Delhi Electricity Regulatory Commission

Viniyamak Bhawan, 'C' Block, Shivalik, Malviya Nagar, New Delhi – 110017.

F.11(2193)/DERC/2023-24/7987

Petition No. 06/2024

In the matter of: **Petition under DERC (Demand Side Management) Regulations 2014 seeking approval of the Commission for Scheme for Replacement of conventional fan with Brush-Less Direct Current (BLDC) type ceiling fans.**

BSES Rajdhani Power Limited **….Petitioner**

Coram:
Hon'ble Justice (Retd.) Jayant Nath, Chairperson

Appearance:
1. **Mr. Buddy A Ranganadhan, Advocate, Petitioner.**
2. **Mr. Dushyant Manocha, Advocate, Petitioner**
3. **Mr. Brian Moses, Advocate, Petitioner**

Order
(Date of Order: 05.08.2024)

1. The instant Petition has been filed by BSES Rajdhani Power Limited (BRPL) under Delhi Electricity Regulatory Commission (Demand Side Management) Regulations, 2014 (hereinafter called "DSM Regulations") seeking approval of the Commission for Scheme of Replacement of Conventional ceiling fans with Super Energy Efficient Brush-Less Direct Current Ceiling Fans (hereinafter called "BLDC Fans"). The Petitioner has made the following prayers:
    a) Approve the Petitioner's Proposed Scheme in terms of its Detailed Project Report – Annexure-J;
    b) Allow the expenses incurred additionally in the Annual Revenue Requirement (ARR) of the Petitioner and to be recovered under the head of Demand Side Management (DSM) Budget or any other head as the Commission considers appropriate.

Petitioner's Submissions

2. The Petitioner has submitted the following:

    i. The Petitioner is a distribution licensee in terms of Section 14 of the Electricity Act, 2003 read with the Delhi Electricity Reforms Act, 2000 and operates in terms of the distribution license issued by the Commission.

ii. By way of the instant Petition, the Petitioner is proposing to replace conventional ceiling fans with 30,000 BLDC Fans in the Petitioner's licensed area over a period of 3 years.

iii. On an earlier occasion, the Commission vide its letter dated 20.03.2020 had given its *in principle* approval to a scheme for replacing 50,000 conventional fans with BLDC Fans, within a period of one year, on the following terms:

S.No.	Parameter	Provisionally approved (in Crores)
1.	Proposed rebate to be offered to consumers	4.08
2.	Administrative and Implementation Cost	0.73
3.	M&V Cost considered in every three years	Nil
4.	Total Project Cost	4.81

iv. The earlier scheme was as follows:

a. Number of BLDC Fans to be installed under the scheme: 50,000
b. Overall BLDC Fans per CA Number: 3 per CA Number (under buy back mode) and 3 per CA Number (under new purchase)

v. On 05.01.2021, the Petitioner *inter alia* informed the Commission that the earlier scheme had received a positive response from the consumers and that a total of 2266 fans had been installed till November, 2020 despite the challenges posed by the COVID – 19 pandemic. The Petitioner also received requests from some domestic consumers to increase 3 fans per CA to 5 fans per CA under the scheme because of energy savings and ease of operations. Further, certain consumers under domestic tariff category as per applicable Tariff Orders, such as Government Schools and Government trusts, Government hospitals, Community Centers, places of worship and RWAs, had requested the Petitioner for installation of multiple BLDC Fans in their premises, which have a huge potential of savings as more fans were being used in such premises. In view of the same, extension of the earlier scheme was sought for five years or till the completion of 50,000 BDLC Fans, whichever milestone was achieved earlier, alongwith suitable modification in terms of the requests and feedback of the consumers.

vi. In response to the letter dated 05.01.2021, the Commission addressed a letter dated 10.03.2021 stating that the progress in the earlier scheme was possibly impacted on account of COVID-19. In light of the same, the Commission was pleased to extend the earlier scheme with no additional cost and no modification, till FY 2021-22. Additionally, it was directed to the Petitioner to increase the promotional activities for achieving targets and intimate the progress and steps taken in regard on a quarterly basis.

