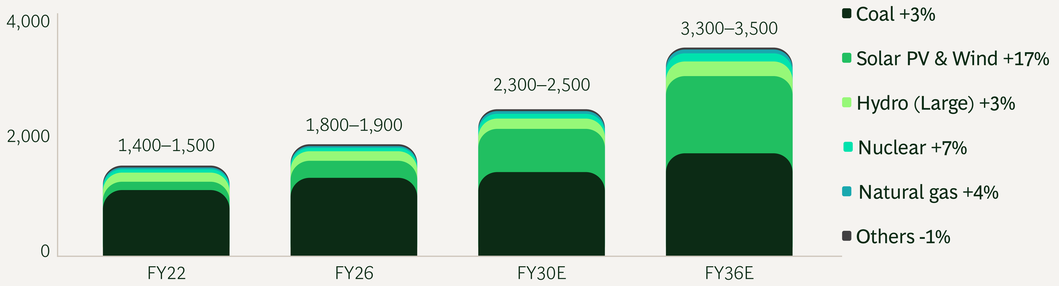
E — OTHERS

- Energy & efficiency solutions
- Building design & green construction

Renewable energy: Solar and wind have become the backbone of new supply, while nuclear adds firm power and hydro adds flexibility

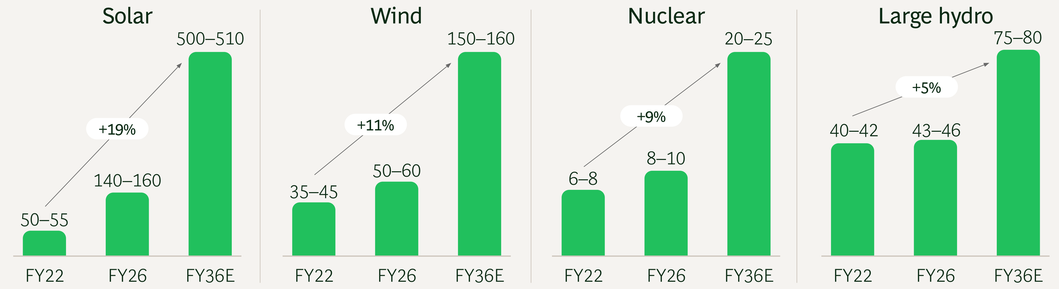
Solar and wind are expected to add most new generation to 2035 as coal's share falls, while nuclear and hydro capacity scale up

INDIA'S ELECTRICITY GENERATION (TWh)



Source: CAGR FY22–36E

INDIA'S INSTALLED CAPACITY (GW)



Low costs, mandated demand and the need for round-the-clock power are driving the shift

- **Falling coal share:** Coal-fired generation fell ~3% in 2025, only its 2nd YoY drop in 50 years, as solar & wind met most new demand
- **Solar & wind are cheaper new power:** Tariffs at ₹2–3 / kWh for solar & ₹3–4 / kWh for wind vs ₹5–6 / kWh for new coal
- **Mandated & broadening RE demand:** Ministry of Power requires electricity distribution licensees to source 43.3% from renewables by FY30 & direct corporate contracts & subsidies add factory, household & farm demand
- **Nuclear opening up for firm power:** ₹20,000 Cr small-reactor mission & private participation support nuclear growth, with 13.6 GW under implementation set to raise capacity
- **Hydro provides critical grid flexibility:** Fast-ramping hydro balances solar intermittency and evening peaks, while purchase obligations support new hydro and pumped-storage capacity

What it means for capital

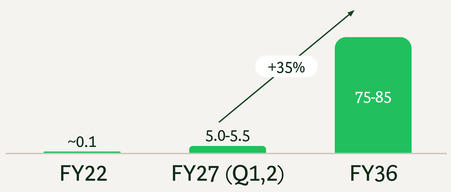
- **Maturity:** Solar and wind are mature; nuclear is early-stage for private capital, which has recently been allowed in; hydro is scaling
- **Capital today:** Mainly infra funds, PE & sovereign / pension investors in utility-scale platforms, with DFIs alongside
- **Nature of opportunity:** Largely domestic deployment, manufacturing (Make in India), with module exports emerging
- **Economics:** Renewable IPPs report the last 5-year average EBITDA margin of 75%+ (large companies)

Note: FY30E and FY36E generation read from CEA charts. EBITDA margins based on reported financials of key listed players in the segment.
Source: CEA, National Electricity Plan 2022–32 (2023) and Long-Term National Resource Adequacy Plan 2035–36 (2026); CREA (2026); Mercom India; Ember (2026); Business Standard (2026); MNRE / PIB (2026); Ministry of Power / BEE; Ministry of Finance; Department of Atomic Energy (2026); company filings; BCG analysis.

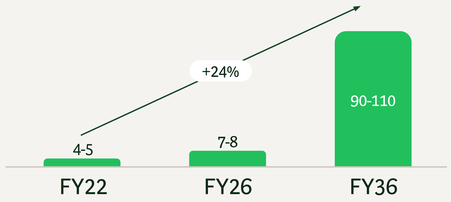
Storage and grid: As solar's share grows, power must be stored and moved, making storage and grid the next big build-out

Storage: Battery storage scales from ~5-5.5 GW to ~75-85 GW by FY36, as falling costs and policy support shift solar power to evening peaks

Battery storage capacity, GW



Pumped storage capacity, GW



Solar makes storage indispensable: With over half of capacity now non-fossil, midday solar must shift to evening peaks, taking batteries from 5.0-5.5 GW to ~75-85 GW by FY36

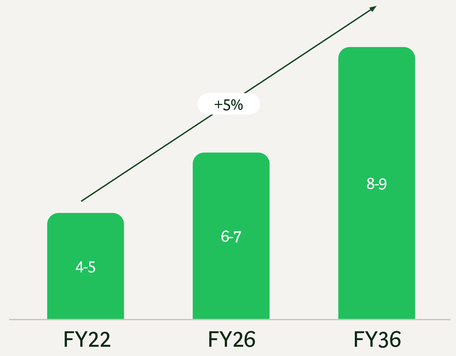
Pumped hydro adds longer duration: Batteries cover 2–4 hours; pumped storage balances the grid for longer, growing from 7-8 GW in FY26 to 90-110 GW by FY36

Storage is approaching cost competitiveness: RE and storage tariffs have reached ₹5-6 / kWh, broadly comparable to new coal bids

Policy is driving deployment and localization: Viability gap funding, storage-linked tenders, domestic-content rules and simpler pumped-storage site allocation

Grid: Grid capacity grows steadily, with connectivity and equipment supply emerging as the main bottlenecks

Sub-transmission substation capacity, lakh MVA



Connectivity bottleneck: Solar & wind plants sit far from cities & industry, so new lines are needed to avoid wasting power

Demand is driving local grid expansion: Rooftop solar, EV charging & farm load take sub-transmission substation capacity from 6-7 lakh MVA (FY26) to 8-9 lakh MVA by FY36

Supply gaps open space for domestic manufacturers: Rising transformer demand, limited local capacity and long lead times open space for Indian suppliers

What it means for capital

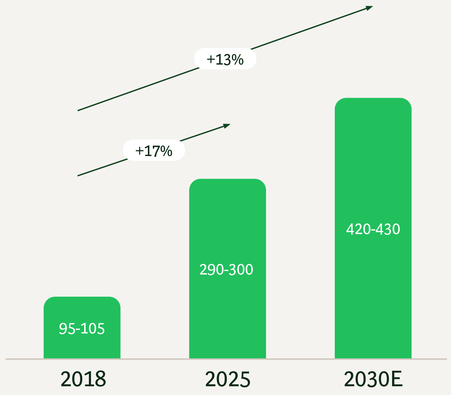
- **Maturity:** Mature transmission with long-term contracted revenues; battery & pumped storage are maturing
- **Capital today:** Infra funds, sovereigns & DFIs in grid platforms; VC & growth / PE in storage & equipment makers
- **Nature of opportunity:** Domestic build-out, manufacturing of cells, packs & grid equipment (Make in India), with battery software & long-duration storage as innovation areas & export potential in grid equipment
- **Economics:** Listed grid-equipment makers: The last 5-year average EBITDA margin of 5-15%; storage project returns not observable at scale

Note: EBITDA margins based on reported financials of key listed players in the segment. Battery storage installed capacity for FY27 is as of Sept 2026, CAGR calculated from FY27.
Source: CEA, National Electricity Plan 2022–32 (2023), Monthly dataset & Long-Term National Resource Adequacy Plan 2035–36 (2026); Ministry of Power / PIB (Rajya Sabha reply, Aug 2026); MNRE / PIB (2025); IEEFA-JMK (2026); Ember (2026); Business Standard (2026); company filings; BCG analysis.

Low-carbon fuels: Beyond electricity, biofuels are growing on energy-security and farm-waste policy, while green hydrogen is gaining its first industrial buyers

Biofuel: Demand has grown ~17% a year from 2018-25, as rising blending mandates extend from ethanol to biogas, biodiesel and aviation fuel

Biofuel demand, PJ / year



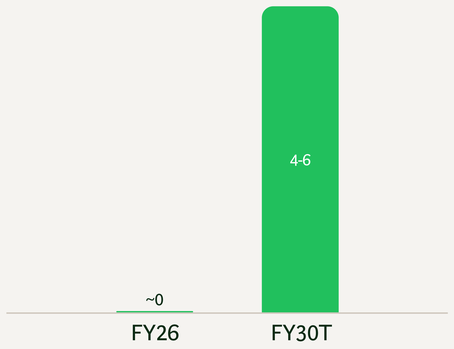
Ethanol built the market: 20% blending achieved; 5% biodiesel and 1-5% aviation-fuel blending next

CBG demand accelerating: Mandatory blending rises to 5% by FY29, supported by offtake arrangements and commissioned plants

Feedstock collection is the constraint: ~92 Mt of crop residue is burnt each year (2019), plus sugar-mill and city waste; aggregating it, rather than burning it, is the challenge

GH2: Green hydrogen is moving from targets to contracts, with low-cost solar and the first fertilizer and refinery buyers in place

Green hydrogen commissioned production capacity, Mt / year



Low-cost RE: RE accounts for 50-70% of green hydrogen's cost, and RE's low cost in India makes manufacturing cost competitive

First buyers in place: 7.24 lakh t / yr of green ammonia contracted for 13 fertilizer units, with refinery and export demand growing

Refineries are the next buyers after fertilizer: Four refineries have awarded contracts for ~30,000 t a year of green hydrogen, adding a second anchor market

What it means for capital

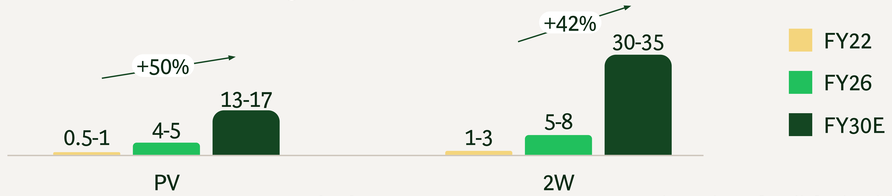
- **Maturity:** Ethanol is mature; compressed biogas is maturing, with fixed offtake prices; green hydrogen & derivatives are moving from contracts to first commercial plants
- **Capital today:** Mainly infra funds, DFIs, with impact / VC investors entering biogas
- **Nature of opportunity:** Domestic blending supply & electrolyzer manufacturing (Make in India); green ammonia exports later; feedstock aggregation as an area of innovation
- **Economics:** Listed ethanol producers: the last 5-year average EBITDA margin of 5–15%; green hydrogen plants are being commercialized

Note: 2030E is the IEA main case; the accelerated case is 609 PJ. EBITDA margins based on reported financials of key listed players in the segment.
Source: IEA, India Bioenergy Market Report (2026); MoPNG / PIB (2023–2026); MNRE (Parliament replies, 2026; National Green Hydrogen Mission); NITI Aayog, Vol. 6 (2026); National Policy on Biofuels (2018, amended 2022); Ministry of Civil Aviation; company filings; BCG analysis.

