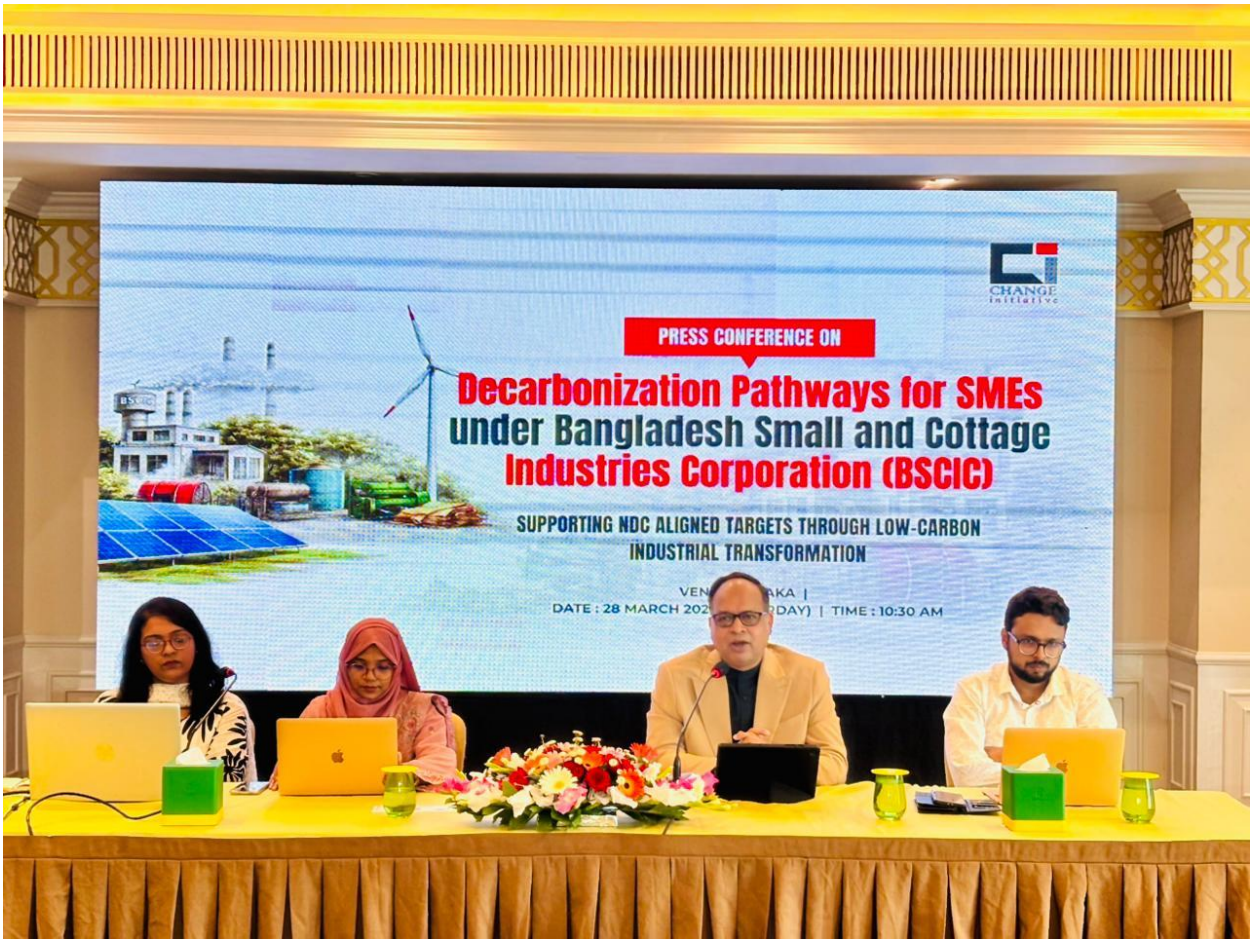

PRESS CONFERENCE ON
Decarbonization Pathways for SMEs
under Bangladesh Small and Cottage
Industries Corporation (BSCIC)
SUPPORTING NDC ALIGNED TARGETS THROUGH LOW-CARBON
INDUSTRIAL TRANSFORMATION
VENUE : DHAKA |
DATE : 28 MARCH 2026 (SATURDAY) | TIME : 10:30 AM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Executive Summary

Global industrial systems are undergoing a structural transition driven by decarbonization pressures, where emissions performance is increasingly tied to market access, financing conditions, and competitiveness. For developing economies, this shift is not abstract; it is filtering directly through global value chains, placing new compliance and cost burdens on smaller firms that lack the capacity to respond. In Bangladesh, this challenge converges sharply within the small and medium enterprise (SME) sector, which forms the backbone of industrial production while simultaneously operating under severe energy and technology constraints.

