

CHAPTER-5

LOAD FORECAST

MESCOM area of operation includes 4 districts of Karnataka. Dakshina Kannada, Udupi, Shivamogga and Chikkamagaluru.

The Commission has issued guidelines for preparation of Load Forecast, Power Procurement Plan & Power Procurement procedure through regulations KERC (Load Forecast) Regulations, 2009 dated 02.04.2009.

In MESCOM, about 32% of energy sales go to Domestic consumption, 35% of energy goes to Irrigation pump sets and industrial consumption is only 15% and others constitutes about 18%. Hence, MESCOM has prepared load forecast for the period from FY-20 to FY-24 by using the mixed CAGR method. For the categories LT-4a and LT-6a, MESCOM has applied specific consumption method as the same converges for well fitted curve for projection. The forecasted results have been compared with the 19th EPS projections notified by Central Electricity Authority. In the 19th EPS Central Electricity Authority has adopted one of the econometric techniques named Partial End Use method.

5.1 ENERGY SALES PROJECTIONS:

In order to prepare a realistic energy sales projection, MESCOM have carefully evaluated the sales in the previous years for each category and used realistic assumptions based on the prevailing situations.

Trend method has been considered for projection of number of installations for future years as the method is appeared to more probative reflecting Business-As-Usual position. Energy sales have been projected considering the CAGR and specific consumption of relevant categories with due reference to the growth rate achieved in the immediate previous year.

5.1.1 LT-1: Bhagyajyothi & Kutirajyothi:

This tariff category is applicable to electrical installations serviced under Bhagyajyothi and Kutirajyothi (BJ/KJ) schemes of Government of Karnataka. Currently no such scheme exists.

As per GOK order No.EN 13 PSR 2017 dated 29-05-2017, this category of consumers are being provided with free electricity supply upto 40 units of consumption per month. In case the consumption in respect of any of the installations exceeds 40 units in any month, then the entire consumption of that installation in that month have to be billed under LT-2 tariff category.

The number of consumers under this category comprises about 7.15% of the total consumer base consuming about 1.07% of energy out of the total consumption of the company.

Projection of Number of Installations (LT-1):

In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-1	LT-1					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations						
With Cons. below 40 units	139044	143049	179636	175524	169140	161434
With Cons. above 40 units	56589	50323	11526	12480	15103	17784
Total:	195633	193372	191162	188004	184243	179218
Energy Sales (MU)						
With Cons. below 40 units	27.86	27.03	34.21	37.29	34.65	35.00
With Cons. above 40 units	13.78	13.93	12.60	12.08	14.91	18.91
Total:	41.64	40.96	46.81	49.37	49.56	53.91

For projecting number of installations for the years from FY22 to FY27 trend method has been applied. As can be observed from the above data, the total number of installations is consistently reducing. This tendency is reflecting in the trend method and accordingly adopted for projection of number of installations for the period from FY22 to FY27.

Hence, the Hon'ble Commission is requested to consider the projections in respect of BJ/KJ installations as in the below table;

Table-2		LT-1: Number of Installations		
Year		With Cons. below 40 units	With Cons. above 40 units	TOTAL
FY16	Actual	139044	56589	195633
FY17	Actual	143049	50323	193372
FY18	Actual	179636	11526	191162
FY19	Actual	175524	12480	188004
FY20	Actual	169140	15103	184243
FY21	Actual	161434	17784	179218
FY22	Projection	154609	20426	175035
FY23	Projection	147197	23094	170291
FY24	Projection	140176	25745	165921
FY25	Projection	132894	28407	161301
FY26	Projection	125786	31062	156848
FY27	Projection	118562	33722	152284

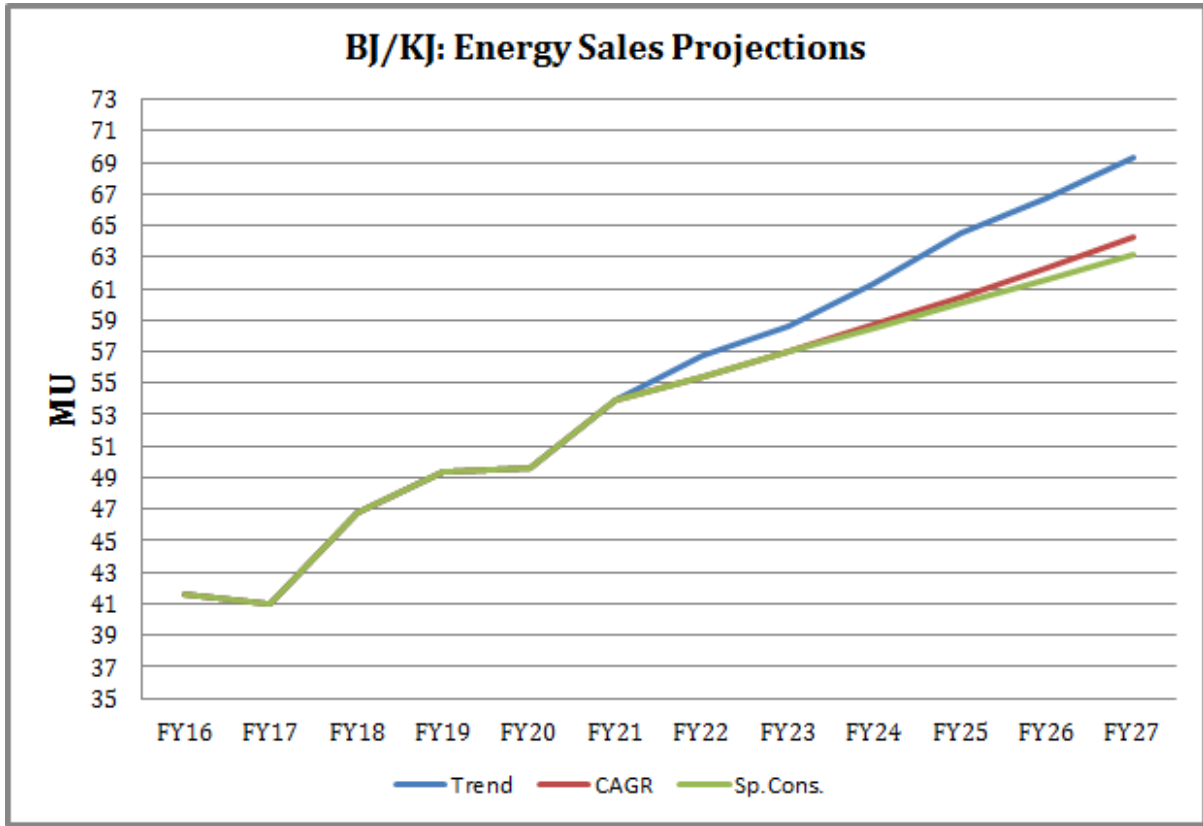
Projection of Energy Sales (LT-1):

Specific consumption per year per installation recorded in the category for the years FY19, FY20 and FY21 were 210 units, 201 units & 212 units in respect of installations with consumption upto 40 units and 1006 units, 1081 units & 1150 units in respect of installations with consumption above 40 units, respectively.

For projecting the Energy Sales, Trend, CAGR and Specific Consumption (FY21) based methods are computed and respective values are as below;

Table-3		LT-1: Energy Sales (MU)					
With Cons. below 40 units		FY22	FY23	FY24	FY25	FY26	FY27
Trend method		38.55	37.86	38.18	39.82	40.66	40.87
CAGR method		35.27	35.54	35.81	36.08	36.36	36.64
Sp. Cons. method		33.46	31.95	30.43	28.91	27.39	25.87
With Cons. above 40 units							
Trend method		18.17	20.72	23.12	24.64	26.03	28.43
CAGR method		20.15	21.46	22.86	24.36	25.95	27.65
Sp. Cons. method		21.97	25.02	28.08	31.14	34.19	37.25
TOTAL;							
Trend method		56.72	58.58	61.30	64.46	66.70	69.30
CAGR method		55.42	57.01	58.68	60.44	62.31	64.29
Sp. Cons. method		55.43	56.97	58.51	60.05	61.58	63.12

Graphical representation of total energy sales for the period from FY16 to FY21 (Actuals) and FY22 to FY27 (Projections);



It can be observed that the curves of CAGR and specific consumption methods are almost aligning each other and among the two the CAGR curve appears to be more probative which can be adopted for projection of energy sales for the period from FY22 to FY27.

Hence, the Hon’ble Commission is requested to consider the energy sales projections in respect of BJ/KJ installations as in the below table;

Table-4		LT-1: Energy Sales (MU)		
Year		With Cons. below 40 units	With Cons. above 40 units	TOTAL
FY16	Actual	27.86	13.78	41.64
FY17	Actual	27.03	13.93	40.96
FY18	Actual	34.21	12.60	46.81
FY19	Actual	37.29	12.08	49.37
FY20	Actual	34.65	14.91	49.56
FY21	Actual	35.00	18.91	53.91
FY22	Projection	35.27	20.15	55.42

FY23	Projection	35.54	21.47	57.01
FY24	Projection	35.81	22.87	58.68
FY25	Projection	36.08	24.36	60.44
FY26	Projection	36.36	25.95	62.31
FY27	Projection	36.64	27.65	64.29

5.1.2 LT-2a: Residential Houses:

This tariff category is applicable to electrical installations having power supply to lighting / combined lighting, heating and motive power of residential houses and other type of partly loads as authorized in the Tariff Schedule.

This category has two sub categories viz., applicable to areas coming under “City Municipal Corporations & Urban Local Bodies (Urban)” and applicable areas under “Village Panchayats (Rural)”.

The number of consumers under this category comprises about 64.94% of the total consumer base consuming about 30.28% of energy out of the total consumption of the company.

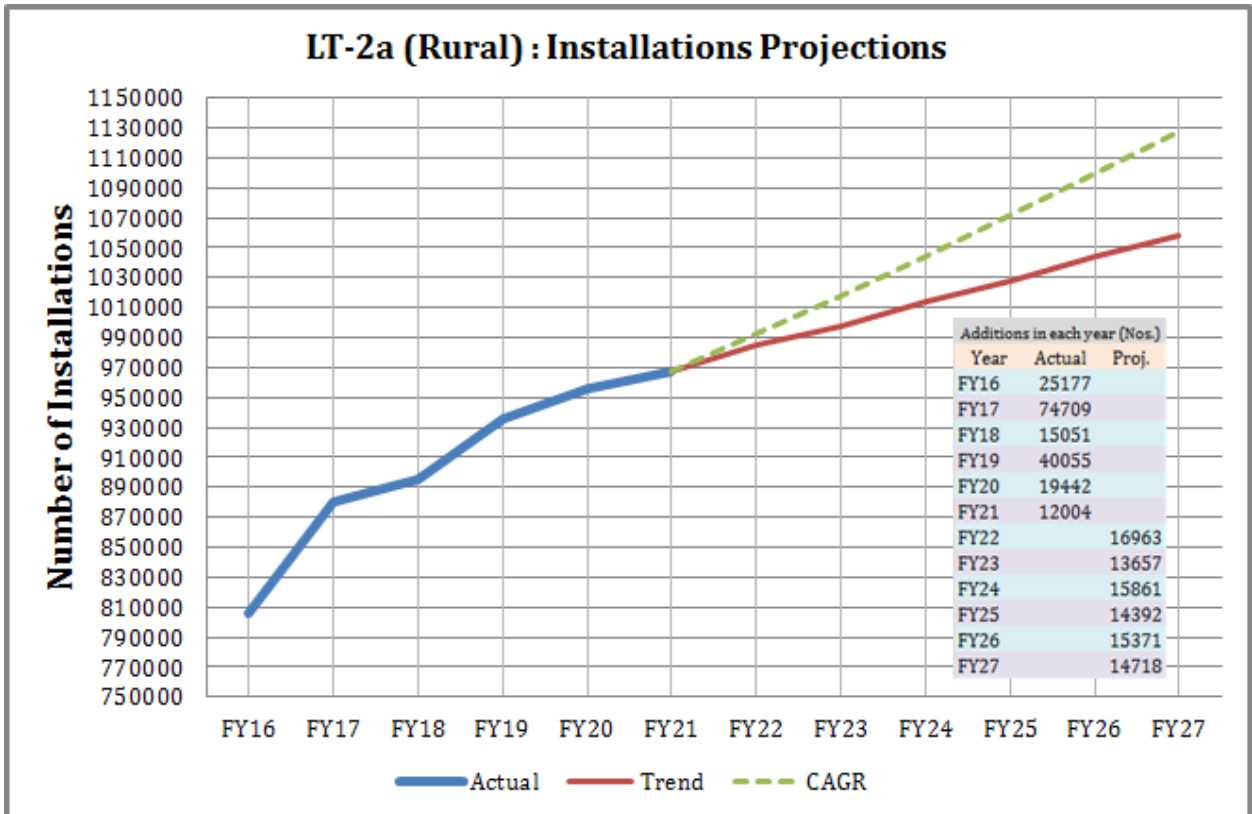
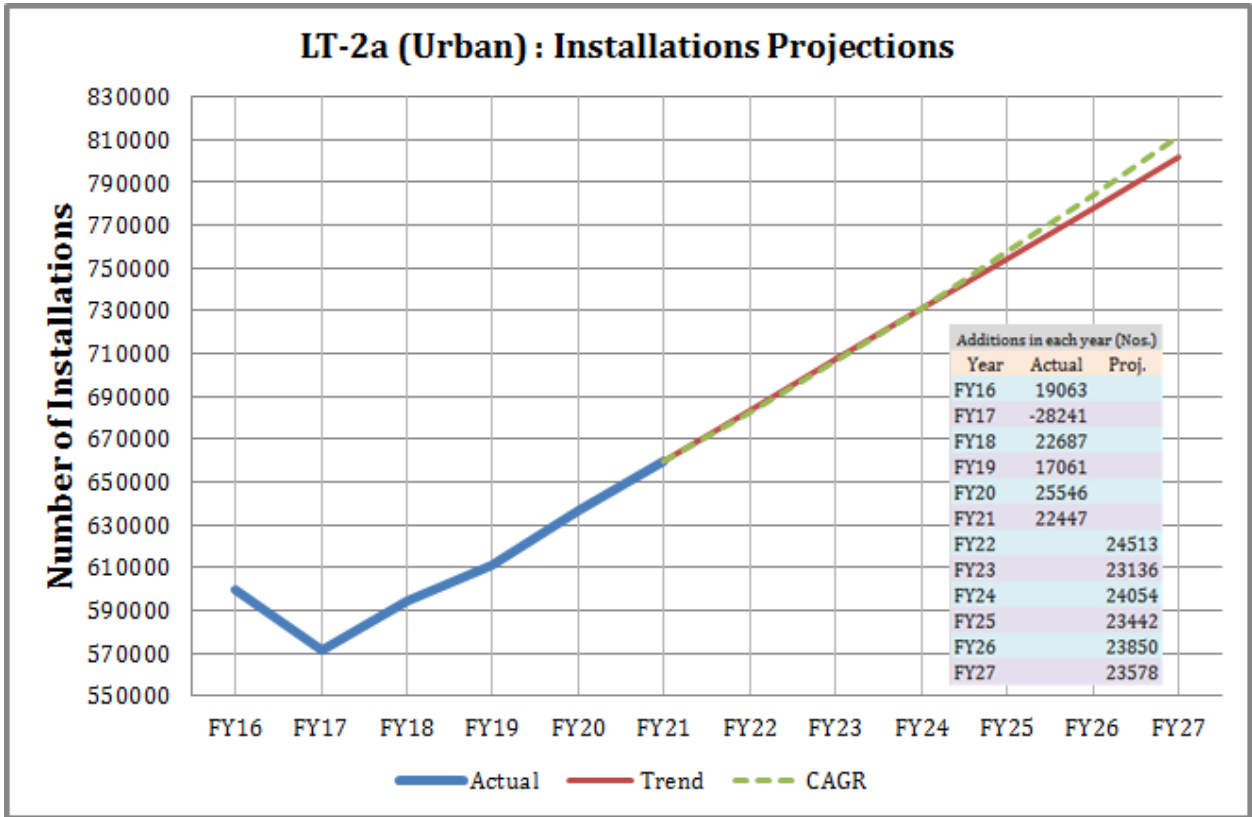
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-5	LT-2a					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations						
Urban area	599891	571650	594337	611398	636944	659391
Rural area	806084	880793	895844	935899	955341	967345
Total:	1405975	1452443	1490181	1547297	1592285	1626736
Energy Sales (MU)						
Urban area	687.25	684.03	707.47	721.91	776.91	802.76
Rural area	577.45	608.21	631.23	640.07	687.80	727.01
Total:	1264.70	1292.24	1338.70	1361.98	1464.71	1529.77

Projection of Number of Installations (LT-2a):

For projecting number of installations two methods i.e., Trend & CAGR (3 year; urban 3.52%, rural 2.59%) have been considered;

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the Trend curve appears to be more probative as it is reflecting the Business-As-Usual. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of LT-2a category for the period from FY22 to FY27, as depicted in the below table;

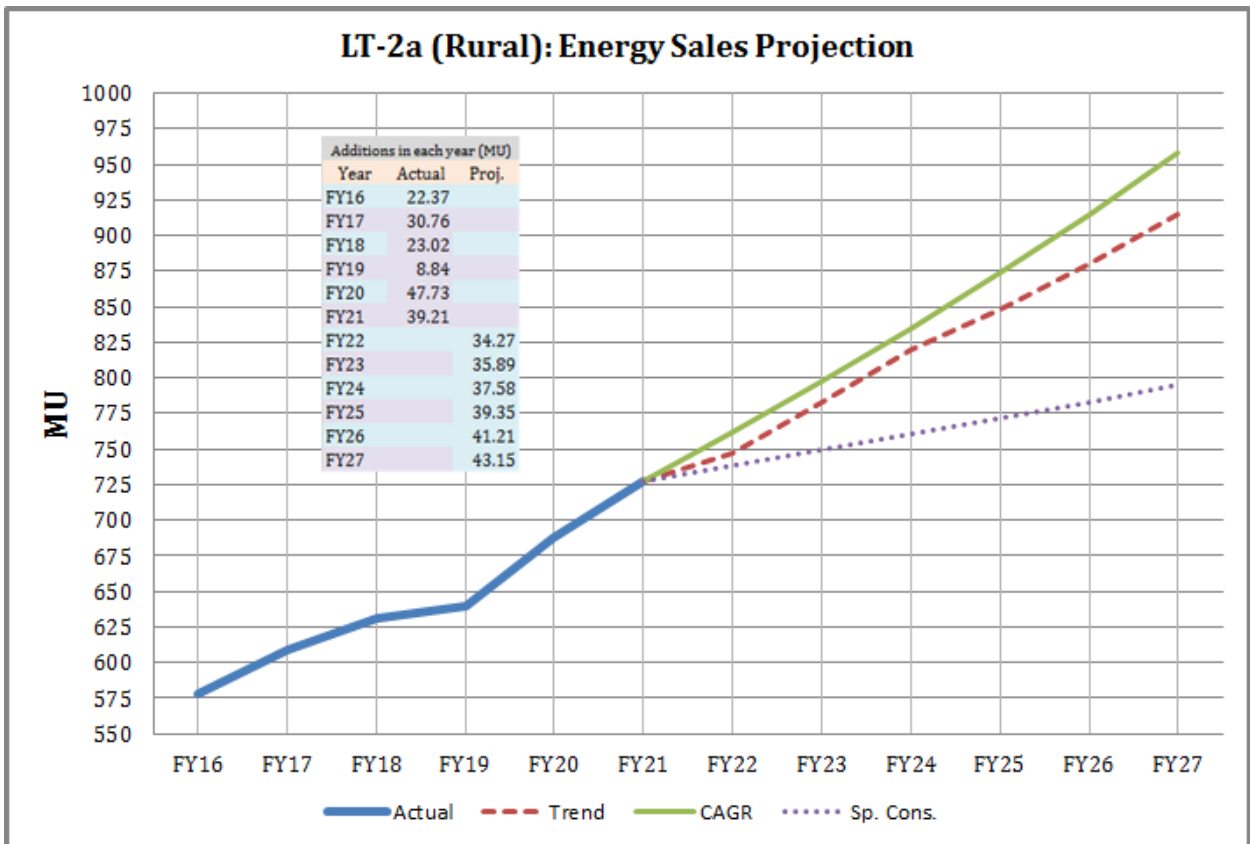
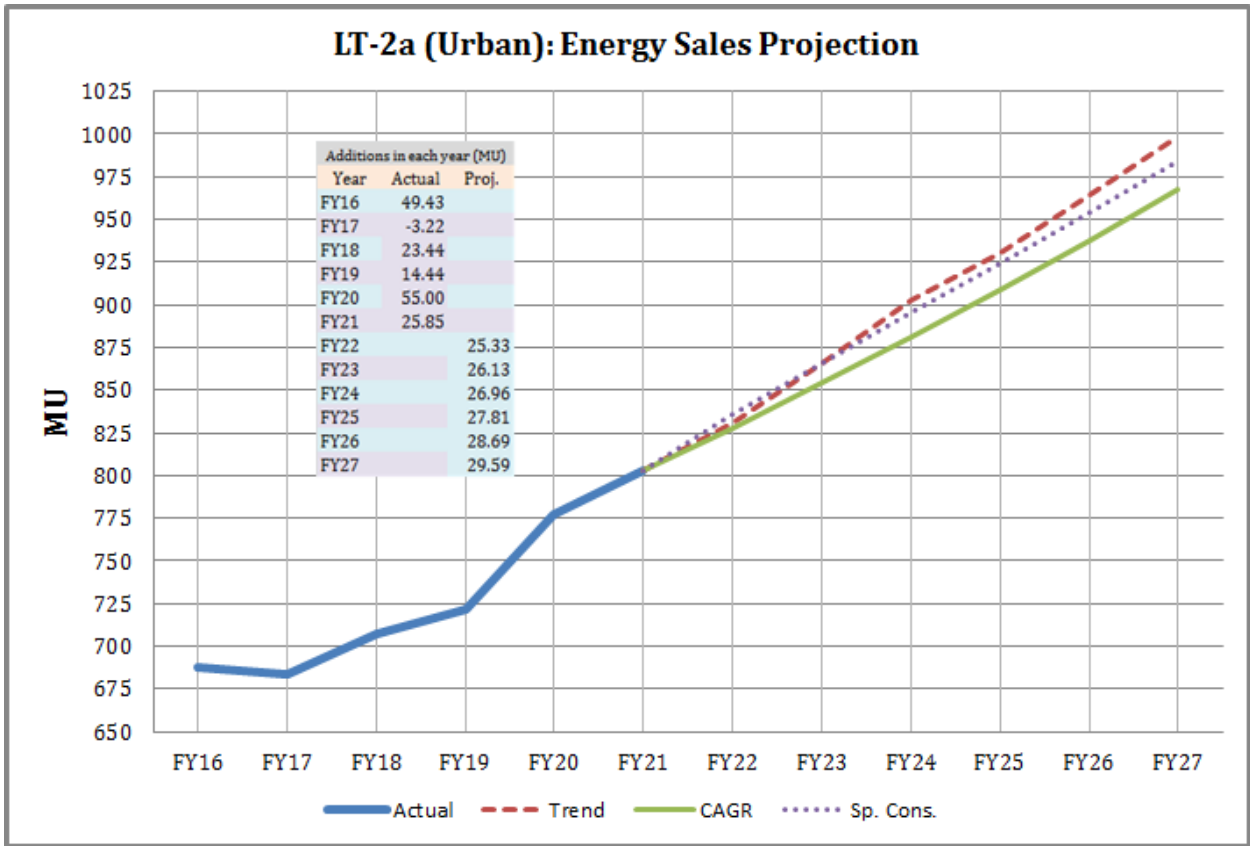
Table-6		LT-2a: Number of Installations		
Year		Urban	Rural	TOTAL
FY16	Actual	599,891	806,084	1,405,975
FY17	Actual	571,650	880,793	1,452,443
FY18	Actual	594,337	895,844	1,490,181
FY19	Actual	611,398	935,899	1,547,297
FY20	Actual	636,944	955,341	1,592,285
FY21	Actual	659,391	967,345	1,626,736
FY22	Projection	683,904	984,308	1,668,212
FY23	Projection	707,040	997,965	1,705,005
FY24	Projection	731,094	1,013,826	1,744,920
FY25	Projection	754,536	1,028,218	1,782,754
FY26	Projection	778,386	1,043,589	1,821,975
FY27	Projection	801,964	1,058,307	1,860,271

Projection of Energy Sales (LT-2a):

Specific consumption per year per installation recorded for the category in the years FY19, FY20 and FY21 were 1197 units, 1245 units & 1239 units in respect of installations urban consumers and 699 units, 727 units & 756 units in respect of rural consumers, respectively.

