BEFORE THE HONORABLE GUJARAT ELECTRICITY REGULATORY COMMISSION GANDHINAGAR

PETITION NO. OF 2017

FILING NO.

IN THE MATTER OF:

Seeking approval of the Hon'ble Commission for implementation of Agriculture Demand Side Management Programme for promoting BEE approved 5 star rated energy efficient pump sets for new agriculture connections for FY 2017-18 in the area of Paschim Gujarat Vij Company Limited (PGVCL) in pursuance to the GERC (Demand Side Management) Regulations, 2012.

AND

IN THE MATTER OF:

PASCHIM GUJARAT VIJ COMPANY LIMITED: - PETITIONER

MOST RESPECTFULLY SOWETH AS UNDER:

1. Paschim Gujarat Vij Company Limited is a Distribution Company and one of the unbundled entities of erstwhile Gujarat Electricity Board, operating in the western part of the state. Hon'ble Gujarat Electricity Regulatory Commission has notified regulations on Demand Side Management. Distribution Companies of the state are required to follow the provisions of DSM regulations. Accordingly, DSM action plan was prepared by the PGVCL in consultation with "The Energy Research Institute" (TERI) and submitted to Hon'ble GERC.

2. It is submitted that Different DSM activities have been identified for the DSM action plan based on consumer mix, share of a class of consumer category in the overall consumption, connected load etc. Accordingly, Agriculture load being a pre-dominant supply category in the PGVCL, it has been identified as one of the priority area for DSM activities; therefore, it has been decided to implement DSM Program in the Agriculture Sector and accordingly upon getting approval of Hon'ble Commission, PGVCL has implemented the program for the Agriculture category consumers in FY 2015-16 and FY 2016-17.

3. By way of present petition, PGVCL proposes to implement the Agriculture Demand Side Management Programme in its distribution area in the State of Gujarat for promotion of installation of BEE approved 5 star rated energy efficient pump sets for new Agricultural installations for FY 2017-18.

4. PGVCL submits that the said programme will be implemented by PGVCL for prospective agriculture connections in FY 2017-18. The identical programme was implemented by PGVCL for FY 2016-17 as approved by Hon'ble commission in the provisionally approved ARR for the year.

5. The brief outline of the proposed DSM programme for FY 2017-18 is as under;

   I. Objective of the programme:

   PGVCL has large agriculture consumer base having 7 lakh existing agriculture consumers. Every year huge number of agriculture connections are being added to the system. Owing to high cost of energy efficient pump sets, prospective agriculture consumers do not opt for star labelled energy efficient pump sets but installing less energy efficient pump sets resulting into less penetration of energy efficient equipments in the system. This Agriculture Demand Side Management Programme is designed to provide BEE approved star rated energy efficient pump sets for new agriculture connections for the year 2017-18 with upfront support of the differential cost of conventional non-star rated pump set and 5

star rated energy efficient pump set. PGVCL has been releasing around 50000 new agriculture connections every year since past three years. For FY 2017-18, PGVCL has planned to release more than 80000 new agriculture connections. Out of these, under this programme, PGVCL has estimated to release 20000 connections with BEE approved 5 star rated energy efficient pump sets. Pump capacity (in HP) wise break up is as under;

Capacity in HP	5	6	7.5	10	12.2	15	17.5	20
Proposed Nos. of agriculture connectionsto be released with energy efficient pump sets	7256	22	7064	3324	458	1192	64	620

II. Expected benefit of the programme

The implementation of this programme will lead to 39.90 MU energy saving per annum with average cost saving of Rs. 10.06 Cr per annum to PGVCL based on following assumptions;

- ✓ Operating hours: 8
- ✓ Operating days per year:210
- ✓ Capacity in HP:5 HP, 6 HP, 7.5 HP, 12.5 HP, 15 HP, 17.5 HP and 20 HP
- ✓ Average power procurement rate: Rs. 3.33/unit
- ✓ Conventional pump set efficiency:30%
- ✓ Star rated pump set efficiency :45%.

For evaluation of programme, conventional pump set efficiency and star rated pump set efficiency has been taken into consideration from presentation data of Bureau of Energy Efficiency.

Further, implementation of this programme will help to increase awareness about various energy efficiency pump set technologies amongst farmers and create a market for energy efficient products resulting into market transformation.