Transport: Two-wheelers are scaling and passenger vehicles are starting to follow, so the next gains lie in charging, fleets and the supply chain

EV adoption is led by two- and three-wheelers, where running costs have flipped, while buses grow on government tenders

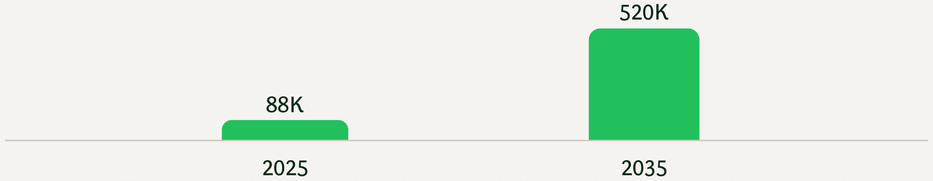
EV share of new vehicle sales in that segment, %



- **Electric 2W & 3W now more economical:** E-scooters & e-autos now cost less than fossil fuel vehicles in terms of total cost of ownership
- **Incumbents have made EVs mainstream:** Leading companies like Bajaj, TVS & Hero lifted their combined share of e-2W from 30-35% to 50-55% in two years, using their dealer networks
- **Government is the anchor buyer for buses:** 38,000+ e-buses to be supported over FY25–29 with a ₹3,435 Cr payment-security scheme

Public charging points are projected to grow ~6× by 2035, requiring a faster pace of installation

Public EV charging points in India, projected as per Current Policies Scenario (CPS)



- **Cars and buses need denser charging to switch:** Public charging points are projected to reach ~520K by 2035
- **Swapping suits fleets that can't stop:** Delivery two-wheelers & e-rickshaws swap batteries in minutes & buy vehicles without them, making a difference in pricing (battery pack is 35–40% of vehicle value)

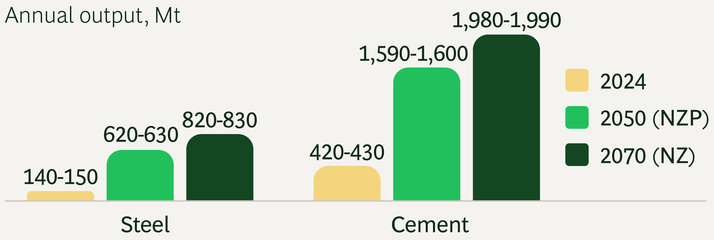
What it means for capital

- **Maturity:** Electric two- and three-wheelers and e-buses are maturing into the mainstream; charging and swapping are scaling; e-cars and trucks are early
- **Capital today:** VC & growth equity in EV makers, swapping & fleet platforms, with listing exits; incumbents investing from their balance sheets; infra & leasing platforms in e-bus fleets
- **Nature of opportunity:** Domestic manufacturing of vehicles, battery packs and components (Make in India); innovation areas: Charging, swapping, battery-as-a-service
- **Economics:** Listed pure-play EV 2W makers have started to approach EBITDA breakeven

Note: Public charging points are IEA estimates; India's station count is converted at three charging points per station (IEA assumption). 2035E is the IEA Current Policies Scenario (CPS).
Source: BCG, India Auto Industry Update (2026); IEA, Global EV Outlook (2026); Vahan; NITI Aayog; Ministry of Heavy Industries / PIB (2024–2025); CESL (2023); company filings; BCG analysis.

Manufacturing and waste: Rules are creating buyers for recycling today, while greening heavy industry awaits a carbon price

Manufacturing grows several-fold but is hard to decarbonize; waste outgrows capacity



- **Most capacity is yet to be built:** A developed, more urban India needs 3-6× today's materials by 2070
- **Hard to decarbonize:** 80-85% of heavy industry energy is fossil-based
- **Waste is outgrowing capacity:** 100-110 Mt of solid waste generated a year, 61% of which is landfilled

Mandates create demand for recycling and water treatment

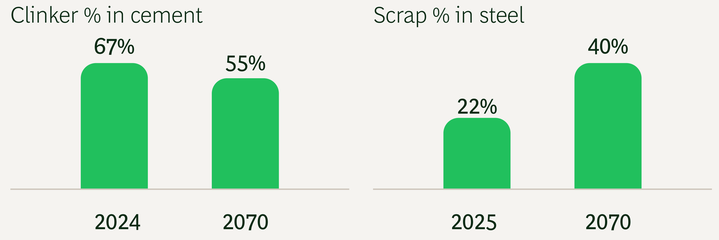
Recycling and waste

- **Law is creating buyers:** Rigid plastic packaging must contain 30% recycled plastic from FY26, rising to 60% by FY29; producers must also collect and recycle batteries and e-waste
- **Processing must scale:** Solid waste is expected to rise ~4.5× from 100-110 Mt in 2020 to ~476 Mt in 2070 under current policies, with ~85% to be treated on the net-zero pathway

Water and air treatment

- **Tighter norms drive demand:** The National Clean Air Program's (NCAP) 40% pollution-cut target by 2026, emission & wastewater norms raise demand for monitoring and treatment

Low-carbon materials and carbon capture await carbon pricing



Low-carbon materials

- **Carbon is starting to be priced:** EU CBAM applies to steel from 2026; India's Green Steel Taxonomy lets buyers specify grades
- **New plants can be built low-carbon:** Scrap-based furnaces, low-clinker cement & green hydrogen

What it means for capital

- **Maturity:** Recycling, waste processing and water treatment are maturing with mandated demand; low-carbon materials and carbon capture are early-stage
- **Capital today:** Mostly early- and growth-stage capital in recycling, waste and water treatment
- **Nature of opportunity:** Domestic processing capacity driven by producer-responsibility and pollution rules (Make in India); low-carbon materials for CBAM-exposed exports; process tech, MRV and recycling tech as innovation areas
- **Economics:** Listed recyclers & water-treatment companies: The last 5-year average EBITDA margin of 10–25%; low-carbon materials & carbon capture returns not yet observed

Note: NZP = net-zero pathway (2050), NZ = net zero (2070), per NITI Aayog scenarios. EBITDA margins based on reported financials of key listed players in the segment.
Source: NITI Aayog, Vols. 4, 8 and 9 (2026); DPIIT Annual Report 2024–25; MoEFCC / CPCB; Ministry of Steel (2024); European Commission; CEEW; IEA; company filings; BCG analysis.

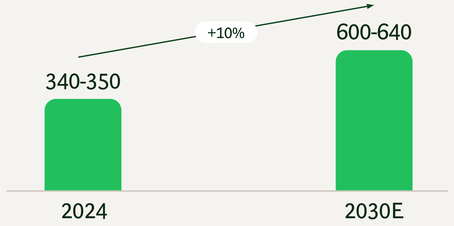
Agriculture: Biologicals, efficient irrigation and land restoration are growing, but small farmers adopt them only when payback is quick

Strained land and water need new practices

- **Intensive farming strains land and water:** ~30% of India's land is degraded; groundwater is falling in key farm regions; agriculture accounts for ~15% of national emissions
- **Net zero requires different practices:** Fertilizer efficiency expected to rise from 33% (2019) to 50% by 2070, with chemical-free farming at 25% of area
- **Smallholders decide adoption:** 85-90% of holdings are under 2 hectares; uptake depends on quick payback or government support

Biologicals market set to nearly double by 2030

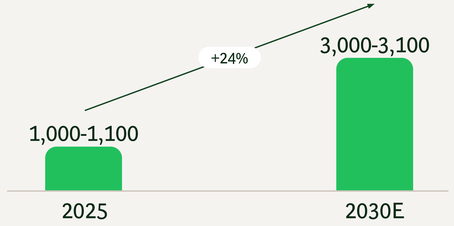
India agri-biologicals market ($ Mn)



- **Demand is policy-backed:** Natural-farming initiatives and pressure to use fertilizer more efficiently drive demand for biofertilizers, biostimulants and biocontrol products

Solar pump market set to triple by 2030

India agricultural solar pumps market ($ Mn[1])



- **Costs and subsidies drive uptake:** Falling groundwater and high pumping costs push drive irrigation, efficient motors and solar pumps; PMKSY (55%) and PM-KUSUM (30–60%) subsidies cut upfront costs

Agroforestry can turn idle land into farm income

28.4 Mha — *Under agroforestry today*

26 Mha — *Restoration commitment by 2030*

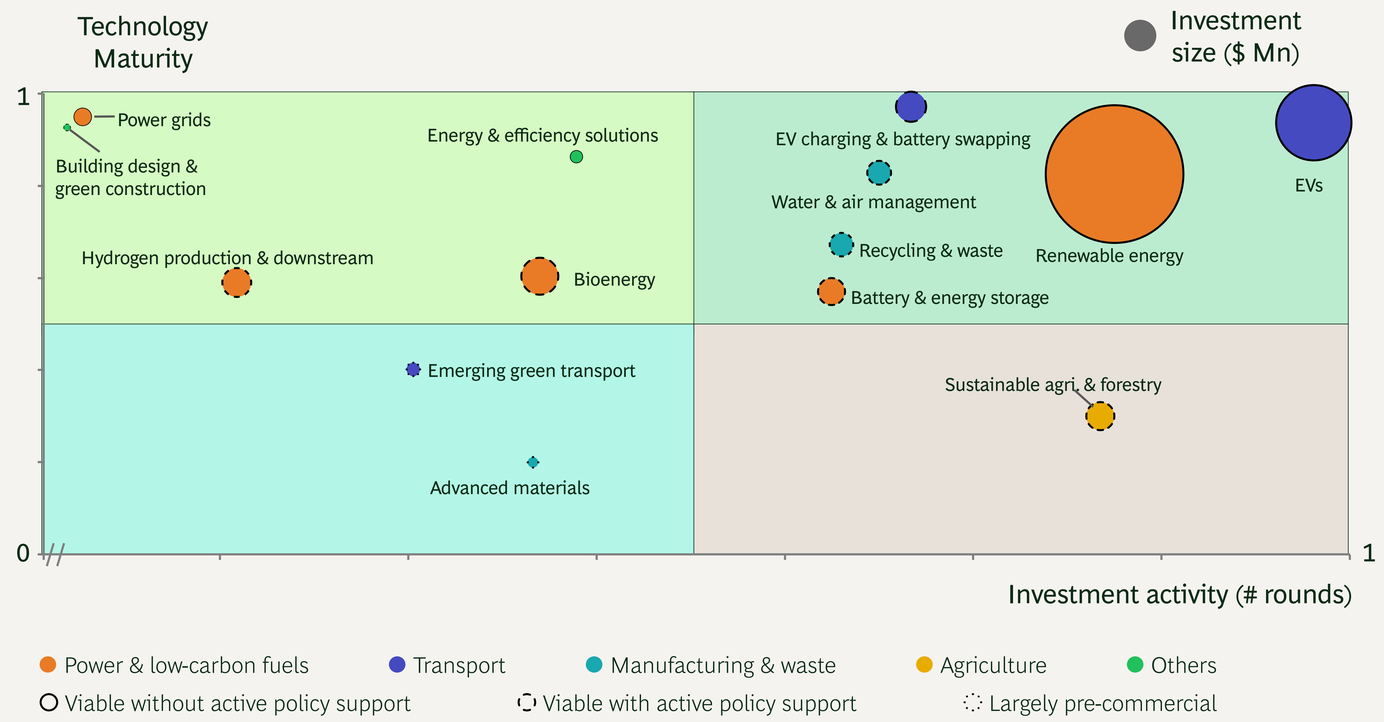
- **Idle land & imports make the case:** India has 56 Mha of wasteland and still imports timber; agroforestry earns farmers extra income from wood and carbon credits, with saplings funded under PM-RKVY

What it means for capital

- **Maturity:** Efficient irrigation, solar pumps: mature, subsidy-supported; agri-biologicals: maturing; agroforestry & carbon-linked restoration: early-stage
- **Capital today:** Mostly early-stage VC and growth equity, with equity funding down sharply since 2022
- **Nature of opportunity:** A domestic, smallholder-led market, with innovation in biological inputs, rural distribution & pay-per-use or financing models; carbon credits a potential revenue line for restoration
- **Economics:** Listed pump & irrigation companies: The last 5-year average EBITDA margin of 10–20%, restoration returns not yet observable

Note: 1. INR converted at ₹85 / $, for both 2025 and 2030. EBITDA margins based on reported financials of key listed players in the segment. Groundwater stress is concentrated in Punjab, Rajasthan and Haryana; nationally, over-exploited units fell from 17.2% (2017) to 10.8% (2025), per CGWB.
Source: NITI Aayog, Vol. 6 (2026); MoEFCC (BTR-1, 2024); Sadbhav Futuretech DRHP (2026); Ministry of Agriculture and Farmers Welfare / PIB; MNRE; MoEFCC / PIB (2026); ISRO Space Applications Centre (2021); CGWB (2025); Agriculture Census 2015–16; ICAR-CAFRI; Department of Land Resources (2019); ICFRE; company filings; BCG analysis.