vii. Given that the COVID – 19 pandemics had not eased in 2021 as well, on 07.12.2021, the Petitioner again sought relaxations to achieve the targets of 50,000 BLDC Fans. In this regard, it was suggested that the stipulation of 3 fans per CA be increased to 10 fans per CA under buyback mode for residential consumers. It was further requested that the Commission may allow installation of BLDC fans without any limit on the number of fans to be replaced for other type of domestic consumers. Finally, it was requested for the administrative cost of 0.73 Crore be delinked with the requirement of installation of 50,000 BLDC Fans.

viii. The Commission vide its letter dated 04.01.2022, in response to letter dated 07.12.2021, observed that the target of 50,000 BLDC Fans replacement as proposed by the Petitioner, had not been met even after extending scheme by period of 1 year. Accordingly, the Commission directed the Petitioner to explain the reasons of slippage in targets of the Demand Side Management schemes.

ix. That on 13.01.2022, the Petitioner vide its letter responded to the observations made by the Commission in its letter dated 04.01.2022.

x. The Commission vide its letter dated 24.02.2022 stated that extension granted for the earlier scheme vide its letter dated 10.03.2021 was final and no further extension or modification would be allowed. The Commission, however, further noted that in case the Petitioner was desirous of continuing with similar schemes, it may file appropriate petitions before the Commission.

xi. Hence, the present Petition is being filed seeking approval of the proposed scheme for replacing 30,000 conventional fans with BLDC Fans under the DSM Regulations. The Proposed Scheme is being floated only now since in the interim, there were supply chain shortages (including chip shortages) because of which the raw material costs of BLDC Fans had increased. At these elevated prices, even after considering the rebate, the offered costs of BLDC Fans were on the higher side because of which, implementing a DSM scheme of this nature did not seem viable.

xii. The Petitioner submits that it has taken into consideration a DT level Load Research Study done in the year 2020 in association with The Energy Resources Institute (hereinafter "TERI") and while the said study is slightly dated, it goes on to *inter alia* unequivocally demonstrate that:

(a) At the time of the study, BLDC Fans had a saving potential of 276.98 MUs for domestic category consumers;

(b) It was found out that the average daily operating hours for fan appliances were around 13 hours during working days and 16 hours during non-working days. The maximum usage of fans occurs during late-night hours, i.e., from 20:00 to 8:00 hours in the morning;

(c) As per the survey among BRPL domestic consumers, only 7% of consumers were aware of energy savings while purchasing a ceiling fan and only 17% percent of sample consumers could understand the parameters mentioned on the label on the energy-efficient fan which highlights the need of an energy efficient fan scheme and the need for awareness of energy efficient fans to get actual benefits from the scheme. Therefore, it can be safely concluded that the replacement of conventional fans with BLDC Fans have a huge potential for demand side savings.

xiii. The following market insights may be relevant for the Proposed Scheme:

a. According to a report by IMARC Group, the Indian ceiling fan market size reached 41.2 Million Units in 2022. The report also predicts that the market will reach 47.5 Million Units by 2028, exhibiting a growth rate (CAGR) of 2.3% during 2023-2028.

b. The ceiling fan market is majorly being driven by rapid urbanization and the increasing construction of new multi-storey residential buildings. This is further supported by several initiatives undertaken by the Government of India to expand housing projects and develop smart cities across the country. In line with this, the improving availability of electricity, especially in the rural areas, is further catalyzing the market growth.

c. Additionally, the inflating disposable incomes are creating a significant demand for fans with aesthetically appealing designs and smart features, such as voice control and remote connectivity through smart devices, which is accelerating the overall product sales. Other factors responsible for the market growth include significant expansion in the retail and hospitality sectors, along with the easy availability of premium product variants, like lighting fans, through online retail channels.