III. Financing the programme

During 2016-17, PGVCL implemented Agriculture Demand Side Management Programme for new agriculture connections. In this programmes, new agriculture connection applicants were provided with upfront capital support of the cost equivalent to difference between the cost of non-star rated pump set and the cost of five star rated energy efficient pump set. The said program was optional particularly for the new agriculture connection applicant who have already purchased new pump set before approval of the agriculture connection application. Total 981 nos. of agriculture connections were released with five star rated pump sets during the year the year 2016-17. Financing for the said programmes were made from Demand Side Management expenditure approved by the Commission in the provisionally approved ARR of FY 2016-17, however same hasn't been approved in final ARR approve for the FY 2016-17 by order dated 31.03.2017.

PGVCL, hereby, proposes to provide upfront capital subsidy to new agriculture connection, for FY 2017-18, for respective pump capacity as shown under;

Pump Capacity in HP	5	6	7.5	10	12.2	15	17.5	20
Proposed no. of connections to be released	7256	22	7064	3324	458	1192	64	620
Capital subsidy in Rs./connection	3900	3500	4600	5500	6800	8400	8800	12500

In order to avoid upfront burden on tariff, PGVCL did not propose any Demand Side Management expenditure in the Multi-Year Tariff petition for FY 2016-17 to FY 2020-21, as implementation of Demand Side Management programme is mainly dependent on consumers' preference and interest which is in variance from time to time. Therefore, PGVCL considers it appropriate to file the current petition for approval of the DSM expenditure to implement the programme. As stated above, PGVCL plans to target 20000 nos. of prospective agriculture consumers for implementation of the programme during the year 2017-18 and thus, requests the Hon'ble Commission to approve Rs. 10.26 Crore towards the same with fund requirement bifurcated as below;

- ✓ Rebate towards up-front support of differential cost: Rs. 10.06 Crore
- ✓ Remaining cost of the pump would be borne by the applicants.
- ✓ Measurement & Verification cost of the programme: Rs. 0.20 Crore

Financial calculation i.e. cash flow of the programme, Net impact on ARR, Net present value and cost effectiveness test are annexed as Annexure A.

IV. Programme implementation strategy

The Agriculture Demand Side Management programme will be implemented in the year 2017-18 for new agriculture connection purely on voluntary basis. This Demand Side Management programme will be available to applicants seeking agriculture connections for 5 HP to 20 HP. The applicants will purchase BEE five star rated pump sets from any of the manufacturers empanelled with BEE or its authorised dealer/ supplier. PGVCL will provide upfront support of differential cost of non- star rated pump set and five star rated energy efficient pump set directly to the manufacturer/authorised dealer/supplier. Balance cost of the energy efficient pump set will be borne by the applicant. The site inspection will be carried out by PGVCL for verification of installation. The programme will be effective for FY 2017-18 for prospective agriculture connections and opt for purchase of BEE 5 star rated pump.The programme will be implemented in the entire license area of PGVCL.

V. Measurement and Verification

PGVCL has been adopting verification process on random basis in consultation with the manufacturers. Representative of the manufacturer will measure input power and discharge during site inspection to be carried
out in presence of PGVCL officers on sample basis i.e. for 2% or 1 no. whichever is higher out of total number of pump sets supplied within jurisdiction of each Division office of PGVCL at an interval of 6 month and within warranty period of pump sets.

VI. Cost Effectiveness Assessment of the programme

PGVCL has carried out cost effectiveness index i.e. present value of benefits/ present value of cost to know viability of the said programme from utility's perspective. Cost effectiveness index for the said programme for 6 years comes out to 1.023 which means programme is feasible from utility's perspective. Calculation of cost effectiveness index is annexed herewith as Annexure A.

VII. Prayer

PGVCL prays the Hon'ble Commission to consider this petition and pass necessary orders to;

- ✓ Allow PGVCL to implement the Agriculture Demand Side Management programme for FY 2017-18 applicable for new Agricultural connection to be released during the year.

- ✓ Allow PGVCL to incur Demand Side Management expenditure of Rs. 10.06 Crore for implementation of the programme
- ✓ Allow PGVCL to claim Demand Side Management expenditure while truing up of FY 2016-17 and FY 2017-18.
- ✓ To grant any other relief as the Hon'ble Commission may consider appropriate.
- ✓ Pass any other order as the Hon'ble Commission may deem fit and appropriate under the circumstances of the case and in the interest of justice.

