Landscape and Opportunities for the Decarbonization of China's Textile and Apparel Manufacturing Sector

apparel impact institute

DECEMBER 2025

Acknowledgments

The authors extend their gratitude to the industry experts, interviewees, reviewers, and other contributors who generously contributed their time and expertise to the completion of this report:

Apparel Impact Institute

Dr. Xiao Liu (Co-Author)

HSBC

World Bank

International Finance Corporation

Asian Development Bank

Asian Infrastructure Investment Bank

New Development Bank

JC International Leasing and Financing Co.

Bank of Huzhou

Suzhou Rural Commercial Bank

Jiangsu Provincial Government

Shengze District Government

iGDP

BluWin China

Sinocarbon

Tongji University

World Resources Institute China

Brookfield Renewable

Tomorrow Energy

Shanghai CompAir Compressor Co. Ltd.

EILEEN FISHER, Inc.

Primark

Kailin Fabric

Rongliang Fabrics

Jiangsu Province Textile Industrial Association

Methodology

The methodology used to develop this report followed a multi-step approach combining desk-based research, targeted project assessments, in-person and virtual consultations, and an in-country visit. This approach ensured a grounded understanding of China's decarbonization landscape within the textile and apparel sector.

Initial research was conducted through a review of existing literature, public data, and institutional reports to map the financing landscape and policy environment supporting low-carbon industrial development in China. This was followed by a series of consultations with key stakeholders - including manufacturers, brand representatives, local banks, energy developers, and international financial institutions (IFIs) - to understand on-the-ground challenges, funding flows, and implementation barriers.

A week-long in-country visit, with time spent in Beijing and Shanghai, enabled deeper engagement with regional funders and developers. To complement these activities, DFI partnered with a China-based technical expert who holds a doctorate in environmental engineering, has extensive experience in industrial and low-carbon development, and brings a strong track record of collaboration with IFIs such as the World Bank, Asian Development Bank, and GIZ. This partnership ensured that local market conditions, regulatory frameworks, and technical nuances were accurately interpreted and reflected throughout the report.

In total, 24 virtual and in-person consultations were conducted, engaging over 40 stakeholders across the value chain. This includes discussions with financial institutions, solution providers, government-linked entities, and technical agencies involved in program delivery.

The robust and localized methodology provides a comprehensive foundation for the insights and recommendations in this report, including the identification of key bottlenecks and surfacing new partnerships and funding opportunities relevant to China's evolving decarbonization efforts.

Acronyms & Abbreviations

&	*And*
#	*Number*
%	*Percent*
~	*Approximately*
ADB	*Asian Development Bank*
Aii	*Apparel Impact Institute*
AIIB	*Asian Infrastructure Investment Bank*
Ave.	*Average*
B	*Billion*
BOH	*Bank of Huzhou*
BOX	*Bank of Xingtai*
C	*Celsius (degrees)*
CAPEX	*Capital Expenditure*
CBD	*Clean by Design Program*
CERF	*Carbon Emission Reduction Facility*
CN¥	*Chinese Yuan*
CO_2e	*Carbon Dioxide*
CRCB	*Changxing Rural Commercial Bank*
CSP	*Climate Solutions Portfolio*
DFI	*Development Finance International, Inc.*
DPP	*Digital Product Passport*
e	*Emissions*
e.g.	*Example Given*
EE	*Energy Efficiency*
EIP	*Eco-Industrial Park*
EPC	*Energy Performance Contracting*
EPR	*Extended Producer Responsibility*
ESCO	*Energy Service Company*
ESPR	*Eco-Design for Sustainable Products Regulation*
ETS	*Emissions Trading System*
EU	*European Union*
FEM	*Facility Environmental Module*
GEC	*Green Electricity Certificates*
GHG	*Greenhouse Gas*
GIZ	*Gesellschaft für Internationale Zusammenarbeit*
HSBC	*Hongkong and Shanghai Banking Corporation*
i.e.	*That Is (id est)*
IDA	*International Development Agency*
IFC	*International Finance Corporation*
IFI	*International Financial Institutions*
IFS	*Institute of Finance and Sustainability*
IGDP	*Institute for Global Decarbonization Progress*
ISO	*International Organization for Standardization*
K	*Thousand*
M	*Million*
MAX	*Maximum*
MIIT	*Ministry of Industry and Information Technology*
MIN	*Minimum*
MSME	*Micro-, Small-, and Medium-Sized Enterprises*
MW	*Megawatt*
MWH	*Megawatt-hour*
NDB	*New Development Bank*
NDC	*Nationally Determined Contribution*
NDRC	*National Development and Reform Commission*
NEA	*National Energy Administration*
OPEX	*Operational Expenditure*
PBOC	*People's Bank of China*
PRC	*People's Republic of China*
PV	*Photovoltaic*
RE	*Renewable Energy*
RESCO	*Renewable Energy Service Company*
ROI	*Return on Investment*
SME	*Small- and Medium-Sized Enterprises*
SZRCB	*Suzhou Rural Commercial Bank*
TBD	*To Be Determined*
TECH	*Technology*
US$	*United States Dollar*
WB	*World Bank*
WRI	*World Resources Institute*

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About Us

Apparel Impact Institute (Aii) is a 501(c)(3) global nonprofit organization dedicated to identifying, funding, scaling, and measuring the apparel and footwear industry's proven environmental impact solutions. Aii works with over 50 brands and retailers who are leading the sector's global decarbonization efforts, including Target, PVH, Lululemon, and H&M Group.

Aii has also built a US$250M Fashion Climate Fund to leverage a first-of-its-kind collaborative funding model between philanthropy and corporate entities. It is designed to catalyze climate action by funding and scaling solutions for decarbonization, and marked to unlock a total of US$2B in blended capital, to meet the industry's goal to halve carbon emissions by 2030.

Most recently, Aii has updated its widely credited 2021 "Roadmap to Net Zero," a report and guide calling for the system-wide collaboration needed to reduce GHG emissions in the apparel and footwear industry by 45% at minimum by 2030 and to zero by 2050.

To learn more about Aii, visit apparelimpact.org.

Development Finance International (DFI) Development Finance International, Inc. is an international business development advisory firm with over 30 years of experience in accelerating business and sustainability in emerging markets globally.

DFI specializes in facilitating partnerships between the private sector and International Financial Institutions (IFIs), such as the World Bank Group, Asian Development Bank, and others to deliver on clients' objectives. DFI's efforts have delivered over US$10 billion in partnerships, funding, and business across sectors and have provided significant Returns on Investment (ROI) and socio-economic impact (i.e. GHG reduction, job creation, increased income, among others).

From strategy to day-to-day execution, DFI's holistic approach centers on results delivery, long-term relationships, and multi-stakeholder success for high-impact initiatives, such as funding mobilization, supply chain development, and market entry and expansion. DFI is working with Aii in mobilizing sustainable financing to support the decarbonization of the textile and apparel industry.

To learn more about DFI, visit dfintl.com.

Supported By

This report was supported by a philanthropic grant from HSBC to Aii. The views and opinions expressed in this report are only those of authors and do not reflect the views and opinions of HSBC.

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Executive Summary

Catalyzing Decarbonization in China's Textile and Apparel Sector

China is the world's largest producer of textiles and apparel and a cornerstone of the global supply chain. Its manufacturers are deeply embedded across global brands' sourcing strategies and account for a significant share of the sector's carbon footprint. The country's industrial emissions targets, green finance policies, and clean energy advancements offer a strong enabling policy environment; however, decarbonization is still not happening at scale.

This report explores the financing, implementation, and policy landscape supporting decarbonization in China's textile and apparel sector. It focuses on the segment of the industry most well-positioned to act: approximately **44,000 scaled enterprises***, many of which are concentrated in industrial parks and face increasing pressure to align with brand expectations and regulatory developments at home and abroad.

While climate ambition is high, implementation remains uneven. Manufacturers face persistent challenges in accessing financing and technical support, navigating evolving requirements, and turning awareness into action on the ground. **The report builds on existing work by Chinese stakeholders** and aims to contribute practical insights on solution uptake, financing options, and coordinated action.

It also offers a **national perspective**, while integrating insights from key production hubs to reflect regional differences and emerging best practices. Based on current cost benchmarks and deployment assumptions, it is estimated that the sector will require at **least US$40.8 billion** in investment to reduce emissions by 50% by 2030.

This publication is part of a series developed by Apparel Impact Institute (Aii) to assess decarbonization readiness and investment needs across key manufacturing countries. It draws on interviews, case studies, field experience, and partner insights to highlight actionable opportunities and priority solutions, including those supported through Aii's own programs.

*Company with annual turnover above CN¥ 20 M (~US$2.8 M); more data, scale, and readiness to transition

Key Findings

China is the largest textile producer and exporter globally: China accounts for over half of global fiber production and more than **30%** of global apparel exports, valued at **US$294 billion**.

Ambitious national goals provide a strong foundation: China's "dual carbon" goals, green finance policies, and industrial upgrading initiatives have created a supportive environment for textile decarbonization, particularly through regional pilot zones and industrial parks.

44,000 scaled enterprises represent core opportunity: Of China's **300,000+** textile and apparel enterprises, **~44,000** have over CN¥20 million (est. US$2.8 million) in annual turnover. These scaled enterprises have the emissions contribution, operational scale, and data needed for immediate action.

Suppliers face multiple barriers beyond financing: Manufacturers report gaps in technical know-how, awareness, and planning tools. Many struggle to interpret evolving requirements or identify trusted interventions, particularly without localized technical support.

An estimated US$40.8 billion is needed for decarbonization: Achieving 50% emissions reduction by 2030 will require significant investment in energy efficiency and renewable energy. While domestic green finance is abundant, challenges remain in aligning available financing models (i.e., standard debt loan, equity) with varying sector needs.

IFIs offer strong support through financial and technical assistance: International financial institutions are actively supporting China's transition through green credit lines, technical cooperation, and investments across industrial parks and manufacturing clusters.

US$4.3 billion in eight active IFI credit lines has been confirmed as of 2024: Despite the scale, uptake can be limited as local loans at **3–4% interest rate** are often preferred over IFI-backed financing, which ranges from **3–7%** and may involve stricter requirements or innovative use cases (e.g., innovative renewable energy applications).

Industrial parks offer a strategic platform for aggregation and scale: More than 11,000 enterprises operate within over 1,300 textile industrial parks, which offer shared infrastructure, governance platforms, and bundled project opportunities that lower transition costs. The introduction of the **nationwide zero-carbon industrial park initiative** in 2025 further underscores their role as key delivery platforms for sector-wide decarbonization.

Tools and templates are bridging last-mile implementation challenges: Local governments, technical experts, and brands are piloting digital tools, process optimization strategies, and factory-level support programs that improve planning and implementation.

Aii's work highlights actionable solutions: Aii's Climate Solutions Portfolio and low-carbon technology research spotlight several priority interventions, from chemical innovations to thermal energy recovery, that are adaptable across facility types and geographies.

Collaboration across the value chain is essential: Decarbonization will require concerted action across brands, parks, financial institutions, and local governments. Aggregated demand, clearer guidance, and continued technical assistance will be critical to driving measurable progress.

Recommendations and Call to Action:

1. **Develop a Greater Variety of Financing Mechanisms and Tools:** Existing green finance in China is ample, but mechanisms remain limited in structure and scope. Blended models, deployment-linked grants, and partnerships with local lenders should be tested to better match supplier needs and sector dynamics.

2. **Improve Alignment Between Brand Expectations and Supplier Capabilities:** Brands should coordinate timelines, simplify tools, and clarify expectations to ease the burden on suppliers. Collaborative planning and demand pooling can also help accelerate project uptake and improve supplier confidence in climate investments.

3. **Encourage Manufacturers to Integrate Low-Carbon Planning into Core Business Strategy:** Suppliers should embed decarbonization into broader business planning by setting internal goals and tracking progress. Brands and partners can and should support this by providing financial support (i.e., through incentives or longer purchase contracts), encouraging engagement with local financiers, and sharing planning templates and guidance.

4. **Expand Support for Supplier Readiness Through Localized Technical Assistance:** Factory-level implementation is often hindered by capacity gaps. Localized technical assistance - including diagnostics from energy audits, coaching, and tailored roadmaps - can help bridge the "last mile" and ensure interventions are well-planned and executed.

5. **Strengthen Industrial Park Engagement as a Platform for Action:** Industrial parks are a strategic entry point for decarbonization. Stakeholders should leverage parks for aggregated demand, shared infrastructure, and pilot replication. Public-private coordination can help scale bundled services and green upgrades across clusters.

6. **Enhance Sector Coordination Through Data and Knowledge Platforms:** Sector-wide transition requires consistent definitions, common tools, and transparent reporting. Open-access platforms can support data-sharing, disseminate best practices, and reduce duplication across initiatives.

7. **Clarify the Role of Digitalization in the Transition:** Digital tools have high potential, but practical use cases remain limited. Policymakers, developers, and solution providers should collaborate to clarify pathways, measure impact, and pilot fit-for-purpose applications that support operational gains.

We welcome your feedback on this report.
To share any questions, insights, or ideas, please contact Aii at info@apparelimpact.org

Introduction

The Trillion-Dollar Fashion Decarbonization Opportunity

Efforts to achieve a more sustainable fashion industry are gaining momentum, with increasing attention to reducing the environmental and social impacts of clothing production across the entire value chain. From raw material sourcing to manufacturing and product distribution, the sector is confronting growing pressure to reduce emissions, phase out coal, and adopt cleaner, more responsible practices.

This shift aligns with the UNFCCC's call for the fashion industry to achieve **net-zero emissions by 2050**, in line with limiting global warming to **1.5°C**. In response, a growing number of brands and manufacturers have committed to ambitious goals such as **100% renewable electricity** and the **phase-out of coal** from their supply chains.

As the sector continues to evolve, new solutions are emerging to address persistent environmental and social challenges. Accelerating the reduction of carbon emissions remains central to the textile and apparel industry's transition towards long-term resilience.

This report builds on the foundational insights of the 2021 publication *Unlocking the Trillion-Dollar Fashion Decarbonization Opportunity*, jointly authored by Apparel Impact Institute (Aii) and Fashion for Good[1]. That study underscored the financial and environmental case for low-carbon production models, calling for private capital, policy alignment, and collective industry action to scale meaningful impact.

This report also draws from other key publications, including the *Fashion Brands' Scope 3 Decarbonization* published by the World Resources Institute (WRI) China[2], and the *Green and Low-Carbon Transition of Zhejiang's Textile Industry: Policy Research Report* by the Institute of Finance and Sustainability (IFS) and WRI China[3]. These works offered valuable guidance on emissions hotspots, upstream intervention strategies, and the enabling environment for regional implementation.

[1] Apparel Impact Institute (2021).
[2] Zhang M., An Z., Cao Z., & Zhang W. (2024).
[3] Institute of Finance and Sustainability (2025).

Objective

This report provides an in-depth look at the decarbonization landscape of China's textile and apparel sector with a focus on identifying key opportunities, challenges, and systemic gaps critical to achieving the global goal of reducing industry greenhouse gas emissions by 50% by 2030. While national in scope, the report offers a representative snapshot rather than a comprehensive account of all regional activities and actors.

Taking a holistic approach, the report explores the policy landscape, market dynamics, technology pathways, and stakeholder perspectives that shape China's transition toward low-carbon production. It highlights insights from across the value chain, including brands, manufacturers, and solution providers, and surfaces practical models and high-potential interventions suited to the Chinese context.

Through this integrated lens, the report aims to provide a clear and actionable pathway and support industry leaders, policymakers, and ecosystem actors in developing context-specific strategies that accelerate decarbonization and build a more sustainable and resilient future for China's apparel sector.

Role of International Financial Institutions

International Financial Institutions (IFIs) play a critical role in supporting sustainable development across a wide range of country contexts, including both developing economies and emerging markets like China. In addition to funding, they also provide technical expertise, policy guidance, and help bring together key players across government, industry, and finance.