xiv. The proposed scheme is to promote DSM measures. The salient features of the Proposed Scheme are as under:

a. The Petitioner intends to re-launch the program for replacing the existing conventional ceiling fans with BLDC Fans for its domestic consumers in its entire area of operation in Delhi.

b. The Petitioner proposes to install 30,000 BLDC Fans in its licensed area over the next 3 years, with a target of 10000 BLDC Fans per Financial Year w.e.f FY 2024-25 to FY 2026-27.

c. The estimated annual energy savings by use of BLDC Fans over conventional fans is expected to be around 162 units per fan. This would translate to an estimated monetary saving per fan per year of Rs 858/-.

d. On the above count, the estimated annual energy saving for consumers due to installation of 30,000 BLDC Fans is expected to be 4.86 MUs and expected annual monetary saving at consumer's end is Rs. 2.57 Crore.

e. The expected annual avoidable power purchase at DISCOM periphery is 5.24 MUs and the expected annual avoidable marginal power purchase cost is Rs. 4.18 Crore.

f. Total estimated cost of the project is Rs.3.16 Crore including administrative and implementation cost of Rs.0.41 Crore, for 3-year program.

xv. In view of the socio-economic benefits for consumers and the environment including the future benefits to the consumers, it is requested that the Commission allows the present Petition in terms of the Petitioner's DPR and may permit the following:

a) replacement of 30,000 conventional fans with BLDC Fans, over a period of three years;

b) 10 fans be offered per CA number under buyback mode for Non-residential Domestic Consumers (like Government schools, Government Trusts, Government hospitals, Community Centers, places of worship and RWAs); and

c) 3 fans be offered per CA number (with or without buyback) for the domestic consumers which consists of residential consumers.

xvi. The Petitioner has requested the Commission to accord approval for the present proposed scheme which is towards the benefit of all the stakeholders and the expenses incurred be allowed additionally in the Annual Revenue Requirement (ARR) of the Petitioner and to be recovered under the head of DSM budget or any other head as the Commission considers appropriate.

3. In compliance of the Commission's Order dated 05.04.2024, a meeting of the Officers of BRPL and Commission was held on 23.04.2024, wherein certain queries were raised by the Officers of the Commission. In response thereof, the Petitioner

filed an Affidavit dated 03.06.2024 before the Commission and submitted the following:

S.No.	QUERY	PETITIONER'S RESPONSE
a)	Justification for proposal of 30,000 BLDC Fan i.e. 10000 nos. with Buy Back & 10000 Nos. without buyback mode over a period of 3 years. Justification for proposal of 30,000 BLDC Fan i.e. 15000 nos. with Buy Back & 15000 Nos. without buyback mode over a period of 3 years. How does 15,000 Nos. fan under without buyback mode help in reduction of existing load under demand side management scheme.	• The CAGR for input energy across BRPL over the last 11 years (FY 2013-14 to FY 2023-24) is approximately 2.3%, while peak load growth is higher at 3.82%. • This indicates that while overall energy consumption is increasing steadily, peak load is growing at a faster pace. This is likely due to new appliances being added to the system. • Energy efficient BLDC fans offered without a buyback option will help manage the energy demand from new consumers. On the other hand, fans provided under the buyback mode will replace existing less efficient fans, directly reducing both energy consumption and peak demand. • In fact, past experience also supports BRPL's position. During the last BRPL Fan Replacement Scheme (Jul'20 – Mar'22), sales were nearly equal between buyback and non-buyback fans, with 51% sold under buyback and 49% without buyback. • Consumer awareness programs have shown significant demand for energy-efficient ceiling fans without the buyback option, indicating a preference for upgrading without necessarily replacing existing fans. • Based on these observations and historical data, the proposed three-year program includes 15,000 fans under buyback mode (50% of the total) and 15,000 fans without buyback mode (50% of the total).
b)	Breakup of Total Cost of Project including computation for Admin. and Implementation Charges, breakup of expenditure on Advertisement etc. for promotion of BLDC fan replacement Scheme.	The breakup of administrative and promotional expenses has been tabulated and is annexed herewith and marked as ANNEXURE – B to the Affidavit.
c)	Component wise breakup of landed cost to Consumer such as Expected Cost, 10% salvage value, Optional charges such as delivery charges, Installation charges etc.	Th The component-wise breakup of the landed cost to the consumer, including expected cost, 10% salvage value, and optional charges such as delivery charges and installation charges, has been tabulated and is annexed herewith and marked as ANNEXURE – C to the Affidavit.
d)	As per discussion, BRPL to conduct on-site inspection for a sample of 30 nos. Non Residential Domestic Consumers i.e. Govt. Schools, Trust, Govt.	The data gathered on connected load and number of fans through on-site inspections for a sample of 32 Non-Residential Domestic Consumers, including government schools, trusts, government hospitals, community centres, places of