Energy Sales projections have been made using three methods viz., Trend, CAGR (5 year; 3.16% for urban, 4.71% for rural) and Specific Consumption (highest of the 3 years taken) based methods.

Comparison of Trend, CAGR and Specific Consumption based projection outcomes are presented below;



It can be observed that the CAGR curve appears to be more probative as it is reflecting the Business-As-Usual. Hence, CAGR method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the energy sales projected using CAGR (5 year; 3.16% for urban, 4.71% for rural) method in respect of LT-2a category for the period from FY22 to FY27, as depicted in the below table;

Table-7		LT-2a: Energy Sales (MU)		
Year		Urban	Rural	TOTAL
FY16	Actual	687.25	577.45	1,264.70
FY17	Actual	684.03	608.21	1,292.24
FY18	Actual	707.47	631.23	1,338.70
FY19	Actual	721.91	640.07	1,361.98
FY20	Actual	776.91	687.80	1,464.71
FY21	Actual	802.76	727.01	1,529.77
FY22	Projection	828.09	761.28	1,589.37
FY23	Projection	854.22	797.17	1,651.39
FY24	Projection	881.18	834.75	1,715.93
FY25	Projection	908.99	874.10	1,783.09
FY26	Projection	937.68	915.31	1,852.99
FY27	Projection	967.27	958.46	1,925.73

5.1.3 LT-2b: Private Professional & other private educational institutions:

This tariff category is applicable to electrical installations of private professional and other private educational institutions including aided, unaided institutions, Nursing Homes and, Private Hospitals, having only lighting or combined lighting & heating and motive power.

This category has two sub categories viz., applicable to areas coming under "City Municipal Corporations & Urban Local Bodies (Urban)" and applicable areas under "Village Panchayats (Rural)".

The number of consumers under this category comprises about 0.15% of the total consumer base consuming about 0.16% of energy out of the total consumption of the company.

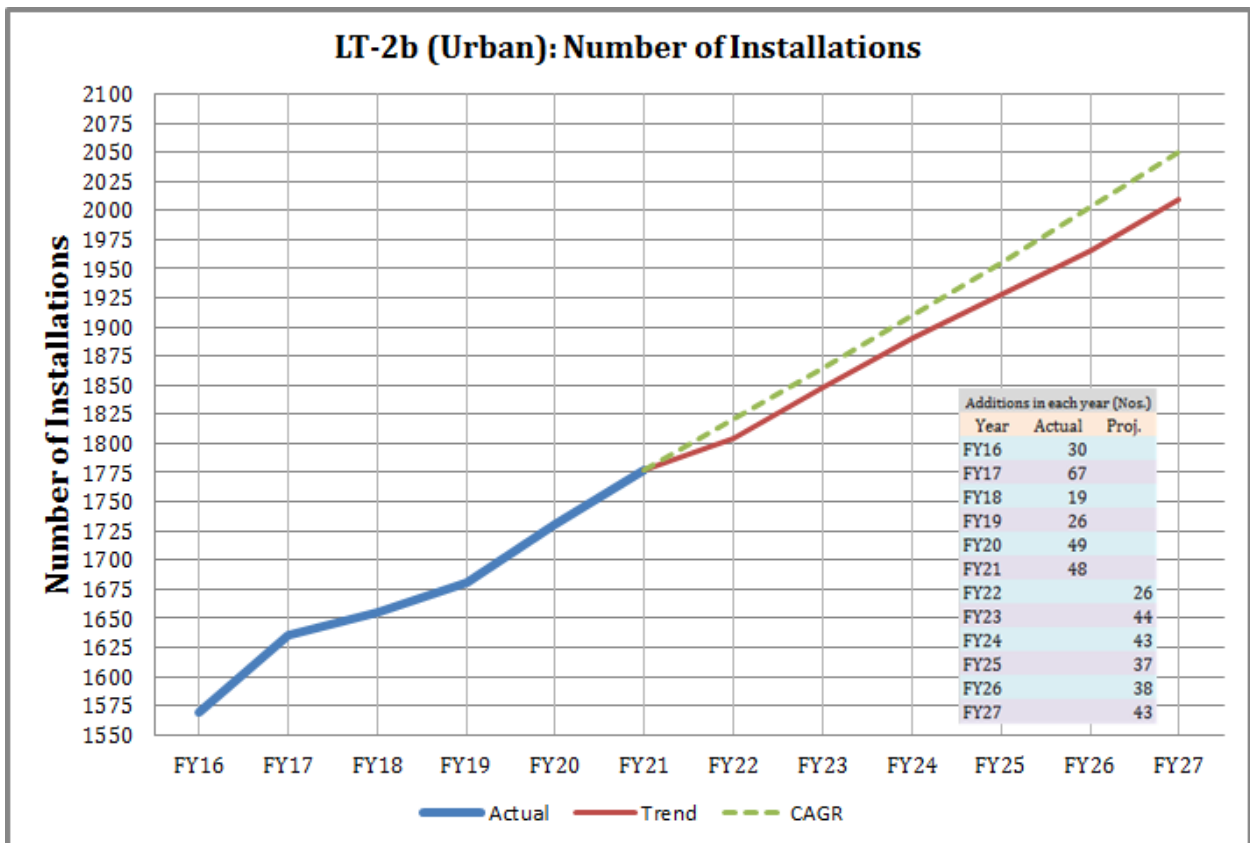
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

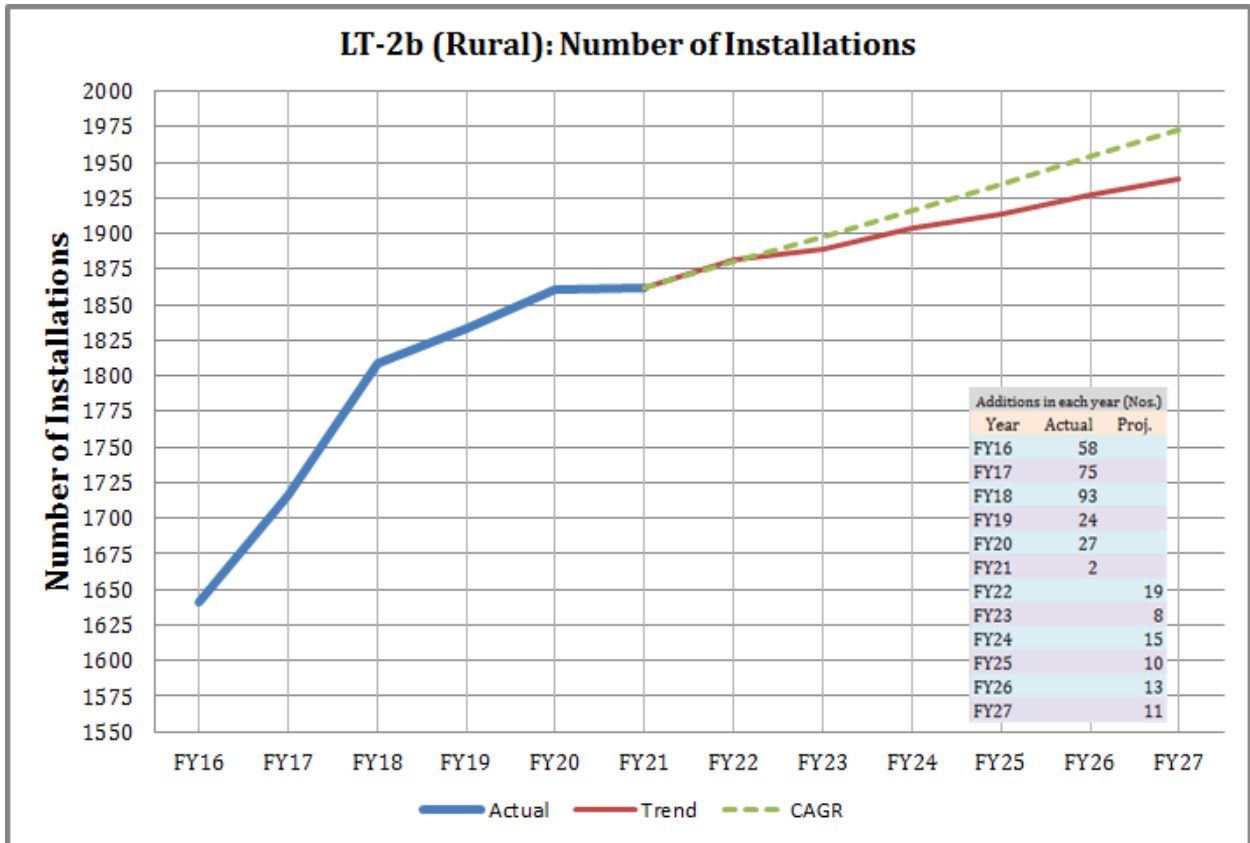
Table-8	LT-2b					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations						
Urban area	1569	1636	1655	1681	1730	1778
Rural area	1641	1716	1809	1833	1860	1862
Total:	3210	3352	3464	3514	3590	3640
Energy Sales (MU)						
Urban area	8.80	8.78	8.32	7.94	8.74	4.65
Rural area	4.88	5.04	5.45	5.68	6.12	3.41
Total:	13.68	13.82	13.77	13.62	14.86	8.06

Projection of Number of Installations (LT-2b):

For projecting number of installations two methods i.e., Trend & CAGR (3 year; urban 2.42%, rural 0.97%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;





It can be observed that the Trend curve appears to be more probative as it is reflecting the Business-As-Usual. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of LT-2b category for the period from FY22 to FY27, as depicted in the below table;

Table-9		LT-2b: Number of Installations		
Year		Urban	Rural	TOTAL
FY16	Actual	1569	1641	3210
FY17	Actual	1636	1716	3352
FY18	Actual	1655	1809	3464
FY19	Actual	1681	1833	3514
FY20	Actual	1730	1860	3590
FY21	Actual	1778	1862	3640
FY22	Projection	1804	1881	3685
FY23	Projection	1848	1889	3737
FY24	Projection	1891	1904	3795
FY25	Projection	1928	1914	3842
FY26	Projection	1966	1927	3893
FY27	Projection	2009	1938	3947

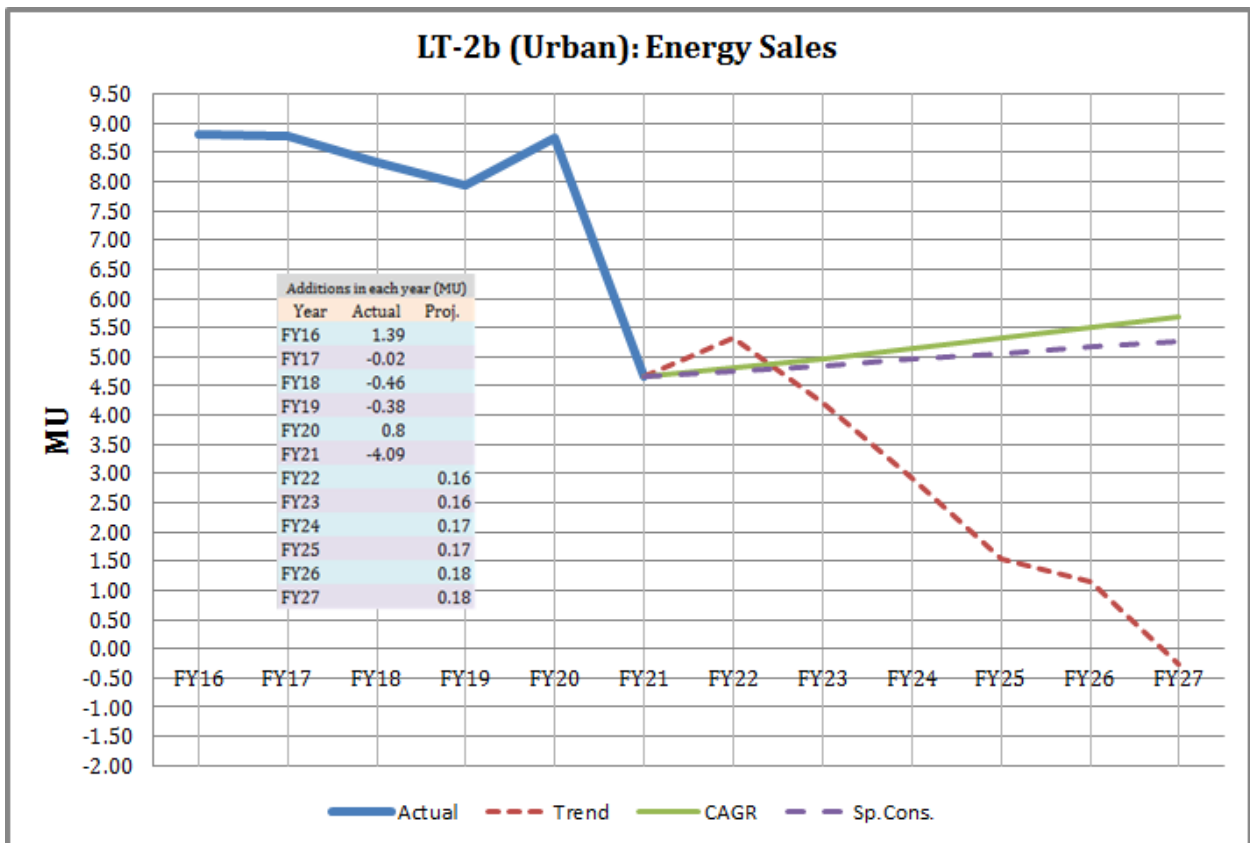
Projection of Energy Sales (LT-2b):

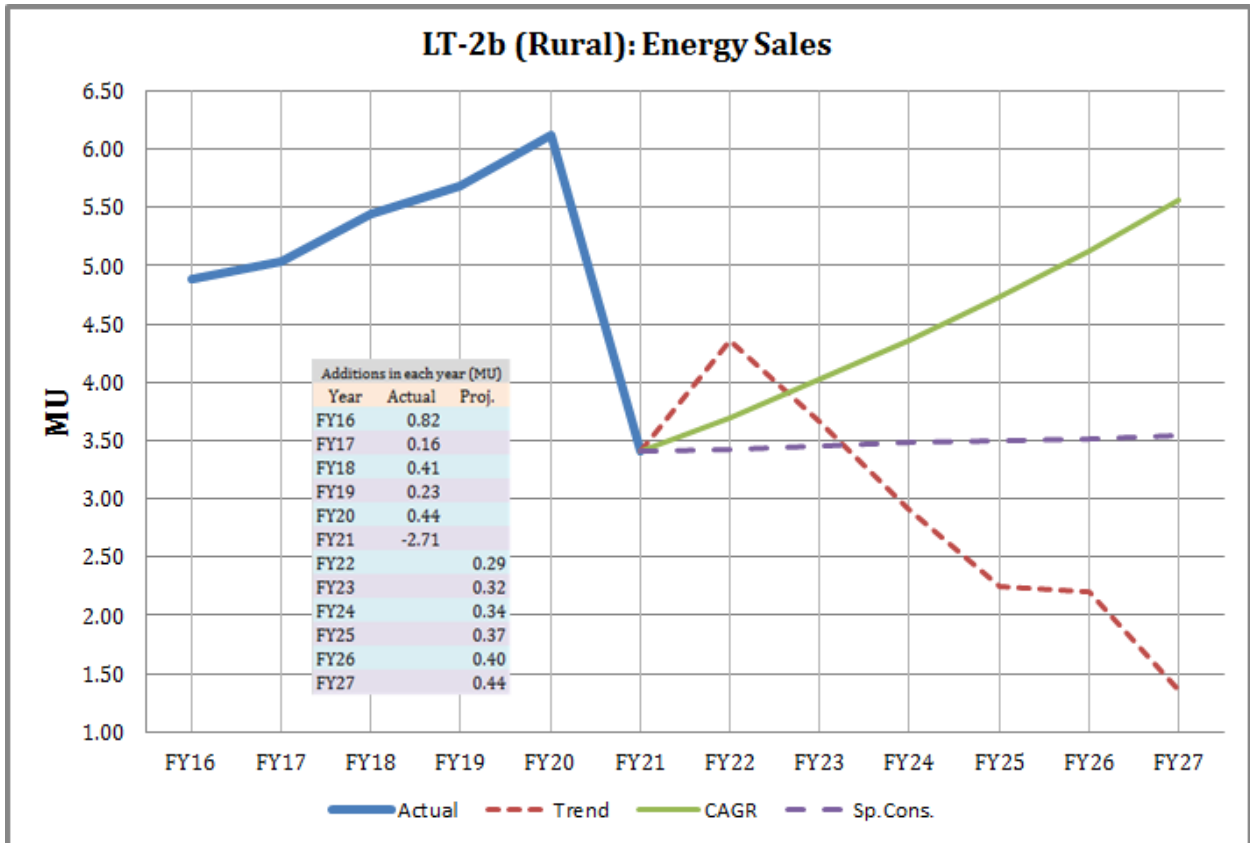
Specific consumption per year per installation recorded for the category in the years FY19, FY20 and FY21 were 4760 units, 5125 units & 2651 units in respect of urban consumers and 3119 units, 3314 units & 1832 units in respect of rural consumers, respectively.

In the year FY21, the category has recorded an ever lowest consumption due to Covid related regulations resulting in lesser projections for future years when compared to the position prior to FY21.

Energy Sales projections have been made using three methods viz., Trend, CAGR and Specific Consumption (of FY21) based methods. For CAGR, due to ever lowest consumption in FY21, 5 year CAGR with period duration of FY15 to FY20 has been considered which results 3.36% for urban consumers and 8.55% for rural consumers.

Comparison of Trend, CAGR and Specific Consumption based projection outcomes are presented below;





It can be observed that the CAGR curve appears to be more probative as it is reflecting gradually incrementing the sales that to be restored normalcy in the future years. Hence, CAGR method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the energy sales projected using CAGR (5 year; 3.36% for urban, 8.55% for rural) method in respect of LT-2b category for the period from FY22 to FY27, as depicted in the below table;

Table-10		LT-2b: Energy Sales (MU)		
Year		Urban	Rural	TOTAL
FY16	Actual	8.80	4.88	13.68
FY17	Actual	8.78	5.04	13.82
FY18	Actual	8.32	5.45	13.77
FY19	Actual	7.94	5.68	13.62
FY20	Actual	8.74	6.12	14.86
FY21	Actual	4.65	3.41	8.06
FY22	Projection	4.81	3.70	8.51
FY23	Projection	4.97	4.02	8.99
FY24	Projection	5.14	4.36	9.50
FY25	Projection	5.31	4.73	10.04
FY26	Projection	5.49	5.13	10.62
FY27	Projection	5.67	5.57	11.24

5.1.4 LT-3: Commercial:

This tariff category is applicable to the consumers having electrical installations of lighting, hearing and motive power as detailed in the tariff schedule.

This category has two sub categories viz., applicable to areas coming under “City Municipal Corporations & Urban Local Bodies (Urban)” and applicable areas under “Village Panchayats (Rural)”.

The number of consumers under this category comprises about 9.11% of the total consumer base consuming about 6.93% of energy out of the total consumption of the company.