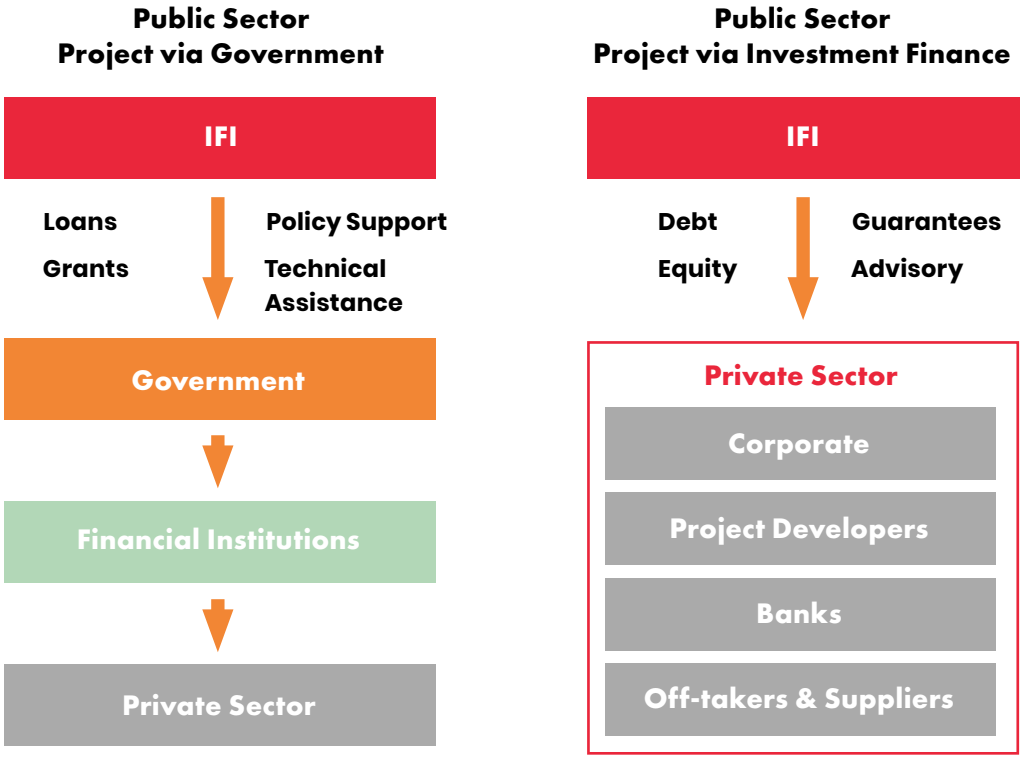
Through global, regional, and country-specific programs, IFIs help catalyze investment from public and private sources to advance environmental, social, and economic priorities. Their support often takes the form of loans, grants, and occasionally equity investments, alongside technical services such as policy advisory, training programs, and the development of knowledge products.

Furthermore, IFIs serve as conveners of high-level stakeholders, such as ministers, agency heads, and industry leaders, to foster collaboration around shared development goals. This convening power is often exercised through flagship events, working groups, and project-level engagements.

The IFI landscape includes multilateral development banks, bilateral development agencies, United Nations bodies, philanthropic foundations, and other mission-aligned financial institutions working to drive inclusive and low-carbon growth.

How IFIs Work: Modes of Financing

IFIs offer external funding to both the public and private sectors. Their resources can be allocated through national and state governments or provided directly to companies for projects with socio-economic and sustainable development goals. The terms and conditions of these funding arrangements often differ significantly between public and private projects.



Decarbonizing the Apparel Industry

China's Apparel and Textile Sector

China is home to the world's largest textile and apparel industry. For decades, the sector has played a key role in the country's industrial development and global trade dominance. Its vast manufacturing base, strong infrastructure, and end-to-end production capabilities have made China the global leader in apparel and textile production volume and export value.

China's value chain is often described as the most complete in the world. Every stage of production, from raw material processing to finished garment manufacturing, takes place domestically and at a significant scale. As of 2023, China accounted for approximately **32% of global textile and apparel exports**, valued at close to **US$294 billion**. This puts it far ahead of other leading producers such as Bangladesh and Vietnam, which contribute 6% and 5% of global textile exports respectively[4]. Since 2021, the **United States, European Union, United Kingdom, Japan, and Canada** have consistently been the top importers, collectively receiving up to **57% of China's apparel exports**[5,6].

The industry is also a key contributor to China's economy, employing more than **10 million people** and driving growth across major coastal and eastern provinces[7]. The China Statistics Bureau reports that as of 2023, China's textile and apparel sector comprises nearly **330,000 enterprises**. Of these, **44,000** are classified as **'scaled enterprises,'** meaning they generate annual turnover exceeding CN¥20 million[8]. This segment is more likely to have the operational scale, data availability, and financial readiness to pursue decarbonization.

[4] OEC (2024).
[5] Shenglu Fashion (2024).
[6] Asia Garment Hub (2022).
[7] China Statistics Bureau (2023).
[8] Birrochi, A. (2022).

These businesses are concentrated in clusters, particularly in **Zhejiang, Jiangsu, Guangdong,** and **Shandong** provinces[9]. These hubs house thousands of manufacturers engaged in spinning, weaving, dyeing, finishing, and garment production. While some low-cost production has shifted to neighboring countries in recent years, China remains a global center for high-volume, capital-intensive, and technically advanced manufacturing.

According to the Institute of Finance and Sustainability, **Zhejiang province** alone hosts over **20,000 textile and apparel firms**, producing more than **20% of the country's textile and chemical fiber output**[10].

However, the industry is also one of China's most resource-intensive, as it consumes large amounts of energy, water, and chemicals and is heavily reliant on coal, petroleum, and natural gas, particularly n high-heat processes such as dyeing and finishing. Cumulatively, the textile and apparel sector releases significant quantities of greenhouse gas (GHG) emissions, reaching 230 million metric tons per year[11].

In Zhejiang's textile industry:

THERMAL ENERGY ACCOUNTS FOR MORE THAN **70%** OF GHG EMISSIONS

90% of this thermal energy is generated from fossil fuels[12].

These environmental pressures have made the sector a priority for national and global decarbonization efforts. As international climate targets and commitments become more ambitious, the trajectory of China's textile and apparel industry will play a crucial role in shaping the future of sustainable fashion.

[9] Kanungo, A. (2012).
[10] IFS (2025).
[11] ICLEI (2024).
[12] IFS (2025).

Policy and Regulations

China's textile and apparel sector is undergoing a major policy-driven transformation as low-carbon solutions and sustainability become central to the country's long-term development goals. A growing body of national and provincial regulations is beginning to shape how factories operate, how resources are consumed, how products are made and traded, and how environmental performance is measured.

Anchored in national strategies such as the "Beautiful China" initiative and 30–60 decarbonization goals, China's policy landscape spans multiple layers, covering national plans and industry-specific targets to local implementation by provincial governments. Leading textile hubs such as Zhejiang and Jiangsu are translating these priorities into concrete regulatory actions and support mechanisms on the ground.

This section provides a structured overview of the major developments in the last five years across three key areas:

1. **Green Development:** Resource efficiency, pollution control, and circular economy
2. **Low-Carbon Transition:** Carbon targets, emissions trading, and product-level footprinting
3. **Green Financing:** Fiscal incentives and financial innovation to support decarbonization

While not exhaustive, the section aims to capture the core policy signals shaping the operating environment for China's textile sector and the increasing intersections between environmental governance, industrial planning, and finance.

Part 1: Green Development

Green development has become a defining pillar of China's industrial strategy. Often framed under the concept of "ecological civilization," this approach emphasizes cleaner production, efficient resource use, and long-term environmental stewardship. For the textile and apparel sector, these goals are being advanced through a combination of national directives, sector-specific action plans, and progressive provincial policies.

National Direction

At the national level, the ***Beautiful China Initiative***, formally adopted in 2024, lays out China's vision for ecological modernization through the 14th to 16th Five-Year Plan periods (2021–2035). It positions environmental sustainability as a core part of the country's development strategy, calling for green transformation in key sectors, restoration of ecosystems, and pollution reduction[13,14].

Supporting this overarching vision, the State Council's 2024 Opinion on Accelerating the Comprehensive Green Transformation of Economic and **Social Development sets out two key milestones[15]:**

- **By 2030** – Establish green production and consumption systems, improve resource efficiency, and make substantial progress in green transition
- **By 2035** – Build a mature circular economy system, stabilize emissions, and achieve the goals of the Beautiful China vision

The policy outlines four major national initiatives: **energy transition, industrial restructuring, transportation reform**, and **lifestyle shift**. Together, these policies aim to embed ecological priorities into industrial modernization, positioning sustainability not as a tradeoff, but as a driver of economic competitiveness and long-term growth.

[13] Central Committee of the Communist Party of China (2024).
[14] Hong, Y,. Ma, L., Kang, S., Zhang, G. (2025).
[15] State Council People's Republic of China (2024).

Sector-Level Action: Textile and Apparel

The textile and apparel sector is directly targeted in the **Implementation Plan for Quality Upgrading of the Textile Industry (2023–2025)**[16], issued by four central ministries, including the Ministry of Industry and Information Technology (MIIT) and the National Development and Reform Commission (NDRC). The plan promotes high-quality, stable growth through a mix of innovation, efficiency, and environmental improvement. Green transformation is one of its core tasks, with specific directives to:

- Promote energy-saving and clean production technologies
- Expand circular economy models, such as textile recycling and waste reduction
- Encourage the use of eco-friendly and low-impact materials

These goals are designed to support both domestic industry modernization and continued competitiveness in global supply chains, particularly in response to rising sustainability standards from international buyers.

Provincial Leadership

Several leading provinces are responding quickly and actively implementing complementary policies to accelerate the sector's green shift.

ZHEJIANG:
REDUCING ENERGY CONSUMPTION BY

3.4%
ANNUALLY

The 2023 *Promoting the Development of **Zhejiang Province's** Textile Industry* directive sets a clear target of reducing energy consumption by **3.4% annually** per CN¥ 10,000 of added value through 2025[17].

JIANGSU:
COMMITMENT TO ESTABLISH

100
GREEN TEXTILE MANUFACTURING FACTORIES

The 2022 *Promote the Development of the Textile and Apparel Industry in **Jiangsu Province*** roadmap for advancing the industry includes a commitment to establish **100 green textile manufacturing factories** by 2025[18].

Local governments are guiding the sector toward greener operations through a combination of performance targets, industrial park-level standards, and green finance policy support. These efforts often go beyond national mandates, signaling strong subnational leadership in advancing sustainable manufacturing.

Localized policies play an outsized role in shaping day-to-day realities for textile manufacturers. As policy enforcement, financing programs, and technical support vary across provinces, the enabling environment for decarbonization is highly region-dependent.

[16] State Council People's Republic of China (2023).
[17] Economy and Information Technology Department of Zhejiang (2023).
[18] Jiangsu Provincial Department of Commerce (2022).

International Pressures on Green Manufacturing

Chinese manufacturers are also facing rising expectations from international markets, especially the European Union, where new environmental regulations are reshaping the rules of global trade.

The **EU Green Deal** and the **EU Strategy for Sustainable and Circular Textiles** aim to make Europe the first climate-neutral continent by 2050. These new rules call for textiles to be more durable, recyclable, and free from hazardous substances.

As of **July 2024**, the **Eco-Design for Sustainable Products Regulation (ESPR)** has introduced design standards and a **Digital Product Passport (DPP)**, which will require manufacturers to disclose information about a product's materials, carbon footprint, and recyclability[19]. In parallel, revisions to the EU Waste Framework Directive are introducing **Extended Producer Responsibility (EPR)**, a policy that makes brands and suppliers more accountable for their products after consumer use[20].

For Chinese exporters, these evolving international standards are just as impactful as domestic regulations. As more buyers seek verifiable, traceable, and circular products, alignment with international benchmarks will be crucial for maintaining market access.

[19] European Commission (2024).
[20] European Commission (2024).

Part 2: Low-Carbon Transition

Alongside its broader push for green development, China has made firm commitments to climate action through its **30-60 Strategy**, which aims to **peak carbon dioxide emissions before 2030** and **achieve carbon neutrality by 2060**. Since their announcement in 2020, the dual goals have been integrated across national development plans, industrial policies, and regulatory frameworks.

To operationalize these targets, the government launched the **1+N Policy Framework**. The "1" refers to a central guiding document, the *Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality*, while the "N" represents a growing suite of sectoral and regional action plans, standards, and support mechanisms. These span key industries such as energy, manufacturing, transport, and construction, alongside enabling tools such as carbon markets, green finance, and data infrastructure[21].

Together, the 30-60 targets and the 1+N framework form the foundation of China's climate governance system, shaping the future operating environment for high-emitting sectors, including textiles and apparel.

Select National Policies Relevant to Industry and Textiles

Within the "N" component of the framework, several recent national policies are relevant for industrial decarbonization and sectors concentrated in manufacturing hubs, like textiles. These policies span core pillars such as energy, circularity, and market mechanisms, and while not textile-specific, they influence the broader regulatory and investment landscape that the sector is operating within.

[21] The State Council People's Republic of China (2021).

The following table highlights some national policies related to the textile sector as of mid-2025, including their focus areas and metrics or targets[22].

Policy Category	Key Policy Documents	Major Measures & Targets
Energy Transition	• 14th Five-Year Plan for Modern Energy System (2022) • Hydrogen Energy Industry Plan (2022)	• Non-fossil energy ≥ 20% by 2025 • Wind or solar capacity > coal power • Green hydrogen industrialization
Industrial Decarbonization	• Industrial Carbon Peaking Plan (2022) • Zero-Carbon Park Initiatives (2025)	• Mandatory park-level carbon accounting
Circular Economy	• 14th Five-Year Circular Economy Plan (2021)	• 20% improvement main resource productivity in 2025 vs 2020 levels • Circular Economy Eco Park mandates
Tech Innovation	• Tech Roadmap for Dual Carbon (2022) • Energy-Saving Tech Catalog (2025)	• 10 key tech breakthroughs (e.g., carbon capture, hydrogen) • Smart grid or advanced cooling promotion
Market Mechanisms	• National Carbon Market (2021) • Carbon Market Expansion (2025) • Carbon Emission Reduction Facilities (2021) • Carbon Footprint Standards (2024)	• 8 high-emitting sectors (e.g., cement, aluminum) in the Emission Trading System (ETS) • Product-level carbon accounting

[22] The State Council People's Republic of China (2021).

Why These Mechanisms Matter

Individually, each policy in the table addresses a different aspect of decarbonization. Together, they reflect a broader shift from voluntary climate efforts toward structured regulatory and financial systems.

The textile sector is embedded in many of these efforts, whether through energy reform, industrial zone planning, or product traceability requirements. This section introduces a few of the relevant mechanisms emerging under the 1+N umbrella.

National Carbon Emission Trading System (ETS)

China has established a **national ETS** to manage emissions from major polluting industries such as power, steel, electrolytic aluminum, and cement. In August 2025, China released *"Opinions on Promoting Energy Transition and Strengthening the National Carbon Market,"* a comprehensive policy framework to guide the systematic development of China's carbon market. According to this policy framework, China will systematically expand market coverage to major industrial sectors by 2027[23]. While the textile sector is not yet included in the national ETS, **Guangdong Province** is piloting its inclusion in a **provincial carbon trading system**. Together, these are strong signals that regulatory expectations for textiles may soon follow.

China is also shifting its focus from managing only energy use to directly controlling carbon emissions. Under the *Work Plan for Dual Carbon Emissions Control System* (2024), the government introduced new targets to limit both **total emissions** and **emissions intensity**, with increased accountability for provinces, industries, and individual projects[24].

Emerging Focus: Product-Level Accounting

Beyond facility-level emissions, China is beginning to regulate product-level emissions through carbon footprint accounting standards. The *Guidance for Product Carbon Footprint Accounting* (2024) outlines the phased goals[25]:

- By **2027**, a carbon footprints management system will be developed, and with carbon footprints standards covering 100 priority products, **including textiles**
- By **2030**, over 200 priority product categories will be covered, with domestic standards aligned to international norms

Implementation is expected to begin with standards developed by regional and industry associations before expanding nationally. As product-level carbon data becomes a focus, manufacturers may soon face increased expectations from both regulators and buyers to quantify and disclose emissions.

Textile pilot programs have already been proposed in the **Yangtze River Delta**, signaling that the sector will be among the early adopters of these product-level requirements. This makes early investments in measurement capacity and digital traceability tools increasingly critical.

[23] State Council People's Republic of China (2025).
[24] State Council People's Republic of China (2024).
[25] Ministry of Ecology and Environment (2024).

Implications for the Textile and Apparel Sector

While not yet formally regulated under the national carbon market, the textile and apparel sector is clearly being positioned for tighter oversight in the near future. Regional governments are testing inclusion in carbon trading schemes, and national ministries have prioritized textiles in upcoming product carbon footprint standards.

For manufacturers, facilities that act early will be better positioned to meet upcoming reporting requirements, access green financing, and ensure competitiveness as carbon performance becomes a defining differentiator among manufacturers.