Mature but less-funded tech may offer the next opportunities, though most still depend on policy support to be viable



Mature, well funded: Commercially proven and attracting most of the capital

Mature, less funded: Technically proven but awaiting demand visibility or business models

Emerging, less funded: Still maturing technically; reliant on pilots, policy support and patient capital

Emerging, well funded: Capital has largely followed proven technologies rather than moving ahead of maturity

Renewable power, grids, EVs and energy efficiency, built on years of policy support, are now viable without active policy support; most other segments, including storage, charging, bioenergy, hydrogen and recycling, still depend on it to reach scale

Note: Number of investment rounds (x axis) and technology maturity (y axis) are min-max normalized to a 1 to 10 scale. Rounds are log-transformed before scaling to handle wide range; technology maturity is scaled linearly. Positions show relative ranking, not absolute values. Bubble size shows total funding ($ Mn) as actual, non-normalized values. Based on combined, de-duplicated Tracxn and Venture Intelligence equity rounds, 2021–2026 YTD (until Oct 2026). Economics today is an indicative BCG assessment based on listed-peer margins, expert inputs, and policy instruments in place.
Source: IEA, ETP Clean Energy Technology Guide; Venture Intelligence; Tracxn; IEEFA–JMK (2026); CSE (2026); MoPNG (2026); CERC; BCG analysis.

Beyond mitigation, adaptation opens a second emerging market, most investable where an ability to secure revenue streams via clear buyers exists

Infrastructure lifecycle	Strategic planning and prioritization	Project planning, design and implementation	Operations and maintenance	Preparedness, early warning and early action	Disaster response and service reinstatement	Lessons learned	Build-back-better: Repair and reconstruction
Disaster resilience lifecycle	Absorb				Respond		Recover
Water	AI predictive maintenance for pipes	SCADA remote flow rerouting	Rainwater and modular sanitation			Portable water treatment, hand pumps		
Agriculture and food systems	Stress-tolerant crop varieties	Heat- and disease-tolerant breeds	Tunnels, shade houses, greenhouses	Drip, micro and solar irrigation	Soil-moisture irrigation scheduling	Mobile money payouts to smallholders	Satellite yield and loss estimation	Index insurance, crops and livestock
	Treated wastewater irrigation	Stormwater storage (Bhungroo)	Weather forecasts, drought monitoring	Two-way mobile and SMS advisory	Seasonal livestock early warning			
	Precision farming: Remote sensing, GPS, yield monitoring	Hermetic and cool grain storage	Solar cold storage and milk chillers	Solar dryers with moisture meters	Recirculating aquaculture systems			
Urban and infrastructure resilience	Embedded structural-health sensors	Digital twins (dams, drainage)	Drone and GeoAI crack detection	Smart grids, intelligent transport	Battery storage and microgrids	LEO satellite, 5G, cloud platforms	Modular bridges, mobile power units	BIM with codes and compliance checks
	High-performance concrete, retrofit	Self-healing and recycled materials	3D-printed and modular construction	Vegetation slope stabilization		3D-printed emergency housing		GPS checklist rebuild supervision
Risk analytics and transfer	Satellite hazard and exposure data	AI building-footprint exposure maps	AI hazard, vulnerability analytics	Predictive flood modeling	Early warning, AI and low-tech	Drone and 360-degree damage surveys	Real-time GIS impact dashboards	Post-event structural diagnostics
	Cascading-failure risk modeling					SMS, sirens, radio, citizen apps	Fintech rapid repair funding	Offline blockchain cash transfers

Adaptation is most investable where companies can secure revenue streams from clear buyers, such as insurers, utilities, agribusinesses and municipalities

Source: GIR 2025 (Chapter 6, Figure 6.2); FAO and UNFCCC (2024); CGIAR and GCA (2018).

Emerging tech Established tech

4.

The Returns and Evidence Base



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To build the evidence base, this section draws on 21 select case studies of C&S companies, from early-stage ventures to scaled businesses

Earlier sections set out where capital has gone and where the next opportunities lie; this section turns to the evidence from companies themselves, showing how C&S businesses in India are being built, funded and scaled.



Why case studies

- Market data shows where capital has gone; company stories show how C&S businesses are built and funded
- They complement the market view with working business models, evolving funding, investor value-add and impact delivered
- They help test whether opportunities identified earlier are becoming investable



What the cases cover

- Every sector of the C&S economy, from power, low-carbon fuels and transport to manufacturing, waste, agriculture, buildings and resilience
- Every growth stage, from first production to profitable businesses at scale
- A range of business models, spanning manufacturing, infrastructure, services, software and pay-per-use, backed by venture, growth, development and strategic capital



How to read this section

- These case studies have been nominated by IVCA member firms to be featured in this report
- Figures are reported by companies and investors and have not been independently verified
- Cases illustrate what is possible in India's C&S market and are not a representative sample
- Insights reflect patterns across cases, not every company's experience

Selected cases have been covered in depth in the appendix.

Overview of C&S case companies (I / II)

Segment	COMPANY	SOLUTION	KEY INVESTORS
 Power & low-carbon fuels	**e-TRNL Energy** 2021, Mumbai	Battery cells with 3D electrode architecture	IAN Alpha, RDIF loan, Speciale Invest
	Godi Energy 2020, Hyderabad	Sodium-ion cells and supercapacitors from bio-waste carbon	Blue Ashva Capital, Graphite India
	GPS Renewables 2012, Bengaluru	Technology, EPC and ownership of city-scale compressed-biogas plants	Neev Fund (SBI Ventures), Samsung, Sojitz
	Greenjoules 2018, Pune	Drop-in renewable diesel and bio-naphtha from crop residue	Amazon, Blue Ashva Capital, DST seed equity, Rainmatter, Singularity AMC, TDB loan
	HEG Advanced Materials 2022, Mandideep	Synthetic graphite anode, graphene and battery energy storage, backed by hydro power	Singularity AMC
	Hygenco 2020, Gurugram	Build-own-operate green hydrogen and ammonia plants, Gas-as-a-Service	Fullerton Carbon Action Fund, IFC, Neev Fund (SBI Ventures), Siemens Financial Services
	Kazam 2020, Bengaluru	Energy-management platform for charging and grid services, starting with EV charging	Avaana Capital, IFC, Vertex Ventures
 Transport	**Exponent Energy** 2020, Bengaluru	EV Batteries, chargers & connectors working as an integrated energy ecosystem for faster & cheaper charging	360 ONE Asset, 3one4 Capital, AdvantEdge, Eight Roads, Hitachi Ventures, Lightspeed India, Motherson Lease, TDK Ventures, YourNest
	Matchlog 2019, Ahmedabad / Mumbai	Software platform pairing import and export containers to cut empty container movements	Blue Ashva Capital, July Ventures, Manjushree Capital, Motion Ventures, ZNL Growth Fund
	Vecmocon[1] 2016, Noida	Full EV compute stack (BMS, chargers, vehicle intelligence, etc.) designed for Indian conditions	Aavishkaar Capital, BII, Blume, EIF, Tessellate Tech Ventures, Tiger Global

Note: 1. Grants received from EIL and FITT (IIT Delhi).

Overview of C&S case companies (II / II)

Segment	COMPANY	SOLUTION	KEY INVESTORS
 Manufacturing & waste	**Bambrew** 2019, Bengaluru	Compostable biopolymer films and laminates that replace single-use plastic	Ashok Goel Trust, Blue Ashva Capital, Blume Ventures, Enrission, Mumbai Angels, Supack Industries, Upsparks
	BECO 2017, Mumbai	FMCG startup offering plant-based home & kitchen care products that are chemical free	Climate Angels, Rukum Capital, Tanglin Venture Master Fund, Titan Capital Winners Fund
	Blue Planet 2017, Singapore	Integrated waste management, landfill mining and e-waste processing	Neev Fund (SBI Ventures)
	Membrane Group 1984, Gurugram	Process water and wastewater treatment, ultrapure water for manufacturing	GEF Capital, Kurita Water Industries
	Retas 2017, Noida	Modular rainwater harvesting, groundwater recharge and stormwater systems from recycled plastic	Neev Fund (SBI Ventures)
	Solinas Integrity 2018, Chennai	Robotic and AI inspection of water and sewer pipelines, and mechanized cleaning of manholes and septic tanks	Neev Fund (SBI Ventures)
 Agriculture	**Ecozen**[1] 2010, Pune	Solar pump controllers and solar cold rooms	Caspian, Dare Ventures, Exim Bank, IFA, Nuveen, Omnivore, Triodos
	Fasal 2018, Bengaluru	Precision agriculture & automation platform; provides farm devices & software to advise farmers on irrigation, managing pests, etc.	3one4 Capital, BII, Omnivore, TDK Ventures, etc.
	Nutrifresh 2019, Pune	Hydroponic farms growing residue-free vegetables and greens year-round	Florintree, Green Frontier Capital, Hydroponics India LLC, Neev Fund (SBI Ventures), etc.
 Others	**NeoGeoInfo Technologies** 2019, Gurugram	Geospatial platforms for disaster planning, forests, utilities and urban governance	Aavishkaar Capital, Neev Fund (SBI Ventures)
	Smart Joules 2014, New Delhi	Energy-efficiency services, Cooling-as-a-Service and AI building management	Neev Fund (SBI Ventures)

1. Debt providers to Ecozen include Axis Bank, HDFC Bank, ICICI Bank, Maanaveeya, Northern Arc, ResponsAbility, Spark Capital and UTI International.

Across the cases, five patterns stand out in how C&S businesses in India are being built, funded and scaled



01 Offering

Solutions scale when they remove the green premium, not when they ask customers to pay it

Matching incumbents on cost, or moving to pay-per-use models, drives adoption; where a premium remains, demand relies on mandates



02 Demand

The first buyers are those required to buy, or already paying for climate stress

Mandates, national missions and large corporates anchor early demand, while water, heat and disaster risk create adaptation buyers



03 Capital

Early domestic capital is positioning companies for policy-led demand, and is multiplied once that demand arrives

Companies ready when mandates take effect go on to attract DFIs, strategics and global institutions at several times the original investment



04 Investor role

Investors' key contribution is making companies investable for the next, larger pool of capital

Investors help raise follow-on capital, secure public finance, and build the governance that larger investors and public markets require



05 Returns & impact

Profits are arriving first in proven technology deployed at scale, and impact is measured well beyond emissions

Proven solutions at scale reach profitability ahead of new technologies, while water, waste, land and livelihood outcomes are reported alongside emissions

Solutions scale when they remove the green premium, not when they ask customers to pay it

Key insights	Details	Precedents from case studies
A **Lower running costs or faster deployment are driving adoption, without a green premium**	• Customers switch **when the low-carbon option lowers operating cost or shortens delivery time**, not for the climate benefit alone • The economic case makes **adoption self-sustaining**, without relying on buyers paying more	• In water infrastructure, modular systems have cut **installation times from months to weeks** • In freight logistics, digital matching of containers is **cutting empty truck trips and their cost** • In commercial EVs, fast charging is **lowering drivers' running costs**
B **Selling the service, not the asset, removes the customer's upfront cost**	• The company **finances and owns the plant or equipment** and recovers its investment through usage or savings • Customers avoid capital spend on non-core equipment, while companies gain **recurring, contracted revenue**	• In green hydrogen, build-own-operate plants let buyers **pay for hydrogen supplied instead of building their own plant** • In building energy efficiency, **cooling-as-a-service is paid for from the energy savings** it delivers
C **Making the technology in India is lowering costs and import dependence**	• Companies are building domestic capability in **components India largely imports today**, from battery materials to power electronics • Local design and manufacturing can bring costs down and reduce supply risk, narrowing the premium over imported or fossil alternatives	• In battery manufacturing, new cell designs are aiming to **lower costs and reduce reliance on imports** • In EV electronics, battery management systems and chargers are being designed in India for Indian operating conditions

Source: Details as provided by the company / fund.

The first buyers are those required to buy, or already paying for climate stress

Key insights	Details	Precedents from case studies
A **Government mandates and national missions are supporting multi-year demand for companies**	• Blending obligations and public procurement **commit buyers to purchase over several years** • This gives companies **order visibility** that lenders and larger investors require	• In biogas, the blending obligation is **supporting producers' offtake, alongside joint ventures with oil marketing companies** • In water & sanitation, national missions are supporting **demand for mechanized cleaning**
B **Large corporates are signing the first long-term contracts**	• Companies with cost or decarbonization goals are often the **first to commit to multi-year supply** • These contracts **anchor revenue for new solutions** before broader markets form	• In green hydrogen, industrial users such as steel and optical-fiber **makers are signing long-term supply contracts** • In energy efficiency, hospital chains are **entering multi-year service contracts** • In waste management, global manufacturers **are contracting for waste and e-waste processing**
C **Buyers pay for adaptation when water scarcity, floods or heat already raise their costs**	• Unlike much of mitigation, **adaptation demand comes from buyers already facing the cost of climate stress** • Water-short industries and infrastructure owners **pay for solutions that protect their operations**	• In industrial water, manufacturers in water-stressed districts are paying for **high-rate water reuse** • In urban water, **infrastructure operators, developers & industries** are investing in rainwater harvesting and stormwater systems • In geospatial data, utilities and infrastructure owners are using mapping to plan resilient networks

Source: Details as provided by the company / fund.