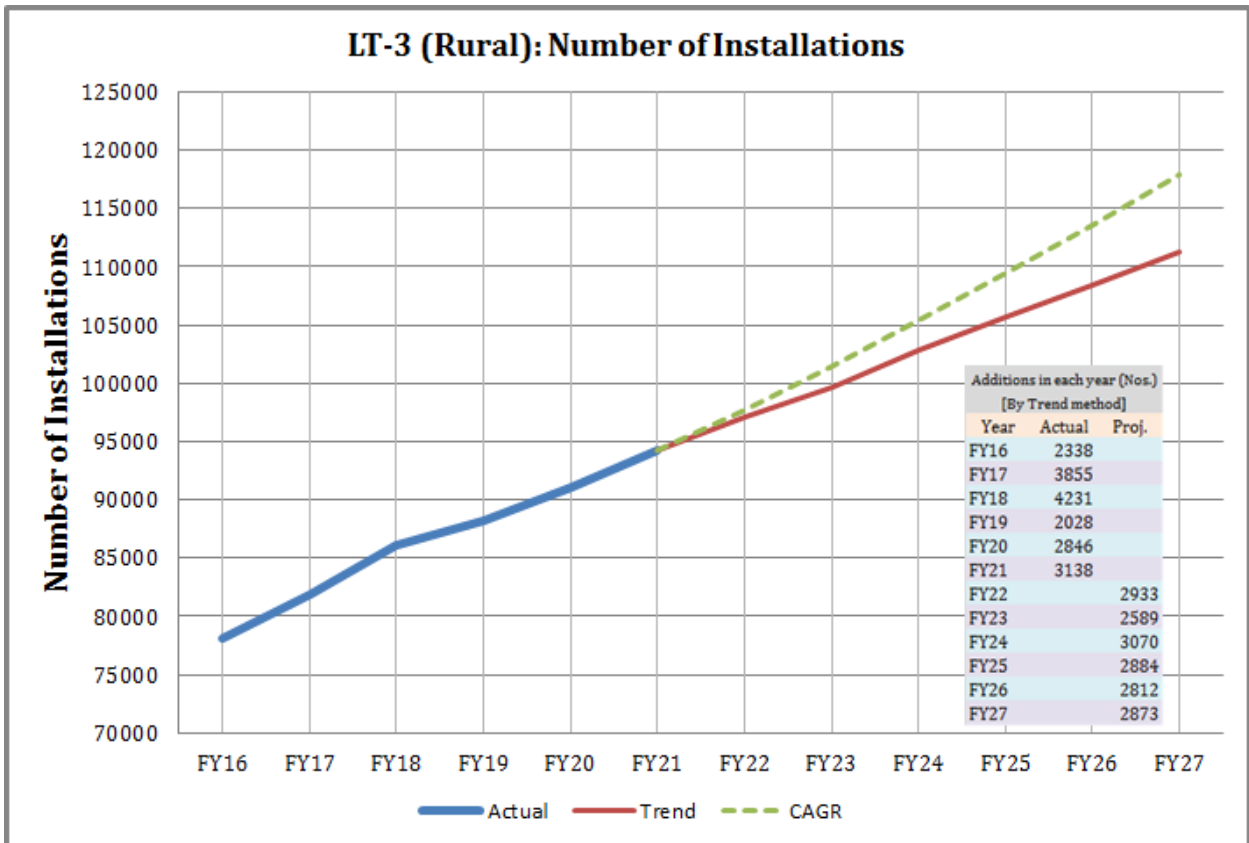
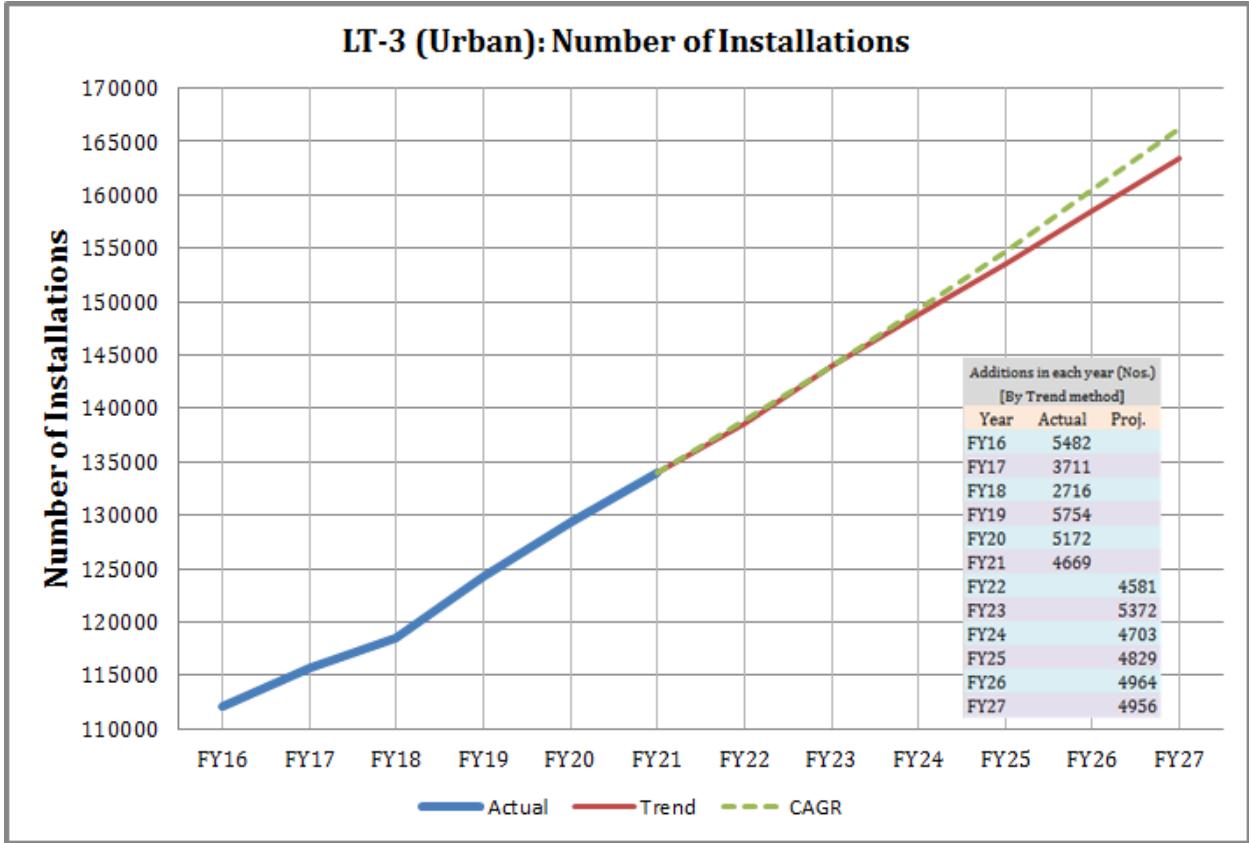
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-11	LT-3					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations						
Urban area	112027	115738	118454	124208	129380	134049
Rural area	78077	81932	86163	88191	91037	94175
Total:	190104	197670	204617	212399	220417	228224
Energy Sales (MU)						
Urban area	223.23	229.75	240.44	240.67	256.03	216.39
Rural area	106.64	112.59	122.22	129.63	137.80	133.59
Total:	329.87	342.34	362.66	370.30	393.83	349.98

Projection of Number of Installations (LT-3):

For projecting number of installations two methods i.e., Trend & CAGR (5 year; urban 3.65%, rural 3.82%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the Trend curve appears to be more probative as it is reflecting the Business-As-Usual. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of LT-3 category for the period from FY22 to FY27, as depicted in the below table;

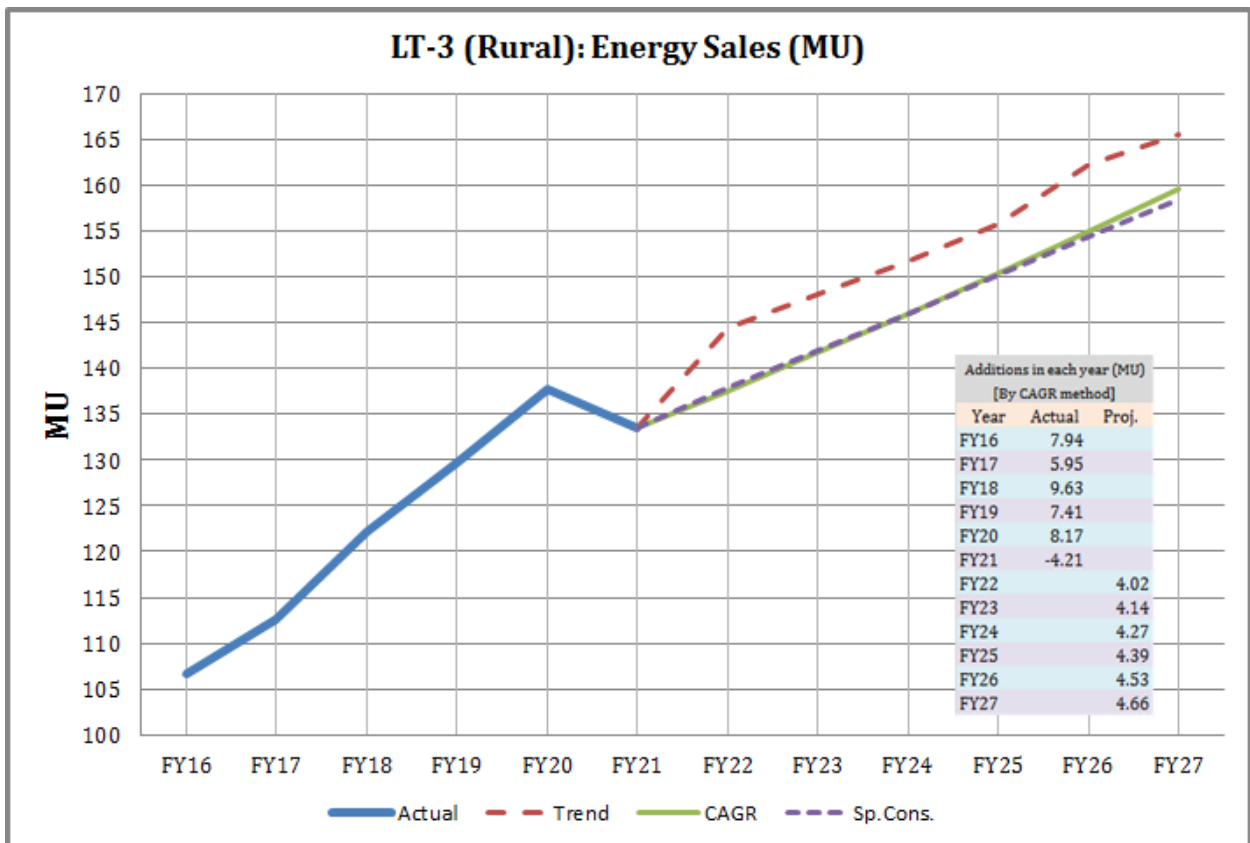
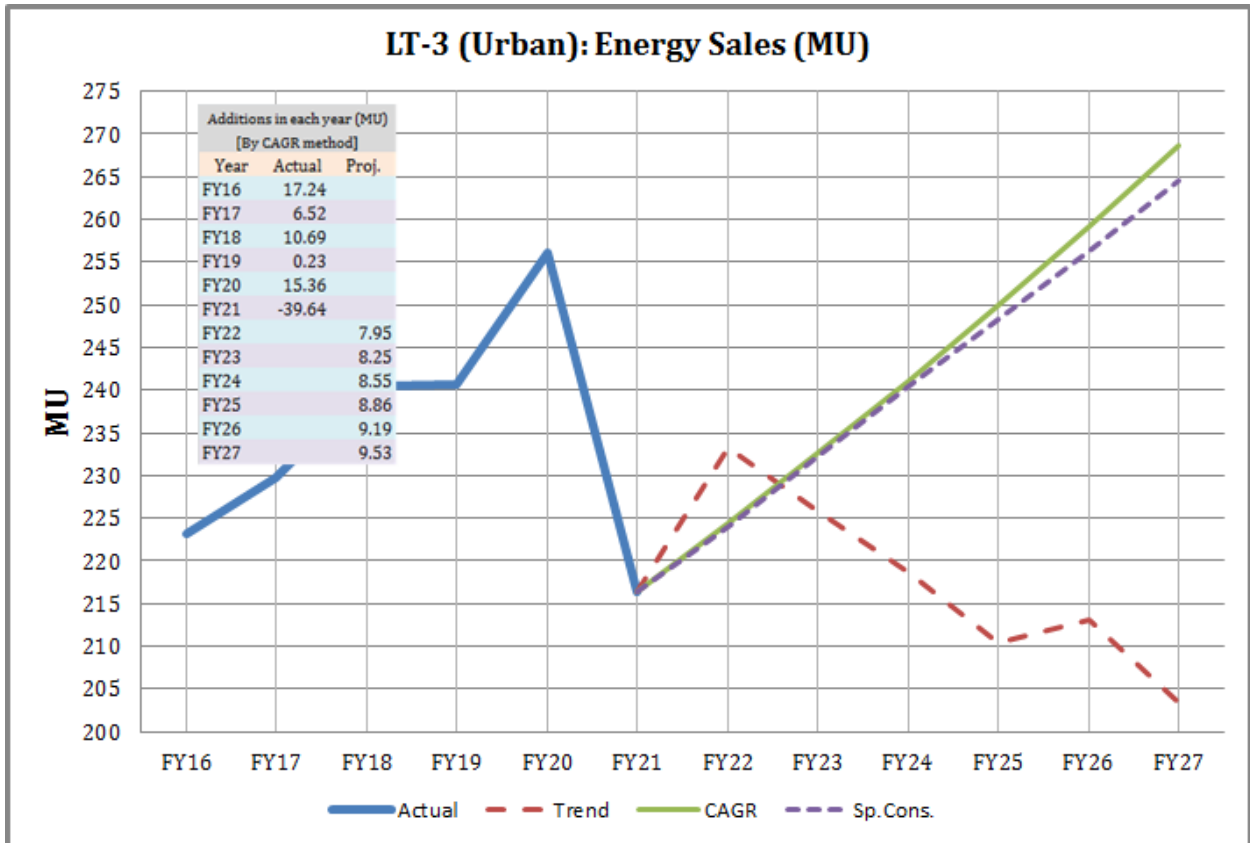
Table-12		LT-3: Number of Installations		
Year		Urban	Rural	TOTAL
FY16	Actual	112,027	78,077	190,104
FY17	Actual	115,738	81,932	197,670
FY18	Actual	118,454	86,163	204,617
FY19	Actual	124,208	88,191	212,399
FY20	Actual	129,380	91,037	220,417
FY21	Actual	134,049	94,175	228,224
FY22	Projection	138,630	97,108	235,738
FY23	Projection	144,002	99,697	243,699
FY24	Projection	148,705	102,767	251,472
FY25	Projection	153,534	105,651	259,185
FY26	Projection	158,498	108,463	266,961
FY27	Projection	163,454	111,336	274,790

Projection of Energy Sales (LT-3):

Specific consumption per year per installation recorded for the category in the previous year FY19, FY20 and FY21 were 1984 units, 2019 units & 1643 units in respect of urban consumers and 1487 units, 1538 units & 1443 units in respect of rural consumers, respectively.

Energy Sales projections have been made using three methods viz., Trend, CAGR and Specific Consumption (of FY21) based methods. For CAGR method, 3 year CAGR with period duration of FY17 to FY20 & FY18 to FY21 has been considered which results 3.68% for urban consumers and 3.01% for rural consumers.

Comparison of Trend, CAGR and Specific Consumption based projection outcomes are presented below;



It can be observed that the CAGR curve appears to be more probative as it is reflecting gradually incrementing the sales that to be restored normalcy in the future years. Hence, CAGR method has been considered as appropriate to project the energy sales for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the energy sales projected using CAGR (3 year; 3.68% for urban, 3.01% for rural) method in respect of LT-3 category for the period from FY22 to FY27, as depicted in the below table;

Table-13		LT-3: Energy Sales (MU)		
Year		Urban	Rural	TOTAL
FY16	Actual	223.23	106.64	329.87
FY17	Actual	229.75	112.59	342.34
FY18	Actual	240.44	122.22	362.66
FY19	Actual	240.67	129.63	370.30
FY20	Actual	256.03	137.80	393.83
FY21	Actual	216.39	133.59	349.98
FY22	Projection	224.34	137.61	361.95
FY23	Projection	232.59	141.75	374.34
FY24	Projection	241.14	146.02	387.16
FY25	Projection	250.00	150.41	400.41
FY26	Projection	259.19	154.94	414.13
FY27	Projection	268.72	159.60	428.32

5.1.5 LT-4a: Irrigation Pump sets having capacity upto 10HP:

This tariff category is applicable to irrigation pump set consumers having pump capacity up to and inclusive of 10 HP. This tariff is also applicable for Coconut and Areca nut plantations.

As per GOK order No.EN 55 PSR 2008 dated 04-09-2008, this category of consumers are being provided with free electricity supply.

The number of consumers under this category comprises about 14.45% of the total consumer base consuming about 33.36% of energy out of the total consumption of the company.

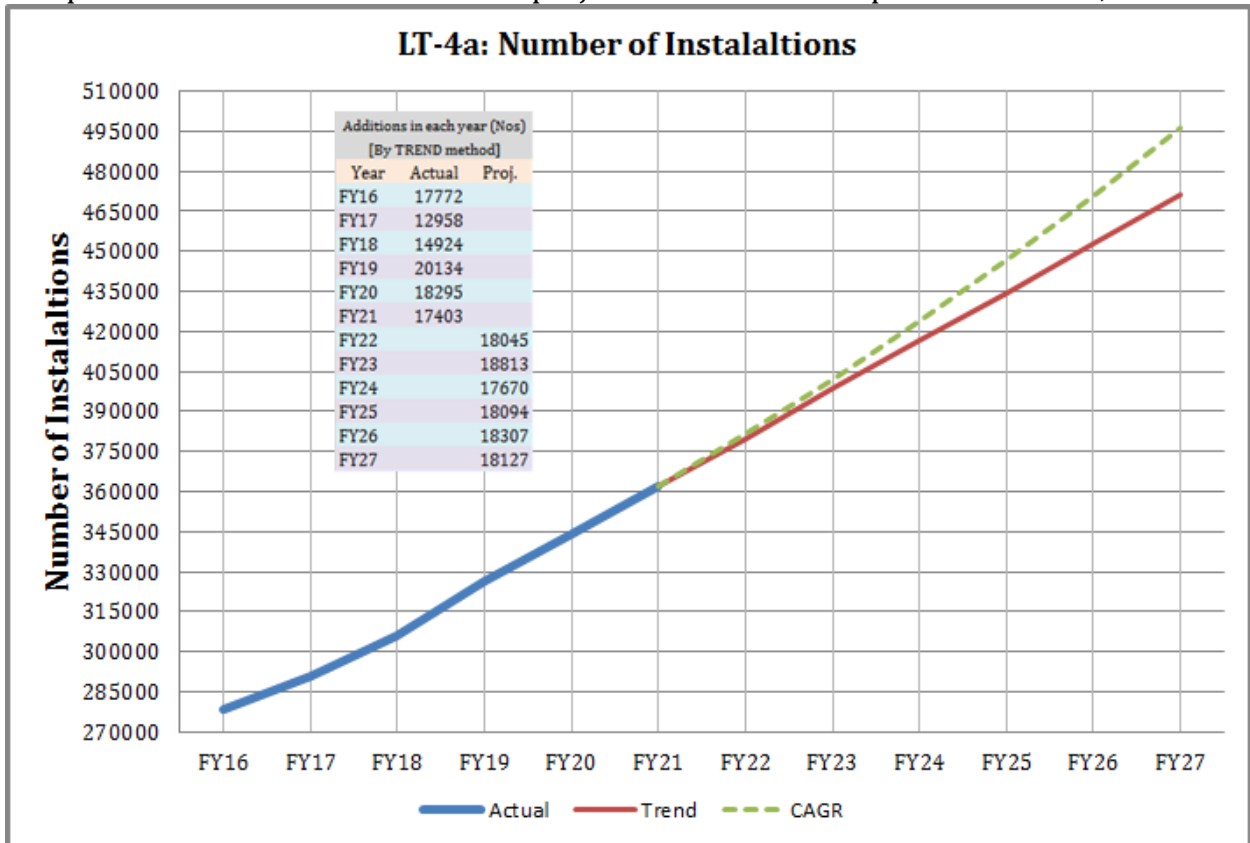
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-14	LT-4a					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	2,78,171	2,91,129	3,06,053	3,26,187	3,44,482	3,61,885
Energy Sales (MU)	1197.43	1628.06	1661.64	1630.90	1728.92	1685.26

Projection of Number of Installations (LT-4a):

For projecting number of installations two methods i.e., Trend & CAGR (5 year 5.40%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the highest number of installations additions was in FY19 i.e. 20,134. Thereafter, the additions were in the range of 17000 to 18000 installations per year for the category. This trend has been well captured in the Trend curve which appears to be more probative as it is reflecting the Business-As-Usual position. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of LT-4a category for the period from FY22 to FY27, as depicted in the below table;

Table-15			LT-4a: Number of Installations		
Year			Year		
FY16	Actual	2,78,171	FY22	Projection	3,79,930
FY17	Actual	2,91,129	FY23	Projection	3,98,743
FY18	Actual	3,06,053	FY24	Projection	4,16,413
FY19	Actual	3,26,187	FY25	Projection	4,34,507
FY20	Actual	3,44,482	FY26	Projection	4,52,814
FY21	Actual	3,61,885	FY27	Projection	4,70,941

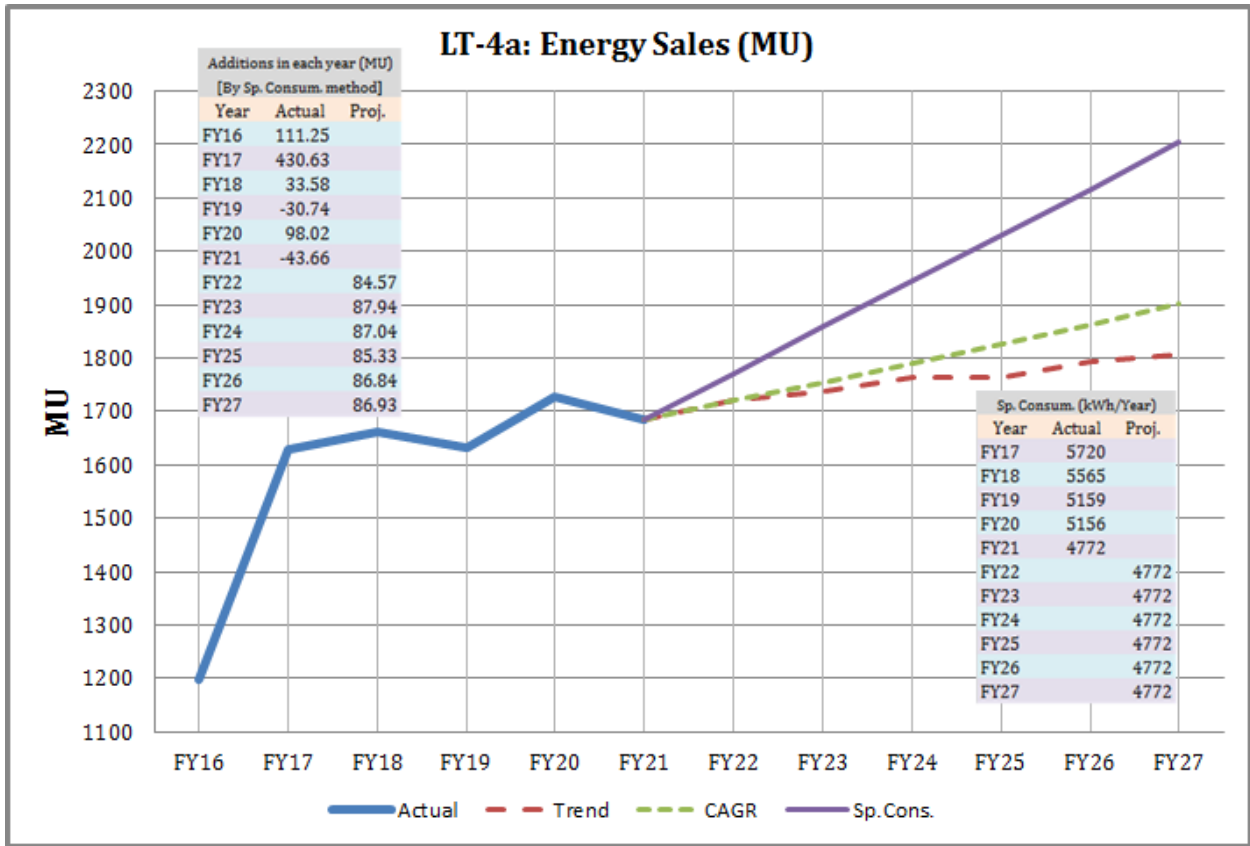
Projection of Energy Sales (LT-4a):

Specific consumption per year per installation recorded for the category in the previous year FY19, FY20 and FY21 were 5159 units, 5156 units & 4772 units, respectively.