Part 3: Green Financing

As China sharpens its policy focus on sustainability, the financial system has become a critical lever for driving low-carbon transformation. Alongside regulatory and climate targets, the government is deploying targeted financing tools to direct capital toward cleaner technologies, more efficient production, and industrial decarbonization.

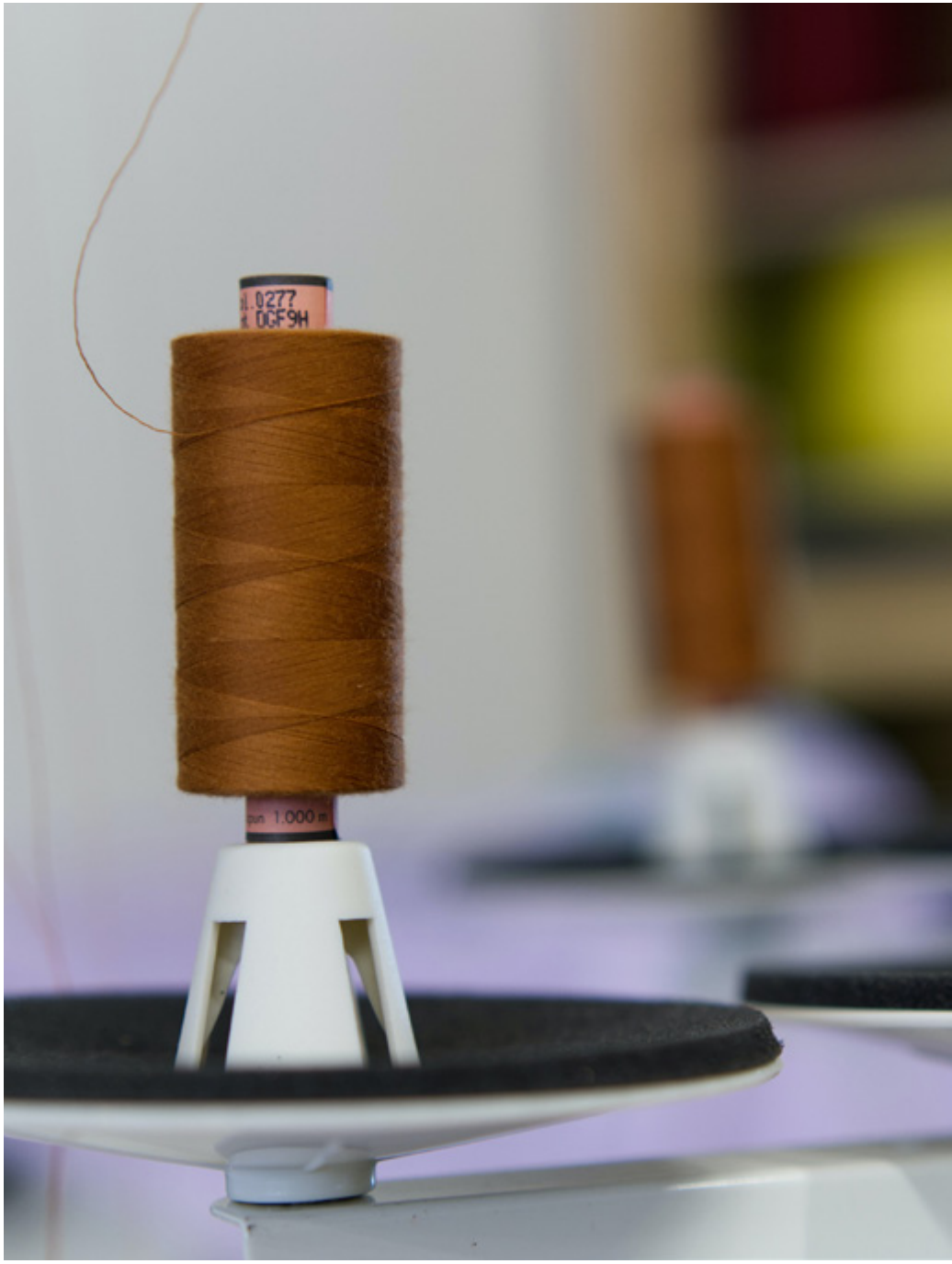
China's green finance agenda was formally launched in 2016 through the Guidelines for Establishing a Green Financial System, jointly issued by seven ministries. Since then, the country has built one of the world's most comprehensive policy frameworks for green credit, bonds, and funds. These tools aim to mobilize public and private capital in support of national climate goals.

This section does not aim to catalog every green finance initiative, but rather to provide a view of the most relevant instruments shaping the financial landscape in which textile manufacturers now operate.

People's Bank of China Green Lending Instruments

The **Carbon Emission Reduction Facility (CERF)**, launched by the People's Bank of China (PBOC) in 2021, is one of the country's most influential green lending mechanisms. It offers low-cost refinancing to banks that issue loans in areas like clean energy, energy efficiency, and carbon-reducing technologies at a preferential rate of 1.75%[26].

While the tool has primarily supported large-scale renewable energy projects with limited adoption in the textile sector, it signals a growing policy shift linking monetary strategy with environmental outcomes. As carbon accounting standards evolve and financing models adapt to industrial needs, mechanisms like CERF may become increasingly relevant for park-level or anchor-led textile decarbonization projects.



[26] The People's Bank of China (2021).

People's Bank of China Transition Finance Standards

In addition to green lending instruments, PBOC has advanced a transition finance framework to support the decarbonization of high-emissions sectors. Transition finance plays a complementary role to green finance by targeting industries that face longer, more complex decarbonization pathways, such as steel, coal power, and textiles.

To guide implementation, PBOC began promoting sector-specific taxonomies in 2021. These taxonomies classify eligible transition activities, outline technical benchmarks (e.g., emissions or energy intensity thresholds), and introduce disclosure requirements to improve transparency. The first batch of taxonomies encompassing steel, coal power, building materials, and agriculture was finalized in 2024. Since then, over CN¥42.5 billion in loans and CN¥207.3 billion have been facilitated in relending facilities. Additional taxonomies for sectors such as chemicals and paper are under development[27].

In 2023, Zhejiang Province launched a pilot **Textile Sector Transition Finance Taxonomy**, developed in Huzhou as part of the broader national pilot program. The taxonomy spans the whole textile production chain and identifies **68 eligible technologies**. It was further formalized in 2024 as a Zhejiang provincial group standard, marking a key milestone in aligning financial instruments with textile-sector needs[28].

By offering technical clarity and setting credible thresholds, the taxonomy enables local financial institutions to design products with stronger environmental integrity while reducing uncertainty for borrowers. For textile manufacturers, it offers a clearer pathway to access transition-aligned finance for upgrades not yet classified as fully "green."

Pilot Zones and Local Innovation

To complement national financing instruments, China has designated several **Green Finance Reform and Innovation Pilot Zones** that test new and localized approaches to industrial decarbonization. These zones bridge gaps between green finance and traditional sectors by piloting tailored financial products, local standards, and multi-stakeholder collaboration[29]. Additionally, financial institutions are given incentives to expand green lending through easier market access, financial support, and favorable land policies[30].

In Jiangsu's textile-rich regions, local institutions like **Suzhou Rural Commercial Bank (SZRCB)** have introduced instruments such as **green micro-loans** to serve small- and medium-sized enterprises (SMEs). Their programs are designed to deliver both financial and technical support to help manufacturers modernize operations in line with national climate targets[31].

In some cases, these pilot zones also intersect with industrial park development, helping channel green finance into park-level initiatives and strengthening the enabling environment for collective decarbonization.

[27] Central People's Government. (2025).
[28] Yue, M. & Nedopil, C. (2025).
[29] Sha, M. (2022).
[30] Green Finance Platform (2017).
[31] Zu, Z. (2023).

Spotlight on Huzhou:
A Local Innovation Hub for Green Finance

Huzhou, located in Zhejiang Province, is one of China's designated **Green Finance Reform and Innovation Pilot Zones**. The city has pioneered transition finance, introducing a comprehensive taxonomy covering nine carbon-intensive sectors, including the textile sector, as well as guidelines for carbon accounting and Just Transition[32].

In parallel, the local Zhejiang-based Bank of Huzhou has launched products such as Green SME Express Loan to support SMEs - many of which are from the textile and apparel sector.

[32] Ma, J. & Chen, Y. (2024).

Key Green Finance Instruments Supporting China's Low-Carbon Goals

The table below provides a non-exhaustive overview of some leading green finance tools relevant to the textile and apparel sector.

Instrument or Program	Focus Area	Relevance to the Sector
Carbon Emission Reduction Facility (CERF)	Clean energy, energy efficiency, carbon-reducing technologies	Currently limited uptake in textiles due to focus on large energy projects; relevance may grow with clearer carbon accounting frameworks
Green Finance Reform & Innovation Pilot Zones	Localized finance innovations and green product standards	Huzhou's pilot zone offers a roadmap for the development of local transition finance, introducing a comprehensive taxonomy encompassing the textile sector
Green Finance Labs	Technical-financial partnerships for industry	Suzhou Rural Commercial Bank's lab supports textile-focused initiatives via "Textile Compass" platform[33]
Green Bonds & Green Credit Guidelines	Broad climate-aligned lending and investment	Accessible to large-scale manufacturers and park developers seeking capital for green upgrades
Transition Finance Standards	Sector-specific taxonomies for high-emission industry decarbonization	Zhejiang's textile taxonomy defines 68 eligible technologies, expanding financing options for low-carbon transitional upgrades

[33] Mitigation Action Facility (2022).

China's green finance ecosystem is evolving quickly, and there is growing recognition that the next wave of progress must extend beyond energy into industrial value chains. Textile and apparel manufacturers are increasingly positioned to benefit from targeted financial tools, especially when paired with strong technical support and verified emissions data.

Taken together, the policy and financing reforms discussed in this section reflect an increasingly aligned push to embed sustainability into the structure of China's industrial economy. For the textile and apparel sector, this represents both a challenge and a timely opportunity that can strengthen long-term supply chain competitiveness.

Statistics: Green Finance in China

CN¥ 1.3+ TRILLION

CN¥ 1.3+ trillion (US$181 billion) in green loans facilitated through CERF as of March 2025[34]

6,000+ MARKET ENTITIES

6000+ market entities participating in green loans by mid-2024, driving nearly **200 million tonnes of annual CO_2 reduction**[35]

CN¥ 7.5 BILLION

CN¥ 7.5 billion (US$1.05 billion) in carbon emission performance - linked finance facilitated through the "Textile Compass" initiative by 2024

[34] The People's Bank of China (2025).
[35] 21st Century Economic Report (2024).

Energy Landscape

Building on the national commitments and regulatory reforms outlined in the previous section, China's energy system is also evolving to support its low-carbon development goals. The structure of energy production and consumption is shifting, driven by ambitious targets, record investments in clean power, and new market mechanisms that are reshaping the industrial landscape.

A Rapidly Changing Energy Mix

While coal remains dominant and accounts for over 55% of primary energy consumption, clean energy is gaining ground at an unprecedented pace. In 2023, clean energy made up 26.4% of total energy use, an 11% increase from 2013. Over the same period, coal's share declined by more than 12%[36].

China now has the world's largest installed renewable capacity, with total power generation exceeding 29,000 megawatts (MW). Over one-third of this comes from wind and solar where China also ranks first globally in installed capacity[37]. This shift is underpinned by strong national targets. According to China's current Nationally Determined Contributions (NDCs), the country aims to achieve the following by 2030[38]:

- Reduce carbon intensity by **65%** from 2005 levels
- Increase the share of non-fossil fuels in primary energy consumption to **25%**
- Reach **1,200,000 MW** of wind and solar capacity – **achieved early in 2024**

An updated NDC is expected in 2025 with new goals for 2035, potentially including a higher share of non-fossil energy and expanded development of energy storage and hydrogen technologies[39].

New Policy Tools and Market Mechanisms

China's policy approach combines long-term planning with emerging market mechanisms. A key milestone was the **Energy Law of the People's Republic of China**, which took effect in 2025. It outlines principles for energy security, innovation, and green development while strengthening market-based pricing and grid access for renewables[40].

A cornerstone of the new framework is the **Green Electricity Certificate (GEC)** system, issued by the National Energy Administration. GECs serve as proof of renewable electricity production and consumption, and play a growing role in green supply chains and corporate emissions accounting. More than **5.2 billion certificates** (at 2-12 CN¥ per certificate) had been issued by early 2025[41,42].

In 2025, the government announced plans to enhance the system. This includes green electricity usage targets for high-emitting sectors, such as steel, chemicals, and data centers, and encourages the use of GECs for factory certification, procurement, and green product labeling[43].

Beyond certificates, other fiscal tools have emerged. A new round of clean energy development funds was launched in March 2025 to support renewable energy expansion and low-carbon technology deployment[44]. 3.2 billion CN¥ has been allocated for 2025, with more funding expected each year until 2029[45].

[36] National Energy Administration (2024).
[37] National Energy Administration (2024).
[38] Ministry of Environment and Ecology (2022).
[39] Ministry of Environment and Ecology (2024).
[40] Xinhua News Agency (2024).
[41] State Energy Administration (2024).
[42] National Energy Administration (2025).
[43] National Energy Administration (2025).
[44] Ministry of Finance (2025).
[45] Ministry of Finance (2024).

Regional Action and Local Leadership

National goals are increasingly being translated into localized targets and pilot programs. In **Guangdong**, authorities have set a target for **32% of electricity consumption to come from non-fossil sources by 2025**. This is one of the most ambitious provincial benchmarks in the country[46].

Meanwhile, **Jiangsu** is advancing an industrial decarbonization plan that includes building **zero-carbon industrial parks** and reaching **100,000 MW of renewable capacity by 2030**. These province-level efforts reflect China's approach of pairing top-down mandates with bottom-up implementation[47].

Implications for the Textile and Apparel Sector

For suppliers and brands alike, understanding the local energy landscape will play a key role in future compliance. As renewable power becomes more available and increasingly prioritized in regional policy, factories have growing opportunities to improve their emissions profile by sourcing green electricity.

At the same time, manufacturers are facing rising expectations from both policymakers and buyers to improve energy transparency and actively reduce fossil energy use. Participating in **green electricity certificate trading**, adopting **on-site renewables**, or locating within **green industrial parks** are all potential strategies to meet these expectations.

What is a Green Electricity Certificate?

A Green Electricity Certificate (GEC) is a tradable market instrument that verifies the production of 1 MWh of electricity from renewable sources in China. It is the only government-recognized proof of renewable energy generation and consumption.

- GECs are issued by the National Energy Administration
- They support claims of renewable energy use and help companies meet carbon reporting requirements
- Prices vary based on market demand, typically ranging from **2–12 CN¥** per certificate
- By 2025, more than 600 million certificates had been traded

GECs are expected to become increasingly important in green supply chains, emissions accounting, and public procurement standards by 2030.

[46] Guangdong Provincial Government (2024).
[47] State Council Information Office (2025).

Manufacturers' Perspective

Building on the preceding exploration of China's energy environment, it's important to understand how these dynamics play out within the operations of textile and apparel manufacturers. This sector sits at the heart of China's low-carbon transition efforts, both as a major energy user and as a frontline actor responding to shifting regulatory and buyer expectations.

This section explores how manufacturers are navigating the low-carbon transition, drawing from stakeholder consultations; field insights in Shengze, Jiangsu province – one of China's key textile hubs; and findings from the IFS Zhejiang report, which offers a comprehensive view of industrial realities on the ground.

Growing Pressures and Expectations

Chinese manufacturers are facing a convergence of forces: national climate goals, evolving environmental regulations, brand-level decarbonization programs, and international trade requirements. From dual-carbon commitments at home to product-level climate disclosures abroad, the landscape is changing rapidly. For many manufacturers, sustainability has moved from a compliance issue to a competitive necessity.