Early domestic capital is positioning companies for policy-led demand, and is multiplied once that demand arrives

Key insights	Details	Precedents from case studies
A **Early investors build capability as policy direction takes shape**	• Investors **back companies while incentives and mandates are still being designed** • Capability built in advance positions companies to **scale as soon as policy-led demand begins**	• In green hydrogen, **early investors backed companies before the national mission was launched** • In biogas, **investors backed producers before the blending obligation was notified**
B **Public finance supports the step from pilot to first plant**	• **Government seed equity and concessional loans** fund the first commercial plant • This stage is capital-intensive with long gestation, and often draws on blended and concessional capital	• In advanced biofuels, **government seed equity was followed by a concessional loan** for the first commercial plant • In battery cells, **government R&D loans have been approved for a pilot line ahead of revenue**
C **Once plants are running, larger investors join, often with several times the early capital**	• An operating track record **lowers technology and execution risk** for the next set of investors • DFIs, global funds and strategic corporates then **invest at larger scale**	• In EV charging, the first institutional round was followed by capital from global investors • In biogas and green hydrogen, **early rounds were followed by much larger investments from DFIs, global funds and strategic investors**

Source: Details as provided by the company / fund.

Investors' key contribution is making companies investable for the next, larger pool of capital

Key insights	Details	Precedents from case studies
A **Investors are institutionalizing companies ahead of the next round**	• Investors add **independent directors and senior finance talent**, and strengthen audit and E&S systems • These are the **standards DFIs, global investors and public markets expect** before committing capital	• In water treatment and geospatial services, investors have added independent directors and senior finance leaders, and strengthened audit • In controlled-environment farming, **investors brought in experienced board members**
B **Investors help raise capital and access public finance**	• Investors help companies access debt and equity from other investors • They also **prepare applications for government finance**, unlocking capital companies could not easily raise alone	• In EV charging, investors aided access to debt and equity financing from global investors • In battery cells, **investors are supporting applications for public finance schemes**
C **Investors bring technical depth and open doors to customers**	• Investors contribute **engineering and sector expertise** at the first-of-a-kind stage • They introduce customers and partners that open the next order	• In advanced biofuels, **investors' engineering expertise helped shape the process design** • In agri-tech, **investors helped optimize and localize hardware** • In EV charging, **investors introduced vehicle makers and charging partners**

Source: Details as provided by the company / fund.

Profits are arriving first in proven technology deployed at scale, and impact is measured well beyond emissions

Key insights	Details	Precedents from case studies
A **Profits come first to proven technology at scale**	• Companies that manufacture, install or operate **proven solutions are reporting profits** • Those commercializing new technologies are **still investing towards commercial scale**	• In farm technology and controlled-environment farming, **businesses with proven products report profits** • In battery cells, **companies are still investing towards commercial scale**
B **Strong growth is reported beyond power and transport**	• Companies **in water, geospatial data, logistics, agriculture & consumer goods** report fast revenue growth, beyond the most-funded sectors of power & transport • Several are already profitable at the **operating level, and margins are improving as businesses scale**	• In home care products, revenue has grown rapidly as the business has scaled • In **industrial water and geospatial data**, fast growth is coming with operating profits
C **Impact is reported across water, waste, land and livelihoods**	• Companies report **water, waste, land and livelihood** outcomes alongside emissions avoided • Measurement is in several cases based on **documented methods and recognized frameworks**	• In waste management, **landfill sites are being recovered** • In water networks, **robotic pipeline inspection is identifying leaks, contamination and supply issues** • In packaging, compostable materials are **replacing single-use plastic**

Source: Details as provided by the company / fund.

5.
What Is Holding Capital Back



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Before capital flows, climate & sustainability technologies must answer four sets of investor questions

Each stage addresses critical investor questions – from whether the technology works and risks are manageable to whether funding can be secured and revenues are predictable

Emerging → Tech maturity → Established



1 Technology validation

- Does the technology have the capability to run at **commercial scale, in real conditions?**
- Are its **performance, cost and durability** measured and independently verified?
- Are **early adopters** willing to use it and vouch for it?



2 Risk assessment

- Which **technology, counterparty, regulatory and execution risks** does the project carry?
- Can each risk be **quantified and priced** into a rating, an interest rate or a premium?
- Which risks will **lenders and insurers** accept, and which need cover or guarantees?



3 Capital mobilization

- Can **equity and debt be raised for** the first commercial plants and then for scale-up?
- Does the capital on offer match the project's **size, horizon and risk?**
- Where commercial capital will not go alone, can **public, DFI or blended money** fill the gap?



4 Project bankability

- Can revenue be locked in through **long-term contracts, with payment security** if the buyer defaults?
- Can **land, grid connection and supply be secured** so the project reaches financial close?
- **Will the project make money,** earning a reasonable return on the capital invested (ROCE)?

Financing instruments: Core equity, debt and bond markets are established, while early-stage funding and risk-sharing tools are still emerging

	INSTRUMENT	DESCRIPTION	STAGE ADDRESSED[1] 1	2	3	4	STATUS
Raise capital	**Venture and growth equity (AIFs)**	Pooled funds take stakes in early- and growth-stage companies; the main route for C&S VC and PE	●		●		■
	Grants and pilot funding	Non-repayable public money for prototypes and demonstration plants	●				■
	Public equity	IPOs and follow-ons give companies permanent capital and investors an exit			●		■
	Venture debt	Loans to growth-stage companies with revenue but no profit, without diluting founders			●		■
	Project debt	Long-tenor bank or DFI loans against a project's contracted cash flows			●	●	■
	Green and sustainability-linked bonds	Bonds earmarked for green projects, or whose coupon moves with emissions targets; reach ESG-mandated global capital			●		■
Recycle capital	**InvITs and yield vehicles**	Listed trusts hold operating assets and pay cash yields; developers sell built assets and reinvest			●		■
	Securitization	Many small loans or receivables bundled into one tradable security		●	●		■
Add revenue / reduce risk	**Carbon markets**	Verified emission reductions sold as an additional revenue line			●	●	■
	Insurance and warranties	Performance, weather or warranty cover that transfers a defined risk to an insurer		●		●	■
	Blended finance structures	Public or philanthropic capital takes the riskiest slice of a deal so commercial capital will take the rest	●	●	●		■

Stage numbers follow the previous page: 1 technology validation, 2 risk assessment, 3 capital mobilization, 4 project bankability.
Source: SEBI, RBI, IFSCA frameworks; BCG analysis.

Status in India: ■ Working ■ Emerging ■ Still developing

Climate & sustainability capital in India is growing, but four stages of the investment journey could be strengthened to scale beyond established sectors

India's net-zero pathway needs an estimated $22–24 Tn of cumulative investment by 2070. Capital is increasingly available, but it reaches technologies only once they clear all four stages

Emerging → Tech maturity → Established

	1 TECHNOLOGY VALIDATION	2 RISK ASSESSMENT	3 CAPITAL MOBILIZATION	4 PROJECT BANKABILITY
What holds it back?	• Specialist technical expertise is still building across the investor ecosystem • Limited access to **industrial sites to test & validate technologies** • Buyers are reluctant to be the first to adopt new technologies	• **New technologies** lack performance track records • **Data for underwriting is still thin for most climate & sustainability borrowers** • Small, distributed assets are costly to assess individually	• First commercial plants fall between **venture capital & infra finance** • Typical fund lives are shorter than many C&S technologies' development cycles • Financing costs are high, & exits are concentrated in renewables & EVs	• **Revenue** is not always contracted or secured, or depends on buyers of varying creditworthiness • **Land, grid & sourcing constraints** delay revenues • **Returns on capital remain thin for many newer technologies** without policy support
Capital impact	**Capital gravitates to familiar technologies, leaving first-of-a-kind projects short of funding**	**Lenders add risk premiums or wait for proof, raising the cost of debt for newer technologies**	**Fewer technologies progress from pilot to commercial scale, as growth capital is thin and exits are concentrated**	**Financial close is delayed, financing costs rise & returns come under pressure, slowing project build-out**

Foundation: Taxonomy, definitions and standards. What counts as "green" is not yet fully defined, as taxonomy criteria, product standards and C&S disclosure are all still developing

Technology validation: Specialist capability, pilot access and first customers are still building, slowing the path from prototype to proven

A Specialist technical expertise is still building across investors

What is happening

- **Limited technical assessment capability: Specialist assessment capability** within teams is at an early stage relative to what new C&S technologies require
- **Experience is concentrated in mature segments:** Investor expertise is built in established segments (solar, EV) while it is emerging in others (biofuels, adaptation, etc.), which even experienced C&S investors are assessing for the first time
- **No common assessment framework yet:** Mature sectors run on **technical standards, performance benchmarks & independent-engineer norms**; for emerging C&S technologies these are still being written

Capital impact

Capital gravitates toward familiar technologies; newer solutions have fewer financing partners for now

B Access to industrial test sites is still developing

What is happening

- **Proof requires a live plant, not a lab:** Many climate and sustainability technologies need to run on **operating production lines** before buyers and lenders can assess them (e.g., green cement, industrial heat)
- **Incumbents weigh the risk of hosting a pilot: Liability and compliance** risk sits with the host plant, and untested systems are judged against standards written for mature technology, so decisions take time
- **Shared demonstration capacity is at an early stage:** Public demonstration funding is recent (e.g., **₹1 Lakh Cr RDI scheme**, approved 2025)

Capital impact

Limited operating proof extends the time to technical validation and scale-up investment

C First adopters take on more risk than later buyers

What is happening

- **First movers carry additional risk:** Early buyers absorb the **disruption and performance risk** of a new technology, and **green premiums take time to recover**
- **Procurement is still evolving toward carbon criteria:** Public tenders mostly use price-based criteria today, and demand for low-carbon products is still building (e.g., 12.4 Mt of certified green steel with limited offtake so far)
- **Adoption follows proof of payback:** Price-sensitive buyers such as farmers and municipalities look for **demonstrated returns**

Capital impact

Without reference customers, start-ups take longer to show repeat revenue and raise growth funding

Source: RBI (2025); Climate Risk Horizons (2026); Outlook Business (2025); ORF (2023, 2025); Policy Circle (2025); Xynteo (2025); IIMA Ventures–MUFG (2024); CEEW (2026); IMPRI (2025); NITI Aayog, Vol. 9 (2026); Business Today (2026); Indian Infrastructure; BCG analysis.

Risk assessment: Operating evidence and C&S data are still accumulating, making emerging risks costlier to underwrite

A — Performance track records are still being built

What is happening

- **New C&S technologies have short operating histories: Lifecycle data** on degradation and replacement accumulates over years, and most recently deployed assets are early in that cycle
- **Their developers are new to the sector too:** When a technology is new, so is much of its developer base, so **sponsor track record is also limited**
- **End-of-life values are still being established:** Assets whose economics depend on resale or recycling have **limited data so far**

Capital impact

Lenders apply risk premiums or wait for performance data before committing

B — Data for underwriting is still thin for most C&S borrowers

What is happening

- **Borrower financials are short and unrated:** Many C&S borrowers are young companies, project SPVs or small operators with a **few years of accounts and no credit rating, so standard underwriting models** have little to work with
- **Physical-risk data is being assembled:** Local flood, heat and loss records are at an early stage, which makes **adaptation and insurance pricing** more complex
- **Operating data is not yet pooled:** Performance data from existing C&S assets sits with **individual developers and lenders** rather than in shared registries, so each assessment starts afresh

Capital impact

Variable information raises assessment costs and slows confident allocation

C — Small, distributed assets are costly to assess individually

What is happening

- **Diligence costs do not scale down:** Each small project requires **its own credit and technical review** (e.g., rooftop solar, MSME efficiency, farm equipment)
- **Reporting costs weigh more on smaller tickets:** C&S investments typically report against more than one DFI or LP framework - a **fixed cost** easily absorbed by large projects but more noticeable for small, distributed assets
- **Aggregation is at an early stage: Few platforms** yet pool small assets into portfolios large enough to spread these costs

Capital impact

Transaction costs set minimum ticket sizes, making aggregation and intermediaries valuable

Source: RBI (2025); IEEFA–JMK (2026); IESA (2026); Climate Risk Horizons (2026); SEBI (2023); NITI Aayog–RMI; CEEW (2024); GIZ (2025); NITI Aayog, Vols. 1 and 9 (2026); Climate Policy Initiative (CPI, 2026); IEEFA (2026); IEA–IFC (2023); IFC / GIIN (2021); MNRE (2025); BCG analysis.