Energy Sales projections have been made using three methods viz., Trend, CAGR and Specific Consumption (of FY21) based methods. For CAGR method, 3 year CAGR with period duration of FY17 to FY20 has been considered which results in 2.02%(#).

(#) CAGRs for the category works out to 7.08% of 5 year (FY16 to FY21), 0.49% of 3 year (FY18 to FY21) and with respect to previous year (FY20 to FY21) it is (-) 2.48%. These growth rates are either abnormal or subnormal. Hence, 3 year CAGR of the period FY17 to FY20 (2.02%) has been taken for comparison.

Comparison of Trend, CAGR and Specific Consumption based projection outcomes are presented below;



It can be observed that the Specific Consumption based curve appears to be more probative as it is reflecting the Business-As-Usual position. This has also in correlation with the number of installations additions in each year. Hence, Specific Consumption based method has been considered as appropriate to project the energy sales for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the energy sales projected using Specific Consumption based method in respect of LT4a category for the period from FY22 to FY27, as depicted in the below table;

Table-16			LT-4a: Energy Sales (MU)		
Year	Actual	Value	Year	Projection	Value
FY16	Actual	1,197.43	FY22	Projection	1,769.83
FY17	Actual	1,628.06	FY23	Projection	1,857.77
FY18	Actual	1,661.64	FY24	Projection	1,944.81
FY19	Actual	1,630.90	FY25	Projection	2,030.14
FY20	Actual	1,728.92	FY26	Projection	2,116.98
FY21	Actual	1,685.26	FY27	Projection	2,203.91

5.1.6 LT-4b: Irrigation Pump sets having capacity above 10HP:

This tariff category is applicable to irrigation pump set consumers having pump capacity above 10 HP;

The number of consumers under this category comprises about 0.006% of the total consumer base consuming about 0.018% of energy out of the total consumption of the company.

In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-17	LT-4b					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	179	245	180	162	165	161
Energy Sales (MU)	0.92	1.21	0.93	0.85	0.88	0.89

Projection of Number of Installations (LT-4b):

As can be noticed from the above table, there is inconsistency in the number of installations at the end of each year. Hence, the number of installations existing as at the end of the year 2020-21 is retained for the years FY22 to FY27.

Hence, the Hon’ble Commission is requested to consider the number of installations as projected in the below table;

Table-18			LT-4b: Number of Installations		
Year			Year		
FY16	Actual	179	FY22	Projection	161
FY17	Actual	245	FY23	Projection	161
FY18	Actual	180	FY24	Projection	161
FY19	Actual	162	FY25	Projection	161
FY20	Actual	165	FY26	Projection	161
FY21	Actual	161	FY27	Projection	161

Projection of Energy Sales (LT-4b):

As the number of installations existing as at the end of the year 2020-21 is retained, the consumption recorded in the year 2020-21 is also retained as projected sales for the years FY22 to FY27.

Hence, the Hon'ble Commission is requested to consider the number of installations as projected in the below table;

Table-19			LT-4b: Energy Sales (MU)		
Year			Year		
FY16	Actual	0.92	FY22	Projection	0.89
FY17	Actual	1.21	FY23	Projection	0.89
FY18	Actual	0.93	FY24	Projection	0.89
FY19	Actual	0.85	FY25	Projection	0.89
FY20	Actual	0.88	FY26	Projection	0.89
FY21	Actual	0.89	FY27	Projection	0.89

5.1.7 LT-4c: Pump sets using in Private Horticultural Nurseries, Coffee, Tea and Rubber plantations.

This tariff category is applicable to pump sets using Private Horticultural Nurseries, Coffee, Tea and Rubber plantations. Earlier the category consists of two sub categories, one for the pump sets up to & inclusive of 10 HP (LT-4ci) and another for the pump sets above 10 HP (LT-4cii). In the Tariff order 2021, these two categories has been merged and made it applicable to pump sets using in Private Horticultural Nurseries, Coffee, Tea and Rubber plantations irrespective of their sanctioned load.

The number of consumers under this combined category comprises about 0.19% of the total consumer base consuming about 0.17% of energy out of the total consumption of the company.

In previous six years, number of installations and energy consumption of the combined category for each year are as indicated below;

Table-20	LT-4c					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	3,296	3,673	3,963	4,311	4,713	4,878
Energy Sales (MU)	6.40	8.35	7.91	6.91	8.08	8.70

Projection of Number of Installations (LT-4c):

From the above table, it can be observed that the addition of installations is decreasing year-on-year and the lowest being FY21 which is only 165 numbers. As such, it is felt that either applying trend method or CAGR method will not give a fair projection values that may reach nearer to the actuals of future years. Hence, the number of additions in

the year FY21 i.e., 165 has been considered as year-on-year addition for the years FY22 to FY27.

Hence, the Hon'ble Commission is requested to consider the number of installations as projected in the below table;

Table-21			LT-4c: Number of Installations		
Year			Year		
FY16	Actual	3296	FY22	Projection	5043
FY17	Actual	3673	FY23	Projection	5208
FY18	Actual	3963	FY24	Projection	5373
FY19	Actual	4311	FY25	Projection	5538
FY20	Actual	4713	FY26	Projection	5703
FY21	Actual	4878	FY27	Projection	5868

Projection of Energy Sales (LT-4c):

For the category, specific consumption during the year FY21 is 1814 units.

It can be observed that the consumption pattern is also varying year-on-year. As such, specific consumption of FY21 i.e., 1814 units has been considered to project the energy sales for the period from FY22 to FY27.

Hence, the Hon'ble Commission is requested to consider the energy sales projected using Specific Consumption based method in respect of LT4c category for the period from FY22 to FY27, as depicted in the below table;

Table-22			LT-4c: Energy Sales (MU)		
Year			Year		
FY16	Actual	6.40	FY22	Projection	9.00
FY17	Actual	8.35	FY23	Projection	9.30
FY18	Actual	7.91	FY24	Projection	9.60
FY19	Actual	6.91	FY25	Projection	9.90
FY20	Actual	8.08	FY26	Projection	10.20
FY21	Actual	8.70	FY27	Projection	10.50

5.1.8 LT-5: Industrial.

This tariff category is applicable to heating and motive power installations of industrial units, workshops, etc. The category has two sub categories LT-5a (for the areas under City Municipal Corporations) and LT-5b (for rest of the areas).

Both the sub categories has five sanctioned load based slabs for levying of fixed charges as '5HP & below', 'above 5HP & below 40 HP', '40HP & above but below 67HP', '67HP & above but below 100HP' and '100HP & above'. The sanctioned load slab of '100HP & above' has been newly added in the Tariff Order 2021 consequent to 09th Amendment to Conditions of Supply and 11th Amendment to Recovery of Expenditure Regulations wherein the provision of load cap of providing LT supply has been increased to 150 KW from 50 KW, which is in effect from 01-04-2021.

The number of consumers under the combined category comprises about 1.35% of the total consumer base consuming about 2.45% of energy out of the total consumption of the company.

In previous six years, number of installations and energy consumption in respect of LT-5a and LT-5b category for each year are as indicated below;

Table-23	LT-5 (No. of installations)				
	FY17	FY18	FY19	FY20	FY21
LT-5a(i) : 5HP & below	1,437	1,368	1,452	1,448	1,407
LT-5a(ii) : above 5HP & below 40 HP	2,967	3,038	3,300	3,278	3,222
LT-5a(iii) : 40HP & above but below 67HP	526	548	592	581	584
LT-5a(iv) : 67HP & above	55	54	56	46	45
Sub-total:	4,985	5,008	5,400	5,353	5,258
LT-5b(i) : 5HP & below	11,192	11,922	12,484	13,306	14,303
LT-5b(ii) : above 5HP & below 40 HP	11,253	11,649	11,900	12,245	12,708
LT-5b(iii) : 40HP & above but below 67HP	1,277	1,320	1,318	1,336	1,434
LT-5b(iv) : 67HP & above	86	74	72	71	66
Sub-total:	23,808	24,965	25,774	26,958	28,511
Total:	28,793	29,973	31,174	32,311	33,769

Table-24	LT-5 (Energy Sales in MU)				
	FY17	FY18	FY19	FY20	FY21
LT-5a(i) : 5HP & below	4.02	1.51	1.68	1.78	1.30
LT-5a(ii) : above 5HP & below 40 HP	14.84	15.49	16.52	17.15	13.09
LT-5a(iii) : 40HP & above but below 67HP	20.48	24.21	23.26	22.92	20.37
LT-5a(iv) : 67HP & above	4.86	5.15	4.42	3.73	3.00
Sub-total:	44.20	46.36	45.88	45.58	37.76
LT-5b(i) : 5HP & below	9.86	9.10	8.97	10.08	9.71
LT-5b(ii) : above 5HP & below 40 HP	34.06	35.18	35.07	36.10	35.02
LT-5b(iii) : 40HP & above but below 67HP	40.57	39.65	38.45	39.91	37.53
LT-5b(iv) : 67HP & above	8.09	6.61	5.58	5.22	3.72
Sub-total:	92.58	90.54	88.07	91.31	85.98
Total:	136.78	136.90	133.95	136.89	123.74

Projection of Number of Installations (LT-5):

From the above table, in respect of LT-5a sub category, it can be observed that the number of installations is decreasing year-on-year ranging from (-)1 to (-)69 across the categories. As such, it is felt that either applying trend method or CAGR method will not give a fair projection values that may reflect nearer to actuals of future years. Hence, the number of installations in the year FY21 is retained for the all the years from FY22 to FY27.

Further, in respect of LT-5b sub category, except LT-5b(iv) slab rest of the slabs are showing increase in number of installations. Hence, the trend method taking into the variations in the years FY19 to FY21 has been considered for projection for the slabs LT-5b(i), LT-5b(ii) and LT-5b(iii). For the slab LT-5b(iv) the number of installations existing as at 31-03-2021 is retained for the years FY22 to FY27 as there is year-on-year decrease in number of installations.

Hence, the Hon’ble Commission is requested to consider the number of installations as projected in the below table;

Table-25			LT-5a(i): Number of Installations		
Year			Year		
FY17	Actual	1,437	FY22	Projection	1,407
FY18	Actual	1,368	FY23	Projection	1,407
FY19	Actual	1,452	FY24	Projection	1,407
FY20	Actual	1,448	FY25	Projection	1,407
FY21	Actual	1,407	FY26	Projection	1,407
			FY27	Projection	1,407
			LT-5a(ii): Number of Installations		
Year			Year		
FY17	Actual	2,967	FY22	Projection	3,222
FY18	Actual	3,038	FY23	Projection	3,222
FY19	Actual	3,300	FY24	Projection	3,222
FY20	Actual	3,278	FY25	Projection	3,222
FY21	Actual	3,222	FY26	Projection	3,222
			FY27	Projection	3,222
			LT-5a(iii): Number of Installations		
Year			Year		
FY17	Actual	526	FY22	Projection	584
FY18	Actual	548	FY23	Projection	584
FY19	Actual	592	FY24	Projection	584
FY20	Actual	581	FY25	Projection	584

FY21	Actual	584	FY26	Projection	584
			FY27	Projection	584
LT-5a(iv): Number of Installations					
Year			Year		
FY17	Actual	55	FY22	Projection	42
FY18	Actual	54	FY23	Projection	42
FY19	Actual	56	FY24	Projection	42
FY20	Actual	46	FY25	Projection	42
FY21	Actual	45	FY26	Projection	42
			FY27	Projection	42
LT-5a(v): Number of Installations					
Year			Year		
FY17	Actual	-	FY22	Projection	3
FY18	Actual	-	FY23	Projection	3
FY19	Actual	-	FY24	Projection	3
FY20	Actual	-	FY25	Projection	3
FY21	Actual	-	FY26	Projection	3
			FY27	Projection	3
TOTAL [LT-5a(i)+ LT-5a(ii)+ LT-5a(iii)+ LT-5a(iv)+ LT-5a(v)]					
Year			Year		
FY17	Actual	4,985	FY22	Projection	5,258
FY18	Actual	5,008	FY23	Projection	5,258
FY19	Actual	5,400	FY24	Projection	5,258
FY20	Actual	5,353	FY25	Projection	5,258
FY21	Actual	5,258	FY26	Projection	5,258
			FY27	Projection	5,258

Note: As at the end of 31-03-2021, 3 numbers of installations with sanctioned load 100 HP and above are existing which number has been reduced from LT-5a(iv) slab and indicated in the newly created slab LT-5a(v).

Table-26		LT-5b(i): Number of Installations			
Year			Year		
FY17	Actual	11,192	FY22	Projection	15,182
FY18	Actual	11,922	FY23	Projection	15,992
FY19	Actual	12,484	FY24	Projection	16,924
FY20	Actual	13,306	FY25	Projection	17,815
FY21	Actual	14,303	FY26	Projection	18,673
			FY27	Projection	19,557
LT-5b(ii): Number of Installations					
Year			Year		
FY17	Actual	11,253	FY22	Projection	13,092
FY18	Actual	11,649	FY23	Projection	13,462
FY19	Actual	11,900	FY24	Projection	13,875
FY20	Actual	12,245	FY25	Projection	14,277

FY21	Actual	12,708	FY26	Projection	14,659
			FY27	Projection	15,056
LT-5b(iii): Number of Installations					
Year			Year		
FY17	Actual	1,277	FY22	Projection	1,480
FY18	Actual	1,320	FY23	Projection	1,550
FY19	Actual	1,318	FY24	Projection	1,609
FY20	Actual	1,336	FY25	Projection	1,678
FY21	Actual	1,434	FY26	Projection	1,736
			FY27	Projection	1,802
LT-5b(iv): Number of Installations					
Year			Year		
FY17	Actual	86	FY22	Projection	63
FY18	Actual	74	FY23	Projection	63
FY19	Actual	72	FY24	Projection	63
FY20	Actual	71	FY25	Projection	63
FY21	Actual	66	FY26	Projection	63
			FY27	Projection	63
LT-5b(v): Number of Installations					
Year			Year		
FY17	Actual	-	FY22	Projection	3
FY18	Actual	-	FY23	Projection	3
FY19	Actual	-	FY24	Projection	3
FY20	Actual	-	FY25	Projection	3
FY21	Actual	-	FY26	Projection	3
			FY27	Projection	3
TOTAL [LT-5b(i)+ LT-5b(ii)+ LT-5b(iii)+ LT-5b(iv)+ LT-5b(v)]					
Year			Year		
FY17	Actual	23,808	FY22	Projection	29,820
FY18	Actual	24,965	FY23	Projection	31,070
FY19	Actual	25,774	FY24	Projection	32,474
FY20	Actual	26,958	FY25	Projection	33,836
FY21	Actual	28,511	FY26	Projection	35,134
			FY27	Projection	36,481

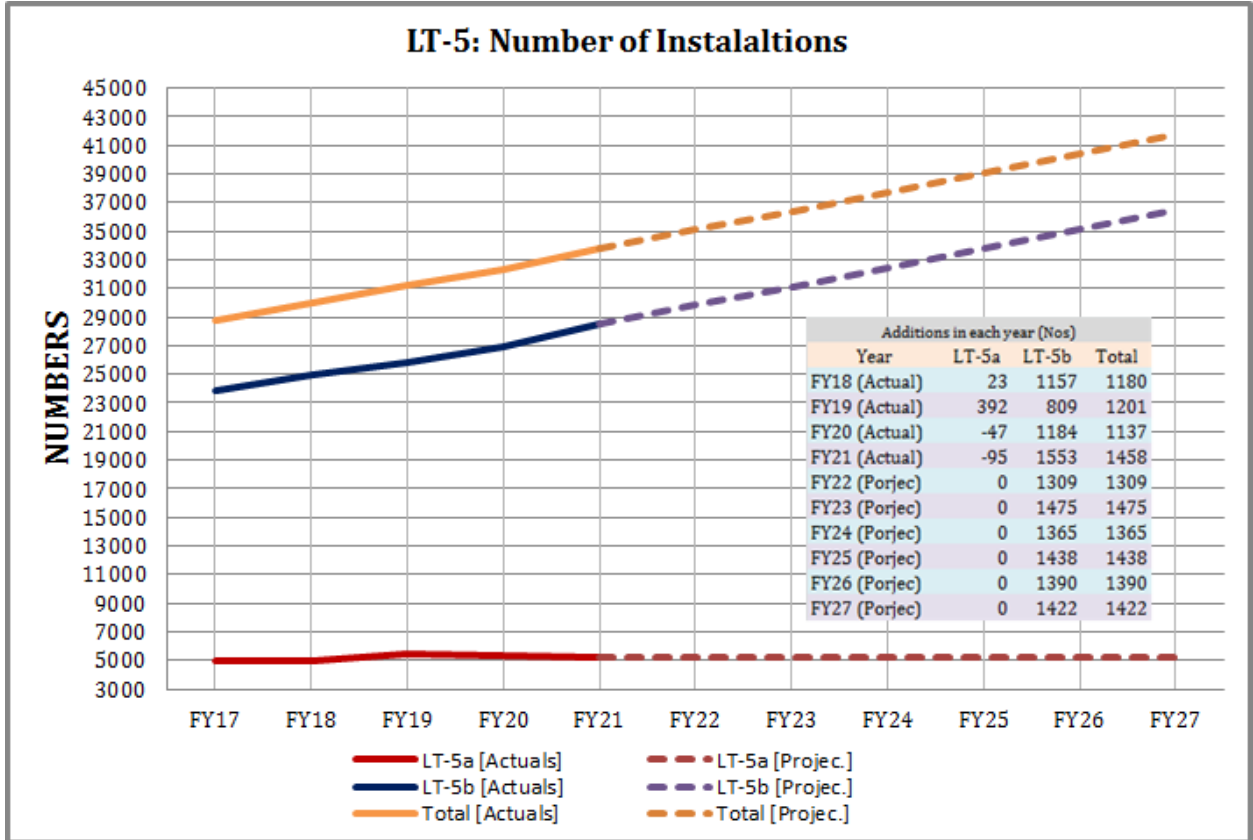
Note: As at the end of 31-03-2021, 3 numbers of installations with sanctioned load 100 HP and above are existing which number has been reduced from LT-5a(iv) slab and indicated in the newly created slab LT-5a(v).

GRAND TOTAL [LT-5a+ LT-5b]					
Year			Year		
FY17	Actual	28,793	FY22	Projection	35,078
FY18	Actual	29,973	FY23	Projection	36,328
FY19	Actual	31,174	FY24	Projection	37,732
FY20	Actual	32,311	FY25	Projection	39,094

FY21	Actual	33,769

FY26	Projection	40,392
FY27	Projection	41,739

Position of number of installations, actuals and projections, are graphically represented below;



Projection of Energy Sales (LT-5):

Consumption in LT-5 category is showing declining trend year-on-year irrespective of the sanctioned load slab categories. Hence, the consumption recorded in FY21 is retained for the all the years from FY22 to FY27.

Hence, the Hon’ble Commission is requested to consider the energy sales projected in the below table;

Table-27			LT-5a(i): Number of Installations		
Year			Year		
FY17	Actual	4.02	FY22	Projection	1.30
FY18	Actual	1.51	FY23	Projection	1.30
FY19	Actual	1.68	FY24	Projection	1.30
FY20	Actual	1.78	FY25	Projection	1.30
FY21	Actual	1.30	FY26	Projection	1.30
			FY27	Projection	1.30

LT-5a(ii): Number of Installations					
Year			Year		
FY17	Actual	14.84	FY22	Projection	13.09
FY18	Actual	15.49	FY23	Projection	13.09
FY19	Actual	16.52	FY24	Projection	13.09
FY20	Actual	17.15	FY25	Projection	13.09
FY21	Actual	13.09	FY26	Projection	13.09
			FY27	Projection	13.09
LT-5a(iii): Number of Installations					
Year			Year		
FY17	Actual	20.48	FY22	Projection	20.37
FY18	Actual	24.21	FY23	Projection	20.37
FY19	Actual	23.26	FY24	Projection	20.37
FY20	Actual	22.92	FY25	Projection	20.37
FY21	Actual	20.37	FY26	Projection	20.37
			FY27	Projection	20.37
LT-5a(iv): Number of Installations					
Year			Year		
FY17	Actual	4.86	FY22	Projection	2.72
FY18	Actual	5.15	FY23	Projection	2.72
FY19	Actual	4.42	FY24	Projection	2.72
FY20	Actual	3.73	FY25	Projection	2.72
FY21	Actual	3.00	FY26	Projection	2.72
			FY27	Projection	2.72
LT-5a(v): Number of Installations					
Year			Year		
FY17	Actual	-	FY22	Projection	0.28
FY18	Actual	-	FY23	Projection	0.28
FY19	Actual	-	FY24	Projection	0.28
FY20	Actual	-	FY25	Projection	0.28
FY21	Actual	-	FY26	Projection	0.28
			FY27	Projection	0.28
TOTAL [LT-5a(i)+ LT-5a(ii)+ LT-5a(iii)+ LT-5a(iv)+ LT-5a(v)]					
Year			Year		
FY17	Actual	44.20	FY22	Projection	37.76
FY18	Actual	46.36	FY23	Projection	37.76
FY19	Actual	45.88	FY24	Projection	37.76
FY20	Actual	45.58	FY25	Projection	37.76
FY21	Actual	37.76	FY26	Projection	37.76
			FY27	Projection	37.76

Note: As at the end of 31-03-2021, 3 numbers of installations with sanctioned load 100 HP and above are existing consumption of which has been reduced from LT-5a(iv) slab and indicated in the newly created slab LT-5a(v).