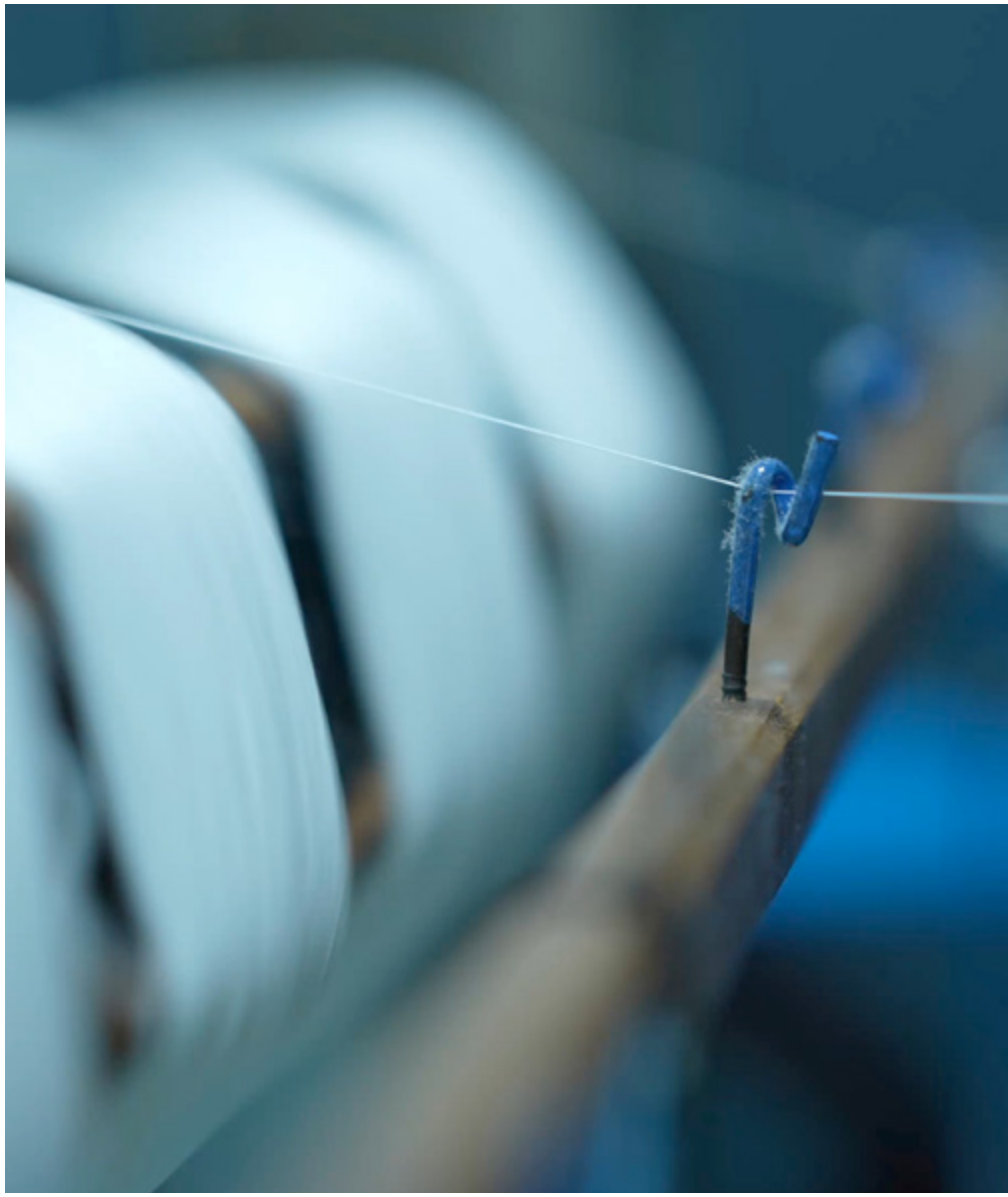
Manufacturers are aware of the shift, but adapting to it remains difficult. According to the IFS Zhejiang study, manufacturers report heightened expectations from regulators and brands on cleaner energy use and upgraded data systems and management capacity to keep pace. In hubs like Shengze, suppliers have seen the nature of pressure evolve. Stemming from 2019 government-mandated carbon controls, more detailed demands emerged by 2022 to include product-level footprinting and digital traceability linked to EU regulations.

Broader Industry Headwinds

Before exploring implementation-level challenges, it is important to acknowledge the wider economic context shaping decision-making in the textile industry. China's domestic textile sector is currently navigating slower GDP growth, rising production costs, and shifting global trade patterns. Many international brands are gradually diversifying sourcing to other markets, particularly those in Southeast Asia. This adds further pressure on Chinese suppliers - especially SMEs.

For many SMEs, financial resilience and business continuity have become top concerns. In this environment, decarbonization may be viewed as secondary to more immediate operational priorities. Broader market dynamics do not negate the need for climate action, but they do underscore the importance of supportive policy, financing, and buyer engagement in enabling meaningful progress.

These overarching conditions also make it harder to address on-the-ground implementation barriers, since many manufacturers have limited financial and institutional capacity to absorb new risk or pursue complex upgrades.

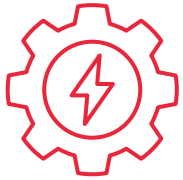


Key Barriers Facing Manufacturers

The following outlines the practical barriers manufacturers continue to face in advancing low-carbon upgrades amidst the evolving domestic market landscape. The transition process brings with it several interrelated challenges - including gaps in awareness, technical capacity, and financing - that can slow or stall progress. While these are not unique to Shengze or China, their shape and severity are influenced by the structure of the local industry, policy environment, and available support systems.

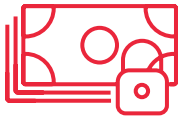
Awareness and Capacity Gaps

Manufacturers are increasingly aware of low-carbon goals, but many remain uncertain about how best to respond. While large suppliers may have internal sustainability teams, small- and mid-sized facilities often lack access to timely policy updates, product-level requirements, or trusted support channels. Bridging this information gap will require continued training and clearer guidance at both local and national levels.



Technical Access and Integration

Basic solutions such as rooftop solar, LED lighting, and intelligent control systems are widely recognized. However, support for more complex or process-specific upgrades, such as optimization for dyeing processes and air compression systems, remains limited. According to stakeholders in Zhejiang, holistic assessments or integrated recommendations for manufacturers that link process optimization with low-carbon technologies are limited, leading to fragmented or suboptimal investments.



Financing Constraints

Clean technology upgrades often require significant upfront investment with long or uncertain payback periods. This is especially difficult for SMEs, which face volatile market cycles and may lack the collateral or credit history to secure traditional loans. While solar PV and energy performance contracting models are relatively mature, other upgrades like digital energy management or heat recovery systems have fewer accessible financing options.

Variability in Local Implementation

Despite strong national targets, implementation varies across provinces. Local governments may differ in developer engagement, incentive programs, or enforcement timelines. As a result, manufacturers in certain regions face clearer pathways and more support, while others must navigate more fragmented or delayed efforts, creating uneven levels of readiness across the industry.

Signs of Progress and Opportunity

Despite the challenges, many manufacturers are beginning to act. In Zhejiang, participation in energy audits, carbon target-setting programs, and voluntary procurement of green electricity is steadily increasing. These trends suggest a growing recognition that sustainability upgrades are not only a compliance issue, but also a business opportunity.

Digitalization is also emerging as a key enabler of change. Real-time monitoring tools and smart energy management systems are helping factories better understand their consumption patterns, identify savings opportunities, and build the data foundations necessary for carbon accounting and reporting. Several early movers have begun integrating these technologies to inform operational decisions, reduce energy waste, and meet emerging buyer expectations.

Collaborations with energy service companies (ESCOs), local governments, and development programs are enabling manufacturers to access technical expertise and pilot cleaner technologies. These early actions, although still limited in scale, offer a glimpse of what is possible when targeted support meets growing supplier ambition.

Looking Ahead

To scale progress, aligned support is needed across the value chain. Industrial parks can play as central delivery hubs by offering shared infrastructure, bundling services, and aggregating demand. This makes it easier for smaller facilities to access affordable clean energy and efficiency upgrades.

Manufacturers can also benefit from a growing set of government and provincial initiatives, including pilot programs, park-based efforts, and regional support schemes for low-carbon transition.

Brands and financial institutions also have a key role to play. By co-developing viable financing models, simplifying application processes, and offering technical guidance, they can help unlock supplier investment and ease the path to implementation. These themes are explored further in later sections of the report.

Ultimately, manufacturers can be active participants in China's decarbonization journey. With the right policies, partnerships, and incentives in place, they can help shape a textile industry that is more sustainable, resilient, and globally competitive.

Brands' Perspective

Understanding the role, reach, and responsibility of global fashion brands operating in China

Many international fashion brands continue to include China among their key sourcing countries, even as they expand operations into new markets. China's unmatched production scale, advanced technical capabilities, and integrated supply chain infrastructure keep it central to the global apparel industry. In the context of climate action, what brands do in China and how they engage their suppliers will significantly influence the sector's global decarbonization progress.

This section draws on interviews with international fashion brands and key pieces of industry research. These include WRI's 2024 report, *Fashion Brands' Scope 3 Decarbonization and the 2024 EU-China Benchmark Baseline Study*[48,49]. Together, these sources highlight shared challenges, emerging interventions, and areas for leadership.

[48] Zhang M., An Z., Cao Z., & Zhang W. (2024).
[49] ICLEI (2024).

Strategic Shifts in Sourcing

Even as China remains a vital sourcing hub, many brands are pursuing "China + 1" strategies to diversify production, broaden global exposure, reduce trade risks, manage costs, and build resilience. This shift has created a more cautious sourcing environment, with some brands taking a wait-and-see approach before making further long-term investments in their Chinese supply base.

However, brands consistently noted that China continues to house some of their most technically advanced and strategically important suppliers. These suppliers are often better positioned to pilot renewable energy, adopt digital tools, and participate in decarbonization initiatives – particularly those located in industrial parks or high-capacity manufacturing zones.

This makes China not just a place to maintain, but a place to lead. The current sourcing shift offers an opportunity: for brands that stay engaged, China can become a proving ground for scalable, systems-level climate solutions.

Challenges on the Ground

Brands face a unique set of challenges when supporting decarbonization within their Chinese supply chains. These include:

- **Limited visibility into emissions data:** Many suppliers lack the tools or expertise to generate reliable, facility-level carbon data, making it difficult for brands to track progress or prioritize interventions effectively.
- **Diluted influence over suppliers:** Brands often work with large-scale or shared facilities where no single buyer can independently drive change, particularly in the absence of long-term sourcing commitments.
- **Fragmented communication channels:** Many supplier interactions are mediated through agents or sourcing offices, making it difficult to hold direct technical conversations, uncover barriers, or co-develop tailored decarbonization plans.
- **Low feedback from suppliers:** Brands noted that suppliers often hesitate to raise concerns or propose alternatives, limiting opportunities for candid discussions around challenges, needs, and shared solutions.
- **Internal misalignment:** In some cases, sourcing, sustainability, and finance teams within brands may operate on different timelines or priorities, making it harder to deliver coordinated and consistent support to suppliers.

What Are Brands Doing Today?	Where Can Brands Go Further?
Despite these barriers, many brands are stepping up their efforts. Several are integrating carbon performance into supplier scorecards, using tools like the Higg FEM to assess progress and partnering with service providers to deliver training and diagnostics. Others are piloting renewable energy projects, supporting traceability innovations, or running joint feasibility studies for low-carbon upgrades. A growing number are also setting Scope 3 targets and using them to identify priority interventions at the facility level. Brands consistently emphasized the value of working with third parties, particularly in a market where local context and language are critical to success. Still, the scale of engagement remains limited. Financial incentives are rare or capped, and support is often concentrated among a small group of strategic suppliers. Moving from assessment to action remains a key challenge.	To support meaningful decarbonization, brands can take several concrete steps, many of which are detailed in the ***Brand Playbook for Financing Decarbonization*** published by Aii[50]. This playbook outlines actionable strategies brands can adopt to enable and accelerate supply chain transformation. Key opportunities include: • **Signal long-term commitment** through extended purchase contracts or volume guarantees to encourage investment in low-carbon upgrades • **Provide financial incentives** such as price premiums for verified emissions reductions or cost-sharing for equipment upgrades • **Co-fund technical assistance**, emissions measurement tools, or feasibility studies, especially for smaller suppliers • **Support shared infrastructure** models such as park-level solar or aggregated procurement • **Promote data harmonization** to reduce confusion, reporting fatigue, and costs across platforms • **Engage with local actors**, including park operators, banks, and technical agencies, to align efforts with regional dynamics

[50] Apparel Impact Institute (2024).

A Call to Action for Brands

As brands look ahead, their role in China's decarbonization story remains critical. While many challenges lie with manufacturers, brands shape the conditions for progress through their sourcing strategies, incentive structures, and willingness to co-invest in solutions.

In China's highly capable but rapidly evolving market, brands have both the opportunity and responsibility to lead. To accelerate momentum, brands must move beyond compliance toward active partnership, helping to build the infrastructure, trust, and long-term signals that will enable systemic change across the value chain.

Technical Solutions

Advancing the decarbonization of China's textile and apparel industry requires tailored solutions that respond to the sector's unique characteristics and the specific challenges manufacturers face. While policies, financing, and supply chain engagement are critical, they must be matched with technically sound and cost-effective interventions that are ready for deployment. New and innovative technologies and strategies are equally important in driving sustainability across the value chain.

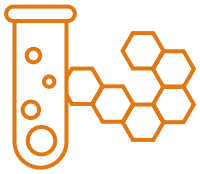
To support this, Aii has developed two foundational resources for the textile industry: the ***Low-Carbon Thermal Energy Technologies Report*** and the ***Low-Carbon Thermal Energy Roadmap***. The first presents a catalogue of practical decarbonization technologies tailored to textile production, while the second offers a strategic pathway for how these solutions can be phased in to achieve meaningful emissions reductions[51,52]. These solutions are not abstract concepts; they are real, facility-ready interventions ranging from renewable thermal systems to equipment optimization. Each has been assessed based on emissions impact, ROI, maturity, and sector relevance.

This chapter introduces a set of prioritized solutions identified as particularly promising for China. It then highlights Aii's broader programmatic work, including initiatives and grants under the Climate Solutions Portfolio (CSP), and closes with a forward-looking discussion on long-term action.

[51] Apparel Impact Institute (2024).
[52] Apparel Impact Institute (2025).

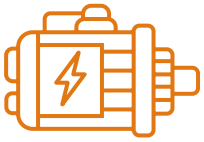
High-Impact Solutions

Aii has prioritized four solutions that are particularly suited to China's textile and apparel sector based on internal research. These solutions were selected based on their emissions reduction potential, cost-effectiveness, and applicability across diverse facility types and processes. Each represents a strong entry point for near-term action while laying the groundwork for deeper, system-wide transformation.



Process Optimization and Chemical Application Innovations

This solution focuses on improving dyeing consistency and resource use by deploying advanced chemical auxiliaries with tailored molecular structures. These innovations create a three-dimensional bond between fibers and dyes, resulting in more uniform coloration and reducing the need for reprocessing. Optimized chemical usage also enables automated chemical dosing systems, which can improve energy and water efficiency while reducing operator error and environmental impact.

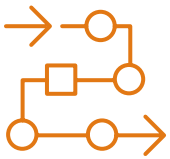


Energy-Efficient Motor and Control System Upgrades

High-efficiency motor systems paired with precision control systems can significantly reduce energy loss in production. These upgrades enable better control of tension, pressure, and speed in key processes like dyeing and finishing. They also improve operational stability and extend equipment life, offering both performance and efficiency gains without disrupting production lines.

Thermal Energy Recovery and Heat Pump Systems

Heat recovery technologies capture residual heat from processes such as dyeing and reuse it to preheat rinse water or supply hot water for other steps. Heat pumps take this further by drawing heat from low-temperature sources and upgrading it for use to heat water or produce steam, dramatically improving thermal efficiency. These systems can reduce fuel use, lower emissions, and eliminate redundant cleaning steps, particularly in modernized facilities where process integration is possible.



Process Streamlining for Energy and Resource Savings

Revisiting and refining production steps, such as lowering dye bath temperatures and shortening cycle times, can lead to substantial reductions in energy and water use. These interventions often do not require major equipment changes, making them a highly accessible starting point. Streamlined processes also improve throughput and quality consistency, offering both environmental and business benefits.