Capital mobilization: Available capital is not yet matched to the scale, horizons and returns that commercializing C&S technologies require

	A	B	C
	First plants fall between VC and infrastructure financing	Fund lives are shorter than C&S technologies' development cycles	Financing costs are elevated and exit routes are still few
What is happening	• **Scale beyond typical venture tickets:** First commercial plants need **larger cheques and longer paybacks** than early-stage VC models are structured for • **Too early for infrastructure lending:** Project financiers generally look for **operating history and contracted revenue**, which a first plant is still building • **Supplier ecosystems around large green fuel projects remain underfunded:** Green hydrogen and green ammonia plants draw corporate and infra capital, but smaller businesses supplying them (equipment, storage) have attracted limited VC funding, as demand depends on upcoming plants	• **Horizons do not yet match:** C&S technologies need **long testing and ramp-up**, often beyond 7–10-year VC fund lives • **Long-term capital is guided by mandate:** Current pension and insurance investment norms are oriented to liquid, rated assets, limiting participation in long-locked AIFs • **Capital recycles slowly:** Exits are still early in India's VC cycle, so capital returned to investors, and available for new funds, is only beginning to build	• **Capital is costlier than in developed markets:** Indian C&S projects carry higher capital costs than peers (e.g., **solar WACC ~10.3% in 2024**; IEEFA–Oxford), which compresses returns • **Foreign debt loses part of its edge: Hedging costs** can offset the advantage of cheaper offshore borrowing over domestic debt • **Exits are concentrated in proven sectors:** Precedents so far center on **renewable-energy platforms** rather than emerging industrial technologies
Capital impact	**Technologies pause between successful pilots and commercial deployment**	**Long-cycle technologies depend on a still-small pool of patient capital**	**Higher return hurdles and uncertain exit valuations narrow the investable pipeline**

Source: Outlook Business (2025); IIMA Ventures–MUFG (2024); Policy Circle (2025); RBI (2025); ORF (2023, 2025); IEEFA–JMK (2026); CEEW (2026); Tracxn (2025); NITI Aayog, Vol. 9 (2026); IRDAI / PFRDA (via Reuters, ELP, 2026); IVCA–Crisil (2025); DealStreetAsia (2026); Houlihan Lokey; IEEFA–Oxford (2025); IEA; CPI; BCG analysis.

Project bankability: Revenue certainty, execution timelines and returns on capital determine whether C&S projects become bankable

	A	B	C
	Revenue not always contracted or creditworthy	Land, grid & sourcing constraints delay revenues	Returns on capital thin for newer technologies without policy support
What is happening	• **Awards precede committed buyers:** Projects are at times awarded before offtake is locked in (e.g., **~44 GW of awarded renewable capacity yet to be contracted**, Sept 2025) • **Revenue is largely contracted with public buyers:** Much of the sector's revenue comes through long-term agreements with **distribution utilities, urban local bodies etc.,** so timing of payments is tied to the financial position of the contracting entity • **Payment safeguards are still expanding:** Payment discipline has improved in power & is being extended to new buyers (e.g., **₹3,435 Cr e-bus payment-security scheme**)	• **Sites take time to assemble: Fragmented ownership, title verification and conversion approvals** add months to development • **Enabling infrastructure is catching up with projects:** Grid and other network connections sometimes arrive after assets are ready (e.g., **~20 GW at risk of connectivity delays in FY27**; Ember) • **Domestic supply is still ramping: As domestic manufacturing scales up to meet** domestic-content requirements, some project timelines have extended (e.g., solar modules)	• **Competitive bidding shapes returns:** Projects are at times won at prices that leave limited room for returns (e.g., **recent storage auctions**) • **Asset utilization affects profitability:** Assets operating below capacity may earn less than planned (e.g., **public EV chargers and biogas plants**) • **Higher project costs affect returns:** Increases in equipment and input costs may reduce project returns (e.g., **solar projects adjusting to domestic sourcing**)
Capital impact	**Unsigned or weakly secured revenue delays funding and raises its cost**	**Later commissioning raises interest costs and equity requirements**	**Thin returns raise the cost of capital and slow investment decisions**

Source: MNRE and Ministry of Power (Parliament replies and reviews, 2025-2026); IEEFA–JMK (2025, 2026); JMK Research (2025); Ember (2026); PFC (2025); Ministry of Power Integrated Ratings (2025); PV Tech (2026); Powerline (2025); PMO (2024); Oswal Pumps disclosure (2026); ICRA (2026); CRISIL (2026); Rubix Data Sciences (2026); IEA; ITDP India (2025); ICF; CIEU-Dalberg-CEEW (2026); BCG analysis.

Some of these gaps are likely to narrow as the market matures; others are structural and are likely to persist unless addressed

STAGE	CONSTRAINT	TAG	RATIONALE
Technology validation	**Specialist technical expertise is still building across the investor ecosystem**	Cyclical	Expertise builds as more deals are done & investment teams specialize
	Limited access to industrial sites to test & validate technologies	Structural	Shared test infra is unlikely to emerge from one company, as costs fall on one host & benefits are spread across many
	Buyers are reluctant to be the first to adopt new technologies	Cyclical	First-mover risk eases as procurement or forward commitments create demand
Risk assessment	**New technologies lack performance track records**	Cyclical	Track records build naturally with deployment, as battery storage already shows
	Data for underwriting is still thin for most C&S borrowers	Structural	Shared data registries need a central owner & are unlikely to emerge from any single player
	Small, distributed assets are costly to assess individually	Cyclical	Aggregation platforms emerge with scale, spreading diligence costs across portfolios
Capital mobilization	**First commercial plants fall between venture capital & infra finance**	Structural	Neither VC nor infrastructure lenders are structured to take first-of-a-kind risk, so new financing structures may be needed
	Typical fund lives are shorter than many C&S technologies' development cycles	Structural	Fund structures & institutional investment norms are set by design & regulation, & would need deliberate review to change
	Financing costs are high, & exits are concentrated in renewables & EVs	Mixed	Exit routes deepen as listings & acquisitions grow, but cost of capital & currency hedging costs are likely to persist
Project bankability	**Revenue not always contracted or creditworthy**	Mixed	Contracting gaps ease as demand grows & storage-backed tenders mature, but some buyers will still need payment-security support
	Land, grid & sourcing constraints delay revenues	Mixed	Sourcing constraints ease as domestic capacity scales, but land & grid planning needs coordination across agencies
	Returns on capital thin for newer technologies without policy support	Mixed	Returns improve as costs fall and utilization rises, but for newer technologies, policy support and contract design will continue to shape viability

Cyclical: Likely to narrow as the market matures Structural: Likely to persist as the market matures Mixed: Half cyclical, half structural

Closing these gaps could benefit from coordinated action across government, regulators, investors & industry; the next section sets out initiatives

6.

Unlocking Capital: The Enabling Environment



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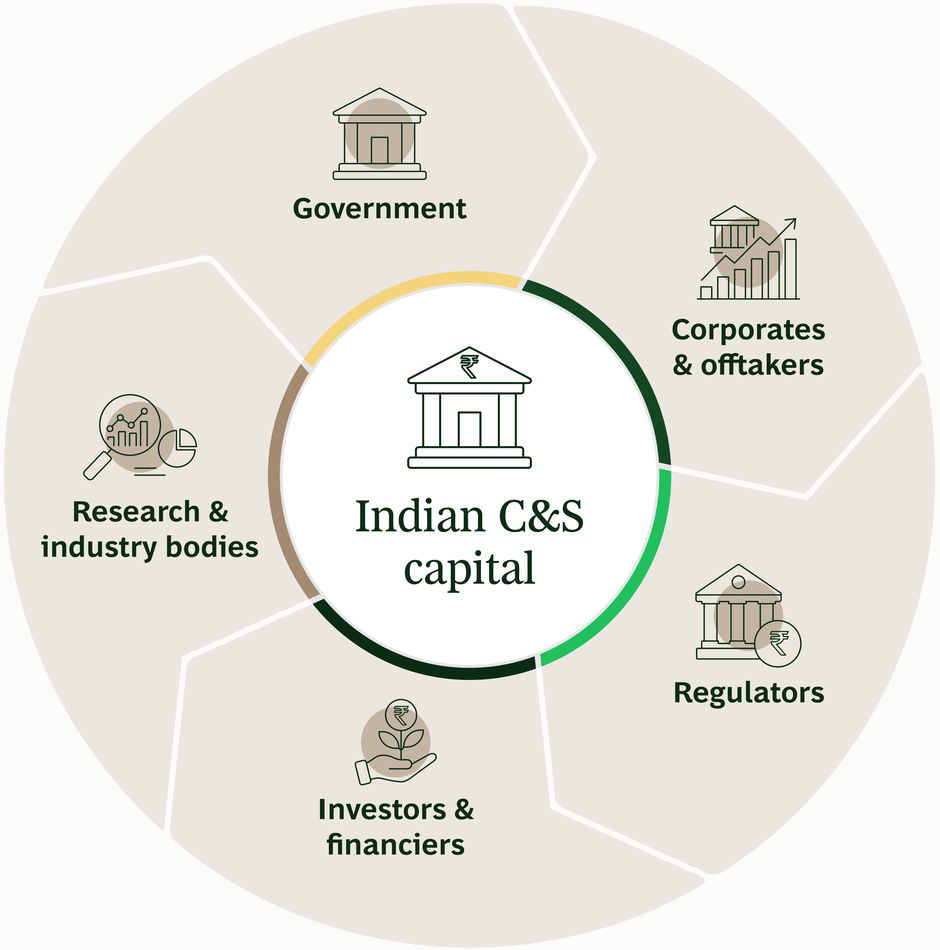
Translating C&S capital into deployment could benefit from coordinated action by government, regulators, investors & industry



		OUTCOMES	LEAD ACTORS
FOUNDATION	Taxonomy and standards	Published climate-finance taxonomy with aligned disclosure requirements	
		Sector-wide green product standards, labeling and MRV frameworks	
INVESTMENT JOURNEY	01 Technology validation	Shared demonstration and testing infrastructure for emerging technologies	
		Identified anchor customers and pre-commercial procurement for new technologies	
		Specialized technical talent and advisory capacity across the investor ecosystem	
	02 Risk assessment	Shared asset-performance and climate risk data	
		Strengthened independent diligence and risk-transfer instruments	
	03 Capital mobilization	Expanded pools of catalytic and long-tenor capital	
		Scaled blended-finance and co-investment structures	
		Calibrated institutional investment norms and deeper exit routes	
	04 Project bankability	Strengthened green mandates and public procurement	
		Aggregated offtake and payment-security mechanisms across sectors	
		Streamlined land, grid and permitting, with safeguards for returns	

Lead actors: Government · Regulators · Investors & financiers · Corporates & offtakers · Research & industry bodies

Foundation: Taxonomy and standards | Potential initiatives



Published climate-finance taxonomy with aligned disclosure requirements

A

- **The climate-finance taxonomy** could be completed with sector-specific criteria, with a designated custodian to maintain it
- **Alignment of financial-sector C&S-disclosure rules** on one common format based on the global standard (ISSB), phased in by company size, could be considered
- **A simplified disclosure format** for project SPVs and SMEs, administered through lenders, could be explored
- **Over time, disclosed C&S exposure** could inform how lenders assess and price climate risk

Global learnings

EU: Taxonomy with detailed technical criteria, linked to mandatory corporate disclosure (CSRD)
UK, Singapore: ISSB-based disclosure phased by company size

Addresses

Taxonomy criteria yet to be notified; disclosure limited to large listed companies



Sector-wide green product standards, labeling and MRV frameworks

B

- **The green-steel standard (which sets the emissions threshold a product must meet to be sold as "green") could be extended** to other high-emission products and low-carbon energy equipment (e.g., cement, aluminum, batteries, electrolyzers), with independent certification
- **Graded labels** could be introduced so buyers can specify how green a product is, on the model of appliance star ratings (e.g., tiers for steel; a graded cement label)
- **One national system** for MRV of emission reductions, with a single list of accredited verifiers, could be developed (e.g., convergence of existing national protocols); satellite-based verification could be recognized for small, dispersed projects (e.g., agroforestry, waste)
- **Serial numbering and independent checks** could help existing certificates be trusted and traded (e.g., EPR recycling certificates; carbon credits under the national carbon market)

Global learnings

Germany: Tiered low-emission steel label (LESS)
EU: One emissions-measurement system across its carbon market and border tax (ETS, CBAM)

Addresses

Product standards not yet extended beyond steel

ISSB: International Sustainability Standards Board.
Source: Industry experts; Secondary reports & publications; BCG analysis.