Table-28		LT-5b(i): Number of Installations			
Year				Year	
FY17	Actual	9.86		FY22	Projection 9.71
FY18	Actual	9.10		FY23	Projection 9.71
FY19	Actual	8.97		FY24	Projection 9.71
FY20	Actual	10.08		FY25	Projection 9.71
FY21	Actual	9.71		FY26	Projection 9.71
				FY27	Projection 9.71
		LT-5b(ii): Number of Installations			
Year				Year	
FY17	Actual	34.06		FY22	Projection 35.02
FY18	Actual	35.18		FY23	Projection 35.02
FY19	Actual	35.07		FY24	Projection 35.02
FY20	Actual	36.10		FY25	Projection 35.02
FY21	Actual	35.02		FY26	Projection 35.02
				FY27	Projection 35.02
		LT-5b(iii): Number of Installations			
Year				Year	
FY17	Actual	40.57		FY22	Projection 37.53
FY18	Actual	39.65		FY23	Projection 37.53
FY19	Actual	38.45		FY24	Projection 37.53
FY20	Actual	39.91		FY25	Projection 37.53
FY21	Actual	37.53		FY26	Projection 37.53
				FY27	Projection 37.53
		LT-5b(iv): Number of Installations			
Year				Year	
FY17	Actual	8.09		FY22	Projection 3.47
FY18	Actual	6.61		FY23	Projection 3.47
FY19	Actual	5.58		FY24	Projection 3.47
FY20	Actual	5.22		FY25	Projection 3.47
FY21	Actual	3.72		FY26	Projection 3.47
				FY27	Projection 3.47
		LT-5b(v): Number of Installations			
Year				Year	
FY17	Actual	-		FY22	Projection 0.25
FY18	Actual	-		FY23	Projection 0.25
FY19	Actual	-		FY24	Projection 0.25
FY20	Actual	-		FY25	Projection 0.25
FY21	Actual	-		FY26	Projection 0.25
				FY27	Projection 0.25

TOTAL [LT-5b(i)+ LT-5b(ii)+ LT-5b(iii)+ LT-5b(iv)+ LT-5b(v)]					
Year			Year		
FY17	Actual	92.58	FY22	Projection	85.98
FY18	Actual	90.54	FY23	Projection	85.98
FY19	Actual	88.07	FY24	Projection	85.98
FY20	Actual	91.31	FY25	Projection	85.98
FY21	Actual	85.98	FY26	Projection	85.98
			FY27	Projection	85.98

Note: As at the end of 31-03-2021, 3 numbers of installations with sanctioned load 100 HP and above are existing consumption of which has been reduced from LT-5b(iv) slab and indicated in the newly created slab LT-5b(v).

GRAND TOTAL [LT-5a+ LT-5b]					
Year			Year		
FY17	Actual	136.78	FY22	Projection	123.74
FY18	Actual	136.90	FY23	Projection	123.74
FY19	Actual	133.95	FY24	Projection	123.74
FY20	Actual	136.89	FY25	Projection	123.74
FY21	Actual	123.74	FY26	Projection	123.74
			FY27	Projection	123.74

5.1.9 LT-6a: Water Supply:

This tariff category is applicable to water supply and sewerage pumping installations, water purifying plants maintained by government / urban local bodies / grama panchayats for supplying pure drinking water to residential areas.

The number of consumers under this category comprises about 0.67% of the total consumer base consuming about 2.87% of energy out of the total consumption of the company.

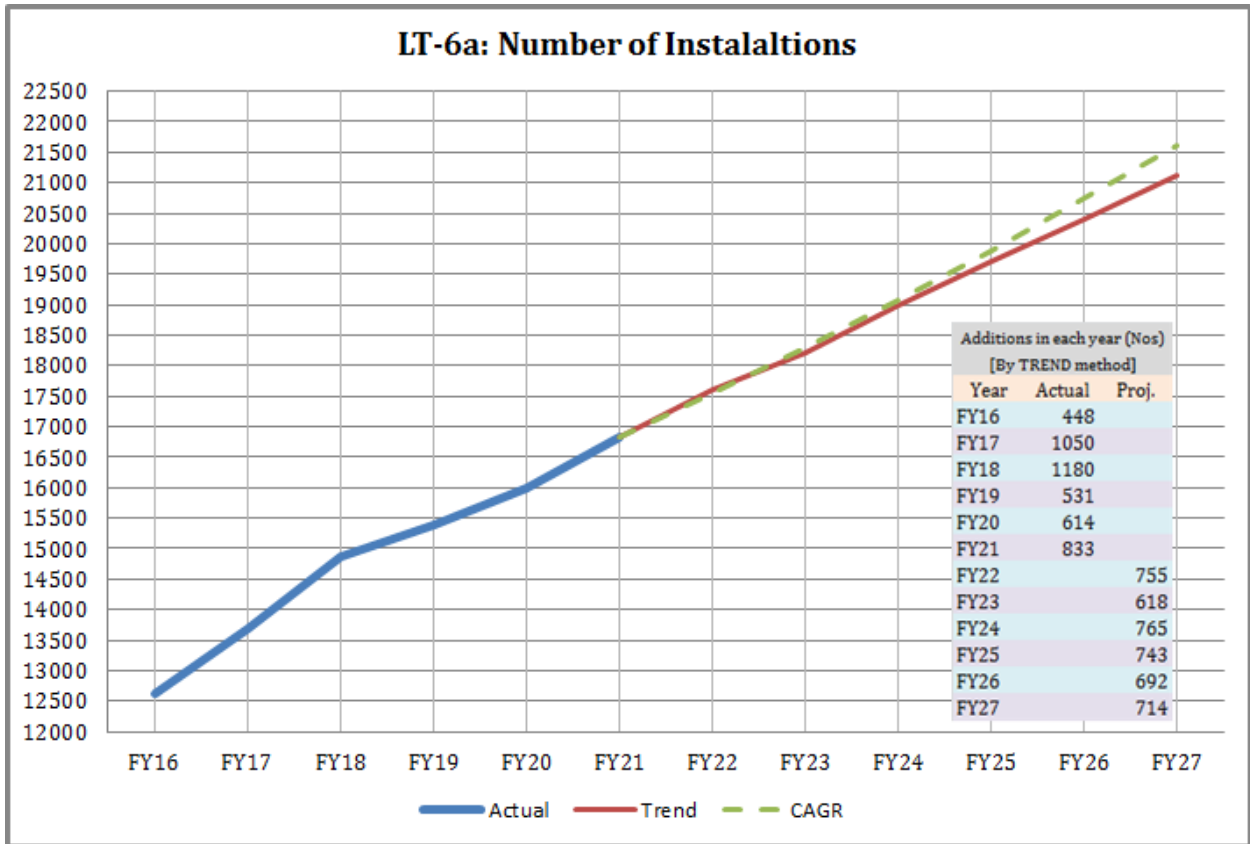
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-29	LT-6a					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	12,630	13,680	14,860	15,391	16,005	16,838
Energy Sales (MU)	111.93	120.53	118.84	123.02	131.97	144.80

Projection of Number of Installations (LT-6a):

For projecting number of installations two methods i.e., Trend & CAGR (3 year 4.25%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the highest number of installations additions was in FY18 i.e. 1,180. Thereafter, the average additions was around 700 for the category. This trend has been well captured in the Trend curve which appears to be more probative as it is reflecting the Business-As-Usual position. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of LT-6a category for the period from FY22 to FY27, as depicted in the below table;

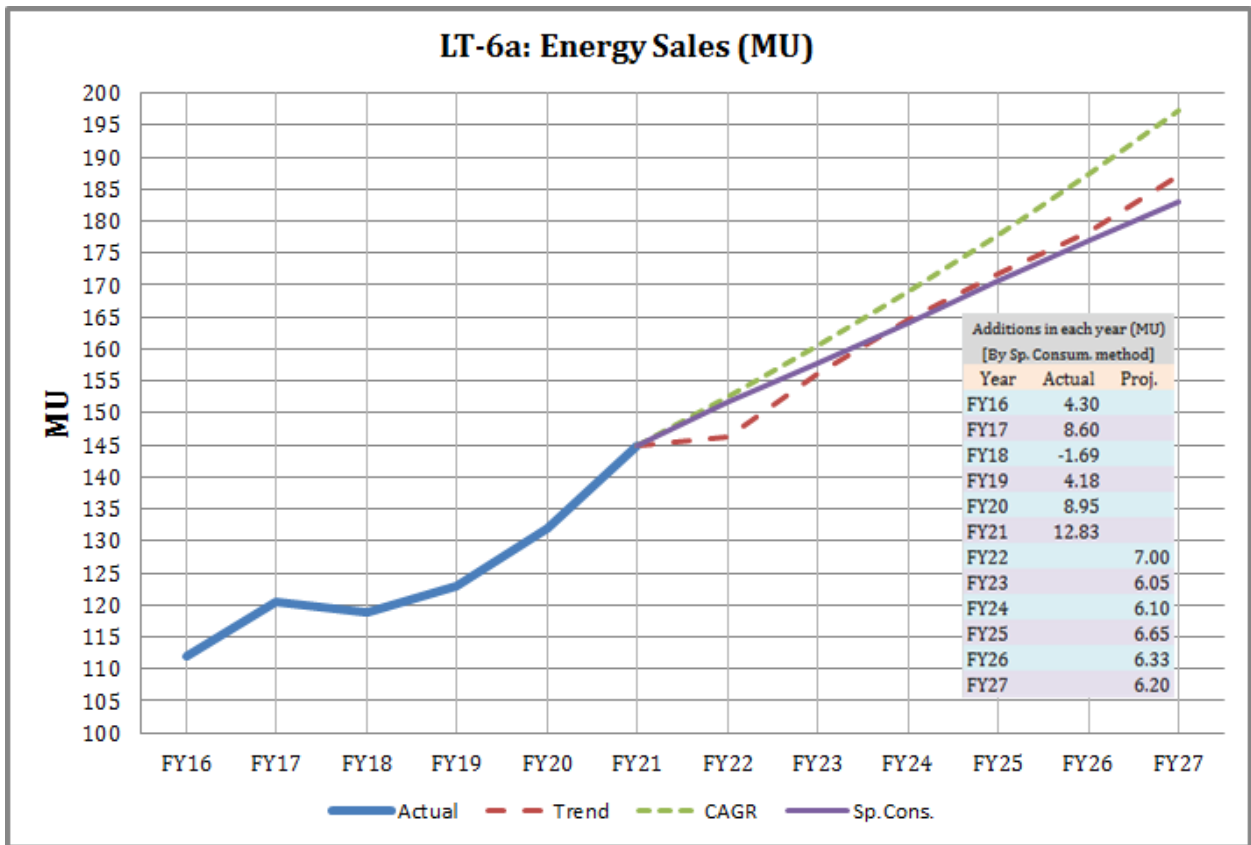
Table-30			LT-6a: Number of Installations		
Year			Year		
FY16	Actual	12,630	FY22	Projection	17,593
FY17	Actual	13,680	FY23	Projection	18,211
FY18	Actual	14,860	FY24	Projection	18,976
FY19	Actual	15,391	FY25	Projection	19,719
FY20	Actual	16,005	FY26	Projection	20,411
FY21	Actual	16,838	FY27	Projection	21,125

Projection of Energy Sales (LT-6a):

Specific consumption per year per installation recorded for the category in the previous year FY19, FY20 and FY21 were 8133 units, 8407 units & 8818 units, respectively.

Energy Sales projections have been made using three methods viz., Trend, CAGR and Specific Consumption (of FY21) based methods. For CAGR method, 5 year CAGR with period duration of FY16 to FY21 has been considered which results in 5.28%.

Comparison of Trend, CAGR and Specific Consumption based projection outcomes are presented below;



It can be observed that the Specific Consumption based curve appears to be more probative as it is reflecting the Business-As-Usual position. This has also in correlation with the number of installations additions in each year. Hence, Specific Consumption based method has been considered as appropriate to project the energy sales for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the energy sales projected using Specific Consumption based method in respect of LT6a category for the period from FY22 to FY27, as depicted in the below table;

Table-31			LT-6a: Energy Sales (MU)		
Year			Year		
FY16	Actual	111.93	FY22	Projection	151.80
FY17	Actual	120.53	FY23	Projection	157.85
FY18	Actual	118.84	FY24	Projection	163.95
FY19	Actual	123.02	FY25	Projection	170.60
FY20	Actual	131.97	FY26	Projection	176.93
FY21	Actual	144.80	FY27	Projection	183.13

5.1.10 LT-6b: Public Lighting:

This tariff category is applicable to public lighting installations and other uses as detailed in the tariff schedule.

The number of consumers under this category comprises about 1.06% of the total consumer base consuming about 1.32% of energy out of the total consumption of the company.

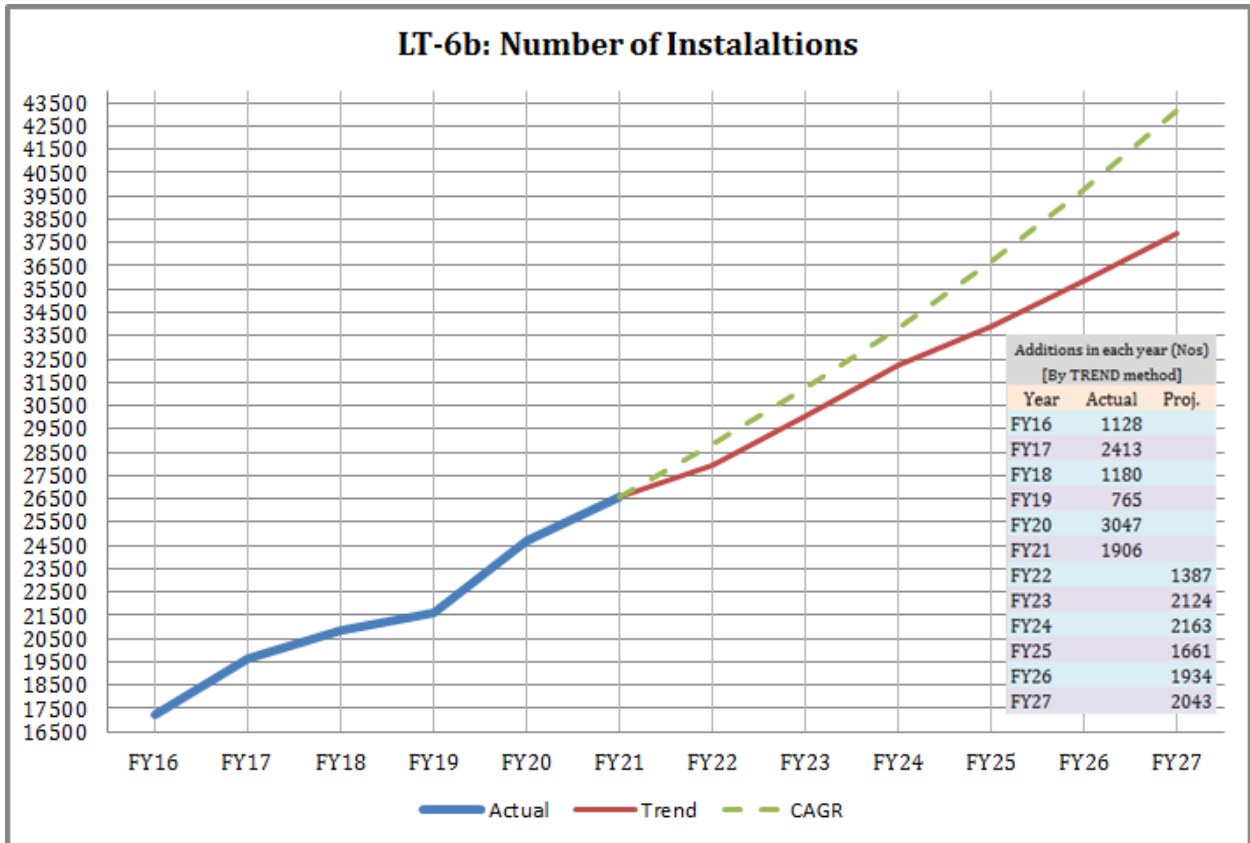
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-32		LT-6b				
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	17,263	19,676	20,856	21,621	24,668	26,574
Energy Sales (MU)	63.97	69.38	68.03	69.82	66.47	66.79

Projection of Number of Installations (LT-6b):

For projecting number of installations two methods i.e., Trend & CAGR (3 year 8.41%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the highest number of installations additions was in FY20 i.e. 3,047. Thereafter, the average additions was around 1400 for the category. This trend has been well captured in the Trend curve which appears to be more probative as it is reflecting the Business-As-Usual position. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of LT-6b category for the period from FY22 to FY27, as depicted in the below table;

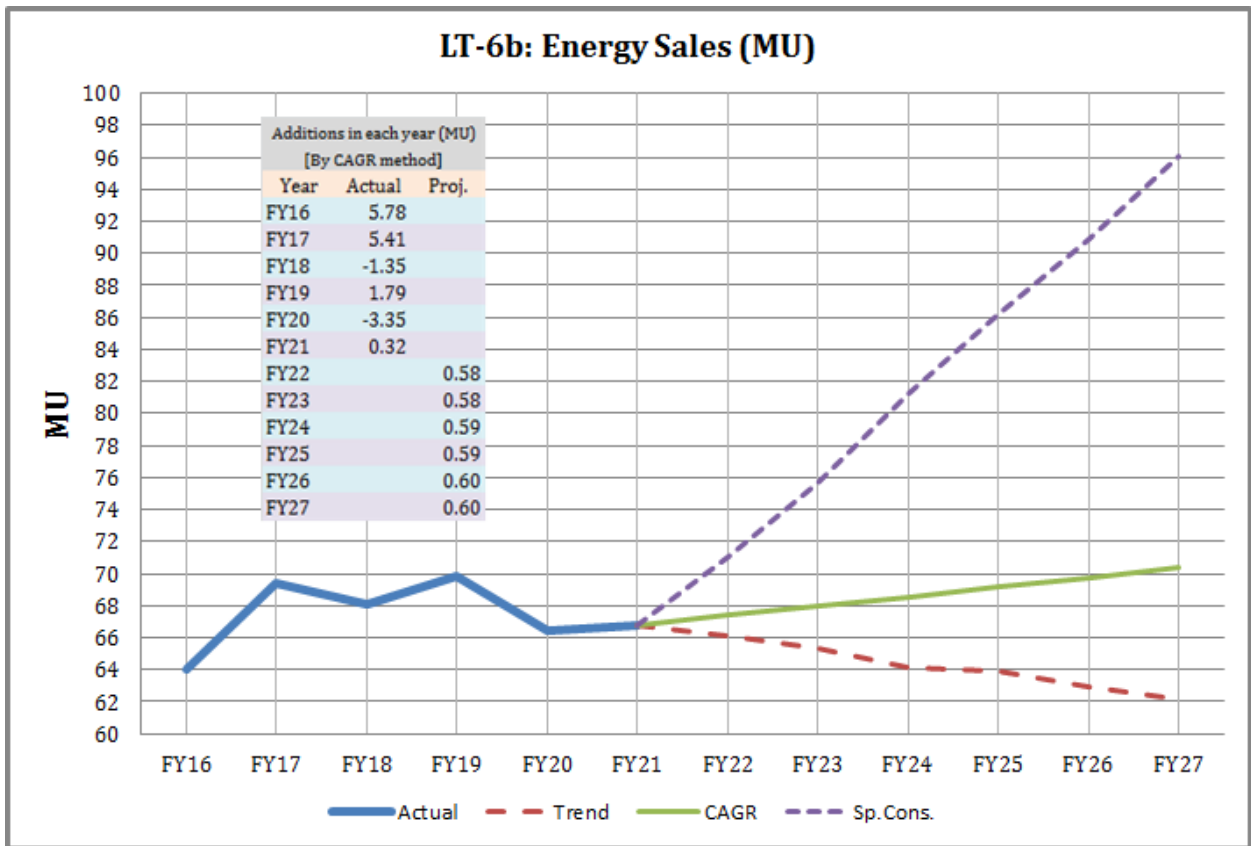
Table-33			LT-6b: Number of Installations		
Year			Year		
FY16	Actual	17,263	FY22	Projection	27,961
FY17	Actual	19,676	FY23	Projection	30,085
FY18	Actual	20,856	FY24	Projection	32,248
FY19	Actual	21,621	FY25	Projection	33,909
FY20	Actual	24,668	FY26	Projection	35,843
FY21	Actual	26,574	FY27	Projection	37,886

Projection of Energy Sales (LT-6b):

Specific consumption per year per installation recorded for the category in the years FY19, FY20 and FY21 were 3287 units, 2872 units & 2607 units respectively.

Energy Sales projections have been made using three methods viz., Trend, CAGR and Specific Consumption (of FY21) based methods. For CAGR 5 year CAGR with period duration of FY15 to FY20 has been considered which results 0.87%.

Comparison of Trend, CAGR and Specific Consumption based projection outcomes are presented below;



It can be observed that the CAGR curve appears to be more probative as it is reflecting the Business-As-Usual position. Hence, CAGR method has been considered as appropriate to project the energy sales for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the energy sales projected using CAGR (5 year; 0.87%) method in respect of LT-6b category for the period from FY22 to FY27, as depicted in the below table;

Table-34			LT-6b: Energy Sales (MU)		
Year			Year		
FY16	Actual	63.97	FY22	Projection	67.37
FY17	Actual	69.38	FY23	Projection	67.95
FY18	Actual	68.03	FY24	Projection	68.54
FY19	Actual	69.82	FY25	Projection	69.13
FY20	Actual	66.47	FY26	Projection	69.73
FY21	Actual	66.79	FY27	Projection	70.33

5.1.11 LT-7: Temporary Power Supply and permanent power supply to advertising hoardings:

This tariff category is applicable to temporary power supply for all purposes and also applicable to hoarding, advertisement boards, etc. as authorised in the tariff schedule.

The number of consumers under this category comprises about 0.82% of the total consumer base consuming about 0.36% of energy out of the total consumption of the company.

In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-35		LT-7				
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	16,506	14,153	16,431	17,096	17,638	20,572
Energy Sales (MU)	19.63	19.40	20.41	20.41	20.01	18.32

Projection of Number of Installations (LT-7):

As can be noticed from the above table, there is inconsistency in the number of installations at the end of each year. Hence, the number of installations existing as at the end of the year 2020-21 is retained for the years FY22 to FY27.