Low-Carbon Thermal Technologies

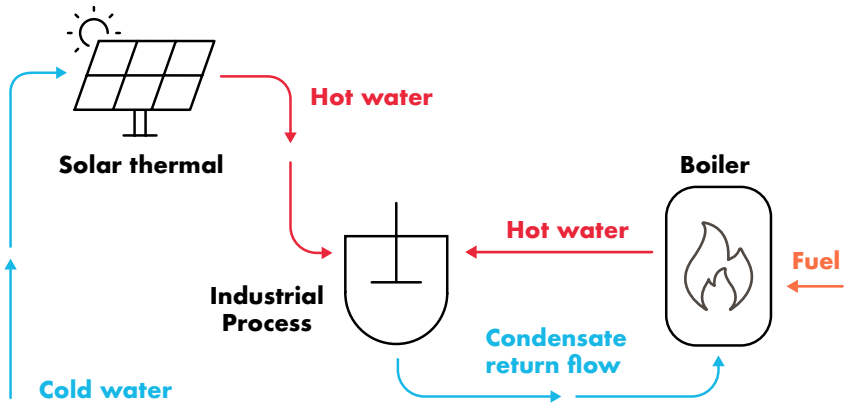
While these four solutions offer a strong starting point for near-term reductions, Aii's broader research also highlights additional low-carbon thermal technologies that hold promise for deeper decarbonization. These include, but are not limited to, the following.

- **Electric Boilers and Industrial Heat Pumps:** Capable of producing the hot water and low-to-medium pressure steam required in wet processing, these technologies are well-suited for facilities with access to clean electricity. When powered by renewables, they provide a highly efficient and low-emission alternative to traditional fossil-fuel boilers.
- **Thermal Energy Storage Systems:** These systems enable plants to store heat generated during off-peak hours for use during peak demand hours. This improves energy use flexibility and optimizes cost-efficiency, particularly in regions with time-of-use tariffs or intermittent renewable power generation.
- **Solar Thermal Systems:** These technologies harness solar energy to generate heat directly for industrial processes such as dyeing and washing. In solar-rich regions, they offer a cost-effective way to offset fossil fuel use, particularly when paired with thermal storage or hybrid systems.

Though not all of these options may be immediately viable for every supplier, they represent medium-term pathways worth exploring, particularly for larger facilities or clusters with supportive infrastructure and policy conditions. Continued innovation and investment in these areas will be crucial for enabling the sector's longer-term transition to zero-carbon heat.

For more detailed information, readers are encouraged to consult Aii's *Low-Carbon Thermal Energy Technologies* report, which provides technical profiles, emissions reduction estimates, cost comparisons, and practical considerations for each solution's deployment.

Solar Thermal Directly Heating the Water Used in the Industrial Process



Aii's Programs and Climate Solutions Portfolio

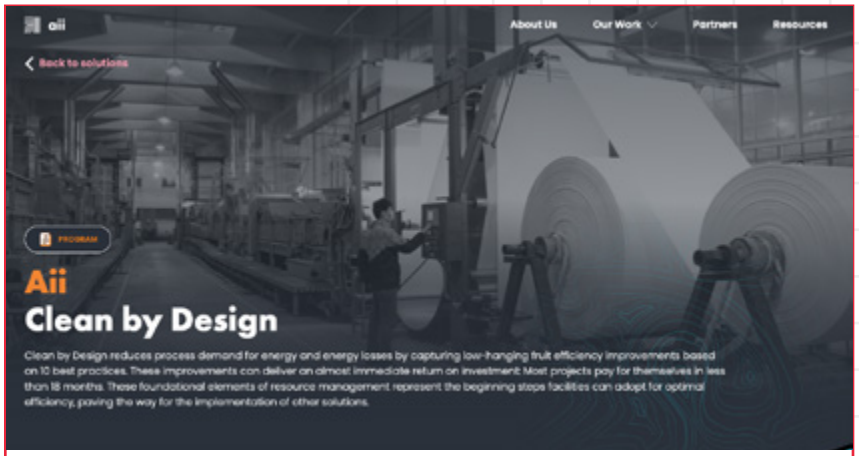
Aii's efforts are focused on accelerating apparel supply chain decarbonization by identifying, funding, and scaling high-impact climate solutions. In 2021, Aii and the World Resources Institute published the ***Roadmap to Net Zero***, outlining six priority interventions for the apparel industry to align with the 1.5°C global warming goal[53]:

1. Maximizing material efficiency through design, material selection, and manufacturing methods
2. Scaling the use of sustainable materials and practices
3. Accelerating the development of innovative next generation materials
4. Maximizing energy efficiency across manufacturing facilities
5. Eliminating coal as a thermal energy source for manufacturing
6. Shifting to 100% renewable energy across the supply chain

These interventions form the foundation for Aii's major initiatives, including the **Clean by Design Energy & Water Efficiency Program (CbD)**, the **Fashion Climate Fund**, and the **Climate Solutions Portfolio (CSP)**.

Through these efforts, Aii aims to scale the most impactful and cost-effective solutions, assessing each based on emissions reduction potential, scalability, and financial viability. Recognizing that no single intervention is sufficient, Aii supports a blended strategy combining energy efficiency, renewable energy, and material or process innovation.

Since its launch in 2023, the **CSP** has funded both early-stage and proven solutions across energy efficiency, renewable energy, sustainable materials, and cleaner production practices. Many of these are now being piloted in China, with grantees working to validate their technical and commercial readiness.



Aii's Climate Solutions Portfolio (CSP)

The Climate Solutions Portfolio is Aii's curated set of climate programs and technologies that have the potential to reduce energy use, cut emissions, and minimize resource waste. Each solution addresses a specific stage of production and is selected for its scalability, impact potential, and practical relevance.

The online CSP hub showcases real-world implementation outcomes through case studies, enabling manufacturers, investors, and brands to learn from tested models and replicate success.

[53] Sadowski, M., Perkins, L., McGarvey, E. (2021).

The CSP identifies, funds, monitors, and documents solutions that brands and manufacturers can adopt to achieve meaningful, measurable climate impact. The goal is to bring promising ideas from pilot to scale, ensuring they are commercially viable and ready for broad deployment.

The table below outlines Aii's programs, CSP technologies, and Grantees with implementation sites in China as of August 2025[54].

Solution	Solution Description	Region(s)	Saving Potential $kgCO_2e/kg$ Production	Average Energy and Water Savings	US$ per Tonnes of CO_2e
Renewable Energy Transition Initiative (RETI)	RETI assesses the viability and potential of renewable energy, developing a pathway to help identify the most feasible technologies	**China**	9.77%	RETI only measures GHG	US$24.63
Aii Clean by Design (CbD)	Entry-level energy efficiency program targeting low-hanging fruit with quick return on investment through ten best practices in resource management	**China**, 9 other countries worldwide	8.47%	Energy: 7.72% Water: 10.18%	US$17.83
Aii Clean by Design+ (CbD+)	Advanced energy efficiency program for experienced mills with deeper analysis and onsite expert support	**China**, Taiwan, India	10.05%	Energy: 9.81% Water: 11.27%	US$13.03
Bluesign System Mill Improvement Program	Holistic onsite assessments and roadmaps to cut energy use and emissions with ongoing expert guidance	**China**, 17 other countries worldwide	1.00 - 8.00%	Energy: 1.00 - 8.00% Water: 7.00%	US$18.00
Made2Flow Facility Impact Measurement Software	Automated impact measurement platform offering tailored, ROI-driven resource efficiency recommendations for facilities	**China**, Bangladesh, India, Sri Lanka, Pakistan, Vietnam	11.00 - 21.43%	Energy: 11.00 - 19.22 %	US$0.52
Guangdong Energy & Water Efficiency Program	Factory benchmarking and implementation support to improve energy and water efficiency in dyeing and printing	**China**	5.00 - 15.00%	Energy: 5.00 - 15.00%	US$47.00
Intelligent Facility Technology	Artificial intelligence (AI)-driven process control system improving dyeing accuracy, minimizing waste, and reducing rework	**China**, Vietnam	15.00 - 20.00%	Energy: 15.00 - 20.00%	US$15.87
CleanKore Patented Ring Dyeing Technology	Low-impact denim innovation that eliminates specific chemical use and reduces processing energy and chemicals without the need for new equipment	**China**, Bangladesh, India, Pakistan, Turkey	31.00 - 67.00%	Energy: 31.00 - 67.00% Water: 33.00%	US$16.00

[54] Apparel Impact Institute. (2025).

Beyond the examples listed, Aii continues to support a growing suite of solutions aligned with its six intervention pillars. As the registry expands, it will continue to target innovations that deliver measurable results and can be replicated across diverse geographies and facility types.

Looking ahead, Aii is prioritizing solutions such as dyeing innovations and heat pumps, which are critical enablers of deeper, sustained decarbonization. By continuing to de-risk proven models and share outcomes with the broader industry, Aii aims to accelerate sector-wide adoption and unlock the full potential of climate innovation.

Case Study:
Nanhua Textile's Energy and Water Savings through Process Optimization[55]

Location: Suzhou, China
Focus: Energy and Water Efficiency | Process Optimization
Program: Aii's Clean by Design Energy & Water Efficiency Program (CbD)

Nanhua Textile, a large dyeing and finishing facility in Jiangsu province, partnered with Aii's CbD program to implement a suite of process optimization measures aimed at improving resource efficiency and reducing environmental impact.

With a one-time investment of approximately **US$3 million**, the factory upgraded key equipment and adopted low-cost interventions such as source separation, quality-based water reuse, and continuous washing. With guidance from CbD technical experts, the company achieved the following within **one year of implementation:**

COST SAVINGS:
US$3.8 M
(Payback period of ~10 months)

WATER SAVINGS: 70%

ENERGY SAVINGS: ~30%

GHG REDUCTION: ~30%

[55] Apparel Impact Institute. (2020).

Strategizing for Sector-Wide Transformation

China's textile and apparel industry is starting to demonstrate what climate action can look like at the factory level, positioning the country to play a leading role in industrial decarbonization. Yet, scaling from promising individual pilots to large-scale implementation and widespread impact will take time, coordination, and a continued focus on practical, cost-effective solutions.

Aii's ***Low-Carbon Thermal Energy Roadmap*** outlines a phased approach. In the short term, manufacturers can focus on low-cost, high-return upgrades with fast payback, and pioneer pilot projects to lead the transition. Over time, more capital-intensive solutions like thermal system electrification can follow, culminating in collaborative models to drive end-to-end supply chain efficiency and innovation.

These actions will require support through training, partnerships, and policy alignment. Most importantly, there must be consistent implementation on the ground. For more detailed guidance and insight on a path forward, readers are encouraged to refer to Aii's ***Low-Carbon Thermal Energy Roadmap*** report.

As China's industry enters a critical window for action, every stakeholder has a role to play. Brands, manufacturers, and solution providers can help bring these strategies to life by investing in scalable models, supporting peer learning, and backing on-the-ground implementation. By investing in proven solutions, sharing lessons across regions, and supporting suppliers with the tools they need, stakeholders can help turn ambition into industry-wide progress.

Financing

Achieving deep decarbonization across China's textile and apparel sector will require substantial investment. In addition to funding technology upgrades, capital is needed to support emissions tracking, energy diagnostics, and supplier capacity-building at scale.

Over the past decade, China has built a strong foundation for green finance, with a policy-driven approach led by the People's Bank of China and implemented through a network of national and local financial institutions. This state-guided model has enabled rapid growth in climate-related lending and aligned financial flows with broader national priorities.

Within the textile sector, however, access to tailored transition finance remains limited for many smaller and mid-sized manufacturers. Much of the current capital landscape continues to prioritize large-scale infrastructure or energy projects. As financing models evolve, there is growing potential to expand access and better match resources with the needs of suppliers and sector-wide climate goals.

This chapter outlines the scale of funding required, profiles key financial actors, and presents available instruments and initiatives relevant to textile decarbonization. It also highlights opportunities to better align financing instruments with sector needs through local innovation, IFI-supported programs, and targeted tools for supplier engagement.

The Big Financing Challenge

This section provides a preliminary and high-level estimate of the financial resources required to support meaningful decarbonization across China's textile and apparel sector. Drawing from industry data, facility benchmarks, and program insights from Aii, the analysis offers a practical estimate of the capital needed to deploy energy efficiency (EE) and renewable energy (RE) solutions at scale.

While not exhaustive, the exercise is grounded in the global goal of achieving a 50% reduction in greenhouse gas (GHG) emissions from the sector by 2030 and aims to provide a clearer understanding of the scale of resources required to meet that ambition.

Assumptions

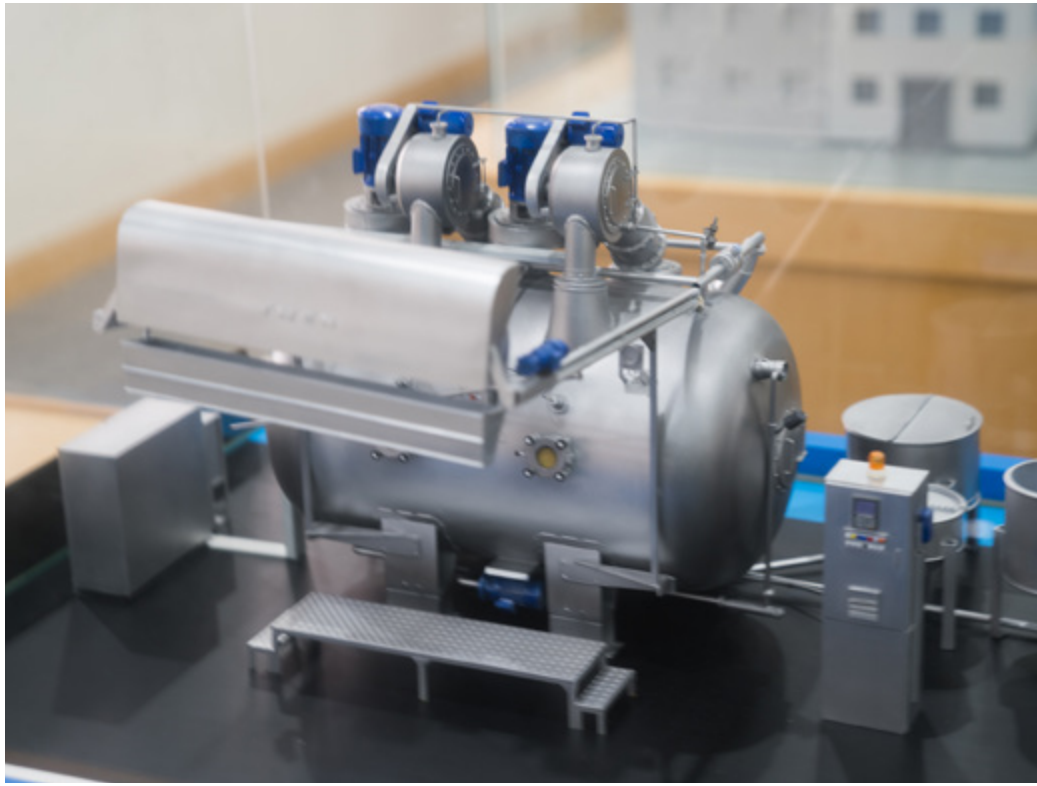
The financial estimate is based on key assumptions and parameters informed by national statistics, local consultations, and Aii's program data. These include:

1. **Number of Facilities:** China's textile and apparel sector includes approximately **44,000** scaled factories according to national statistics. This analysis focuses on scaled enterprises, where data is more consistently available and where facilities are more likely to have the scale, emissions contribution, and financial readiness to implement decarbonization measures.
2. **Energy Audit Costs:** The cost of conducting an energy audit is estimated at **US$20,000** per facility, based on consultations with local technical experts.
3. **Intervention Costs:** The average costs of energy efficiency and renewable energy interventions per facility, as determined by Aii studies, are:
    - Energy efficiency: US$0.5 M to US$1 M (ave. US$0.75 M)
    - Renewable energy: US$1 M to US$5 M (ave. US$3 M)
    - Combined EE and RE: US$1.5 M to US$6 M (ave. US$3.75 M)
4. **GHG Reduction Potential:** Based on data from Chinese facilities that completed Aii's Carbon Target Setting program (2021–2023), the average GHG reduction potential per intervention is:
    - Energy efficiency: 0.6% to 77.9% (ave. 24.1%)
    - Renewable energy: 0.03% to 77.8% (ave. 26.4%)
    - Combined EE and RE: 50.5% (sum of averages)
5. **Action Plan Conversion Rate:** Aii's programs show that approximately **35%** of developed decarbonization action plans move into implementation and monitoring. This conversion rate is used to estimate how many facilities would realistically adopt recommended interventions.

Estimation Approach

To estimate the level of investment required to cut emissions by 50%, a simplified model was applied using known values for facility counts, emissions patterns, and intervention impact.

The analysis assumes the deployment of both RE and EE interventions, based on average cost and GHG reduction data collected through Aii's programming in China and globally.