Declaration:

Declaration that subject matter of the Petition has not been raised by the Petitioner before any other competent forum and that no other competent forum is currently seized of the matter or has passed any order in relation thereto.

Place: Rajkot

Date: 29.07.2017

(Petitioner)

Chief Engineer (R & C)
PGVCL, Rajkot.

BEFORE THE GUJARAT ELECTRICITY REGULATORY COMMISSION
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AFFIDAVIT

I, Jasmin Gandhi son of Jayantilal Gandhi aged about 50 years resident of "Radhe - Krushna", 1, Jasani Park, Behind Racecourse,Rajkot do hereby solemnly affirm and state as under:

1. I am the Chief Engineer (R&C) the authorised Representative of the petitioner above named and am fully conversant with the facts of the case and able to depose to the present affidavit.

. I have gone through the contents and I say that the contents stated therein are based on the records of the Respondents maintained in the normal course of business and believed by me to be true and correct.

. I say that the Annexures to the Reply are the true and correct copies of their original.

(J.J.Gandhi)
DEPONENT
Chief Engineer (R & C)
PGVCL, Rajkot.

VERIFICATION:

I the deponent above named do hereby verify that the contents of my above affidavit are true to my knowledge, no part of it is false and nothing material has been concealed there from.

Verified at Rajkot on this 29th day of July, 2017.

Solemnly Affirmed before me by Jasmin J. Gandhi Who is identified by Shri ... known to Advocate who is ... me on this 29 JUL 2017

V. S. Chhatra
NOTARY

(J.J.Gandhi)
Chief Engineer (R & C)
PGVCL, Rajkot.

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Date 29-7-2017

Financial Calculation for Ag-DSM at PASCHIM GUJARAT VIJ COMPANY LTD 2017-18

Annexure- A

	Number of HP	5 HP	6 HP	7.5HP	10 HP	12.5 HP	15 HP	17.5 HP	20 HP	PGVCL	TOTAL
	Prop Nos of connection will be repeased 16-17	7256	22	7064	3324	458	1192	64	620		PROJECT
	Rebate to Consumer through DSM Fund	3900	3500	4600	5500	6800	8400	8800	12500		COST
	Cost of PUMPS (In Rupees)	28,298,400	77,000	32,494,400	18,282,000	3,114,400	10,012,800	563,200	7,750,000		
	Total number of PUMPS proposed for Distribution under scheme	**20,000**									
	Total Capital cost of Pumps	**100,592,200**									
	Public Awareness 10%	-									
	Capital cost of the Project	100,592,200								10.06	10.06
	Capital cost of the Project	**100,592,200**									
	ESCO Services	-									
	PGVCL Revenue Expenditure	**100,592,200**									
	Project life	6									
	Financial Years		1	2	3						Total
	M&V Cost at 2% of Total Proj Cost in 3 Years	2.00%	670,615	670,615	670,615						2,011,844
	Total repayment to be made by DISCOM to for M&V Charges		670,615	670,615	670,615						2,011,844
Note: * All Taxes such as Income Tax, service tax, sales tax, or any other taxes as applicable will be charged on actual basis which is not included in these amounts.											
1	**Trade-Of Savings in Power Procurement Cost during the Project Period**		1	2	3	4	5	6	7		Total
a	Energy Savings per Annum under the Scheme on account of Demand Reduction (Mus)		39.90	39.90	39.90	39.90	39.90	39.90			239.40
b	Power Procurement Cost per Unit (INR)		3.33	3.5381	3.7593	3.9942	4.2438	4.5091			
c	Benefit- Savings in Power Procurement Cost per Annum (INR Crores)		13.29	14.12	15.00	15.94	16.93	17.99			93.26
d	Loss- Loss due to reduction in Consumption (INR Crores)	1.47	5.87	5.87	5.87	5.87	5.87	5.87			35.19
	Loss- Revenue loss for the Discom	2.03	6.10	6.48	6.88	7.31	7.77	8.25			42.79
e	Payout- Payment toword M&V charges (INR Crores)		0.0671	0.0671	0.0671						0.20
f	PGVCL Revenue Expenditure		10.0592								10.06
2	**Net Positive Impact on ARR**		(8.80)	1.71	2.19	2.76	3.30	3.87			5.02
	Discounting Factor	**9.29%**									
	Year		1	2	3	4	5	5			
			0.9150	0.8372	0.7661	0.7009	0.6414	0.6414			
	TOTAL RESOURCES COST TESTS										
	FOR PROGRAM as a whole										
	Present Value of Benefits (INR Crores)	**69.04**	12.16	11.82	11.49	11.17	10.86	11.54			**57.50**
	Present Value of Costs (INR Crores)	**67.45**	20.21	10.39	9.82	9.24	8.74	9.06			**58.40**
	Net Present Value (INR Crores) = PV of Benefit - PV of Costs	**1.58**									
	Cost Effectiveness Test (Ratio) = PV of Benefits/PV of Costs	**1.023**									
	Total Resources Cost Tests										
B	Present Value of Benefits (INR Crores)	93.26	132,867,000	141,171,188	149,994,387	159,369,036	169,329,601	179,912,701			932,643,911
C	Present Value of Costs (INR Crores)	88.24	220,876,715	124,094,571	128,142,756	131,773,337	136,343,358	141,199,006			882,429,743