Hence, the Hon'ble Commission is requested to consider the number of installations as projected in the below table;

Table-36			LT-7: Number of Installations		
Year			Year		
FY16	Actual	16,506	FY22	Projection	20,572
FY17	Actual	14,153	FY23	Projection	20,572
FY18	Actual	16,431	FY24	Projection	20,572
FY19	Actual	17,096	FY25	Projection	20,572

FY20	Actual	17,638
FY21	Actual	20,572

FY26	Projection	20,572
FY27	Projection	20,572

Projection of Energy Sales (LT-7):

As the number of installations existing as at the end of the year 2020-21 is retained, the consumption recorded in the year 2020-21 is also retained as projected sales for the years FY22 to FY27.

Hence, the Hon’ble Commission is requested to consider the number of installations as projected in the below table;

Table-37			LT-7: Energy Sales (MU)		
Year			Year		
FY16	Actual	19.63	FY22	Projection	18.32
FY17	Actual	19.40	FY23	Projection	18.32
FY18	Actual	20.41	FY24	Projection	18.32
FY19	Actual	20.41	FY25	Projection	18.32
FY20	Actual	20.01	FY26	Projection	18.32
FY21	Actual	18.32	FY27	Projection	18.32

5.1.12 HT-1: Water Supply / Sewerage pumping installations:

This tariff category is applicable to water supply, drainage / sewerage water treatment plant and sewerage pumping installations belonging to KUWSS and Sewerage Board, other local bodies, State and Central Government.

The number of consumers under this category comprises about 0.005% of the total consumer base consuming about 1.995% of energy out of the total consumption of the company.

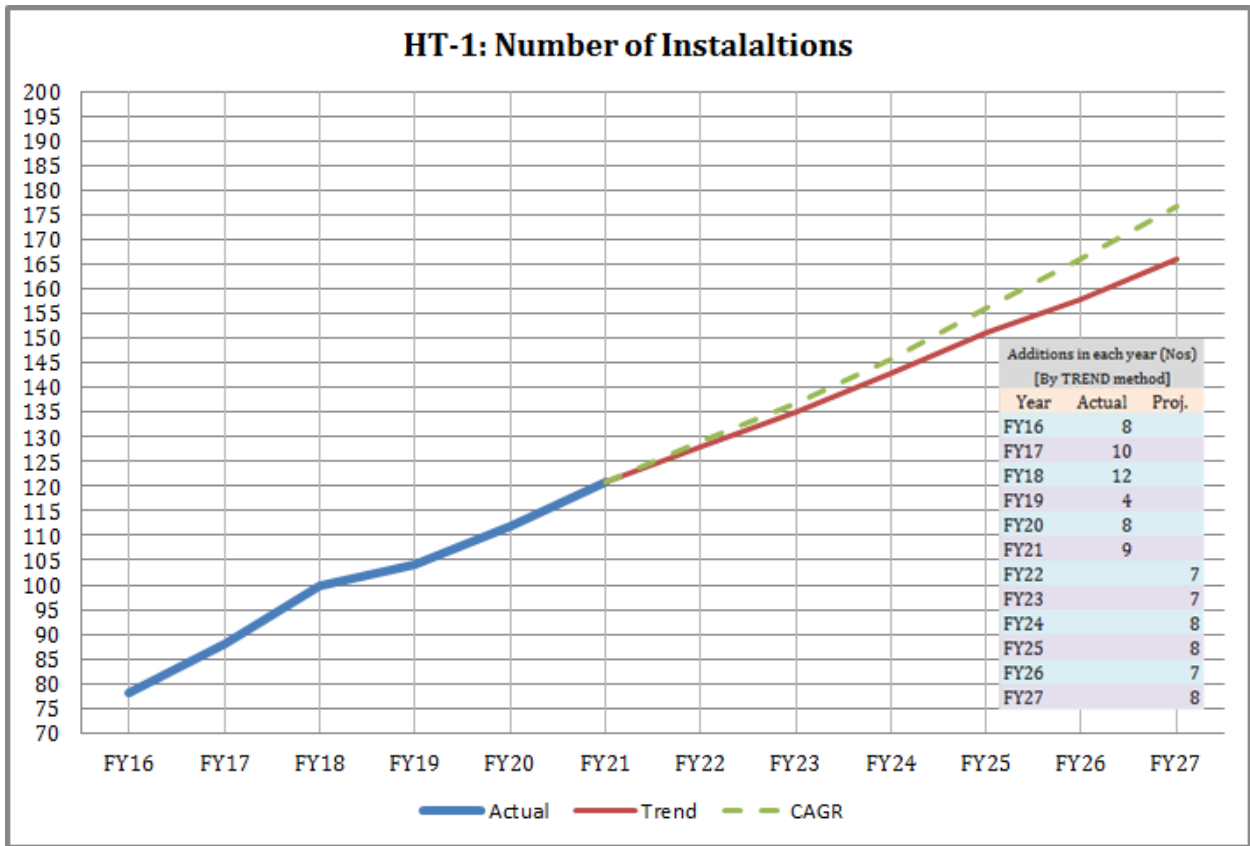
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-38	HT-1					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	78	88	100	104	112	121
Energy Sales (MU)	85.01	86.42	90.54	97.81	95.71	100.79

Projection of Number of Installations (HT-1):

For projecting number of installations two methods i.e., Trend & CAGR (3 year 6.56%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the highest number of installations additions was in FY18 i.e. 12. Thereafter, the average additions was around 7 for the category. This trend has been well captured in the Trend curve which appears to be more probative as it is reflecting the Business-As-Usual position. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of HT-1 category for the period from FY22 to FY27, as depicted in the below table;

Year	Actual	Value	Year	Projection	Value
FY16	Actual	78	FY22	Projection	128
FY17	Actual	88	FY23	Projection	135
FY18	Actual	100	FY24	Projection	143
FY19	Actual	104	FY25	Projection	151

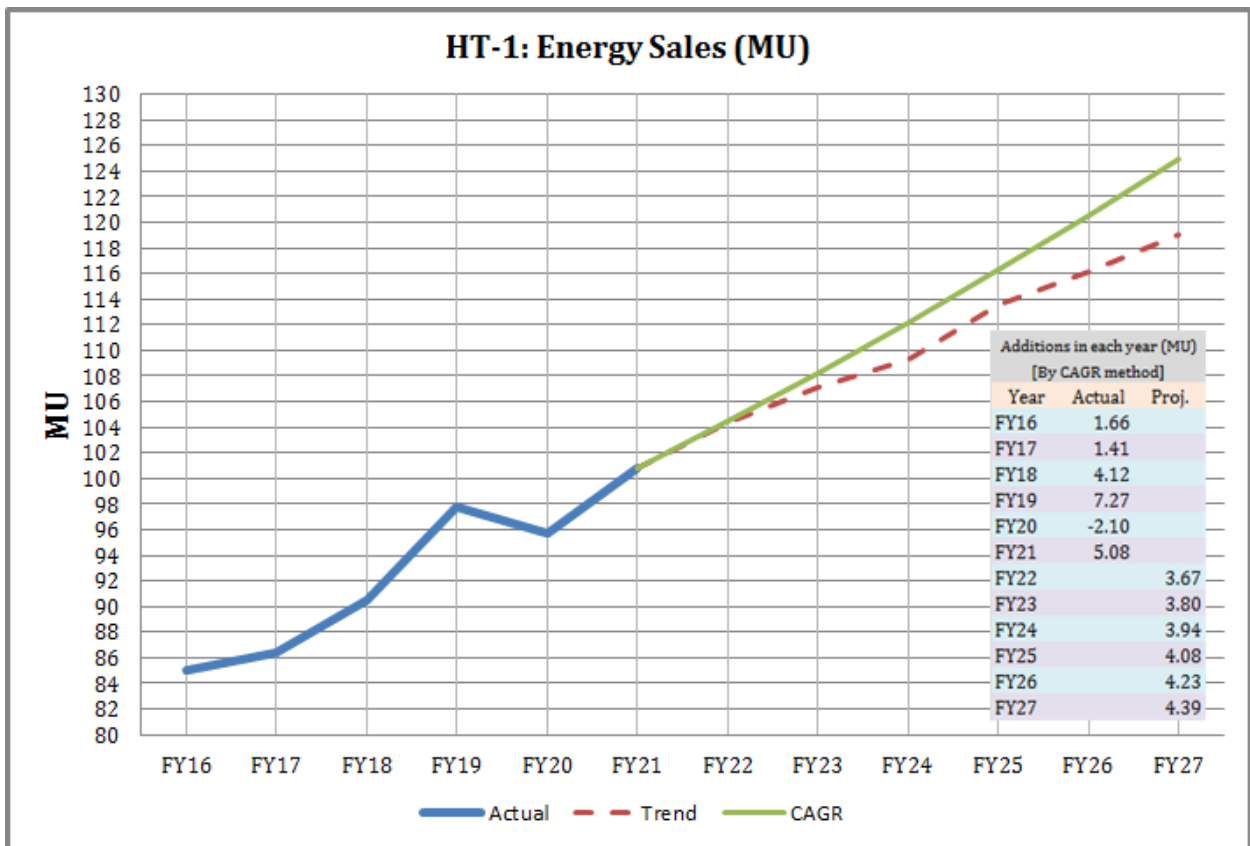
FY20	Actual	112
FY21	Actual	121

FY26	Projection	158
FY27	Projection	166

Projection of Energy Sales (HT-1):

Energy Sales projections have been made using two methods viz., Trend and CAGR based methods. For CAGR method, 3 year CAGR with period duration of FY18 to FY21 has been considered which results in 3.64%.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the CAGR curve appears to be more probative as it is reflecting the Business-As-Usual position. Hence, CAGR based method has been considered as appropriate to project the energy sales for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon’ble Commission is requested to consider the energy sales projected using CAGR based method in respect of HT-1 category for the period from FY22 to FY27, as depicted in the below table;

Table-40			HT-1: Energy Sales (MU)		
Year			Year		
FY16	Actual	85.01	FY22	Projection	104.46
FY17	Actual	86.42	FY23	Projection	108.26
FY18	Actual	90.54	FY24	Projection	112.20
FY19	Actual	97.81	FY25	Projection	116.28
FY20	Actual	95.71	FY26	Projection	120.51
FY21	Actual	100.79	FY27	Projection	124.90

5.1.13 HT-2a: Industrial:

This tariff category is applicable to industries, factories, industrial workshop, etc., as authorised in the tariff schedule.

The number of consumers under this category comprises about 0.04% of the total consumer base consuming about 12.11% of energy out of the total consumption of the company.

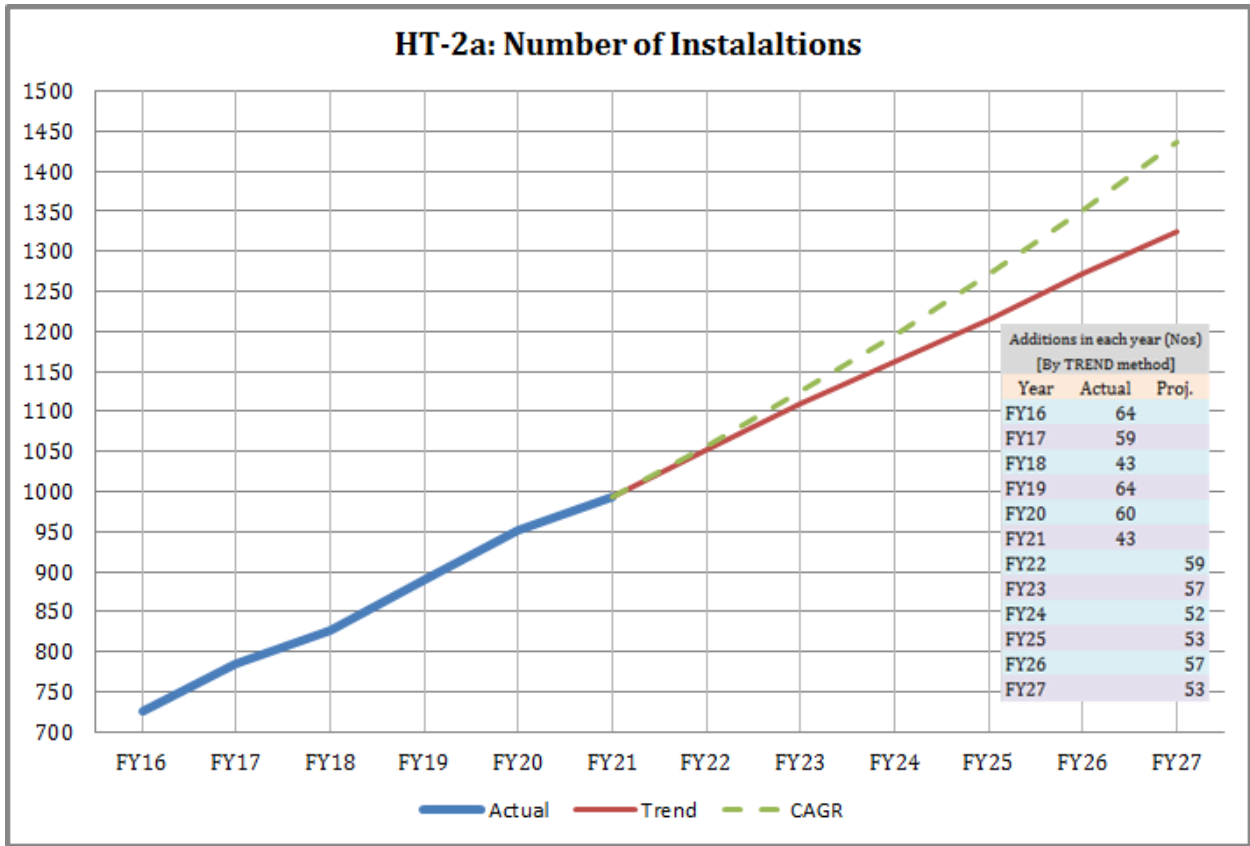
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-41		HT-2a				
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	725	784	827	891	951	994
Energy Sales (MU)	586.41	548.29	596.27	624.76	635.21	550.55

Projection of Number of Installations (HT-2a):

For projecting number of installations two methods i.e., Trend & CAGR (3 year 6.32%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the highest number of installations additions was in FY19 i.e. 64. Thereafter, the average additions was around 50 for the category. This trend has been well captured in the Trend curve which appears to be more probative as it is reflecting the Business-As-Usual position. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

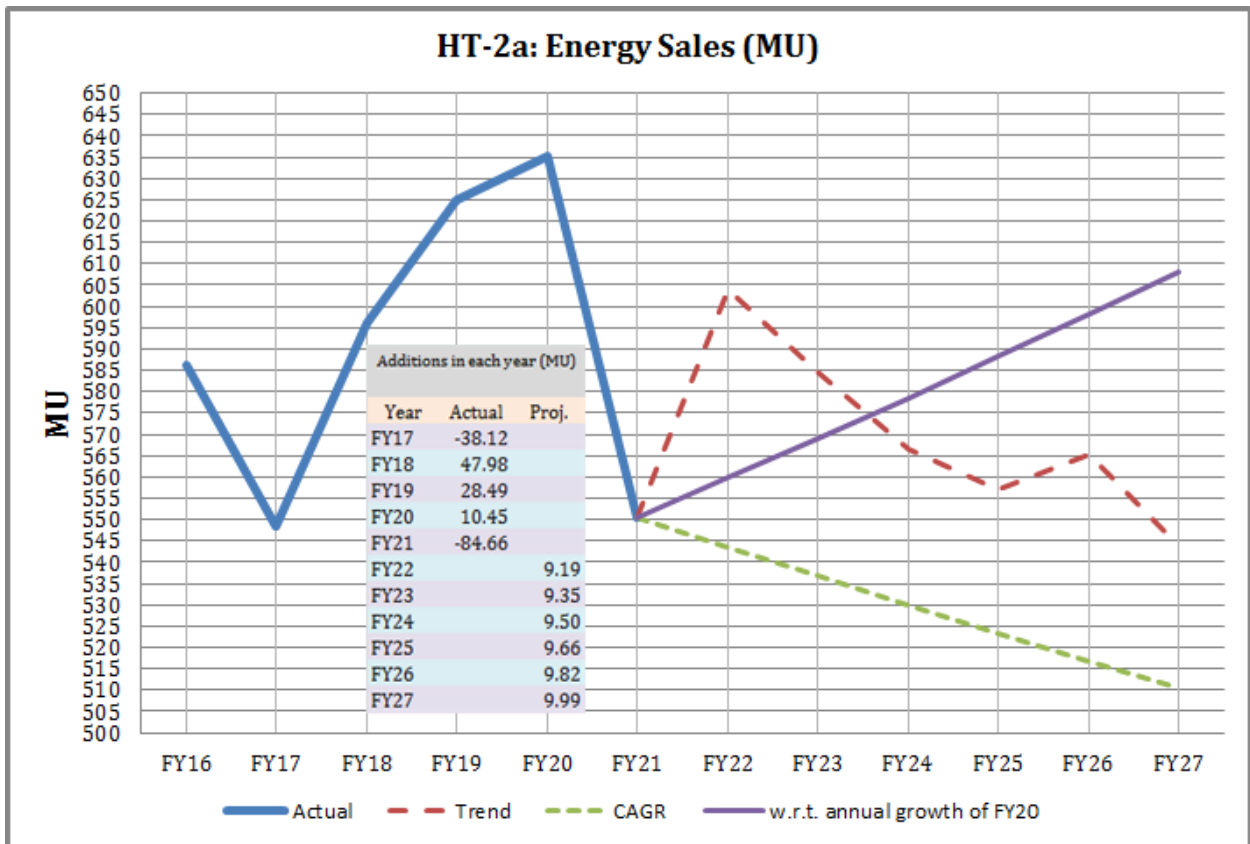
Hence, the Hon’ble Commission is requested to consider the number of installations projected using Trend method in respect of HT-2a category for the period from FY22 to FY27, as depicted in the below table;

Table-42			HT-2a: Number of Installations		
Year	Type	Value	Year	Type	Value
FY16	Actual	725	FY22	Projection	1,053
FY17	Actual	784	FY23	Projection	1,110
FY18	Actual	827	FY24	Projection	1,162
FY19	Actual	891	FY25	Projection	1,215
FY20	Actual	951	FY26	Projection	1,272
FY21	Actual	994	FY27	Projection	1,325

Projection of Energy Sales (HT-2a):

Energy Sales projections have been made using two methods viz., Trend and CAGR based methods. For CAGR method, 5 year CAGR with period duration of FY16 to FY21 has been considered which results in (-)1.25%. Since these methods are leading to declined consumption, increase in consumption in FY20 over FY19 i.e. 1.67% has been considered for projection.

Comparison of Trend, CAGR and annual growth in FY20 based projection outcomes are presented below;



It can be observed that consumption level will reach to FY18 position in FY27 with the growth rate of 1.67%. Hence, growth rate of 1.67% has been considered as appropriate to project the energy sales for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the energy sales projected using CAGR based method in respect of HT-2a category for the period from FY22 to FY27, as depicted in the below table;

Table-43			HT-2a: Energy Sales (MU)		
Year			Year		
FY16	Actual	586.41	FY22	Projection	559.74
FY17	Actual	548.29	FY23	Projection	569.09
FY18	Actual	596.27	FY24	Projection	578.60
FY19	Actual	624.76	FY25	Projection	588.26
FY20	Actual	635.21	FY26	Projection	598.08
FY21	Actual	550.55	FY27	Projection	608.07

5.1.14 HT-2b: Commercial:

This tariff category is applicable to commercial complexes, cinemas, hotels, etc., as authorised in the tariff schedule.

The number of consumers under this category comprises about 0.03% of the total consumer base consuming about 2.78% of energy out of the total consumption of the company.