STEP 1 Identifying the Top Emitters - Pareto Principle

According to national statistics, China's textile and apparel sector includes approximately **44,000** facilities classified as **'scaled enterprises,'** meaning they generate annual turnover exceeding CN¥20 million. Applying the Pareto Principle, it is assumed that the top **20%** of facilities, **about 8,800** in total, account for **80%** of the sector's total GHG emissions.

Aii, in collaboration with Cascale, identified 1,000 mid-supply chain facilities that together account for the highest share of GHG emissions – approximately 70% of industry emissions worldwide. The calculations in this report align with Aii's findings, demonstrating that a significant share of emissions originates from a relatively small subset of facilities.

STEP 2 Emissions Reduction from Interventions

Aii's program data shows that combining energy efficiency and renewable energy interventions can reduce GHG emissions by an average of **50.5%** per facility. If these solutions were implemented across the 8,800 top-emitting facilities (which, according to the Pareto Principle, theoretically account for 80% of sector emissions), the overall **absolute reduction** for the sector would be **40.4%.**

STEP 3 Facilities to Deploy - Scaling up to Reach Sector Target

To reach the full **50% reduction target**, interventions need to extend beyond the top 20% of facilities. If 8,800 facilities contribute to a 40.4% reduction, a **50% reduction** would require sustainability interventions at **10,892 facilities**. This estimate is based on targeting facilities with the highest emissions and assuming consistent average reductions per facility.

STEP 4 Facilities to Audit

Aii's programming in China shows that roughly **35%** of facilities that receive a decarbonization action plan move forward with implementation. While the conversion rate may vary across the industry, this report will use Aii's rate as a benchmark. Applying this rate in reverse would result in **31,120 facilities needing to be audited** to produce a pipeline of **10,892** facilities implementing upgrades.

STEP 5

Total Investment Required

While actual costs may differ based on facility size, location, and baseline infrastructure, this analysis uses an average estimate of **US$3.75 million per facility** for combined energy efficiency and renewable energy interventions, based on Aii's implementation data.

Applying this average cost to the 10,892 facilities needed to meet the 50% emissions reduction target, the total estimated investment requirement is approximately US$40.8 billion.

In addition to financing capital upgrades, further funding is needed to support energy audits across facilities. The cost of energy audits can range from US$15,000 to US$30,000 depending on the size and type of facility. For this report, assuming an average audit cost of **US$20,000** and a total of 31,120 facilities requiring audits, the additional financing requirement for pre-investment diagnostics is approximately **US$622 million**. These audits serve as a critical first step for identifying cost-effective interventions and developing bankable decarbonization plans.

Reaching a 50 percent emissions cut will require

AN ESTIMATED **US$40.8 billion** IN UPGRADES

+

AN ESTIMATED **US$622 million** INVESTMENT IN FACILITY AUDITS

This figure highlights the scale of investment needed and the importance of coordinated action across the value chain to deliver results at speed and scale

Pathways to Investment

With an estimated **US$40.8 billion** needed to cut emissions by 50% across the sector, the scale of required financing is clear. The next step is to explore the financial strategies and instruments that can help mobilize this capital and help fulfill these resource needs.

A broad mix of tools exists to support clean technology adoption across the value chain. These include traditional debt and equity instruments, risk-sharing mechanisms like guarantees, targeted subsidies, and flexible models such as leasing. Each plays a distinct role in improving access to capital, mitigating risk, and aligning incentives across actors.

To help brands and stakeholders further navigate these options, Aii developed the **Brand Finance Playbook for Decarbonization**, which outlines twelve actionable financial tools that brands can use to support or incentivize supplier investment. These range from direct subsidies and co-funding to guarantees and innovative procurement structures.

The playbook serves as a practical guide to align sustainability and finance functions, and has become a key resource in the industry's broader push to unlock capital for climate impact.

Instrument	What It Is	Why It Matters
Debt	Borrowed money that is repaid with interest over time	The most common way suppliers finance solar panels, machinery upgrades, or energy-saving systems
Equity	Capital raised by offering part-ownership of the company in exchange for funding	Often used by energy developers or service companies to scale operations without taking on debt
Grant	Funds provided by governments or donors that don't need to be paid back	Useful for piloting new technologies with environmental benefits or supporting small suppliers who need extra help
Subsidies	Financial support that can take the form of tax benefits, utility discounts, or direct cash incentives	Can lower the cost of adopting clean technologies and solutions
Guarantee	A risk-sharing mechanism where a third party agrees to cover a loan in case of borrower default	Helps de-risk investments and can unlock better financing terms for suppliers
Leasing	A financing model where equipment is rented or paid in installments rather than purchased upfront	Lowers entry barriers and shifts the cost of ownership to the lessor, especially common in solar and technology upgrades in China

Profile of Financiers

A range of financial institutions are active in supporting China's sustainability and industrial transition goals, offering both debt and non-debt instruments across public, private, and multilateral channels. These actors vary in scale and focus, from international development banks and bilateral partners to national financial regulators and local commercial banks.

The following selection provides a snapshot of institutions that are contributing to decarbonization efforts through policy leadership, financial product innovation, or dedicated green investment programs in China's textile and apparel sector.

Several of these institutions have partnered with IFIs to deliver co-financing or on-lending / leasing programs, while others are **domestic pioneers**, notably local banks that have taken early steps to explore SME-oriented green finance or develop textile-specific investment mechanisms.

The examples were collated through a combination of **desk research, in-country stakeholder engagements, and insights from the IFS Zhejiang report**. It is not exhaustive and is intended to highlight the diversity of financial actors shaping China's green transition landscape.

IFIs & Local Partner FIs	
People's Bank of China (PBOC)	China's central bank and the lead architect of the national green finance framework. It introduced the Carbon Emission Reduction Support Tool and guides the rollout of green finance standards and pilot zones across the country.
Huaxia Bank	A national commercial bank that frequently partners with IFIs to deploy climate funding into renewable energy, energy storage, and green infrastructure. It plays a growing role in supporting industrial decarbonization in China.
Suzhou Rural Commercial Bank (SZRCB)	Based in Jiangsu, this bank has become a pioneer in industrial transition financing through its "Textile Compass" platform and Green Finance Lab, which pair loans with data and technical support.
Bank of Huzhou (BOH)	A frontrunner in green local finance, based in Zhejiang Province. It has pioneered several region-specific green credit products and actively participates in national pilot programs to support low-carbon development.
Bank of Xingtai (BOX)	A city-level commercial bank in Hebei Province recognized for piloting green SME lending models. BoX is actively involved in transition finance initiatives for the manufacturing sector through green credit tools and support for green buildings, eco-upgrades, biofuels, and others.
Jiangsu Financial Leasing	A leasing firm offering tailored equipment financing to industrial enterprises, including textile SMEs. It plays a bridging role by enabling access to clean technologies through flexible terms and partnerships with municipal green programs.
World Bank Group *(including IFC)*	A global development institution providing financing, policy advice, and technical support for climate-related investments. In China, it backs clean energy, industrial transformation, and green infrastructure often via local financial institutions.
Asian Development Bank (ADB)	Regional development bank that promotes inclusive and sustainable development across Asia and the Pacific. It has collaborated with Chinese stakeholders on low-carbon city initiatives, energy efficiency programs, and policy frameworks to scale decarbonization.
Asian Infrastructure Investment Bank (AIIB)	A multilateral development bank investing in sustainable infrastructure with an eye toward innovation and resilience. Its China portfolio includes industrial park retrofits, green supply chains, and early-stage financing mechanisms to crowd in private capital.
New Development Bank (NDB)	NDB is a multilateral financial institution focused on sustainable projects in emerging economies. In China, it has financed projects in clean energy and smart manufacturing, and is exploring greater involvement in industrial decarbonization.

Beyond the institutions listed, several local banks in **Zhejiang Province** have emerged as early movers in supporting the textile sector's green transition. Some examples include **Hangzhou Bank, Hengfeng Bank, Zhejiang Rural Commercial United Bank,** and **Changxing Rural Commercial Bank**[56].

These banks have taken proactive steps to align with national climate goals by offering dedicated green credit products, developing textile-specific financing models, and partnering with local governments to deliver targeted financial services for the sector and SMEs. Their work highlights the importance of localized financial innovation and coordination, especially in regions where the textile industry plays a central economic role.

Changxing Rural Commercial Bank (CRCB): Textile Transition Loan

CRCB developed a loan product that ties interest rates directly to a firm's carbon efficiency. Textile enterprises are assessed using a carbon efficiency platform and assigned a carbon grade that determines loan pricing. Firms that demonstrate higher performance can receive interest discounts. Loan terms, duration, and collateral requirements are also adjusted based on emissions performance, creating a strong incentive for carbon reduction.

Bank of Huzhou: Whitelist and Cultivation Transition Finance Models

Bank of Huzhou pioneered two textile-focused financing models. Under the government-led whitelist model, firms using eligible technologies are pre-approved by the city and granted preferential loan terms, with carbon data tracked through government platforms. Under the bank-led cultivation model, firms are sorted into "transition growth" and "leadership" pools based on their technical upgrades and carbon targets. Loan terms and access to public subsidies are tailored by performance tier.

Hengfeng Bank: Pollution Permit-Backed Lending for Industrial Parks

In Keqiao Binhai Industrial Park, Hengfeng Bank issued over RMB 1.6 billion in loans backed by pollution discharge permits. The bank also streamlined approvals from 90 to 9 days and introduced quarterly collateral reassessments. By integrating the provincial "One-Stop for Permit Pledges" platform, the bank improved access to working capital for textile SMEs while maintaining environmental compliance.

[56] IFS (2025).

Available Financing

In recent years, several IFIs have expanded their support for China's climate goals by launching programs that offer capital, technical assistance, and blended finance for low-carbon development. These initiatives often complement broader policy priorities and focus on renewable energy, energy efficiency, and green manufacturing.

At the same time, China has developed a robust domestic green finance ecosystem led by the People's Bank of China and supported by a wide network of national and local banks. A significant share of green financing flows through domestic commercial banks, many of which operate at provincial or municipal levels and offer region-specific instruments.

The table below features selected examples of IFI-backed financing programs relevant to textile decarbonization. These are intended to illustrate the diversity of instruments available and do not capture the full range of domestic green finance options, which vary across regions and institutions.

More detailed information on the individual projects can be found in *Annex C*.

	Project or Fund	Project Implementer	Est. Project Cost (as of 2024)	Description
1	WB Renewable Energy and Battery Storage Promotion Project[57]	Huaxia Bank	US$750 M	Green credit line to expand innovative use of RE and battery storage capacity, with potential applications across industrial sectors
2	ADB Shandong Green Development Fund[58]	Shandong Provincial Finance Department	US$1,500 M	Blended finance facility to support low-carbon and climate resilient infrastructure in Shandong Province
3	NDB Bank of Huzhou Sustainable Infrastructure Project[59]	Bank of Huzhou (BOH)	US$200 M	Green credit line to promote sustainable infrastructure and clean energy investment in Zhejiang Province
4	ADB Bank of Huzhou Decarbonizing MSMEs Project[60]	Bank of Huzhou (BOH)	US$50 M	Financial facility supporting energy efficiency and clean technology adoption among MSMEs in Zhejiang Province
5	ADB Bank of Xingtai Green Finance Development Project[61]	Bank of Xingtai (BOX)	US$709 M	Green credit line for MSMEs to implement low-carbon solutions, with a focus on Hebei Province's industrial base
6	IFC & AIIB JC Leasing Sustainability Loan[62,63]	JC International Leasing & Financial Co.	US$225 M	Joint leasing facility to finance rooftop solar, energy efficiency, and clean production technologies for industrial clients
7	ADB Ping An Financial Leasing MSME Energy Efficiency Improvement Project[64]	Ping An Financial Leasing Co.	US$200 M	Green credit line supporting MSME investments in energy efficiency and cleaner production through Ping An's leasing arm
8	ADB Promoting Industrial Park Green and Low-Carbon Development Project[65]	Huaxia Bank	US$602 M	Proposed facility to support green infrastructure and clean energy transitions in industrial parks across select provinces

[57] World Bank (2025).
[58] Asian Development Bank (2025).
[59] New Development Bank (2024).
[60] Asian Development Bank (2025).
[61] Asian Development Bank (2025).
[62] Asian Infrastructure Investment Bank (2024).
[63] International Finance Corporation (2024).
[64] Asian Development Bank (2025).
[65] Asian Development Bank (2025).

Most local and regional banks in China now offer green and SME-focused lending products, particularly in provinces with strong textile clusters.

Suppliers are encouraged to contact their banks to explore available options, ask about eligibility for green finance programs, and express interest in decarbonization-linked support.

Note on IFI Access and Uptake:

Based on consultations with IFIs, uptake of their credit lines in China remains modest in some sectors, despite being strategically important. It is noted that local financing options often offer lower interest rates **(typically 3-4%)** and simpler application processes. These features can make them more attractive to manufacturers compared to IFI-backed loans, which may range from **3-7% interest rate** and involve more complex eligibility criteria (e.g., technology application) or requirements. Still, IFI financing plays a critical role in piloting innovative models, de-risking early-stage investments, and supporting sectors or geographies underserved by domestic instruments.

While a growing set of financial mechanisms is emerging to support textile decarbonization, challenges around access and alignment persist. Bridging this gap requires adapting financing models to better reflect the sector's realities, while also strengthening technical support and data transparency.

Efforts to improve inclusivity and responsiveness are already underway. In China, local institutions are piloting integrated models that combine green credit with technical assistance, emissions tracking, and ecosystem partnerships. IFIs are also localizing their programs by developing tailored products, blended instruments, and capacity-building support in collaboration with Chinese partners.

The next phase is not just about mobilizing more capital, but about directing it where it can drive the greatest impact. Building on strong national policies and development finance engagement, there is an opportunity to scale place-based innovations, replicate successful models across regions, and deepen collaboration between brands, manufacturers, and financial institutions.

For brands and financing partners, this means deepening engagement not just through funding, but also by helping shape bankable projects, simplifying access, and ensuring investments translate into measurable climate gains.

Case Study:
SZRCB's Textile Compass – Financing Decarbonization in Practice[66]

In Jiangsu Province, **Suzhou Rural Commercial Bank (SZRCB)** piloted a comprehensive approach to green finance through its **Green Finance Lab**, with a specific focus on the textile industry. The initiative was implemented in partnership with German development agency **GIZ** and supported by the local government and other local organizations. It was enabled by a **CN¥ 10 million (~US$1.4 million)** investment from SZRCB, with additional in-kind and strategic support from project partners.

At the heart of this effort is **Textile Compass**, a multi-stakeholder platform that connects manufacturers with policies, financing, technology, and emissions data to accelerate low-carbon transitions. The model integrates several key components:

- **Transition-linked finance:** Loans are issued based on verified carbon reduction metrics and implementation of targeted clean technology upgrades
- **Technical support:** SZRCB partners with technology providers and third-party auditors to assess facilities, design interventions, and quantify expected GHG savings
- **Ecosystem collaboration:** SZRCB convenes stakeholders across the value chain - including local regulators, service providers, and industry experts - to jointly enable factory-level decarbonization

As of 2024, the initiative has facilitated over **CN¥ 7.5 billion (~US$1.05 billion)** in carbon emission performance-linked finance based consultations with project partners. Textile Compass offers a promising model for how finance, data, and technical expertise can be bundled together to overcome barriers to decarbonization, especially in hard-to-abate sectors like textiles.

[66] Mitigation Action Facility (2022).

Enhancing Deployment

Reaching China's decarbonization goals will depend not only on policy ambition and financial resources, but also on the ability to deliver solutions effectively on the ground. For many manufacturers, the challenge lies less in awareness and more in navigating the practical steps needed to act – identifying what to do, who to work with, and how to move forward.

This chapter explores how stronger delivery systems can support manufacturers moving from plans into implementation. It highlights three essential pathways based on research and field expert insights:

- Industrial parks as enablers of aggregation and shared infrastructure
- ESCOs and RESCOs as market-driven partners offering clean energy and efficiency services
- Technical support tools that help simplify uptake and increase confidence

By strengthening these mechanisms, the textile sector can accelerate progress and ensure that decarbonization is both possible and practical across different factory types and regions.

Leveraging Industrial Parks

Industrial parks (IPs) are becoming a central lever in China's push for decarbonization. In July 2025, China launched a **nationwide zero-carbon industrial park initiative**, outlining eight priority actions to support "near-zero" operational emissions. These include expanding renewable energy use, improving energy efficiency, deploying digital carbon management tools, and strengthening circular economy practices . Several provinces like Jiangsu, Guangdong, and Hebei have been piloting the implementation of low-carbon industrial parks[68,69,70].