SMEs account for more than 90 percent of industrial units, employ roughly 85% of the industrial work force, and contributes around 25-30% of annual GDP. Despite this centrality, their production systems remain heavily dependent on fossil fuel-based electricity, with approximately 95.16% of national power generation derived from such sources. This structural dependence places SMEs at the core of Bangladesh's emissions trajectory, particularly as industrial expansion continues to accelerate.

National climate commitments reinforce the urgency of transformation. Under the Third Nationally Determined Contribution (NDC 3.0), Bangladesh aims to reduce 69.84 $MtCO_2e$ from the energy sector by 2035. However, implementation gaps remain pronounced at the SME level. Production systems are characterized by outdated machinery, high electricity tariffs, unreliable supply, limited access to concessional finance, and weak institutional coordination. These constraints collectively create a structural disconnect between national climate ambition and operational realities within industrial clusters.

Industrial estates under the Bangladesh Small and Cottage Industries Corporation (BSCIC) represent a strategic entry point for resolving this disconnect. With more than 80 estates hosting thousands of enterprises across sectors such as tannery, plastics, packaging, and light engineering, these clusters concentrate energy demand, infrastructure, and governance authority within defined geographic boundaries. This spatial concentration enables the design of scalable, collective decarbonization interventions that would be difficult to achieve through firm-level approaches alone.

Analysis of four high-emission sectors-tannery, plastic manufacturing, plastic packaging, and light engineering-reveals both the scale of the challenge and the magnitude of opportunity. Combined annual emissions from these sectors are estimated at approximately 46.99 $MtCO_2e$, representing a significant share of industrial emissions. At the same time, technical and process-based interventions could reduce emissions by approximately 14.1 $MtCO_2e$ annually, with sector-specific reduction potentials ranging from 15 to 49 percent.

A central pathway for achieving these reductions lies in the deployment of solar photovoltaic (PV) systems at the industrial estate level. Scenario analysis indicates that allocating 10 percent of available estate space to solar infrastructure could generate approximately 82,969 MWh of electricity annually, reducing emissions by over 51,000 tCO_2e. Expanding this allocation to 20 percent could double both generation and emission reductions, reaching over 165,000 MWh and 102,000 tCO_2e annually. Beyond emissions mitigation, such systems offer a structural advantage by lowering long-term electricity costs, thereby directly improving SME profitability and competitiveness.

Complementary technological interventions further strengthen this transition pathway. Adoption of high-efficiency motors, inverter-based systems, CNC machinery, advanced molding technologies, and process optimization measures can significantly reduce energy intensity while enhancing production efficiency. These upgrades not only lower emissions but also improve product quality and operational reliability, positioning SMEs more favorably within increasingly carbon-sensitive global markets.

However, technological feasibility does not automatically translate into adoption. Structural barriers remain decisive. Limited access to affordable finance constrains capital investment in renewable energy and efficient machinery. Technical knowledge gaps prevent accurate assessment of energy-saving opportunities. The absence of standardized energy auditing and emissions reporting systems undermines planning and monitoring. Fragmented institutional responsibilities further dilute accountability and coordination across agencies.

Addressing these constraints requires an integrated transformation approach anchored in three interdependent shifts. First, decarbonization must move from isolated firm-level upgrades to cluster-based infrastructure solutions, particularly through shared renewable energy systems. Second, financing models must evolve toward mechanisms that reduce initial costs, including operational expenditure (OPEX) models and concessional renewable energy finance instruments. Third, institutional frameworks must be strengthened to support coordinated planning, technical assistance, and data-driven decision-making across industrial estates.

The transition pathway is not solely environmental; it is fundamentally economic. Reductions in energy costs translate directly into lower production costs, higher margins, and expanded production capacity. This, in turn, creates conditions for employment growth within industrial clusters, reinforcing the broader development impact. At scale, SME decarbonization becomes a lever for aligning climate commitments with industrial competitiveness, energy security, and inclusive growth.

What emerges is a reframing of the problem itself. The constraint is not simply emissions intensity, but a deeper structural inefficiency embedded in energy use, technology adoption, and institutional design. Addressing this inefficiency unlocks simultaneous gains across climate, economic, and social dimensions, positioning Bangladesh's SME sector to compete within a rapidly evolving low-carbon global economy.