1. Technology validation | Potential initiatives

A — Shared demonstration and testing infrastructure for emerging technologies

- **A hub-and-spoke network of test facilities** could be created at research parks and public-sector plants, potentially co-funded through public R&D programs
- **Incentives for established companies** hosting first-of-a-kind pilots at their plants could be considered (e.g., accelerated depreciation; designated pilot slots at public-sector units)
- **A standard contract** setting out who bears the cost if a pilot disrupts production or underperforms could be developed with industry associations

Global learnings

UK: Catapult centers, shared industrial test beds
Germany: Reallabore, regulated "real-world laboratories" for new technologies

Addresses

Limited access to industrial sites to test and validate

B — Identified anchor customers and pre-commercial procurement for new technologies

- **Large public buyers could pre-commit to buying a new product** once it is proven to work, giving developers visibility of a first order
- **Pre-commercial tenders** that specify the outcome, fund the demonstration and convert into a purchase order on success could be introduced
- **Research grants** could be released in stages as a technology moves toward commercial use

Global learnings

US: Frontier, buyers pre-committed to purchase carbon removal before it existed at scale
UK: SBRI, government funds development and buys on success

Addresses

Buyers reluctant to be the first to adopt new technologies

C — Specialized technical talent & advisory capacity across the investor ecosystem

- **An accredited panel of independent engineers** to assess new C&S technologies could be set up on the model of the "lender's engineer" that banks use
- **Green skilling programs** could be extended to emerging sectors (e.g., storage, hydrogen and recycling)
- **Technical-assistance facilities** attached to C&S funds and lending windows could be explored

Global learnings

Germany: Dual vocational training for low-carbon tech trades
US: Department of Energy loan office with in-house engineering review

Addresses

Specialist technical expertise still building

ANRF: Anusandhan National Research Foundation; SBRI: Small Business Research Initiative.
Source: Industry experts; Secondary reports & publications; BCG analysis.

2. Risk assessment | Potential initiatives



Shared asset-performance and climate-risk data

A

- **Databases that record how power plants perform** could be extended to storage, batteries and electrolyzers, using tender and operating data
- **An open database of past floods, heat events and droughts** (location, exposure and losses) could be built to support adaptation and insurance pricing
- **A pooled, anonymized benchmark** of returns and exits from C&S investments, held by a neutral public partner, could be explored

Global learnings

US: EPA requires large facilities to publish emissions
Mexico, Philippines: National hazard models built with the World Bank

Addresses

Limited performance track records; thin underwriting data



Strengthened independent diligence and risk-transfer instruments

B

- **Standard due-diligence checklists** for each new technology, pooled across lenders and investors, could be developed (e.g., storage, hydrogen, low-carbon materials)
- **Guarantee products** covering underperformance of a first commercial plant could be explored, backed by public or DFI capital
- **Insurance that pays a fixed amount** when a pre-agreed weather threshold is crossed (parametric insurance, already used for crops) could be **extended to other climate-exposed assets** such as storage, infrastructure and small businesses

Global learnings

CCRIF: Caribbean governments' pooled insurance against hurricanes and earthquakes
US: Department of Energy loan office technical review before lending

Addresses

Risk premiums applied while performance is unproven; high cost of assessing small assets

Source: Industry experts; Secondary reports & publications; BCG analysis.

3. Capital mobilization | Potential initiatives

A Expanded pools of catalytic and long-tenor capital

- **Dedicated windows at existing public financial institutions could provide long-term loans** for first commercial plants that fall between VC and infrastructure finance
- **A wider set of C&S assets could be considered for priority-sector lending** (e.g., storage, EV charging)
- **Potential institution** to take **first-of-a-kind C&S risk before VCs and infrastructure capital step in**, set up as a PPP or investor-led platform, offering catalytic capital, guarantees and pilot support

Deep-dive ahead

Global learnings

UK: National Wealth Fund, co-investing to crowd in private capital
EU: InvestEU guarantees crowding in private capital

Addresses

First plants fall between VC and infrastructure finance

B Scaled blended-finance and co-investment structures

- **Blended structures could be explored, with public or DFI** money taking the first loss and anchor plant project finance paired with venture capital for their supply systems (e.g., components and services in green fuels)
- **Facilities that bundle small assets** or mid-size borrowers into one financeable portfolio, with shared verification and risk-sharing, could be explored (e.g., steel and cement retrofits)
- **A facility offering affordable currency hedging** for foreign-currency C&S loans could be considered

Global learnings

Netherlands: TCX, development-bank-backed fund providing local-currency hedges
Israel: Yozma, government co-investment that seeded the venture industry

Addresses

First plants fall between VC and infrastructure finance and high financing costs

C Calibrated institutional investment norms and deeper exit routes

- **Exposure limits and valuation rules for pension and insurance investment** in long-dated climate funds could be reviewed over time
- **Longer-life fund structures** may better match technology development cycles of 12–15 years
- **Wider use of listed vehicles that hold operating assets** (infrastructure investment trusts, InvITs, already used for renewable energy) could be encouraged for storage and charging assets, giving early investors a route to exit

Global learnings

Australia, Canada: Pension funds as long-term direct owners of infrastructure

Addresses

Fund lives shorter than development cycles; exits concentrated in renewables and EVs

Source: Industry experts; Secondary reports & publications; BCG analysis.

Deep-dive initiative 3A | A dedicated green financing institution is one option that could help bridge gaps in funding first-of-a-kind projects

Dedicated green financing institution

GAP

First-of-a-kind financing gap
Beyond typical VC ticket sizes & outside bank risk appetite

Limited domestic risk-sharing
Reliance on foreign risk capital

Shortage of long-term finance
Projects need 12–15 years; funds offer 7–10

Project execution bottlenecks
Delays in approvals & offtake

MANDATE

Catalytic equity for demonstration & first commercial plants

First-loss capital & guarantees to attract private investors

12–15-year debt aligned with project life

Facilitation of land, grid & offtake

STRUCTURE

Central entity
Rupee financing + risk-sharing expertise + GIFT City arm for offshore capital

- **Project pipeline & land**
- **Grid & approvals**
- **Offtake & aggregation**

Illustrative structures for assessment

A **Public-private partnership**
Government anchors funding & provides first-loss support; private investors co-invest

B **Investor-led platform**
Private and philanthropic capital, backed by government guarantees & pilot support

FOUNDATION

Potential gap
First commercial plants may fall between existing mandates; assess whether these mandates could be extended

Global precedents

UK private capital mobilization	**Australia** green investment	**Germany** development lending	**US** loan guarantees

Work is already under way in this direction, including on a National Green Financing Institution (NGFI)

Note: Assessment would need to consider fiscal exposure, governance and whether existing institutions could address these gaps.
Source: NaBFID, IREDA, SIDBI and RDI Fund mandates (Government of India); IFSCA; UK National Wealth Fund; Clean Energy Finance Corporation; KfW; US DOE Loan Programs Office; BCG analysis.

4. Project bankability | Potential initiatives

A Strengthened green mandates and public procurement

- **Monitoring and compliance reporting of existing purchase obligations** (rules requiring utilities to buy a share of renewable power and storage) could be strengthened
- **Similar obligations for large buyers** in sectors without them could be explored (e.g., a green hydrogen share for refineries and fertilizer plants)
- **Price preferences for certified green products** could support demand, with trade-offs for procurement costs and competition

Global learnings

EU: Binding renewable-hydrogen share for industry (RED III)
US: Buy Clean, federal purchasing of low-carbon materials

Addresses

Revenue not always contracted; project returns

B Aggregated offtake and payment-security mechanisms across sectors

- **SECI's demand-aggregation model** for power and green ammonia could be explored for other emerging low-carbon materials, helping projects secure sufficient demand to recover costs
- **Standard long-term purchase contracts** for new sectors could be issued to improve revenue visibility and project economics (e.g., hydrogen & waste-to-energy; model concessions for municipal projects)
- **Payment protection** for players selling to public buyers (late-payment penalties & fund that pays on default) could be extended beyond power (e.g., building on ₹3,435 Cr e-bus payment-security scheme)

Global learnings

Germany: H2Global, a government intermediary buying hydrogen through auctions and reselling it
UK: Low-Carbon Contracts Company, a single government-backed counterparty

Addresses

Revenue not always secure; project returns

C Streamlined land, grid and permitting, with safeguards for returns

- **Ready-to-build zones**, with land, clearances & grid connection before allotment, could be extended from solar to storage & H2, with approvals through a **single online window** (e.g., the Solar Park model, National Single Window System)
- **Transmission and other network infrastructure** could be planned in line with the project pipeline, with grid access confirmed at award
- **Compensation for power the grid cannot take** could be extended to more projects, protecting returns (e.g., projects on temporary grid access)

Global learnings

EU: "Acceleration areas" with pre-cleared permits for renewables (RED III)
Australia: Renewable Energy Zones with grid planned in advance

Addresses

Land and grid delays; project returns

Source: Industry experts; Secondary reports & publications; BCG analysis.

Appendix

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e-TRNL Energy | Developing indigenous battery cells, enabling electric mobility by replacing fossil fuel-based solutions

Company Overview

Manufacturing of battery cells with 3D electrode architecture

e-TRNL plans to manufacture patented battery cells that could cut heat & manufacturing costs

C&S issue addressed

Enabling electric mobility and low-carbon energy storage by replacing fossil fuel-based solutions

Solution offered

Core Offering

3D-electrode battery cells that could improve safety, charging speed, lifespan, density & have a lower cost of manufacturing than standard cells

Business Model

Currently in product & manufacturing technology development stage

Investment Scenario

Equity funded R&D and pilot line setup; an approved government loan will fund the pilot line and first cells

ROUND	YEAR	AMOUNT	KEY INVESTOR	USED FOR
Pre-seed	2022	$0.8 Mn	Speciale Invest	R&D
Seed	2025	$2.9 Mn	IAN Alpha Fund	R&D, pilot line setup
RDIF funding (convertible loan)	2026	$9.9 Mn approved	Govt. of India	Automated pilot line setup, 1st manufactured cells

Investment rationale (non-exhaustive)

- Patented cell structure which has potential for less heat generation, lower manufacturing cost & better cell performance
- Indigenous in a ~100% import-dependent market

Support by investors beyond capital (non-exhaustive)

- Facilitated customer introductions
- Supported seed fundraise ($2.9 Mn round)
- Helped institutional governance

Results

Business Scale

Capital already backing a cost-led thesis

50% Lower cell manufacturing cost estimated

9.9 $ Mn RDIF loan approved

Value created

Valuation & equity ahead of revenue

10.1 $ Mn current valuation

3.7 $ Mn equity raised as of Oct 2026

C&S Impact

Expected to cut energy & plant volume

30-35 kWh / kWh, from 80-85 kWh / kWh in energy consumption

20x+ reduction in plant volume (estimated)

Source: Details as provided by the company / fund, not verified independently.

GPS Renewables | A full-stack waste-to-fuel platform turning agri-residue and municipal waste into compressed biogas (CBG)

Company Overview

Technology, EPC provider & ownership of large BioCNG plants

Full-stack solution across the BioCNG value chain

C&S issue addressed

India imports about half its natural gas. At the same time, a large domestic energy resource is wasted: 92 / 140 MMt of surplus crop residue generated each year is burned

Solution offered

Core Offering
Builds & runs plants to turn agri-residue & municipal waste into CBG; manufactures plant equipment in pre-treatment, digestion & upgradation of BioCNG

Business Model
Bio-fuel asset ownership, EPC, O&M, technology design, etc.

Investment Scenario

ROUND	YEAR	AMOUNT	KEY INVESTOR	USED FOR
Undisclosed				

Investment rationale (non-exhaustive)

- Sectoral tailwinds with the latest GOBARdhan Scheme providing price and offtake comfort
- JVs with large institutions like IOCL and BPCL
- O&M and byproducts add revenue streams
- Demonstrable track record of creating new business lines, moving up the value chain

Support by investors beyond capital (non-exhaustive)

- Helped with quarterly financial & impact monitoring
- Supported in strengthening policies across functions
- Provided board representation
- Worked with the company for a raise of $65 Mn

Results

Business Scale

Revenue with scale

~120 $ Mn revenue in FY26

~29 K t of biofuel produced cumulatively as of FY26

Value created

Large team & citizens benefitted

800+ member team, including 100+ in design & engineering team

~1.3 L people benefitted from low-carbon transport, energy access

C&S Impact

Process waste & avoid emissions

~4.8 L tCO2e avoided cumulatively as of FY26

~6.7 L t of waste processed cumulatively as of FY26

Source: Details as provided by the company / fund, not verified independently.