This national momentum has direct implications for the textile sector, which is increasingly concentrated within industrial parks. Today, over **11,000 textile** enterprises operate across more than **1,300 parks**. These government-supported zones unlock many strategic advantages for decarbonization due to their clustered setup. Within these parks, the textile sector benefits from shared services, pooled infrastructure, and vertically integrated production – all of which are difficult to achieve for standalone facilities, especially SMEs[71].

Industrial parks serve not only as geographic hubs but also as governance and infrastructure platforms. Parks like those in **Shengze**, Jiangsu province highlight the value of vertical integration. where upstream fiber producers are linked with dyeing or printing houses and downstream garment makers. This reduces logistics costs by 25% and cuts order delivery times by up to 40%. Others, like the **Shaoxing Binhai Printing & Dyeing Cluster**, have built shared wastewater treatment and reuse systems that achieve over 65% water reuse and halve chemical emissions[72].

[68] Global Times (2024).
[69] SMM Metals Information Provider (2025).
[70] Envision: ACEF 2025 Presentation (2025).
[71] CNTAC (2025).
[72] Zhejiang Provincial Government (2017).

In the context of decarbonization, industrial parks offer at least four major benefits:

- **Centralized energy systems** (e.g., district heating, shared solar) improve energy efficiency and monitoring
- **Bundled project opportunities** enable renewable energy and energy efficiency, waste heat recovery, and recycling at a greater scale
- **Unified technical baselines and emission inventories** simplify performance tracking
- **Access to common infrastructure and shared services** lowers transition costs for SMEs

These economies of scale are already materializing. Compared to standalone factories, park-based production shows 20–35% lower energy intensity and 25–50% reductions in carbon intensity. The embedded support structure of parks also reduces the burden on individual enterprises for compliance, monitoring, and reporting.

Importantly, industrial parks are also a growing focus of government and international development partners. China's **eco-industrial park (EIP)** strategy is supported through national policies and programs by institutions like the **World Bank, Asian Development Bank**, and others. It aims to accelerate green infrastructure, digital tracking systems, and industrial symbiosis at scale. These efforts are positioning parks as critical delivery platforms for China's broader decarbonization goals.

Looking ahead, industrial parks represent a high-leverage platform for scaling decarbonization, especially when combined with public-private partnerships, digital solutions, and regional branding. Replicable park-level pilots, digital dashboards, and bundled audits could dramatically improve solution uptake while minimizing risk.

ESCOs and RESCOs as Enablers

In contrast to industrial parks, which are largely shaped by government policy and planning, Energy Service Companies (ESCOs) and Renewable Energy Service Companies (RESCOs) represent a more market-driven approach to accelerating decarbonization. These are primarily private, business-oriented companies that deliver energy efficiency and clean energy solutions through performance-based models. ESCOs and RESCOs typically offer design, installation, and maintenance with payment tied to actual energy savings or production.

This approach reduces or eliminates the need for upfront capital, making it especially attractive for manufacturers that face budget constraints or are wary of long payback periods. Models such as energy performance contracting (EPC) or third-party solar ownership are well-established, particularly in larger cities and industrial zones.

China is home to one of the world's largest ESCO markets, supported by long-standing government incentives and a growing ecosystem of technical providers. ESCOs have played a key role in deploying efficiency upgrades like LED lighting, compressed air optimization, and smart control systems. RESCOs have enabled widespread rooftop solar adoption, especially for commercial and industrial clients.

If strategically integrated into the industry's decarbonization roadmap, ESCOs and RESCOs can provide an efficient, scalable pathway to clean technology adoption, especially for factories that may lack the capital or internal capacity to go it alone.

Bridging the Last Mile

Many textile manufacturers understand the *why* of decarbonization; the challenge often lies in the *how*. Even with strong government targets, abundant funding, and growing buyer pressure, the gap between intention and execution remains significant. SMEs face the brunt of these challenges as they can lack the internal capacity for dedicated sustainability staff, technical know-how, or familiarity with emerging standards and practices to confidently move forward.

Across China's textile-producing regions, a growing number of initiatives are helping to bridge this "*last mile*" of uptake. These include training programs, audits, digital platforms, standardized tools, and demonstration projects designed to simplify and accelerate the implementation of low-carbon practices.

A Growing Toolbox

Several regions and government-backed initiatives are beginning to fill this gap. In Jiangsu and Zhejiang, local authorities have organized regular policy briefings, energy audits, and hands-on training sessions to help manufacturers interpret evolving regulations and identify actionable next steps. Industry associations and research institutions have also begun publishing low-carbon technology catalogs, equipment standards, and procurement guides tailored to textile production.

At the factory level, tools such as emissions calculators, carbon accounting templates, and digital monitoring systems are gaining traction, often introduced through pilot programs or brand partnerships. These solutions help factories track performance, identify cost-saving opportunities, and streamline compliance.

Building Replicable Models

Demonstration projects have also proven effective in showing what decarbonization looks like in practice. In places like Shaoxing Binhai, local governments have partnered with third parties to develop park-level dashboards and national green factory benchmarks[73]. These initiatives provide tangible proof of concept, lower perceived risk, and offer blueprints for replication.

Regional branding has emerged as a complementary strategy. Industrial clusters such as Shengze and Nantong have adopted stricter-than-national sustainability standards and used verified performance to reposition themselves in global markets. According to local estimates, these branding efforts can add 15–30% in product value across the supply chain[74,75]. When paired with technical guidance and digital tracking, such initiatives create reinforcing incentives that reward sustainability leadership.

[73] Tongzhou Government. (2012).
[74] Zhejiang Provincial Government (2017).
[75] Jiangsu Provincial Government (2023).

Case Study:
Shengze's First International Carbon Label for Fabric[76]

In 2025, a nylon four-way stretch fabric jointly produced by Wujiang Rongliang Fiber Co., Ltd. and Nanhua Textile became the first functional fabric in Shengze Town to receive a carbon footprint certification from TÜV SÜD. The certification, based on the ISO 14067 international standard, covers cradle-to-gate emissions. This includes raw material extraction through the shipment of finished goods. It marked a milestone not only for the manufacturers involved, but for Shengze's broader industrial strategy.

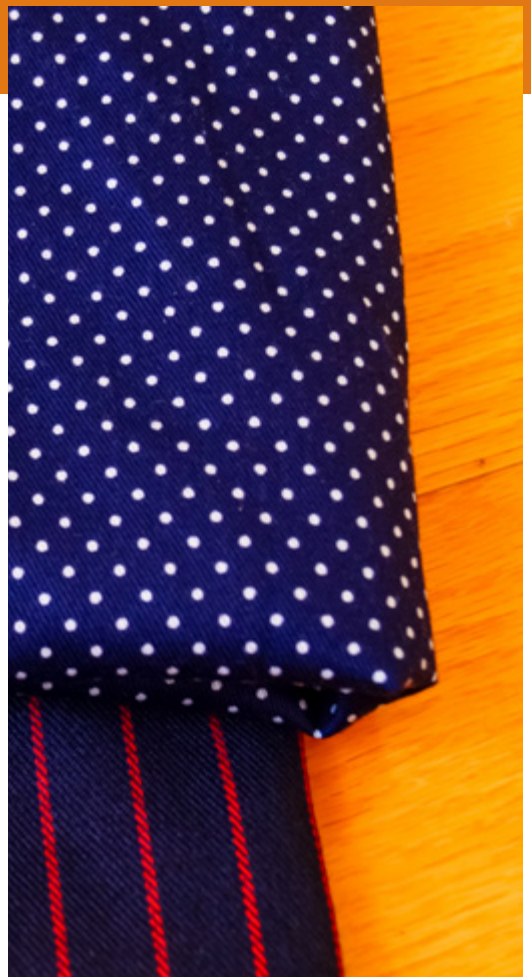
FOR MANUFACTURERS:

This certification acted as a green passport for trade, directly addressing rising brand and policy expectations around supply chain transparency and emissions reduction. The process revealed that 96% of the fabric's emissions stemmed from raw materials and energy use, offering manufacturers clear targets for improvement. By pinpointing emission hotspots, the certification helped guide future technology upgrades while also strengthening the product's value proposition in international markets.

FOR THE INDUSTRY:

The initiative served as a practical example of how decarbonization can be translated into product-level action. Building on this success, Shengze is establishing a "Product Certification Pool" that covers a range of local textile products from fibers and greige fabric to finished textiles. This pooled approach aims to build systemic competitiveness, shift fragmented emissions responsibility into shared industry accountability, and support collaborative reduction efforts across the value chain.

For global competitiveness, this effort signals a shift in industry posture from passive compliance to proactive disclosure. As carbon data becomes an integral component of product competitiveness alongside quality and price, certifications like this one can help position Chinese textile clusters as leaders in green manufacturing.



[76] Baidu Knowledge (2025).

The Road Ahead

As China's textile sector moves from commitment to implementation, deployment support will be the linchpin of progress. While financing and policy frameworks are critical, they must be matched by enabling conditions that make decarbonization practical, scalable, and inclusive. Manufacturer confidence and clarity are just as critical. Helping facilities navigate complexity through practical, proven tools will be essential to moving from plans to implementation.

Industrial parks offer a strong platform for aggregation and scale, and there is growing momentum to leverage these hubs through green infrastructure, shared services, and branding strategies. At the same time, ESCOs and RESCOs are enabling uptake through business-driven delivery models that reduce capital burdens and build capacity for clean energy and energy efficiency projects. Finally, tools, templates, and targeted guidance are helping to bridge the "last mile" of implementation, turning awareness into action, especially where internal capabilities may be limited.

To accelerate adoption, stakeholders can work together to:

- Expand access to open-source technical tools and standardized carbon accounting templates
- Encourage peer learning and factory-to-factory exchanges across regions and clusters
- Support demonstration projects that are practical, replicable, and tailored to underserved supplier segments
- Invest in digital infrastructure that supports tracking, benchmarking, and third-party verification at a lower cost
- Scale public–private partnerships that align parks, brands, and solution providers around shared decarbonization goals

By reinforcing these pathways, China's textile sector can turn promising models into widespread outcomes to advance not only environmental goals, but also long-term competitiveness and supply chain resilience.

Call to Action and Recommendations

This report acknowledges the growing efforts across China's textile and apparel value chain to accelerate industrial decarbonization. National strategies, industrial park reforms, and international engagement have laid a strong policy and financing foundation. However, unlocking implementation at scale will require greater coordination, practical support for suppliers, and new approaches to match funding with facility needs.

While domestic and international capital is increasingly available, the challenge now lies in aligning these resources with on-the-ground demand - particularly among small and medium-sized manufacturers. Industry actors must work together to reduce fragmentation, develop fit-for-purpose financing and technical models, and create conditions that turn ambition into action across regions.

The following recommendations present practical pathways to help strengthen collaboration, scale solutions, and ensure that the sector's transition is both inclusive and effective.

1. Develop a Greater Variety of Financing Mechanisms and Tools

Why it Matters: China already has a significant pool of financial resources allocated for green and low-carbon development. However, many financing instruments remain simple or standardly designed, limiting their reach and relevance to the textile sector. More flexible and innovative models are needed to ensure that capital is used effectively and delivers greater impact across the value chain.

Who is Involved: IFIs, local financial institutions, government agencies, brands, and financial innovation labs or platforms

What is Needed: Stakeholders should co-develop and pilot new financial instruments that better reflect industry realities such as blended finance, joint IFI-local bank facilities, pooled guarantees, and results-based grant mechanisms. These tools can help address credit risks, lower borrowing costs, and support smaller-scale investments. Financing design should be accompanied by technical assistance and streamlined application processes to ensure accessibility for diverse supplier segments.

Aii's is facilitating collaboration among brands, banks, and intermediaries to shape financing models and risk-sharing mechanisms that reflect supplier realities and can make decarbonization financing more accessible.

2. Improve Alignment Between Brand Expectations and Supplier Capabilities

Why it Matters: Suppliers are under growing pressure to meet increasingly detailed brand requirements. However, these expectations are not always matched with clear guidance, financial support, or implementation flexibility. Without better alignment, there's a risk of slowing progress, especially among SMEs that lack the resources to meet evolving brand demands.

Who is Involved: Brands, manufacturers, industry alliances, and implementation partners

What is Needed: Brands should adopt a more collaborative approach, working closely with suppliers to co-design achievable sustainability targets, provide implementation roadmaps, and offer financial or in-kind support. Greater transparency in expectations, coupled with phased implementation plans, can help suppliers build capacity at a manageable pace. Collective platforms such as industry working groups or buyer coalitions can further help standardize guidance, pool support resources, and open avenues for communication.

Aii's Brand Finance Playbook provides a shared reference point for brands to align financial strategies with supply chain emissions goals.

3. Encourage Manufacturers to Integrate Low-Carbon Planning into Core Business Strategy

Why it Matters: Decarbonization is increasingly shaping market access, buyer relationships, and operational competitiveness. While many manufacturers are aware of the pressure to reduce emissions, sustainability decisions are often treated as one-off upgrades rather than part of long-term strategy. Without clear planning, it becomes difficult to prioritize investments, attract financing, or respond to evolving buyer expectations.

Who is Involved: Manufacturers, brands, technical experts, and industry associations

What is Needed: Manufacturers are encouraged to integrate low-carbon goals into business planning processes, even before funding is secured. This includes setting internal targets, identifying priority upgrades, and tracking energy performance over time. As part of this process, manufacturers should also engage local financial institutions to explore available financing options that can be factored into future investment decisions. Brands and technical partners can help by offering tools, templates, case studies, and capacity-building support. Reframing sustainability as a business opportunity rather than just a compliance requirement can improve resilience, cost-efficiency, and buyer alignment.

Aii-hosted forums like the Suzhou Fashion Forum create space for supplier dialogue, knowledge exchange, and business-driven sustainability planning.

4. Expand Support for Manufacturer Readiness through Localized Technical Assistance

Why it Matters: Many textile manufacturers struggle to translate sustainability goals into actionable investment plans. Even when motivated, suppliers often lack access to localized, credible, and context-specific technical guidance. Without support on diagnostics, solution design, or vendor selection, implementation is delayed or misaligned with operational needs. Strengthening technical assistance is essential to convert ambition into bankable, high-impact projects.

Who is Involved: IFIs, local governments, service providers, and technical partners

What is Needed: Localized programs should be scaled to deliver tailored technical support such as energy audits and carbon target setting to vendor matchmaking and project development assistance. These services should be easily accessible and aligned with regional policies. Brands and development partners can co-invest in technical assistance platforms, while governments can embed support into existing sustainability or industrial upgrade schemes.

Aii's Climate Solutions Portfolio connects suppliers with solution providers and technical experts to deliver practical, facility-level support.

5. Leverage Industrial Park Engagement as a Platform for Action

Why it Matters: Industrial parks are a defining feature of China's textile sector, housing large clusters of manufacturing activity in designated zones that benefit from shared infrastructure and centralized governance. With many parks already transitioning toward green or eco-industrial models, they offer a powerful platform to accelerate decarbonization at scale. By aggregating demand and standardizing service delivery, parks can help overcome some of the persistent barriers manufacturers face around access to clean energy, technical support, and financing.

Who is Involved: Local officials, park administrators, brands, development partners, and financial institutions

What is Needed: Local governments and park operators should continue integrating low-carbon planning into park operations, from centralized RE procurement and emissions monitoring to technical assistance. To maximize impact, park strategies should align closely with national climate goals and sector-specific needs. Development partners and financial institutions can help scale success by prioritizing parks for technical support and investment, while brands can work more directly with park administrators to co-develop tailored programs and aggregate supplier demand.

6. Enhance Sector Coordination through Data and Knowledge Platforms

Why it Matters: China's decarbonization efforts are advancing quickly, but sector-wide coordination remains fragmented. Many suppliers face challenges in accessing up-to-date guidance, technical benchmarks, or case studies tailored to their specific needs. Meanwhile, financiers and brands often lack the data required to assess supplier readiness or evaluate project performance. Building stronger knowledge infrastructure can help bridge these gaps and accelerate action across the value chain.

Who is Involved: Government agencies, industry associations, technical experts, development partners, and brands

What is Needed: Stakeholders should explore establishing accessible and centralized platforms (e.g. web-based database) that consolidate guidance on compliance, technology options, financing opportunities, and implementation experiences. This could include supplier decarbonization case studies, cost-performance benchmarks, and region-specific policy updates. Standardized templates for carbon accounting, emissions disclosure, and project reporting would further reduce confusion and streamline supplier-brand collaboration. Such platforms can also serve as forums for sharing lessons learned, fostering trust, and improving alignment between stakeholders.