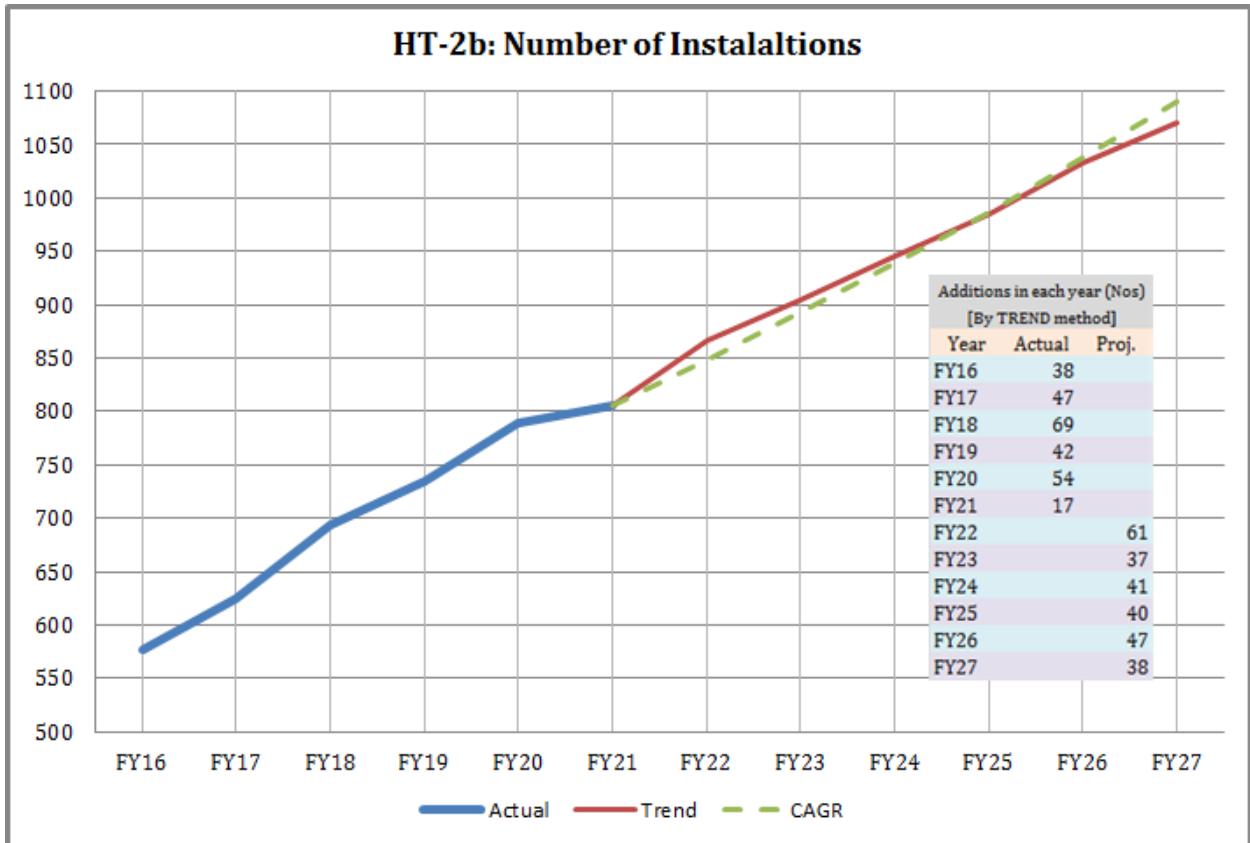
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-44		HT-2b					
	FY16	FY17	FY18	FY19	FY20	FY21	
No. of Installations	577	624	693	735	789	806	
Energy Sales (MU)	180.07	186.06	193.17	200.43	205.72	140.43	

Projection of Number of Installations (HT-2b):

For projecting number of installations two methods i.e., Trend & CAGR (3 year 5.16%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the highest number of installations additions was in FY18 i.e. 69 and lowest in FY21 i.e. 17. Leaving this, the average additions was around 45 to 50 for the category. This trend has been well captured in the Trend curve which appears to be more probative as it is reflecting the Business-As-Usual position. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

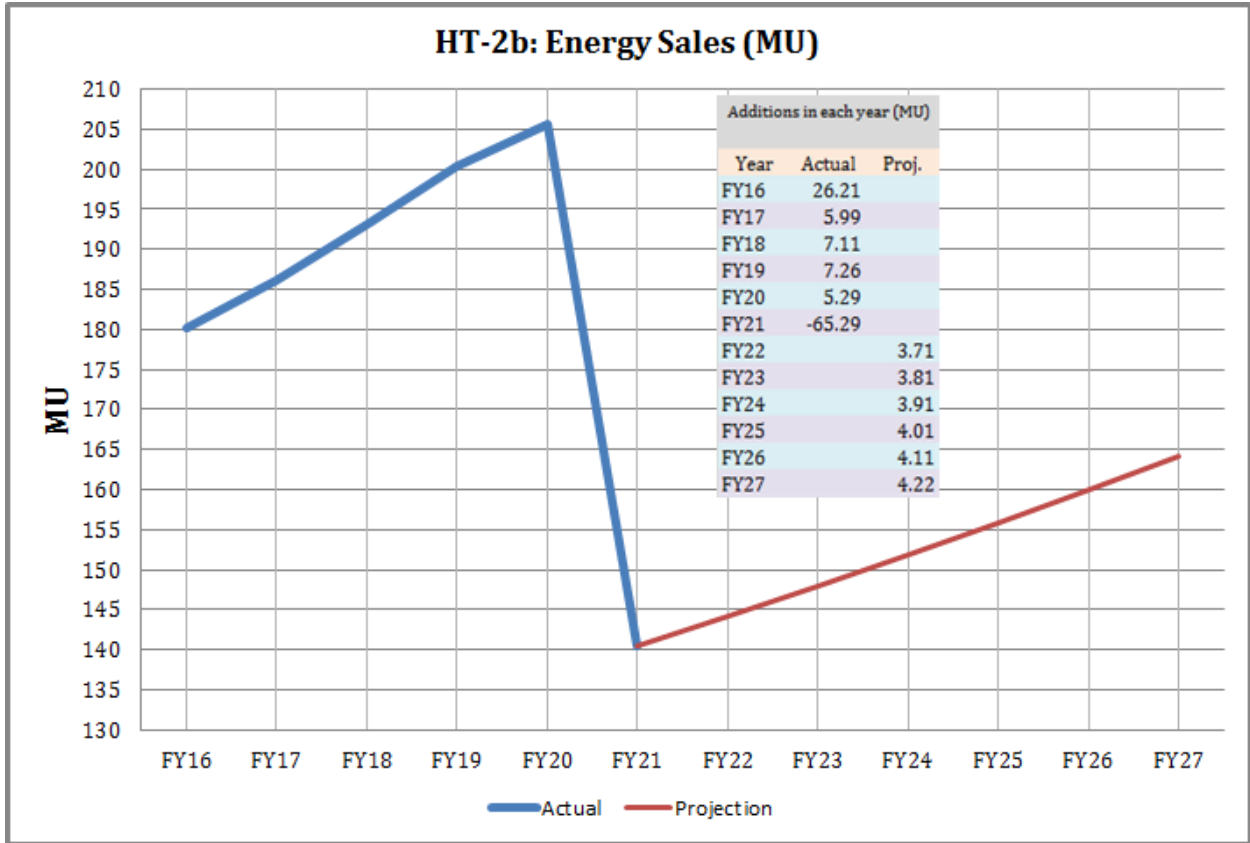
Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of HT-2b category for the period from FY22 to FY27, as depicted in the below table;

Table-45			HT-2b: Number of Installations		
Year	Actual	Value	Year	Projection	Value
FY16	Actual	577	FY22	Projection	867
FY17	Actual	624	FY23	Projection	904
FY18	Actual	693	FY24	Projection	945
FY19	Actual	735	FY25	Projection	985
FY20	Actual	789	FY26	Projection	1,032
FY21	Actual	806	FY27	Projection	1,070

Projection of Energy Sales (HT-2b):

In respect of HT-2b consumption has declines by 32% due to prevailing Covid regulations. However, it is expected that the consumption level increase gradually in the future years. Hence, the growth rate of 2.64% (increase rate in FY20 over FY19) is considered for projection for the years from FY22 to FY27.

Actual v/s projected consumption is presented below;



Hence, the Hon'ble Commission is requested to consider the energy sales projected using CAGR based method in respect of HT-2b category for the period from FY22 to FY27, as depicted in the below table;

Table-46			HT-2b: Energy Sales (MU)		
Year			Year		
FY16	Actual	180.07	FY22	Projection	144.14
FY17	Actual	186.06	FY23	Projection	147.95
FY18	Actual	193.17	FY24	Projection	151.86
FY19	Actual	200.43	FY25	Projection	155.87
FY20	Actual	205.72	FY26	Projection	159.98
FY21	Actual	140.43	FY27	Projection	164.20

5.1.15 HT-2c: Hospitals / Educational Institutions:

This tariff category is applicable to hospitals, Universities, educational institutions hostels, etc., as detailed in the tariff schedule.

The number of consumers under this category comprises about 0.013% of the total consumer base consuming about 1.78% of energy out of the total consumption of the company.

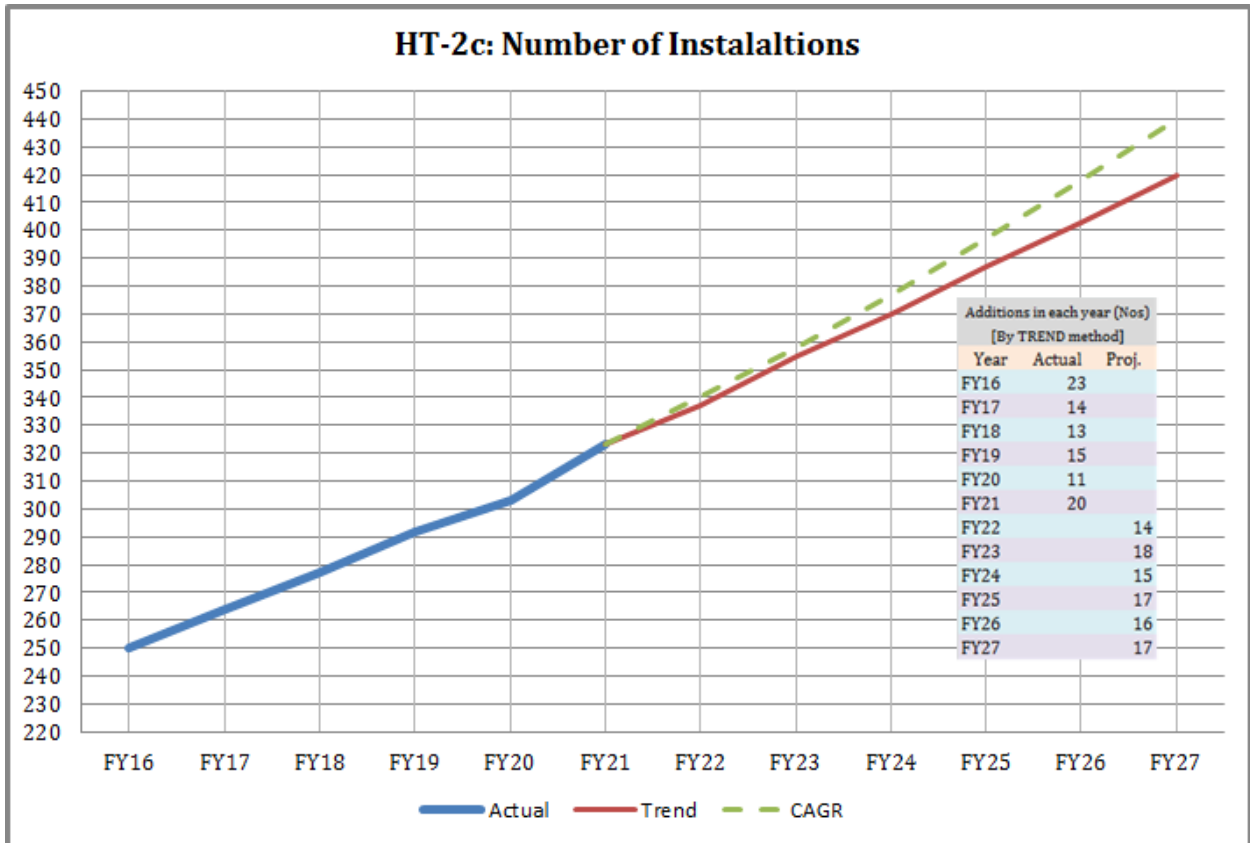
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-47	HT-2c					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	250	264	277	292	303	323
Energy Sales (MU)	155.05	154.85	137.07	144.58	139.87	89.80

Projection of Number of Installations (HT-2c):

For projecting number of installations two methods i.e., Trend & CAGR (3 year 5.25%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the highest number of installations additions was in FY16 i.e. 23 and lowest in FY20 i.e. 11. Leaving this, the average additions was around 15 for the category. This trend has been well captured in the Trend curve which appears to be more probative as it is reflecting the Business-As-Usual position. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

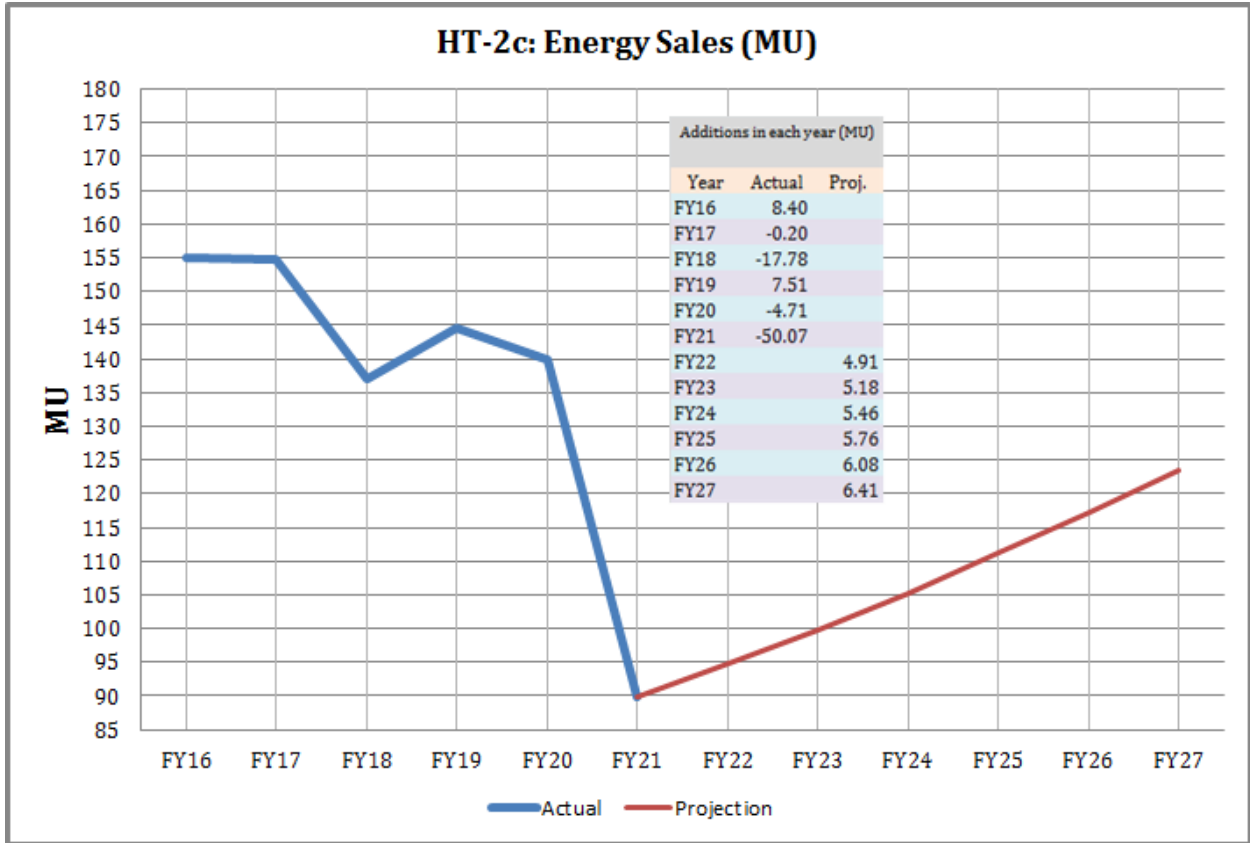
Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of HT-2c category for the period from FY22 to FY27, as depicted in the below table;

Table-48			HT-2c: Number of Installations		
Year	Actual	Value	Year	Projection	Value
FY16	Actual	250	FY22	Projection	337
FY17	Actual	264	FY23	Projection	355
FY18	Actual	277	FY24	Projection	370
FY19	Actual	292	FY25	Projection	387
FY20	Actual	303	FY26	Projection	403
FY21	Actual	323	FY27	Projection	420

Projection of Energy Sales (HT-2c):

In respect of HT-2c consumption has declines by 37% due to prevailing Covid regulations. However, it is expected that the consumption level increase gradually in the future years. Hence, the growth rate of 5.47% (increase rate in FY19 over FY18) is considered for projection for the years from FY22 to FY27.

Actual v/s projected consumption is presented below;



Hence, the Hon'ble Commission is requested to consider the energy sales projected using CAGR based method in respect of HT-2c category for the period from FY22 to FY27, as depicted in the below table;

Table-49			HT-2c: Energy Sales (MU)		
Year			Year		
FY16	Actual	155.05	FY22	Projection	94.71
FY17	Actual	154.85	FY23	Projection	99.89
FY18	Actual	137.07	FY24	Projection	105.35
FY19	Actual	144.58	FY25	Projection	111.11
FY20	Actual	139.87	FY26	Projection	117.19
FY21	Actual	89.80	FY27	Projection	123.60

5.1.16 HT-3a(i): Lift irrigation Schemes / Societies:

This tariff category is applicable to lift irrigation schemes under government departments / government owned corporations.

The number of consumers under this category comprises about 0.001% of the total consumer base consuming about 1.89% of energy out of the total consumption of the company.

In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-50	HT-3a(i)					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	21	23	25	25	30	31
Energy Sales (MU)	8.32	15.71	23.39	40.98	69.49	95.39

Projection of Number of Installations (HT-3a(i)):

As can be noticed from the above table, the category is not having continuous growth rate. Hence, the number of installations existing as at the end of the year 2020-21 is retained for the years FY22 to FY27.

Hence, the Hon’ble Commission is requested to consider the number of installations as projected in the below table;

Table-51		HT-3a(i): Number of Installations			
Year			Year		
FY16	Actual	21	FY22	Projection	31
FY17	Actual	23	FY23	Projection	31
FY18	Actual	25	FY24	Projection	31
FY19	Actual	25	FY25	Projection	31
FY20	Actual	30	FY26	Projection	31
FY21	Actual	31	FY27	Projection	31

Projection of Energy Sales (HT-3a(i)):

As the number of installations existing as at the end of the year 2020-21 is retained, the consumption recorded in the year 2020-21 is also retained as projected sales for the years FY22 to FY27.

Hence, the Hon'ble Commission is requested to consider the number of installations as projected in the below table;

Table-52			HT-3a(i): Energy Sales (MU)		
Year			Year		
FY16	Actual	8.32	FY22	Projection	95.39
FY17	Actual	15.71	FY23	Projection	95.39
FY18	Actual	23.39	FY24	Projection	95.39
FY19	Actual	40.98	FY25	Projection	95.39
FY20	Actual	69.49	FY26	Projection	95.39
FY21	Actual	95.39	FY27	Projection	95.39

5.1.17 HT-3b: Irrigation and Agricultural farms:

This tariff category is applicable to irrigation and agricultural farms, government horticultural farms, private horticultural nurseries, coffee, tea, rubber, coconut and arecanut plantations.

The number of consumers under this category comprises about 0.0001% of the total consumer base consuming about 0.004% of energy out of the total consumption of the company.

In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-53	HT-3b					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	3	3	3	3	3	3
Energy Sales (MU)	0.29	0.32	0.22	0.22	0.19	0.20

Projection of Number of Installations (HT-3b):

As can be noticed from the above table, the category is not having growth rate. Hence, the number of installations existing as at the end of the year 2020-21 is retained for the years FY22 to FY27.

Hence, the Hon'ble Commission is requested to consider the number of installations as projected in the below table;

Table-54			HT-3a(i): Number of Installations		
Year			Year		
FY16	Actual	3	FY22	Projection	3

FY17	Actual	3
FY18	Actual	3
FY19	Actual	3
FY20	Actual	3
FY21	Actual	3

FY23	Projection	3
FY24	Projection	3
FY25	Projection	3
FY26	Projection	3
FY27	Projection	3

Projection of Energy Sales (HT-3b):

As the number of installations existing as at the end of the year 2020-21 is retained, the consumption recorded in the year 2020-21 is also retained as projected sales for the years FY22 to FY27.

Hence, the Hon’ble Commission is requested to consider the number of installations as projected in the below table;

Table-55			HT-3b: Energy Sales (MU)		
Year			Year		
FY16	Actual	0.29	FY22	Projection	0.20
FY17	Actual	0.32	FY23	Projection	0.20
FY18	Actual	0.22	FY24	Projection	0.20
FY19	Actual	0.22	FY25	Projection	0.20
FY20	Actual	0.19	FY26	Projection	0.20
FY21	Actual	0.20	FY27	Projection	0.20

5.1.18 HT-4: Residential Apartments and colonies:

This tariff category is applicable to residential apartments and colonies availing power supply independently or by tapping the main HT line.

The number of consumers under this category comprises about 0.003% of the total consumer base consuming about 0.41% of energy out of the total consumption of the company.

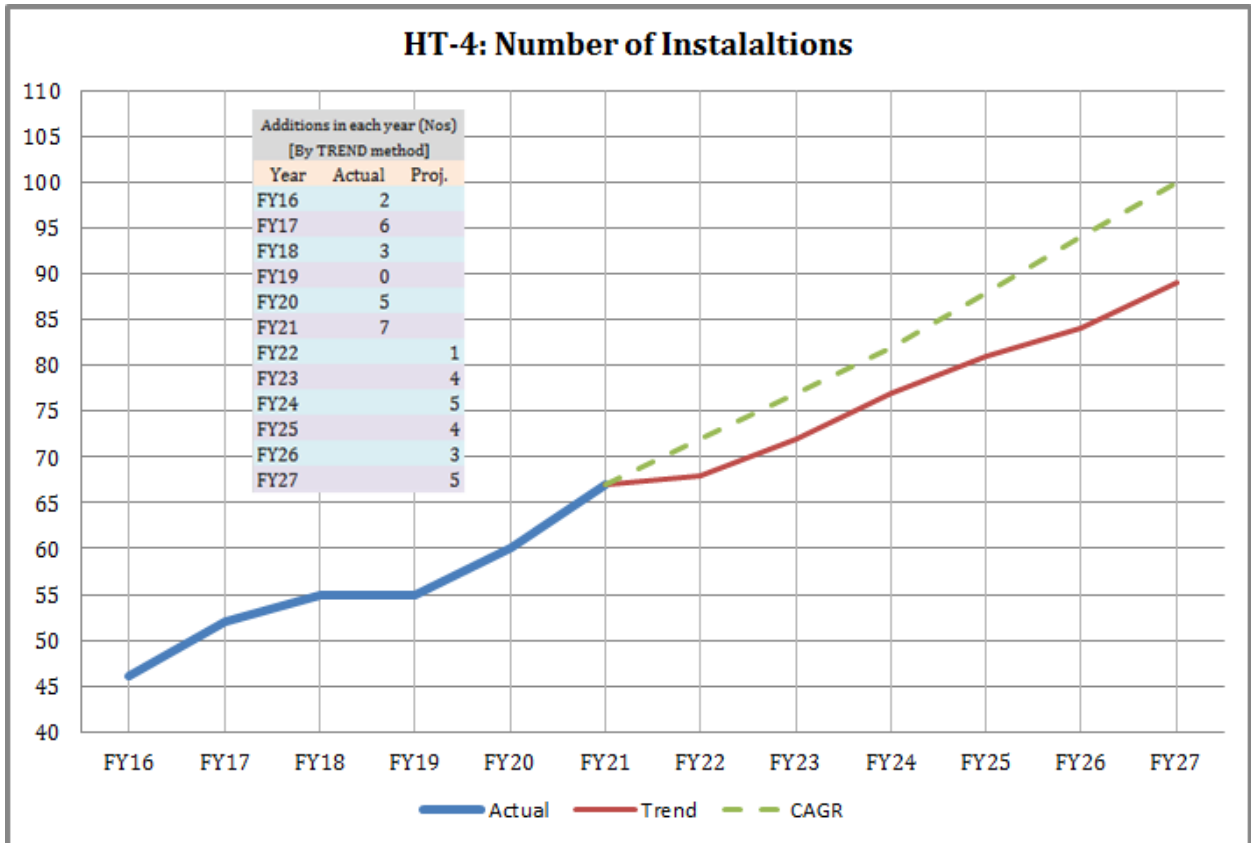
In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-56	HT-4					
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	46	52	55	55	60	67
Energy Sales (MU)	16.90	18.82	19.10	20.42	21.79	20.74

Projection of Number of Installations (HT-4):

For projecting number of installations two methods i.e., Trend & CAGR (3 year 6.80%) have been considered.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the highest number of installations additions was in FY21 i.e. 7 and nil in FY19. This trend has been well captured in the Trend curve which appears to be more probative as it is reflecting the Business-As-Usual position. Hence, Trend method has been considered as appropriate to project the number of installations for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the number of installations projected using Trend method in respect of HT-4 category for the period from FY22 to FY27, as depicted in the below table;

