



Ceiling fan market transformation in India

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AUTHORS

Neha Dhingra, Nishant Batra

CONTRIBUTORS

Bishal Thapa, Aoibheann O' Sullivan

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CONTACT

Aoibheann O' Sullivan, aosullivan@clasp.ngo.

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Market transformation interventions are designed to overcome barriers and open up market for energy efficient appliances and equipment

Market transformation initiatives aim to unlock markets for energy efficient technologies by overcoming barriers to entry and adoption such as high costs, limited consumer awareness or lack of supply chain readiness. These interventions work by introducing energy efficient products into the market, activating supply chains, building consumer trust, lowering prices and influencing buying behavior and product availability. Within market transformation, **bulk procurement programs are powerful tools for transforming markets by accelerating the**

availability, adoption, and affordability of energy-efficient technologies.

It is also important to note that the impact of market transformation is measured not solely by immediate sales, but by the broader spillover effects it triggers such as shifts in production, pricing, consumer perception, and industry behavior. Therefore, it is critical to observe how a program reverberates through the market, rather than focusing only on achievement of numeric targets.

A case study from India

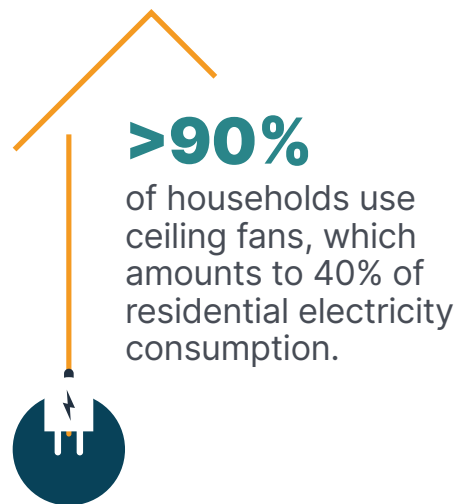
In India, Energy Efficiency Services Limited (EESL) a state-owned super Energy Service Company (ESCO) - launched a bulk procurement initiative in November 2023 to deploy 10 million super-efficient ceiling fans over two years.

The program had two primary goals:

- Accelerate the adoption and availability of super-efficient ceiling fans in the Indian market.
- Enhance affordability, making efficient fans more accessible to a wider range of consumers.

Ceiling Fans Market in India

Ceiling fans are among the most ubiquitous appliances in Indian homes, with over 90% of households relying on them for cooling as the primary source of cooling, especially in low-income and rural areas. They account for approximately 40% of residential electricity consumption, making them a high-impact end-use for energy efficiency improvements. Ceiling fans are also among the fastest-growing appliances, with an estimated 61 million units produced in 2023–24 alone¹. However, about 97% of these fans are not energy efficient, resulting in higher electricity consumption, increased household energy bills, and elevated emissions associated with cooling². Key drivers for the growth include rising rural penetration with increased electrification, higher disposable incomes, rising temperatures and increased frequency of heatwaves. Given the projected growth in ceiling fans production and the resulting increase in energy consumption, it is essential to promote the deployment of efficient and affordable models. This will prevent the long-term adoption of inefficient products while maximizing energy savings and greenhouse gas reduction potential.



Ceiling fans Policy Landscape in India

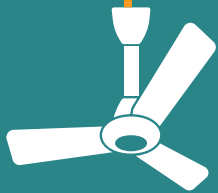
In 2023, the Bureau of Energy Efficiency (BEE) revised energy efficiency thresholds under ceiling fans Standards & Labeling (S&L) program and transitioned it to mandatory phase. With this transition and upgrade, ~85%³ of the market shifted into the 1-star category. 5-star fans, predominantly Brushless Direct Current (BLDC) technology, represented ~13% of the market due to their higher cost and limited availability. To accelerate adoption of super-efficient fans in the market, the bulk procurement program of EESL targeted, 5-star fans, which were at least 20% more efficient than the new minimum threshold for 5-star ratings under BEE's S&L program, comprising of BLDC technology in the market.



1 <https://www.beestarlabel.com/SearchCompare>

2 <https://www.clasp.ngo/updates/cooling-india-energy-efficient-fans-for-a-greener-tomorrow/>

3 https://beeindia.gov.in/sites/default/files/BEE_India_Energy_Scenario_Report-2024_web_version-rev2.pdf;



A CASE STUDY FROM INDIA ON CEILING FANS BULK PROCUREMENT PROGRAM

To promote adoption and affordability of super-efficient fans in India, EESL launched a bulk procurement initiative in November 2023 to deploy 10 million super-efficient ceiling fans over two years. The first tender, under this initiative, was for procurement of 2 million 5-star BLDC fans with a service value of 7.3, which is at least 20% more efficient than the baseline of 5-star fans.