Aii is developing a sustainable finance platform that will serve as a toolkit to assess supplier readiness and provide tailored support. Cross-market insights from knowledge reports such as this will also inform its design.

7. Explore Practical Pathways for Digitalization in Decarbonization

Why it Matters: Digitalization is a key theme in China's industrial and climate strategies, backed by significant government investments and ambitious policy targets. In practice, however, many industry stakeholders are unsure of how digital tools apply to their daily operations or decarbonization goals. Without clear use cases and support systems, digitalization risks remaining an abstract objective rather than a practical enabler of change.

Who is Involved: Manufacturers, local governments, industrial park administrators, digital solution providers, research institutions

What is Needed: To realize the potential of digitalization, ecosystem actors must work together to define practical applications, assess benefits, and clarify investment pathways. Local governments and industrial parks can pilot digital tools across supply chains, such as shared emissions tracking platforms or smart utility systems. Research institutions and service providers can develop practical roadmaps and scalable, cost-effective solutions suited to a range of facility types. Clarifying how digitalization enhances transparency, efficiency, and market access in the context of evolving global disclosure requirements will help the entire sector make more informed and confident decisions.

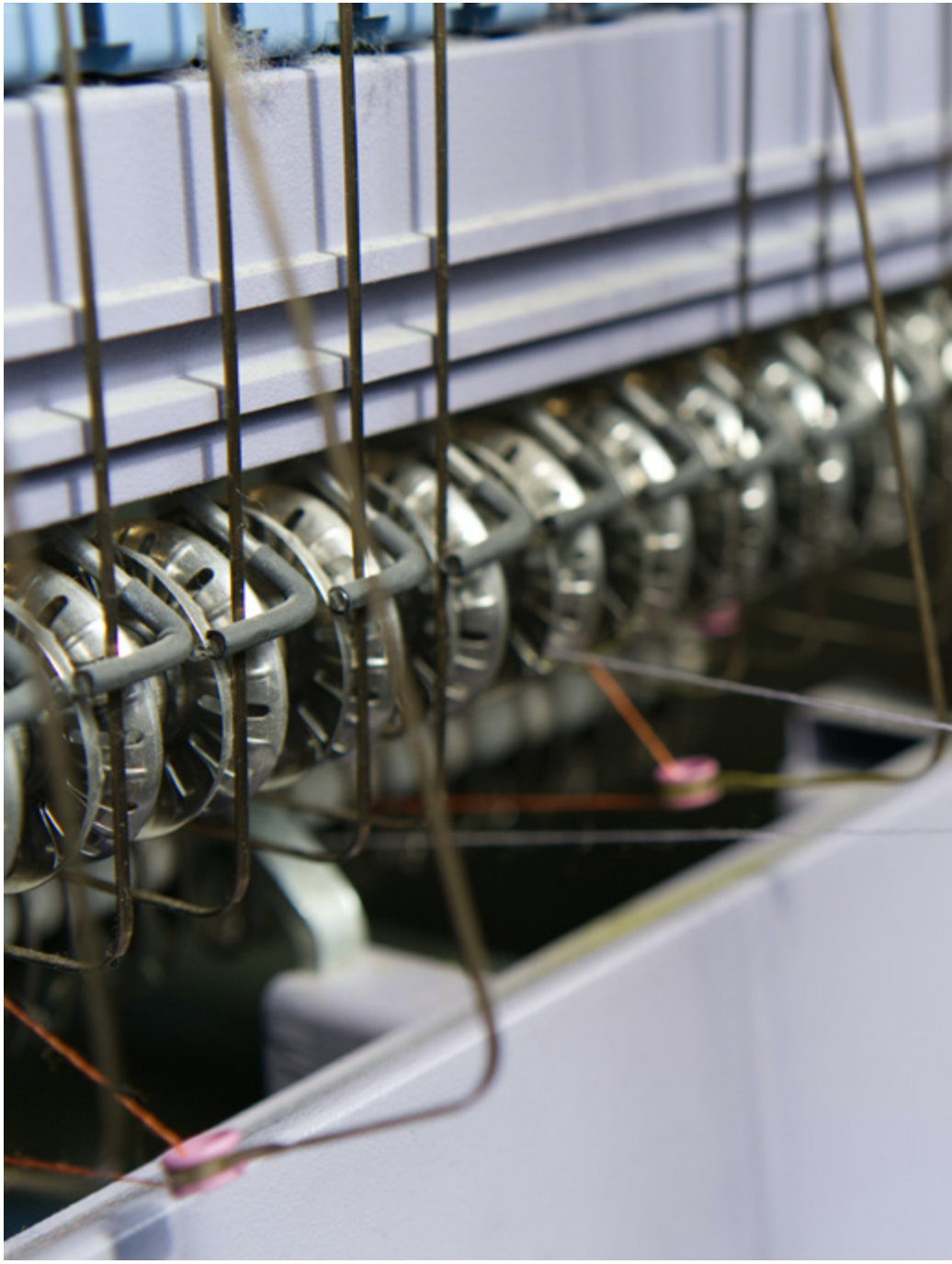
We welcome your feedback on this report.
To share any questions, insights, or ideas, please contact Aii at info@apparelimpact.org

Annex

A. Glossary

B. Details on Financing Opportunities

C. Endnotes



A. Glossary

30-60 Strategy
The 30-60 Strategy outlines China's climate goals to peak carbon dioxide emissions before 2030 and achieve carbon neutrality by 2060. Announced in 2020, it has become a foundational driver of national policy, steering planning efforts in energy, industry, transport, and land use. The strategy sets long-term expectations for a shift toward clean energy and low-carbon technologies, with implications for both domestic regulation and global supply chains.

Beautiful China Initiative
The Beautiful China Initiative is a national vision introduced to integrate ecological priorities into China's broader development agenda. It promotes a balance between economic growth and environmental sustainability, focusing on clean air and water, green urbanization, and biodiversity protection. While not a single policy, it serves as a guiding principle across various sectors and supports the transition to more sustainable production and consumption models.

Capital Expenditure (capex) Model
This model involves customers making an upfront investment in energy projects. Customers make a one-time payment for the entire project, and the developer provides their expertise and construction services. Developers can be contracted for the operation and maintenance of the installation. This model gives customers ownership of the equipment and any resulting savings. It provides long-term benefits but requires a larger initial investment.

Carbon Dioxide Equivalent (CO_2E)
CO_2e, or carbon dioxide equivalent, is a standard unit used to measure greenhouse gas (GHG) emissions. It expresses the impact of different GHGs in terms of the amount of CO_2 that would have the same warming effect. This allows for a single, comparable metric when tracking climate impact. In the textile sector, CO_2e emissions can come from energy use, raw material processing, transportation, and other stages of the value chain.

Eco-Industrial Park (EIP)
An Eco-Industrial Park is a type of industrial zone where companies collaborate to improve environmental and economic performance. By sharing resources like energy, water, and waste systems, they reduce pollution, cut costs, and create more sustainable operations. EIPs promote circularity and clean production, making them a model for greener industrial development.

Energy Service Companies (ESCOs) & Renewable Energy Service Companies (RESCOs)
ESCOs and RESCOs offer solutions that help businesses reduce energy use or switch to renewable sources without large upfront costs. They typically handle project design, installation, and financing, with clients repaying through future energy savings. This model lowers financial and technical barriers for companies looking to improve energy performance, especially in resource- or energy-intensive sectors.

Energy Efficiency (EE)
Energy efficiency refers to using less energy to perform the same task or produce the same output. In factories, this can mean upgrading to better machinery, improving insulation, or optimizing production processes to reduce energy waste. Energy efficiency is one of the fastest and most cost-effective ways to cut greenhouse gas emissions and lower utility bills.

European (EU) Green Deal
The EU Green Deal is the European Union's flagship climate strategy, aiming to make Europe the world's first climate-neutral continent by 2050. It includes legally binding targets to reduce GHGe, shift to clean energy, and promote sustainable industries. It also includes measures to support a just transition and international cooperation, including through trade and supply chain standards.

European (EU) Strategy for Sustainable and Circular Textiles
Launched in 2022, this strategy aims to transform how textile products are designed, manufactured, and consumed across the European Union. It introduces rules to make textiles more durable, repairable, and recyclable, and calls for greater transparency and traceability in global supply chains. The strategy will impact producers, particularly those supplying fast fashion or synthetic fiber-based products.

Financial Leasing Model
A financial leasing model allows companies to acquire equipment or technology through periodic payments rather than upfront purchases. In this arrangement, the leasing company retains ownership of the asset while the user operates it over a set term. In China, financial leasing is widely used, particularly among small and mid-sized manufacturers. It offers a practical solution in contexts where banks may not accept movable assets like machinery as loan collateral.

Green Electricity Certificates (GEC)
A Green Electricity Certificate (GEC) is an official record showing that a certain amount of electricity was generated from renewable sources. In China, one GEC represents 1 megawatt-hour (MWh) of green electricity. Companies can buy, sell, or trade GECs to demonstrate their use of clean power and support the renewable energy market. GECs are part of China's broader efforts to track and promote green energy consumption.

Green Finance Reform and Innovation Pilot Zones
These pilot zones are designated regions in China that test innovative financial approaches to support green development. Led by the People's Bank of China, the zones serve as testing grounds for new lending models, localized green standards, and partnerships between banks, industry, and government.

Higg Facility Environmental Module (FEM)
The Higg FEM is a widely used assessment tool developed by Cascale (formerly the Sustainable Apparel Coalition) to measure environmental performance at manufacturing facilities. It covers key impact areas such as energy use, greenhouse gas emissions, water management, wastewater, air emissions, and chemical use. Brands and manufacturers use Higg FEM to identify improvement areas, report progress, and align with global sustainability expectations.

Nationally Determined Contributions (NDCs)
NDCs are country-specific climate pledges submitted under the Paris Agreement. They outline national goals for cutting greenhouse gas emissions and adapting to climate change. NDCs are updated every five years and form the backbone of each country's climate roadmap.

Operational Expenditure (opex) Model
This model allows customers to pay for energy services over time instead of making a big upfront investment. Developers cover the initial costs for equipment and installation, and customers gradually repay based on energy savings or set monthly fees. It can be thought of as renting energy efficiency, with the developer owning the assets. This model makes it more accessible for businesses to upgrade their energy systems without upfront expenses.

Pareto Principle
The Pareto Principle, also known as the 80/20 rule, states that roughly 80% of the effects or results come from 20% of the causes. It suggests that in many situations, a small fraction of efforts often lead to large and disproportionate amounts of results. In turn, focusing on a select portion of the inputs can lead to significant changes in output. This principle is widely applied in various fields - from business management to personal productivity - to prioritize efforts efficiently.

Taxonomy
A taxonomy is a classification system that defines which economic activities qualify as environmentally sustainable. It provides clear criteria to help investors, banks, and governments identify projects that contribute to climate goals. Taxonomies are important for guiding green finance and avoiding greenwashing, which is when companies or projects falsely claim to be environmentally friendly. In China and other countries, sector-specific taxonomies help ensure that financing goes toward credible low-carbon solutions.

Transition Finance
Transition finance refers to funding that supports high-emitting industries as they shift toward lower-carbon operations. Unlike green finance, which focuses on already low-carbon activities, transition finance enables companies to gradually improve their environmental performance over time. It often includes clear targets, timelines, and reporting requirements to ensure accountability. In countries like China, transition finance plays a key role in helping traditional sectors align with national climate goals while maintaining economic stability.

Renewable Energy (RE)
Renewable energy comes from natural sources that are constantly replenished, such as sunlight, wind, and water. Unlike fossil fuels, renewable energy does not release carbon dioxide when used. In the textile sector, common examples include rooftop solar panels and wind power purchased through the local grid. Switching to renewable energy helps reduce a factory's environmental impact.

B. Details on Financing Opportunities

This list provides an overview of available and relevant financing options. It is not comprehensive.

Project or Fund		Project Implementer	Description	Other Details
1	WB Renewable Energy and Battery Storage Promotion Project	Huaxia Bank	Green credit line to expand RE and battery storage capacity, with potential applications across industrial sectors	• **Objective:** Promote integration and use of RE through battery energy storage systems and innovative applications of RE • **Cost:** US$750 M • US$300 M by WB, US$450 M by Huaxia Bank • **PIU:** Huaxia Bank • **Timeline:** June 2019 – May 2027 (extended) • **Interest Rate:** 5-7% • **Updates:** $80 M disbursed from WB as of June 2024, limited uptake due to competitive rates from state-owned and domestic banks
2	ADB Shandong Green Development Fund	Shandong Provincial Finance Department	Blended finance facility to support low-carbon and climate-resilient infrastructure in Shandong Province	• **Objective:** Enhance climate resiliency in Shandong province via mobilized public and private funding • **Cost:** US$1,500 M • US$400 M by IFIs, US$1,100 M in catalyzed private and public funding • **PIU:** Shandong Provincial Finance Department • **Fund Manager:** CICC Capital Management Ltd. • **Timeline:** September 2019 – June 2027 • **Additional Detail:** Umbrella fund supporting multiple smaller funds to finance any subproject with a potential positive green impact
3	NDB Bank of Huzhou Sustainable Infrastructure Project	Bank of Huzhou (BOH)	Green credit line to promote sustainable infrastructure and clean energy investment in Zhejiang Province	• **Objective:** Expand on-lending to the private sector for sustainable infrastructure projects in Zhejiang • **Cost:** US$200 M • US$50 M by NDB, US$150 M by BOH • **PIU:** Bank of Huzhou • **Timeline:** November 2023 - TBD • **Updates:** NDB loan expected to be disbursed to BOH by September 2024; preliminary project pipeline already exceeds total project cost
4	ADB Bank of Huzhou Decarbonizing MSMEs Project	Bank of Huzhou (BOH)	Financial facility supporting energy efficiency and clean technology adoption among MSMEs in Zhejiang Province	• **Objective:** Scale up EE in SMEs and increase green financing for MSMEs and sustainability investments • **Cost:** US$50 M by ADB • **PIU:** Bank of Huzhou • **Timeline:** September 2022 – TBD • BOH Average Ticket Size: US$900 K • BOH Average Tenor: 5-7 years

Project or Fund		Project Implementer	Description	Other Details
5	ADB Bank of Xingtai Green Finance Development Project	Bank of Xingtai (BOX)	Green credit line for MSMEs to implement low-carbon solutions, with a focus on Hebei Province's industrial base	• **Objective:** Increase the volume of green finance provided by the city and rural commercial banking • **Cost:** US$709 M • US$199 M by ADB, US$170 M by BoX, US$340 M in catalyzed private and public funding • **PIU:** Bank of Xingtai • **Timeline:** November 2020 – June 2027 • **Updates:** US$78 M (42%) of ADB loan disbursed as of August 2024
6	IFC & AIIB JC Leasing Sustainability Loan	JC International Leasing & Financial Co.	Joint leasing facility to finance rooftop solar, energy efficiency, and clean production technologies for industrial clients	• **Objective:** Support JC Leasing in growing its climate and social finance portfolios • **Cost:** US$225 M • US$100 M by IFC, US$100 M by AIIB, US$25 M by a local bank • **PIU:** JC International Leasing & Financial Co. • **Timeline:** April 2024 – TBD • **JCL SME Ticket Size:** US$118 K - US$280 K • **JCL SME Tenor:** 12-48 months
7	ADB Ping An Financial Leasing MSME Energy Efficiency Improvement Project	Ping An Financial Leasing Co.	Green credit line supporting MSME investments in energy efficiency and cleaner production through Ping An's leasing arm	• **Objective:** Accelerate EE improvements in MSMEs through new EE financing solutions • **Cost:** US$200 M by ADB • **PIU:** Ping An International Financial Leasing Co. • **Timeline:** September 2022 - TBD • **Updates:** US$100 M disbursed as of October 2023
6	ADB Promoting Industrial Park Green and Low-Carbon Development Project	Huaxia Bank	Proposed facility to support green infrastructure and clean energy transitions in industrial parks across select provinces	• **Objective:** Finance transition in carbon-intensive areas, particularly industrial parks • **Cost:** US$602 M • US$200 M by ADB, US$202 M by Huaxia Bank, US$200 M by sub-borrowers • **PIU:** Huaxia Bank • **Timeline:** Sept 2024 – December 2031 • **Interest Rate:** At par with local rates, exact TBD

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