	Hospitals, community Centre, Place of Worship, RWAs etc. to gather data on connected Load & number of fans connected at each location.	worship, and RWAs has been tabulated and is annexed herewith and marked as ANNEXURE – D to the Affidavit.
e)	Performance of previous fan replacement scheme in following format. (which has been provided)	• BRPL's previous fan replacement scheme was launched for domestic consumers in July 2020 and continued until March 2022. • Consumers could avail a maximum of 3 BLDC fans under buyback or a maximum of 2 BLDC fans without buyback, with an overall limit of 3 BLDC fans per CA. • Despite COVID – 19, BRPL installed a total of 3,998 five-star rated energy-efficient BLDC fans in consumer premises. • Of these, 2,028 BLDC fans were installed under the buyback scheme, while 1,970 BLDC fans were installed without buyback during the scheme period. The model-wise breakup, including the type of purchase and final landed cost, is tabulated as per the provided format and is annexed herewith and marked as ANNEXURE – E to the Affidavit.
f)	Details of Energy Efficient BLDC Fan Models i.e. Make & Model no. proposed in current Fan Replacement Scheme.	BRPL shall conduct the competitive bidding process after obtaining approval from the Hon'ble Commission. The make and model of the fans will be finalized through the tendering process and will be communicated to the Hon'ble Commission. We further seek liberty to update the Hon'ble Commission if there are any changes to make and model of the fans.
g)	Based on above, Petitioner to submit revised computations for Energy Savings & Cost benefit analysis.	Although the make and model of the fans is yet to be finalized through the tendering process, most 5-star energy-efficient fans typically have a wattage of around 28W. Additionally, under the previous scheme, most of the fans sold were 28W. Therefore, we have used 28W for our revised energy savings and cost-benefit analysis calculations The revised computations for Energy Savings and cost benefit analysis is tabulated as per the provided format and is annexed herewith and marked as ANNEXURE – F to the Affidavit.
h)	Further, Petitioner to confirm disposal of inefficient fans through designated agency in Environmental friendly manner.	BRPL confirms that the disposal of inefficient fans will be conducted through a designated agency in an environmentally friendly manner.

4. The Petitioner has also filed an I.A. no. 05 of 2024 dated 03.04.2024, seeking permission to replace Annexure-J filed with the instant Petition with Annexure-A-1 appended with the I.A. no. 05 of 2024. The I.A. 05 of 2024 was listed and disposed of on 05.04.2024 with the permission to replace Annexure-J as prayed.

Commission Analysis

5. BRPL has submitted a target of replacing 30,000 nos. of traditional ceiling fans with BLDC fans over a period of 3 years. Further, 50% of the BLDC fans are proposed under buyback mode & remaining 50% fans are under non-buyback mode.

