



FANS

Solar Appliance Snapshot

MAY 2021

EFFICIENCY FOR ACCESS COALITION

Fans are one of the most commonly sold appliances in the world, with over 290 million on-and off-grid units sold globally in 2019. With positive trends in off-grid fan affordability and efficiency, demand is predicted to grow.

MARKET INSIGHTS

Compared to other off-grid appliances, the off-grid fan market is considerably matured indicated by a high penetration rate, relatively affordable product price, and high efficiency. Improvements in fan efficiency may be credited to the increasing number of manufacturers adopting Brushless DC (BLDC) motors into their product design, which can be up to [39% more efficient](#) than typical AC motors.

While the demand for off-grid fans remains strong, it is highly dependent on geography. South Asia remains the largest regional market for fans, with [over 622,000 units sold](#) in 2019, followed by West Africa and East Africa. Fan sales are seasonal, with the majority of sales taking place from January to June.

CONSUMER IMPACTS

Fans increase comfort and productivity by allowing people to work longer hours and work indoors when necessary. In [a survey of 1,600 off-grid fan households](#) in Bangladesh, consumers responded that their fans extended their productive time by over 2 hours a day, on average.

By reducing humidity and increasing airflow, fans can help reduce the health risks associated with indoor air pollution, especially for women and other underserved populations who are more likely to spend significant amounts of time in polluted, poorly ventilated indoor environments. Fans have also proven to be life-saving by reducing mortality and morbidity associated with severe heatwaves.



>290 million

Fans are one of the most commonly sold appliances in the world. Over 290 million on- and off-grid fans were sold globally in 2019.



USD 1.5 billion

In 2018, the total obtainable market for off-grid fans was estimated at USD 1.2 billion. This total is projected to reach USD 1.5 billion by 2030.



81%

In a survey of 1,600 off-grid fan customers in Bangladesh, 81% said their family's quality of life had improved because of their fan.



>2 hours

Surveyed customers reported that their off-grid fans extended their productive time by an average of 2 hours and 20 minutes a day.

CURRENT SUCCESSSES

The average price of fans has showed a very encouraging downward trend. Between 2016 and 2018, the average price of fans [dropped by 47%](#). The falling pricing trend signifies that the fan market has become highly commoditized and competitive.

Fans are getting more efficient. An assessment comparing the efficiency of BLDC motor and AC motor fans in Pakistan indicated the average efficiency of pedestal fans can improve as much as 90%. Fan efficiency improvement of fans could create positive technological spillover effects for other motor-driven cooling appliances, such as evaporative air coolers.

REMAINING CHALLENGES

Cheap, generic fans have flooded the off-grid market because there is limited regulation around industry standards for off-grid products. Lack of quality benchmarks make it difficult for buyers to compare and differentiate the quality of fans.

Despite the prevailing demand and large market potential, the distribution of fans in the Sub-Saharan Africa is uneven in urban and rural areas. Cost-effective, efficient last mile distribution in rural areas is one of the most challenging requirements for unlocking the off-grid appliance market. Lastly, a lack of financing options for consumers and suppliers is a major challenge for off-grid fan market expansion.

RECOMENDATIONS AND PATHWAYS TO SCALE

As communities adapt to a changing climate, the demand for off-grid fans is expected to rise. However, significant barriers remain. Price reductions, defined standards and policies and robust distribution channels will support the fan market's sustainable growth.



Affordability improvements

The use of BLDC motors makes fans more energy-efficient, but it also increases their price. Local manufacturing and assembly could potentially help reduce the price of BLDC fans and make them more affordable for consumers.



Effective last mile distribution strategies

A close-knit network of distribution points is needed to ensure safe delivery of higher value appliances. Strong-field sales forces will enable fan distributors to achieve higher rural household penetration.



Focus on consumer awareness

Distributors need to assess consumer behavior and market trends to adopt effective distribution tactics. They should use marketing channels beyond their proprietary sales channels to create consumer awareness about good quality fans.



Access to financing

Access to financing is needed at every level of the fan ecosystem, particularly for distributors who lack capital investments. RBF mechanisms can play a vital role in expanding global fan markets and increasing affordability for end users.



Appropriate standards and policies

Currently, there is no formal framework in place to evaluate the quality of off-grid fans. It is essential to align and drive consensus on key quality criteria among stakeholders and use the criteria to guide the market towards higher quality.