Greenjoules | Producing drop-in green fuels from agricultural & agro-industrial residue

Company Overview

Produces green fuels from residue via Catalytic Thermal Cracking tech

Turns crop residue into biocrude without impacting the food and feed value chain

C&S issue addressed

India generates ~754 Mt of agricultural biomass every year out of which nearly a third (~228 Mt) is surplus - which is burned, creating environmental issues

Solution offered

Core Offering
Proprietary Catalytic Thermal Cracking technology converts agri & agro-industrial residue into biocrude, that can be distilled into green diesel, bio-naphtha, etc.

Business Model
Fuel sales to industrial customers (FMCG, petrochemicals & logistics companies)

Investment Scenario

Proven at Chakan; additional capacity planned across 3 sites

ROUND[1]	YEAR	AMOUNT	KEY INVESTOR	USED FOR
Founder's capital	2018	~$10 K	Founders, angels	Pilot plant, Chakan
Govt. seed equity	2019	~$50 K	DST, Govt of India	Technology development
Series A	2021	~$1.8 Mn	Blue Ashva Capital	Scale-up; certification
Follow-on funding	2023-25	~$2.7 Mn	Blue Ashva Capital	Bridge to Series B
Convertible notes	2025-26	~$1.1 Mn	Existing, new investors	
Series B	2026	~$15.8 Mn	Rainmatter, Amazon, Singularity AMC	Khed Plant equity

Investment rationale (non-exhaustive)

Biocrude platform creating drop-in fuels without hampering the food value chain; positive unit economics, capital-light route to scale via partner-funded JV plants; substitutes fuel imports

Support by investors beyond capital (non-exhaustive)

Refinery-scale expertise; set up engineering function; helped prepare funding material; initiated offtake process

Results

Business Scale

Revenue rising, input cost falling

~0.6 $ Mn revenue FY26 up 33% from FY25

~30 x capacity scale-up planned (12-15 KLPD to ~432 KLPD) at 3 sites

Value created

Fuel from feed alongside direct jobs

~50% of salable fuel per t of feed

100+ direct employees; Khed Plant expected to employ ~200 more

C&S Impact

Every liter replaces fossil fuel

~1.6 K tCO2e avoided in FY26

713 KL fossil fuel replaced in FY26

1. 2025-26 Concessional loan (~$10.5 Mn by TDB & Govt. of India for Khed Plant debt).
Source: Details as provided by the company / fund, not verified independently.

HEG Advanced Materials | A listed advanced-materials and advanced-carbon energy platform

Company Overview

Anode, graphene, battery storage systems and hydro & wind power on one platform

Builds on HEG's 50+ years of graphitization know-how

C&S issue addressed

Decarbonization needs Li-ion batteries, but global anode supply is geographically concentrated; India needs grid storage to absorb rising solar power

Solution offered

Core Offering

Anode: Battery-grade synthetic graphite anode for Li-ion and Na-ion cells
Graphene: Proprietary process for production (to be used in ready-mix concrete, cement etc.) (patent filed)
REPLUS Engitech: Li-ion battery packs and BESS
Green power: Hydro and wind

Business Model

Sale of advanced materials, BESS and RE power

Investment Scenario

Singularity backing a cash-generative player, building additional anode capacity in India

ROUND	YEAR	AMOUNT	KEY INVESTOR	USED FOR
First & only external PE/ VC round before listing	2025	~$58 Mn	Singularity AMC	Anode capex; REPLUS expansion; buy-out of Statkraft's 49% hydro stake

Investment rationale (non-exhaustive)

- Aligned with India's battery localization incentives-anode production in India adds a new geography to global supply
- HEG's five decades in graphitization give a credible path to anode quality & cost at scale
- Hydro funds the equity for growth capex, reducing reliance on external capital & dilution

Support by investors beyond capital (non-exhaustive)

- Support in talks with cell & auto makers on long-term anode offtake
- Help with CXO hiring, including CHRO and IR head
- Support in equity story & pre-listing roadshows

Results

Business Scale

Revenue while anode capacity is built

96 $ Mn revenue in FY26

24kT Expansion approved by board for anode in addition to 20kT in phase 1

Value created

Demerged from HEG Limited in 2026; investor still holds

60 $ Mn EBITDA in FY26

~2.3 x gross MOIC unrealized (4th Nov 2026)

C&S Impact

Cement savings and avoided emissions

~30% Cement reduction in ready-mix concrete demonstrated via graphene (company claimed)

0.5–0.7 Mn tCO2 avoided per year

Source: Details as provided by the company/fund, USD-INR currency conversion rate as of 31st March 2026

Kazam | Building India's unified energy gateway, with full-stack EV charging as the first use case

Company Overview

Full-stack platform for access, mgmt & orchestration of energy (EV: 1st use case)

Integrated solution combines proprietary, charging hardware, energy optimization software, etc.

C&S issue addressed

India's transition from fossil fuels to EVs: ~50 Mn EVs projected in India by 2032 require significant expansion of charging infra & energy mgmt capabilities

Solution offered

Core Offering

Access: Proprietary AC / DC charging solutions for EVs

Manage: Integrated software platform for real-time charging infra mgmt, etc.

Orchestrate: Advanced energy orchestration solutions for peer-to-peer energy trading, grid services, etc.

Business Model

Combines repeatable per-vehicle revenue from hardware sales, installation services, software fees, energy trading, etc.

Investment Scenario

Avaana was the first institutional investor in 2023; since then, it has raised ~$19 Mn with participation from investors like IFC & Vertex

Investment rationale (non-exhaustive)

- Estimated 70% of EV charging will be at home, with a large proportion expected to be OEM-led
- Kazam built OEM-led charging infra in 3W EVs (~50% EV penetration); 65%+ wallet share among Tier-1 3W OEMs (~70% of the market)
- Platform positioned to manage & orchestrate energy flows at scale (10% household EV energy was already flowing through Kazam)

Support by investors beyond capital (non-exhaustive)

- Facilitated evolution beyond EV mobility into a broader energy platform
- Helped in strategic introductions to OEMs & utilities, growth strategy, etc.
- Supported organizational design, hiring for key roles in hardware, finance, etc.
- Aided access to debt & equity financing from leading global investors

Results

Business Scale

Revenue growing with business scale

18x revenue growth over the past 2.5 years & EBITDA positive

284 K charging points deployed

Value created

Lower costs for drivers

~19 $ Mn raised, with > 2.5× growth in business since last fundraise

~25% lower home-charging costs for 3W drivers vs public charging

C&S Impact

Low-carbon rides & lower emissions

~1.16 Bn green kms enabled till date

230+ K tCO2e GHG emissions abated till date

Source: Details as provided by the company / fund, not verified independently.

Exponent Energy | A tech-first energy company building an integrated energy ecosystem for commercial EVs

Company Overview

EV energy infra for fast charging

EV Battery, charger & connector working together for fast charging using standard lithium-ion cells

C&S issue addressed

Commercial vehicles (largest road transport energy usage contributor) cannot immediately switch to EVs today due to high upfront long-range battery costs, limited overnight charging facilities & lost income due to higher charging duration

Solution offered

Core Offering

Integrated energy ecosystem with a smaller, cheaper battery to charge in 15 minutes, charging & connector along with off-board cooling system

Business Model

Sale & deployment of battery systems & recurring charging transactions

Investment Scenario

Backed as a prototype in 2021; now powering ~3K+ vehicles

ROUND	YEAR	AMOUNT	KEY INVESTORS	USED FOR
Seed	2021	~$1 Mn	YourNest, 3one4 Capital, AdvantEdge	R&D: 1st prototype & validation
Pre-Series A	2021–22	~$5.9 Mn	Motherson Lease, AdvantEdge, YourNest, 3one4 Capital	1st pilot, charging stations
Series A	2022	$12 Mn	Lightspeed India	3W launch, build of charging network
Series B	2023	$26.5 Mn	Eight Roads, TDK Ventures	Scale-up, bus / truck R&D
Series B2	2026	$22 Mn	360 ONE, TDK, Hitachi Ventures	Retrofit scaleup, financing, etc.

Investment rationale (non-exhaustive)

Cheaper, faster, more reliable charging has potential to become a utility

Support by investors beyond capital (non-exhaustive)

- Brought co-investors, led seed round of financing arm
- Introduced to vehicle makers & charging partners

Results

Business Scale

Repeat charging across the fleet

3+ K Exponent-powered vehicles till date

2+ Mn rapid charging sessions till date

Value created

Network reliability, made in India

27 patents granted; chargers, packs & connectors built in India

98% energy by Exponent-powered EVs is bought on their own network

C&S Impact

Busy chargers displacing diesel km

100+ Mn km replacing diesel & CNG powered by Exponent till date

Source: Details as provided by the company / fund, not verified independently.

Vecmocon | A deep-tech EV systems company designing intelligent compute components for Indian operating conditions

Company Overview

Deep-tech EV company providing full EV compute stack

Designs BMS, chargers & related parts / software for Indian operating conditions

C&S issue addressed

EV battery safety, charging reliability, and the development of cyber-secure, functionally safe EVs depend on component design and their suitability for Indian operating conditions

Solution offered

Core Offering
Offers BMS, chargers, vehicle intelligence modules, instrument clusters, motor controllers, cloud analytics & after-sales

Business Model
Sale of products to OEMs, battery makers, battery-swapping operators

Investment Scenario

Capital backing a deep-tech stack designed for Indian conditions

ROUND[1]	YEAR	AMOUNT	KEY INVESTOR	USED FOR
Seed	2018–19	$0.3 Mn	Tessellate Tech Ventures	Internal R&D
Pre-Series A	2022	$5.2 Mn	Tiger Global, Blume Ventures	Commercial team, in-house test labs
Series A (1st close)[2]	2024	$10 Mn	EIF, BII, Blume	New EV, high-voltage & storage R&D, R&D lab
Series A (final)[2]	2025	$8 Mn	EIF, Aavishkaar Capital	R&D; team; market expansion

Investment rationale (non-exhaustive)

- Founding team with eight years of product development experience
- Full-stack suite along with a data and service layer

Support by investors beyond capital (non-exhaustive)

- Set up an IFC-aligned E&S action plan & ESG training
- Advised on growth strategy, automotive industry access

Results

Business Scale

Revenue is growing with volumes

- **~4** $ Mn revenue in FY26[3], up from ~$0.5 Mn in FY23[4]
- **2L+** compute components sold as of Oct 2026

Value created

Capital raised and direct jobs rising

- **~24** $ Mn primary equity raised till May 2025
- **285** direct jobs in Oct 2026 from 201 at investment

C&S Impact

Emissions avoided & better battery life

- **~2.4** K tCO2e / yr avoided by chargers sold in FY26
- **~20%** longer battery life claimed

1. Not shown: Grants, 2016-17 (~$0.17 Mn from FITT (IIT Delhi) and EIL; used for BMS R&D); **2.** Series A includes a secondary component (not invested in the company); **3.** Converted at ₹88.31 per US$ (RBI FY2025-26 average); **4.** Converted at ₹80.36 per US$ (RBI FY2022-23 average)
Source: Details as provided by the company/fund, not verified independently

BECO | FMCG startup manufacturing plant-based, chemical-free home & kitchen care products

Company Overview

FMCG startup offering plant-based home & kitchen care

Chemical-free cleaning products

C&S issue addressed

Conventional home & kitchen care products rely on chemicals

Solution offered

Core Offering
Home & kitchen care products that are chemical-free e.g., detergent, dishwashing liquid, floor cleaner, bamboo-based tissues, compostable garbage bags, reusable kitchen towels, and bamboo toothbrushes.