6. In compliance to the Interim Order of the Commission dated 05/04/2024, a meeting with BRPL was held in the Office of the Commission between the Officers of the Petitioner and Officers of the DERC on 23/04/2024. Based on discussion, queries were sought from BRPL related to justification of proposal cost, component wise breakup and computations of rebate etc. vide DERC emails dated 23/04/2024. BRPL filed Additional Submissions on 03/06/2024.

7. The Petition along with Additional Submissions have been scrutinized and major findings are as follows:

I. **No. of fans per CA for Domestic Consumer**

a) BRPL had previously launched Fan replacement scheme in FY 2020-22. Accordingly, during the meeting dated 23/04/2024, BRPL was informed to conduct on-site survey on a sample of Non-residential Domestic consumers like Govt. Schools, Trust, Govt. Hospitals, Community Centre, Place of Worship, RWAs etc. to collect information related to Sanctioned load and number of connected fans. BRPL submitted the survey data for the sample of 30 nos. Non-residential Domestic Consumers, summarized as follows:

i. Average Number of fans installed at Govt. Schools & Govt. Colleges – 393 nos.

ii. Average Number of fans installed at Non-residential Domestic Consumers like Govt. Trust, Govt. Hospitals, Community Centre, Place of Worship, RWAs – 32 nos.

b) BRPL has proposed maximum of 10 nos. fans to be offered per CA to Non-residential Domestic Consumers such as Govt. Schools, Govt. Colleges, Govt. Trust, Govt. Hospitals, Community Centre, Place of Worship, RWAs etc. whereas the survey data indicates much larger Energy Savings potential with such Non-residential Domestic Consumers.

c) In the previous Fan Replacement Scheme in FY 2020-2022, BRPL could only replace 3998 Nos. of fans against their own proposed target of 50,000 fans. Hence, ceiling limit on number of fans per CA for Non-

domestic consumer shall be increased so that consumer can take benefit of it given large no. of fans installed in Institutional buildings.

d) Further, Private Schools and Private Colleges can be included in Fan Replacement Scheme so that the benefit of Energy Savings can be extended effectively among the participating Consumers.

e) Accordingly, BLDC fans shall be offered per CA number, as follows:

   i. Maximum of 393 nos. fans for Non-residential Domestic Consumers like Govt. / Private School, Govt. / Private College & Govt. University.

   ii. Maximum of 32 nos. fans to be offered per CA for Non-residential Domestic Consumers like Registered Trust, Hospitals, Community Centre, Place of Worship and RWAs.

   iii. Maximum of 3 fans to be offered per CA for Domestic Consumer other than mentioned at (i) & (ii) above.

II. **<u>Option of Buyback Mode/ Non- Buyback under Fan Replacement Scheme</u>**

a) The Petitioner has submitted that Peak Demand is growing at a faster pace which is likely due to new appliances being added to the system. Fans without buy-back option will help in managing the Energy Demand for new consumers. Further, fans provided under Buy-back mode will replace existing less efficient fans directly reducing both Energy Consumption and Peak Demand.

b) In this regard, Regulation 4 of *DERC (Demand Side Management) Regulations, 2014* related to DSM objectives is stipulated as follows:

> *"4.0* ***DSM Objectives***
> *Every Distribution Licensee shall undertake/implement DSM related policy/activity/programmes with an objective to lower the overall cost of electricity to the consumers of the Distribution Licensee as well as the Distribution Licensee, by economical and efficient use of resources, which shall include the measures/principles to:*
>
> *(1)* ***control, reduce and influence electricity demand****;*
>
> *(2) encourage consumers to amend their electricity consumption pattern both with respect to timing and level of electricity demand for efficient use of energy;*
>
> *(3) complement supply side strategies to help the utilities to avoid or reduce or postpone a) costly capacity (generation, transmission & distribution network) additions b)* ***costly power purchases***
>
> *(4)* ***reduce the environmental damage by reducing the emission of green house gases****;…"*

c) Further, Regulation 2 (7) of *DERC (Demand Side Management) Regulations, 2014* stipulates as follows:

> *"2 (7) "Demand side management" (DSM) means the actions of a Distribution Licensee to facilitate change in the pattern of end-use*

i.e., the demand side of electricity, and shall include any increase/decrease in the demand, shifting the demand between high and low peak periods, managing the intermittent load demands, etc., ***with the objective of reducing the power purchase and/or Distribution Licensee's costs****;"*

d) Under BLDC Fan scheme buyback arrangement, inefficient Fans are taken out of the Grid and replaced with efficient BLDC Fans which consume less Power thereby reducing Power Purchase and Distribution Licensee's cost. Accordingly, rebate is granted for ceiling fan offered under 'buy-back' mode.

e) Since inefficient device is not taken out of the Grid in non-buyback mode rather a new load will be added to Grid which may add to Peak demand and increase Power Purchase Cost, therefore rebate due to savings in Power Purchase Cost is not granted on Ceiling fans offered under 'Without-buyback mode'.

8. Considering the above factors, the Commission approves BLDC fan replacement scheme as under:

a) **Expenses in ARR**: The expenses on account of Admn & Implementation charges including floating tender, hiring of implementation agency, Promotional Charges and the Rebate Cost along with interest thereon are allowed additionally in the Aggregate Revenue Requirement (ARR) of the Petitioner to be recovered under the head of Demand Side Management (DSM) budget or any other head, subject to prudence check. Such expenses to be mentioned separately in the Audited Books of Accounts.

b) **Eligibility of Consumers**:

i. The Scheme shall be valid for Domestic Consumers as specified in DERC Tariff Schedule as applicable from time to time.

ii. BLDC fans shall be offered per CA number as stipulated at Sr. no. 7 (I)(e) above.

c) **Procedural aspects:**

i. The Consumer should have a valid consumer connection number/CA number.

ii. There shall be no outstanding dues on CA number as on date of application.

iii. The scheme shall be applicable on first come first serve basis for the eligible consumers.

d) **<u>Rebate offered to Consumers in buyback mode</u>**

i. The Petitioner has considered rebate of Rs.815 of previous Fan Replacement scheme and applied inflation of 6.5% on the same.

ii. Since the Petitioner has not submitted Rebate calculations based on expected Energy savings, the Rebate equivalent to Annual Energy savings expected during useful life of the BLDC Fan, is as follows:

Sr. No.	Fan Type	Mode	Rebate (Rs.)
			BRPL
1	Ceiling Fan - 28 W	Buy-back	1159
2	Ceiling Fan -26 W		1208

e) **Implementing Agency:** The Petitioner shall engage at least three implementing agencies discovered through competitive bidding process. The price to be quoted by the implementing agency in the bid process shall be net of the quoted price of new fan *minus* the salvage value of the old fan, which shall be indicated separately as part of the bid. Service Charges for Delivery & Installation shall be offered under optional charges to consumers. The implementing agencies shall be responsible for the safe removal/handling of inefficient fans.

f) **Maintenance of Records:** The Petitioner shall keep all the records related to this scheme separately. The Petitioner will submit following details related to the implementation of the scheme:

i. Final price discovered through competitive bidding for the specified Fans;
ii. Saving of energy due to implementation of this scheme;
iii. Administrative cost incurred under this scheme; and
iv. Any other record relevant to the scheme.

g) **Proper and Safe Disposal of Old replaced Fan**: Petitioner shall ensure proper disposal of old replaced Fans through a designated agency in an environmental friendly manner. The disposal certificate shall also be issued by such agency.

h) **Validity of the Scheme**: The scheme shall be valid for a period of 36 months from the date of issuance of this Order. Further, the Scheme shall be initiated for usage of Consumers within 30 days from issuance of this Order. The Petitioner shall expedite the above process accordingly.

9. The Petition is disposed of in terms of above. Ordered accordingly.

Sd/-
(Justice (Retd.) Jayant Nath)
Chairperson