Ag DSM Project FY 2016-2017 : 20000 new Ag connection

Annexure- A

Type	5 HP		6 HP		7.5 HP		10 HP		12.5 HP		15 HP		17.5 HP		20 HP	
%	Standard(system eff @30%)	star rated(system eff @45%)	Standard(system eff @30%)	star rated(system eff @45%)	Standard(system eff @30%)	star rated(system eff @45%)	Standard(system eff @30%)	star rated(system eff @45%)	Standard(system eff @30%)	star rated(system eff @45%)	Standard(system eff @30%)	star rated(system eff @45%)	Standard(system eff @30%)	star rated(system eff @45%)	Standard(system eff @30%)	star rated(system eff @45%)
Nos	7256	7256	22	22	7064	7064	3324	3324	458	458	1192	1192	64	64	620	620
HP	5	5	6.0	6.0	7.5	7.5	10.0	10.0	12.5	12.5	15.0	15.0	17.5	17.5	20.0	20.0
KW	3.73	3.73	4.476	4.476	5.595	5.595	7.46	7.46	9.325	9.325	11.19	11.19	13.055	13.055	14.92	14.92
Pumpset Efficiency	0.3	0.45	0.3	0.45	0.3	0.45	0.3	0.45	0.3	0.45	0.3	0.45	0.3	0.45	0.3	0.45
Operating Hrs/Day	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Operating Days/Yr	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
Consumption/day/pump(KWhr)	29.84	25.364	35.808	30.4368	44.76	38.046	59.68	50.728	74.6	63.41	89.52	76.092	104.44	88.774	119.36	101.456
Consumption/pump/yr(KWhr)	6266.4	5326.44	7519.68	6391.728	9399.6	7989.66	12532.8	10652.88	15666	13316.1	18799.2	15979.32	21932.4	18642.54	25065.6	21305.76
Consumption of total pump(MU)	45.47	38.65	0.17	0.14	66.40	56.44	41.66	35.41	7.18	6.10	22.41	19.05	1.40	1.19	15.54	13.21
Output /pumpset(kwhr)	**1879.92**	**2396.90**	**2255.90**	**2876.28**	**2819.88**	**3595.35**	**3759.84**	**4793.80**	**4699.8**	**5992.25**	**5639.76**	**7190.69**	**6579.72**	**8389.14**	**7519.68**	**9587.59**
Energy Savings/pump/yr(kwhr)	939.96		1127.95		1409.94		1879.92		2349.9		2819.88		3289.86		3759.84	
Total Energy Savings pump end (MU)	6.82		0.02		9.96		6.25		1.08		3.36		0.21		2.33	
Energy Requirement @24.73%losses (MU)	9.06		0.03		13.23		8.30		1.43		4.47		0.28		3.10	
Total Energy saved (MU)	**39.90**															

Assumptions	
Operating Hrs/Day	8
Operating Days/yr	210
Losses(D+T) %	24.73
Pumpset eff standard (%)	30
Pumpset eff star rated (%)	45