Business Model
Sale of sustainable home & kitchen care products

Investment Scenario

Natural, affordable home & kitchen care, built as an FMCG brand

ROUND	YEAR	AMOUNT	KEY INVESTOR	USED FOR
Seed	2021	$540 K	Climate Angels	Brand building
Series A	2022	$3 Mn	Rukum Capital	Brand building & marketing
Series B	2024	$10 Mn	Tanglin Venture Master Fund and Titan Capital Winners Fund	Offline expansion and deeper R&D

Investment rationale (non-exhaustive)

- Innovating chemical-free products
- Targeting $12 Bn home & kitchen care market in India
- Company was already posting a 25-35% customer retention

Support by investors beyond capital

- Undisclosed

Results

Business Scale

Compounding growth, recurring revenue

~24 $ Mn revenue FY26[1] with CAGR ~112% (FY22-FY26)

3+ $ Mn monthly recurring revenue clocked presently[2]

Value created

Three rounds, then a secondary exit

~14 $ Mn raised till date

17 X return multiple to investor in a secondary exit in 2026 claimed

C&S Impact

Chemical free products

100% natural, chemical-free products claimed

1. Converted at ₹88.31 per US$ (RBI FY2025-26 average) **2.** MRR of ₹30 Cr converted at ₹95.52 per US$ (Oct 2026 monthly average; US Federal Reserve).
Source: Details as provided by the company / fund, not verified independently.

Membrane Group | End-to-end process water & wastewater treatment provider, specializing in ultrapure water (UPW)

Company Overview

Treating water for India's water-intensive industrial growth

Provides process water, wastewater treatment solutions end-to-end from design to project management

C&S issue addressed

India is water-stressed, with 4% of the world's fresh water, pushing industries to invest in wastewater treatment, cut freshwater reliance

Solution offered

Core Offering
Provides systems for industries to recycle water, cut freshwater use / wastewater discharge; Focus on effluent treatment & process water treatment for industries of strategic importance such as micro electronics, battery manufacturing, semiconductors

Business Model
Industrial customers order projects; component & aftersales solutions

Investment Scenario

Fund and JV backing of a UPW specialist is expected to open up new opportunities

ROUND	YEAR	AMOUNT	KEY INVESTOR	USED FOR
1	2025	~$47 Mn	GEF Capital Partners	Capex, working capital, inorganic opportunities
2	2026	Undisclosed	Kurita Water Industries	

Investment rationale (non-exhaustive)

- Sits where water stress meets industrial growth
- Differentiated design & engineering capability for high recovery rates
- JV with Kurita Water Industries could potentially open global & semiconductor opportunities

Support by investors beyond capital (non-exhaustive)

- Supported in strategic introductions, JV advice
- Helped in talent management, inorganic opportunities
- Helped expand Membrane's business pipeline & strengthening its presence across key markets

Results

Business Scale

Scaling in water security

~61 $ Mn revenue in FY26

~11 $ Mn EBITDA in FY26

Value created

Staff rewarded; stressed regions served

~1.7% stake ESOP pool to reward & retain talent

12 highly water-stressed districts supported by its operations

C&S Impact

Water reused, discharge is far cleaner

~99% reuse rate while recycling industrial wastewater

95-99% reduction in wastewater pollutant loads

Source: Details as provided by the company / fund, not verified independently.

Ecozen | A climate-smart tech company reducing diesel as well as food wastage for farmers

Company Overview

Solar-powered electronics, motor control & thermal energy storage

Builds solar pump controllers for irrigation & solar cold rooms for post-harvest storage

C&S issue addressed

Diesel irrigation pumps inflate farm costs & emissions; inadequate cold storage near farms exposes harvests to spoilage & distress prices accepted

Solution offered

Core Offering
Ecotron – a solar pump controller for irrigation; Ecofrost – a solar cold room which preserves produce, giving farmers time before sale; expanding into household products

Business Model
Sale of solar farm & household products to farmers & rural users

Investment Scenario

Early conviction helped bring later-stage capital; proprietary core stack reused across products

ROUND[1]	YEAR	AMOUNT	KEY INVESTOR
Equity (until Series C)	Undisclosed	~$23 Mn	Omnivore, Nuveen, IFA, Caspian, Triodos, Exim Bank, Dare Ventures, etc.

Investment rationale (non-exhaustive)

- Ecozen owns a solar-power electronics stack that can decarbonize farm energy & then move into adjacent rural & industrial applications
- Addresses mitigation & adaptation; demonstrated profitability at scale, policy tailwinds & export opportunity

Support by investors beyond capital (non-exhaustive)

- Helped with product development, market-fit & bringing in later-stage capital
- Supported with ESG due diligence, tracked impact metrics
- Facilitated customer introductions

Results

Business Scale

Demonstrated profitable growth

157 $ Mn revenue in FY26

6.5+ L installations across farms, homes & businesses

Value created

Increasing coverage across use cases

~10 $ Mn profit after tax in FY26 with EBITDA margin of ~13.3%

~2 Lakh smallholder farmers covered up to 2026

C&S Impact

Low-carbon units displace diesel, grid power

~5.4 MtCO2e GHG emissions saved till date

~6.3 Bn units low-carbon energy delivered till date

1. The company raised debts from lenders including ICICI Bank, Axis Bank, HDFC Bank, ResponsAbility, Northern Arc, Maanaveeya, UTI International, Spark Capital.
Source: Details as provided by the company / fund, not verified independently.

Fasal | An agri-tech helping horticulture farmers adapt to changing climate by delivering crop-stage specific advisories

Company Overview

Full-stack AI-powered precision agriculture & automation platform

Provides farm devices & related software to advise on irrigation, nutrients, managing pests / diseases

C&S issue addressed

Horticulture farmers face drought, water scarcity, heat & increasingly variable weather, with inefficient irrigation & input use

Solution offered

Core Offering
IoT devices & app that give insights to farmers to manage farm, improve yields & reduce input use; FasalJet to automate irrigation

Business Model
Sale of hardware to farmers; a recurring subscription to farmers for farm intelligence

Investment Scenario

Capital shifted from product development to scale-up, with expansion plan for wider adoption

ROUND	YEAR	AMOUNT	KEY INVESTOR	USED FOR
Early-stage	2019	$1.6 Mn	Omnivore & others	Developing product & early commercialization
Early-stage	2021	$4 Mn	3one4 Capital & others	Scale product & operations
Series A	2023	$12 Mn	TDK Ventures, BII & others	Expand in South-East Asia, enhance digital platform, new product support, expand area

Investment rationale (non-exhaustive)

- Focus on high-value horticulture supports stronger willingness to pay from farmers
- Successful scale-up could potentially demonstrate commercial viability of precision agriculture & catalyze wider adoption

Support by investors beyond capital (non-exhaustive)

- Supported talent, scaling & impact measuring
- Helped optimize & localize hardware

Results

Business Scale

Adoption spans farms across countries

12+ K growers served

200+ K acres served across countries (India & Southeast Asia)

Value created

Higher farm yields, access via devices

13+ K billed devices as of Sept 2026

56.8% higher yield reported as per a 2025 survey of Fasal farmers

C&S Impact

One solution cutting water & emissions

83 Bn liters water saved as per a 2025 survey of Fasal farmers

56 K Mt GHG reduced till date

Note: K=1000
Source: Details as provided by the company / fund, not verified independently.

Nutrifresh | Hydroponic farming with year-round, residue-free produce

Company Overview

Growing crops using hydroponic farming in a controlled environment

Sale of exotic vegetables, herbs & greens by building & operating hydroponic polyhouse farms

C&S issue addressed

Farming takes large volumes of water; heavy input use degrades soil; heat, erratic rains, pests cut the number of viable crop cycles

Solution offered

Core Offering
Residue-free exotic vegetables, herbs & greens grown year-round in soilless systems using hydroponics; less water usage than open-field farming

Business Model
Sells farm-to-fork to HoReCa, quick-commerce, resellers, aggregators, etc. (mainly B2B)

Investment Scenario

Seed round funded the farms' acreage expansion; vision for farmers to grow hydroponics on some part of their land

ROUND	YEAR	AMOUNT	KEY INVESTOR	USED FOR
Seed	2022	$5 Mn	Hydroponics India LLC, Florintree, Green Frontier Capital & Others	Capacity expansion
Series A	2023	$15.1 Mn	Neev Fund (SBI Ventures)	

Investment rationale (non-exhaustive)

- Large, fragmented urban market needing residue-free produce, that open-field farms cannot guarantee year-round
- Founder's vision of farmers converting part of their land to hydroponics

Support by investors beyond capital (non-exhaustive)

- Brought board members; helped introduce PE
- Refined business, operating model for value
- Worked with government for incentive access

Results

Business Scale

Growth backed by commercial volumes

~25 $ Mn revenue in FY26; (~68% CAGR, FY22–26)[1]

11+ K Mt of produce sold in FY26

Value created

Reach & a women-majority workforce

35+ K greener households served till date

65% overall women workforce

C&S Impact

Efficient from water to waste

~1.3 Bn liters of water saved vs traditional field irrigation

100% plant waste recycled & reused as organic manure

1. Converted at ₹88.31 per US$ (RBI FY2025-26 average).
Source: Details as provided by the company / fund, not verified independently.

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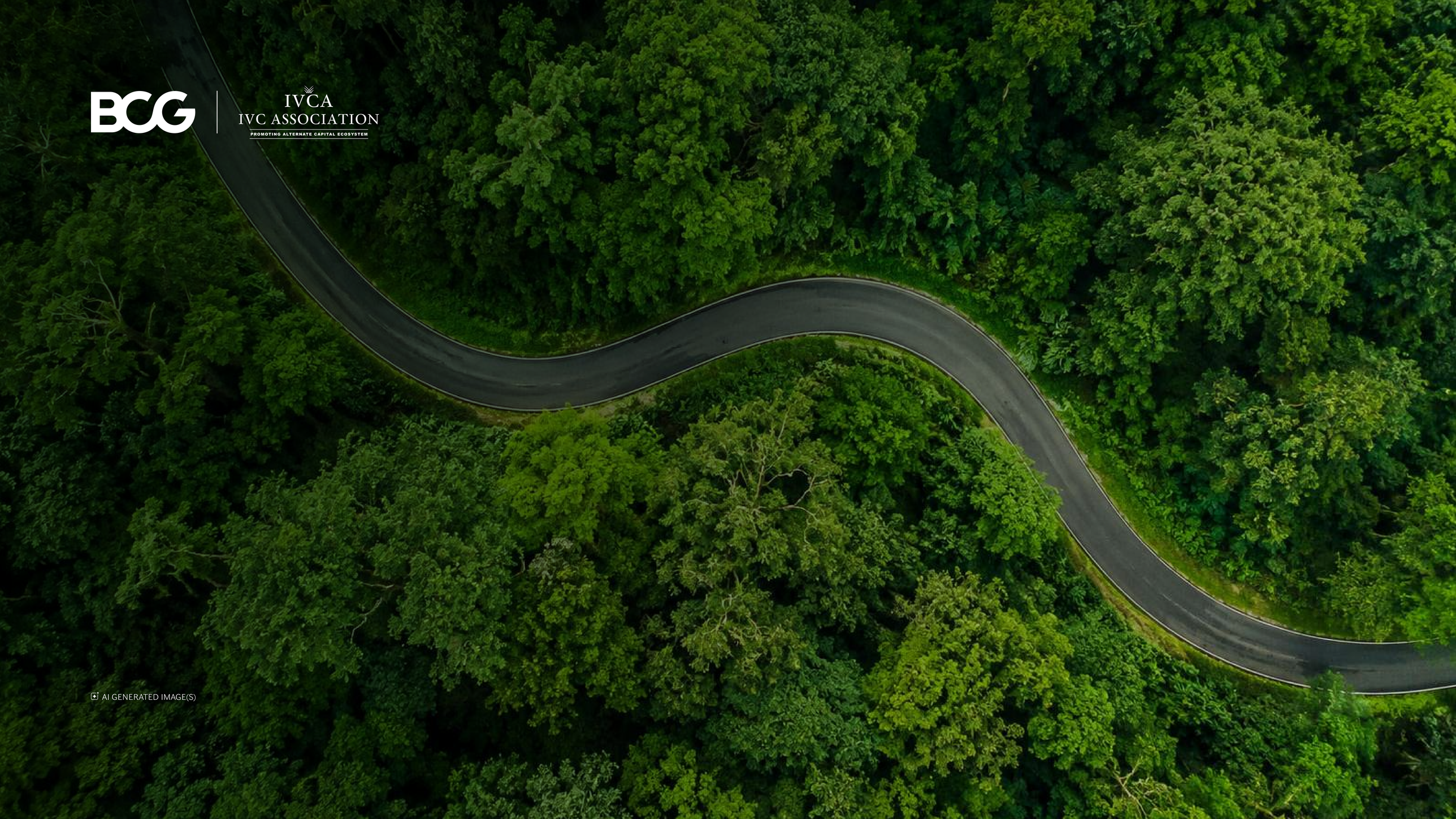
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