A Model for Market Transformation

This case study highlights several key principles that are critical for a successful market transformation program:

- 1. Ambitious, credible goals that provide demand certainty** – Setting a bold goal is crucial to driving significant market change. A sufficiently large target not only demonstrates strong demand potential but also creates the momentum needed to influence market behavior. The program established a high-ambition target by setting a target to deploy 10 million 5-star BLDC ceiling fans, signaling a strong commitment to energy efficiency. It was also supported by strong Government vision and proactive support. Launched during the G20 energy transitions working group in Goa in July 2023, the program was unveiled by the Union Minister of Power, signaling India's commitment to leading global shift towards energy efficient technologies. This high-level endorsement not only highlighted the urgency of phasing out inefficient appliances but also lent credibility to the initiative.
- 2. Transparency** – Ensuring transparency across all stakeholder groups such as manufacturers, retailers, and consumers is critical to building credibility and signaling broad-based support for the program. It also encourages active participation from market players. The program exemplified this approach and communicated about its objectives and progress.
- 3. Industry engagement** – Engaging manufacturers and buyers at all the stages of the program ensures alignment with program objectives. CLASP and partners supported organizing consultations with industry stakeholders throughout the program, demonstrating strong demand potential. These structured engagements, successfully built industry trust and encouraged participation resulting in an unprecedented 13 bids submitted for the program.
- 4. Demand aggregation** – The program commenced with an initial tender for 2 million fans, which is significantly larger than any other previous bulk procurement initiatives. Mobilizing large-scale demand is essential for a successful bulk procurement program. The program targeted outreach to state government departments, state-designated agencies, national and state public sector enterprises, power distribution companies, private sector firms and private universities. This was carried out through a combination of emails, official letters, targeted campaigns, one-on-one meetings, and social media engagement. These efforts significantly raised awareness and interest in efficient fans, laying the groundwork for sustained demand growth.
- 5. Pricing transparency and market signaling** – The public disclosure of pricing for products procured through bulk procurement mechanism served as a critical market signal. It enabled suppliers to establish a benchmark reference price in the institutional and retail market. This shift in pricing strategy helped reposition BLDC fans from a niche offering perceived to cater to a limited consumer segment with low price elasticity, to a standardized, mass-market product with high price sensitivity. Several manufacturers approached institutional buyers with prices equal to or even lower than the price discovered under bulk procurement program, signaling that the program had a ripple effect on market pricing dynamics.
- 6. Technical assistance as an enabler** – Recognizing the complexity of introducing a new product into an emerging market segment through an innovative program, the program was supported by a robust team of technical assistance (TA) partners. These experts played a key role in the program by contributing to design, demand aggregation, consumer outreach, and Quality Assurance and Quality Control (QA/QC). The involvement of experienced TA providers ensured that decisions were grounded in evidence and best practices, reinforcing effective and sustainable program design and implementation.

This business model stimulated adoption built supply-side capacity, and expanded access without depending on government subsidies.

Market transformation for fans-key shifts and insights

Although total sales under the program remained modest by the end of its two-year horizon, the impact on the market has been catalytic. The market experienced price reductions, increased production and greater awareness. Key trends in the market in the last two years include:



~3X increase in the number of manufacturers producing 5-star fans as well as models.



Entry of several new manufacturers with no prior history in ceiling fan production



63% rise in overall production volumes of 5-star fans;



25% reduction in prices of 5-star fans, making fans significantly more affordable.



65% increase in MSME participation in the labeling program, boosting local manufacturing capacity and sectoral competitiveness.



Increased proliferation of advertisements in digital, electronic and social media.



Evolving marketing strategies, especially in rural markets, with greater emphasis on BLDC and energy-efficient technologies.

Lessons learnt and spillover impact

- India's experience with ceiling fan efficiency demonstrates how strong regulatory framework complemented with market transformation initiatives can produce meaningful shifts in market behavior. Over just two years, the combination of BEE's mandatory labeling program and bulk procurement efforts has substantially improved the accessibility and affordability of energy-efficient fans.
- Fans procurement program—with a big vision, focusing on industry engagement, demand aggregation, and strategic interventions—has generated a spillover effect that extends beyond the program itself. The program's impact extends beyond

initial sales, driving policy adoption and institutional procurement.

Overall the program has had profound spillover impact – it has lowered costs, driven mass adoption, and stimulated production, creating certainty of demand that encourages manufacturers to invest in increase production of 5 star fans thereby improve product offerings in the market.

There are concurrent developments in the ecosystem which were observed in the last two years—states like Tamil Nadu, Chandigarh and Delhi have mandated procurement of high-efficiency fans in public institutions, signaling the start of broader institutional adoption.

Global Replicability and Scalability

The success of bulk procurement in India's ceiling fan market offers a replicable framework for other countries and product categories. By customizing bulk procurement strategies to local contexts, nations can accelerate the adoption of energy-efficient appliances. This approach is particularly relevant for emerging markets in ASEAN (Association of Southeast Asian Nations), Africa, and Latin America, where it can enhance affordability and accessibility of efficient cooling solutions. Additionally, public sector investments in infrastructure can be leveraged to mainstream energy-efficient appliances through large-scale procurement initiatives.

With over 90% of Indian households depending on ceiling fans for cooling, access and affordability are key. Bulk procurement helps make energy-efficient fans accessible to low-income and rural households - reducing both household energy costs and strain on the power grid.

With the right policy frameworks and technical partnerships, bulk procurement can be a powerful lever for scaling up market adoption of energy-efficient technologies—across other high-impact sectors like air conditioning, refrigeration, and lighting—where price and access remain barriers.

India's experience underscores the potential of bulk procurement as a strategic tool for affordability, efficiency, and large-scale adoption of energy-efficient technologies worldwide.



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