Table-57			HT-4: Number of Installations		
Year			Year		
FY16	Actual	46	FY22	Projection	68
FY17	Actual	52	FY23	Projection	72

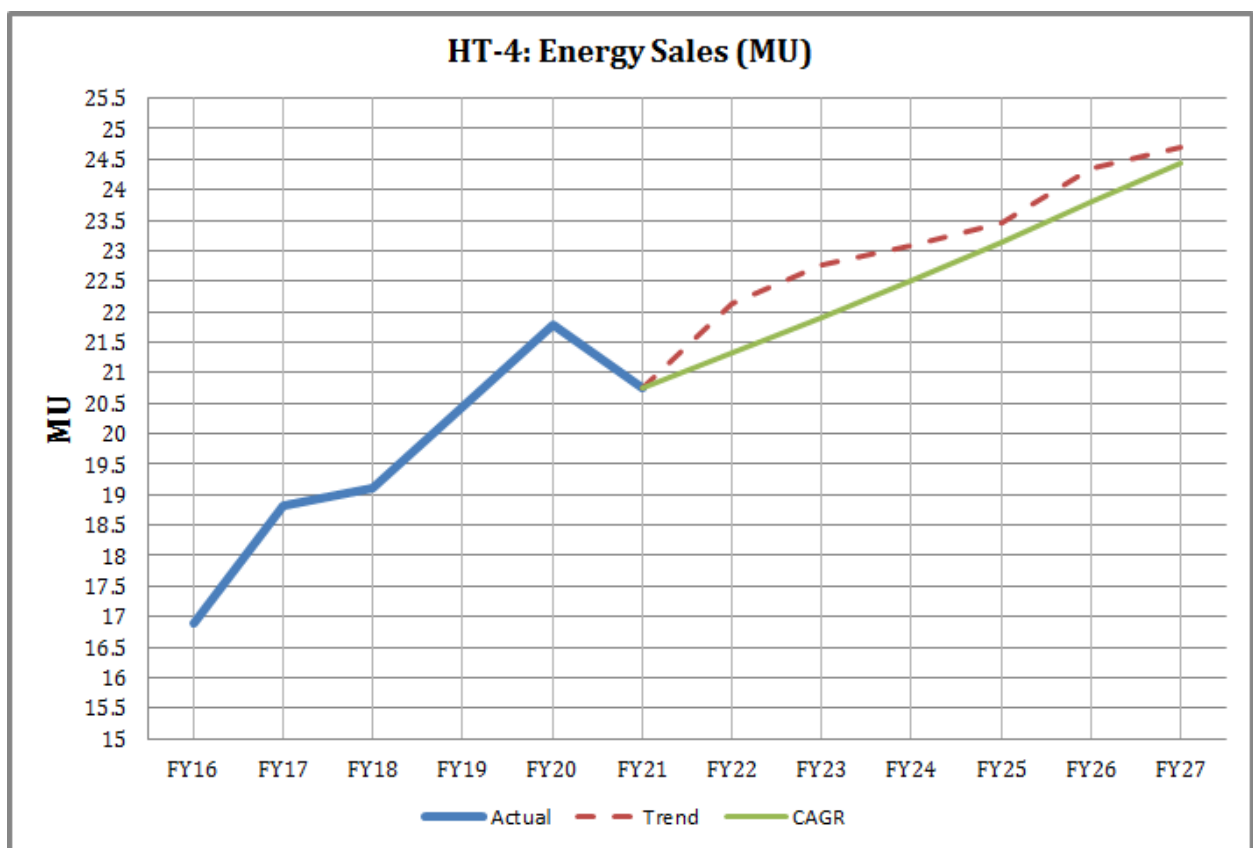
FY18	Actual	55
FY19	Actual	55
FY20	Actual	60
FY21	Actual	67

FY24	Projection	77
FY25	Projection	81
FY26	Projection	84
FY27	Projection	89

Projection of Energy Sales (HT-4):

Energy Sales projections have been made using two methods viz., Trend and CAGR based methods. For CAGR method, 3 year CAGR with period duration of FY18 to FY21 has been considered which results in 2.78%.

Comparison of Trend and CAGR based projection outcomes are presented below;



It can be observed that the CAGR curve appears to be more probative as it is reflecting the Business-As-Usual position. Hence, CAGR based method has been considered as appropriate to project the energy sales for the period from FY22 to FY27 and accordingly adopted.

Hence, the Hon'ble Commission is requested to consider the energy sales projected using CAGR based method in respect of HT-4 category for the period from FY22 to FY27, as depicted in the below table;

Table-58			HT-4: Energy Sales (MU)		
Year			Year		
FY16	Actual	16.90	FY22	Projection	21.32
FY17	Actual	18.82	FY23	Projection	21.91
FY18	Actual	19.10	FY24	Projection	22.52
FY19	Actual	20.42	FY25	Projection	23.15
FY20	Actual	21.79	FY26	Projection	23.79
FY21	Actual	20.74	FY27	Projection	24.45

5.1.19 HT-5: Temporary Power Supply:

This tariff category is applicable to sanctioned load of 67 HP and above for hoardings and advertisement boards and construction of power for industries and also applicable to power supply availed on temporary basis with the contract demand of 67 HP & above.

The number of consumers under this category comprises about 0.0008% of the total consumer base consuming about 0.045% of energy out of the total consumption of the company.

In previous six years, number of installations and energy consumption of the category for each year are as indicated below;

Table-59		HT-5				
	FY16	FY17	FY18	FY19	FY20	FY21
No. of Installations	20	16	14	17	16	19
Energy Sales (MU)	8.99	5.50	5.96	1.73	3.40	2.29

Projection of Number of Installations (HT-5):

As can be noticed from the above table, there is inconsistency in the number of installations at the end of each year. Hence, the number of installations existing as at the end of the year 2020-21 is retained for the years FY22 to FY27.

Hence, the Hon'ble Commission is requested to consider the number of installations as projected in the below table;

Table-60			HT-5: Number of Installations		
Year			Year		
FY16	Actual	20	FY22	Projection	19
FY17	Actual	16	FY23	Projection	19
FY18	Actual	14	FY24	Projection	19

FY19	Actual	17
FY20	Actual	16
FY21	Actual	19

FY25	Projection	19
FY26	Projection	19
FY27	Projection	19

Projection of Energy Sales (HT-5):

As the number of installations existing as at the end of the year 2020-21 is retained, the consumption recorded in the year 2020-21 is also retained as projected sales for the years FY22 to FY27.

Hence, the Hon’ble Commission is requested to consider the number of installations as projected in the below table;

Table-61			HT-5: Energy Sales (MU)		
Year			Year		
FY16	Actual	8.99	FY22	Projection	2.29
FY17	Actual	5.50	FY23	Projection	2.29
FY18	Actual	5.96	FY24	Projection	2.29
FY19	Actual	1.73	FY25	Projection	2.29
FY20	Actual	3.40	FY26	Projection	2.29
FY21	Actual	2.29	FY27	Projection	2.29

5.1.20 Supply to MSEZ:

In the Tariff Order-2021, Hon’ble Commission has approved the energy sales 43.75 MU for FY22. As MSEZ are sourcing power from IEX, MESCOM retains the sales of 43.75 MU for the years FY22 to FY27 also.

5.1.21 KPTCL Auxiliary Consumption and KPCL Consumption:

For the year FY21, KPTCL Auxiliary consumption and KPCL consumption are 3.90 MU and 2.67 MU, respectively. Same sales have been retained for the years FY22 to FY27 also.

5.1.22 ABSTRACT – Number of Installations:

Table-62 Tariff Category	Number of Installations				
	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Actual	FY21 Actual
1	2	3	4	5	6
LT-1:=<40 Units	1,43,049	1,79,636	1,75,524	1,69,140	1,61,434
LT-1:>40	50,323	11,526	12,480	15,103	17,784
LT-1 Sub Total:	1,93,372	1,91,162	1,88,004	1,84,243	1,79,218
LT-2a(i) Urban	5,71,650	5,94,337	6,11,398	6,36,944	6,59,391
LT-2a(ii) Rural	8,80,793	8,95,844	9,35,899	9,55,341	9,67,345
LT-2a Sub Total:	14,52,443	14,90,181	15,47,297	15,92,285	16,26,736
LT-2b(i) Urban	1,636	1,655	1,681	1,730	1,778
LT-2b(ii) Rural	1,716	1,809	1,833	1,860	1,862
LT-2b Sub Total:	3,352	3,464	3,514	3,590	3,640
LT-3(i) Urban	1,15,738	1,18,454	1,24,208	1,29,380	1,34,049
LT-3(ii) Rural	81,932	86,163	88,191	91,037	94,175
LT-3 Sub Total:	1,97,670	2,04,617	2,12,399	2,20,417	2,28,224
LT-4a	2,91,129	3,06,053	3,26,187	3,44,482	3,61,885
LT-4b	245	180	162	165	161
LT-4c	3,673	3,963	4,311	4,713	4,878
LT-5ai	1,437	1,368	1,452	1,448	1,407
LT-5aai	2,967	3,038	3,300	3,278	3,222
LT-5aaii	526	548	592	581	584
LT-5aiv	55	54	56	46	45
LT-5av	-	-	-	-	-
LT-5a Sub Total	4,985	5,008	5,400	5,353	5,258
LT-5bi	11,192	11,922	12,484	13,306	14,303
LT-5bii	11,253	11,649	11,900	12,245	12,708
LT-5bii	1,277	1,320	1,318	1,336	1,434
LT-5biv	86	74	72	71	66
LT-5bv	-	-	-	-	-
LT-5b Sub Total	23,808	24,965	25,774	26,958	28,511
LT-6a	13,680	14,860	15,391	16,005	16,838
LT-6b	19,676	20,856	21,621	24,668	26,574
LT-7	14,153	16,431	17,096	17,638	20,572
TOTAL- LT	22,18,186	22,81,740	23,67,156	24,40,517	25,02,495
HT-1	88	100	104	112	121
HT-2a	783	826	890	950	993
HT-2b	624	693	735	789	806
HT-2c	264	277	292	303	323
HT-3a	23	25	25	30	31
HT-3b	3	3	3	3	3
HT-4	52	55	55	60	67
HT-5	16	14	17	16	19
MSEZ	1	1	1	1	1
TOTAL- HT	1,854	1,994	2,122	2,264	2,364
TOTAL- LT + HT	22,20,040	22,83,734	23,69,278	24,42,781	25,04,859

Number of Installations					
Tariff Category	Method considered for projection	FY22	FY23	FY24	FY25
		Projection	Projection	Projection	Projection
1	7	8	9	10	11
LT-1:=<40 Units	Trend	1,54,609	1,47,197	1,40,176	1,32,894
LT-1:>40	Trend	20,426	23,094	25,745	28,407
LT-1 Sub Total:		1,75,035	1,70,291	1,65,921	1,61,301
LT-2a(i) Urban	Trend	6,83,904	7,07,040	7,31,094	7,54,536
LT-2a(ii) Rural	Trend	9,84,308	9,97,965	10,13,826	10,28,218
LT-2a Sub Total:		16,68,212	17,05,005	17,44,920	17,82,754
LT-2b(i) Urban	Trend	1,804	1,848	1,891	1,928
LT-2b(ii) Rural	Trend	1,881	1,889	1,904	1,914
LT-2b Sub Total:		3,685	3,737	3,795	3,842
LT-3(i) Urban	Trend	1,38,630	1,44,002	1,48,705	1,53,534
LT-3(ii) Rural	Trend	97,108	99,697	1,02,767	1,05,651
LT-3 Sub Total:		2,35,738	2,43,699	2,51,472	2,59,185
LT-4a	Trend	3,79,930	3,98,743	4,16,413	4,34,507
LT-4b	FY21 nos. retained	161	161	161	161
LT-4c	(*1)	5,043	5,208	5,373	5,538
LT-5ai	FY21 nos. retained	1,407	1,407	1,407	1,407
LT-5aai	FY21 nos. retained	3,222	3,222	3,222	3,222
LT-5aai	FY21 nos. retained	584	584	584	584
LT-5aiv	FY21 nos. retained	42	42	42	42
LT-5av	FY21 nos. retained	3	3	3	3
LT-5a Sub Total		5,258	5,258	5,258	5,258
LT-5bi	Trend	15,182	15,992	16,924	17,815
LT-5bii	Trend	13,092	13,462	13,875	14,277
LT-5bii	Trend	1,480	1,550	1,609	1,678
LT-5biv	FY21 nos. retained	63	63	63	63
LT-5bv	FY21 nos. retained	3	3	3	3
LT-5b Sub Total		29,820	31,070	32,474	33,836
LT-6a	Trend	17,593	18,211	18,976	19,719
LT-6b	Trend	27,961	30,085	32,248	33,909
LT-7	FY21 nos. retained	20,572	20,572	20,572	20,572
TOTAL- LT		25,69,008	26,32,040	26,97,583	27,60,582
HT-1	Trend	128	135	143	151
HT-2a	Trend	1,052	1,109	1,161	1,214
HT-2b	Trend	867	904	945	985
HT-2c	Trend	337	355	370	387
HT-3a	FY21 nos. retained	31	31	31	31
HT-3b	FY21 nos. retained	3	3	3	3
HT-4	Trend	68	72	77	81
HT-5	FY21 nos. retained	19	19	19	19
MSEZ		1	1	1	1
TOTAL- HT		2,506	2,629	2,750	2,872
TOTAL- LT + HT		25,71,514	26,34,669	27,00,333	27,63,454

(*1): Additions in FY21 over FY20 is considered as year-on-year additions.

Number of Installations		
Tariff Category	FY26	FY27
	Projection	Projection
1	12	13
LT-1: =<40 Units	1,25,786	1,18,562
LT-1: >40	31,062	33,722
LT-1 Sub Total:	1,56,848	1,52,284
LT-2a(i) Urban	7,78,386	8,01,964
LT-2a(ii) Rural	10,43,589	10,58,307
LT-2a Sub Total:	18,21,975	18,60,271
LT-2b(i) Urban	1,966	2,009
LT-2b(ii) Rural	1,927	1,938
LT-2b Sub Total:	3,893	3,947
LT-3(i) Urban	1,58,498	1,63,454
LT-3(ii) Rural	1,08,463	1,11,336
LT-3 Sub Total:	2,66,961	2,74,790
LT-4a	4,52,814	4,70,941
LT-4b	161	161
LT-4c	5,703	5,868
LT-5ai	1,407	1,407
LT-5aai	3,222	3,222
LT-5aaii	584	584
LT-5aiv	42	42
LT-5av	3	3
LT-5a Sub Total	5,258	5,258
LT-5bi	18,673	19,557
LT-5bii	14,659	15,056
LT-5bii	1,736	1,802
LT-5biv	63	63
LT-5bv	3	3
LT-5b Sub Total	35,134	36,481
LT-6a	20,411	21,125
LT-6b	35,843	37,886
LT-7	20,572	20,572
TOTAL- LT	28,25,573	28,89,584
HT-1	158	166
HT-2a	1,271	1,324
HT-2b	1,032	1,070
HT-2c	403	420
HT-3a	31	31
HT-3b	3	3
HT-4	84	89
HT-5	19	19
MSEZ	1	1
TOTAL- HT	3,002	3,123
TOTAL- LT + HT	28,28,575	28,92,707

5.1.23 ABSTRACT – Energy Sales:

Table-63	Energy Sales (MU)				
Tariff Category	FY17	FY18	FY19	FY20	FY21
	Actual	Actual	Actual	Actual	Actual
1	2	3	4	5	6
LT-1:=<40 Units	27.03	34.21	37.29	34.65	35.00
LT-1:>40	13.93	12.60	12.08	14.91	18.91
LT-1 Sub Total:	40.96	46.81	49.37	49.56	53.91
LT-2a(i) Urban	684.03	707.47	721.91	776.91	802.76
LT-2a(ii) Rural	608.21	631.23	640.07	687.80	727.01
LT-2a Sub Total:	1,292.24	1,338.70	1,361.98	1,464.71	1,529.77
LT-2b(i) Urban	8.78	8.32	7.94	8.74	4.65
LT-2b(ii) Rural	5.04	5.45	5.68	6.12	3.41
LT-2b Sub Total:	13.82	13.77	13.62	14.86	8.06
LT-3(i) Urban	229.75	240.44	240.67	256.03	216.39
LT-3(ii) Rural	112.59	122.22	129.63	137.80	133.59
LT-3 Sub Total:	342.34	362.66	370.30	393.83	349.98
LT-4a	1,628.06	1,661.64	1,630.90	1,728.92	1,685.26
LT-4b	1.21	0.93	0.85	0.88	0.89
LT-4c	8.35	7.91	6.91	8.08	8.70
LT-5ai	4.02	1.51	1.68	1.78	1.30
LT-5aai	14.84	15.49	16.52	17.15	13.09
LT-5aai	20.48	24.21	23.26	22.92	20.37
LT-5aiv	4.86	5.15	4.42	3.73	3.00
LT-5av	-	-	-	-	-
LT-5a Sub Total	44.20	46.36	45.88	45.58	37.76
LT-5bi	9.86	9.10	8.97	10.08	9.71
LT-5bii	34.06	35.18	35.07	36.10	35.02
LT-5bii	40.57	39.65	38.45	39.91	37.53
LT-5biv	8.09	6.61	5.58	5.22	3.72
LT-5bv	-	-	-	-	-
LT-5b Sub Total	92.58	90.54	88.07	91.31	85.98
LT-6a	120.53	118.84	123.02	131.97	144.80
LT-6b	69.38	68.03	69.82	66.47	66.79
LT-7	19.40	20.41	20.41	20.01	18.32
TOTAL- LT	3,673.07	3,776.60	3,781.13	4,016.18	3,990.22
HT-1	86.42	90.54	97.81	95.71	100.79
HT-2a	548.29	596.27	624.76	635.21	550.55
HT-2b	186.06	193.17	200.43	205.72	140.43
HT-2c	154.85	137.07	144.58	139.87	89.80
HT-3a	15.71	23.39	40.98	69.49	95.39
HT-3b	0.32	0.22	0.22	0.19	0.20
HT-4	18.82	19.10	20.42	21.79	20.74
HT-5	5.50	5.96	1.73	3.40	2.29
MSEZ	18.31	39.60	41.94	56.88	60.98
	87.10	-	2.88	2.74	6.57
TOTAL- HT	1,121.38	1,105.32	1,175.75	1,231.00	1,067.74
TOTAL- LT + HT	4,794.45	4,881.92	4,956.88	5,247.18	5,057.96

Energy Sales (MU)					
Tariff Category	Method considered for projection	FY22	FY23	FY24	FY25
		Projection	Projection	Projection	Projection
1	7	8	9	10	11
LT-1:=<40 Units	3 year CAGR 0.76%	35.27	35.54	35.81	36.08
LT-1:>40	5 year CAGR 6.53%	20.15	21.47	22.87	24.36
LT-1 Sub Total:		55.42	57.01	58.68	60.44
LT-2a(i) Urban	5 year CAGR 3.16%	828.09	854.22	881.18	908.99
LT-2a(ii) Rural	5 year CAGR 4.71%	761.28	797.17	834.75	874.10
LT-2a Sub Total:		1,589.37	1,651.39	1,715.93	1,783.09
LT-2b(i) Urban	5 year CAGR 3.36%	4.81	4.97	5.14	5.31
LT-2b(ii) Rural	5 year CAGR 8.55%	3.70	4.02	4.36	4.73
LT-2b Sub Total:		8.51	8.99	9.50	10.04
LT-3(i) Urban	3 year CAGR 3.68%	224.34	232.59	241.14	250.00
LT-3(ii) Rural	3 year CAGR 3.01%	137.61	141.75	146.02	150.41
LT-3 Sub Total:		361.95	374.34	387.16	400.41
LT-4a	Specific Consumption	1,769.83	1,857.77	1,944.81	2,030.14
LT-4b	FY21 sales retained	0.89	0.89	0.89	0.89
LT-4c	Specific Consumption	9.00	9.30	9.60	9.90
LT-5ai	FY21 sales retained	1.30	1.30	1.30	1.30
LT-5aia	FY21 sales retained	13.09	13.09	13.09	13.09
LT-5aib	FY21 sales retained	20.37	20.37	20.37	20.37
LT-5aiv	FY21 sales retained	2.78	2.78	2.78	2.78
LT-5av	FY21 sales retained	0.22	0.22	0.22	0.22
LT-5a Sub Total		37.76	37.76	37.76	37.76
LT-5bi	FY21 sales retained	9.71	9.71	9.71	9.71
LT-5bia	FY21 sales retained	35.02	35.02	35.02	35.02
LT-5bia	FY21 sales retained	37.53	37.53	37.53	37.53
LT-5biv	FY21 sales retained	3.47	3.47	3.47	3.47
LT-5bv	FY21 sales retained	0.25	0.25	0.25	0.25
LT-5b Sub Total		85.98	85.98	85.98	85.98
LT-6a	Specific Consumption	151.80	157.85	163.95	170.60
LT-6b	5 year CAGR 0.87%	67.37	67.95	68.54	69.13
LT-7	FY21 sales retained	18.32	18.32	18.32	18.32
TOTAL- LT		4,156.20	4,327.55	4,501.12	4,676.70
HT-1	3 year CAGR 3.64%	104.46	108.26	112.20	116.28
HT-2a	(*1)	559.74	569.09	578.59	588.25
HT-2b	(*2)	144.14	147.95	151.86	155.87
HT-2c	(*3)	94.71	99.89	105.35	111.11
HT-3a	FY21 sales retained	95.39	95.39	95.39	95.39
HT-3b	FY21 sales retained	0.20	0.20	0.20	0.20
HT-4	3 year CAGR 2.78%	21.32	21.91	22.52	23.15
HT-5	FY21 sales retained	2.29	2.29	2.29	2.29
MSEZ	FY22 approved sales	43.75	43.75	43.75	43.75
KPTCL/KPCL	FY21 sales retained	6.57	6.57	6.57	6.57
TOTAL- HT		1,072.57	1,095.30	1,118.72	1,142.86
TOTAL- LT + HT		5,228.77	5,422.85	5,619.84	5,819.56

(*1): Growth rate in FY20 w.r.t. FY19, 1.67%, considered.

(*2): Growth rate in FY20 w.r.t. FY19, 2.64%, considered.

(*3): Growth rate in FY19 w.r.t. FY18, 5.47%, considered.

Energy Sales (MU)		
Tariff Category	FY26	FY27
	Projection	Projection
1	12	13
LT-1:≤40 Units	36.36	36.64
LT-1:>40	25.95	27.65
LT-1 Sub Total:	62.31	64.29
LT-2a(i) Urban	937.68	967.27
LT-2a(ii) Rural	915.31	958.46
LT-2a Sub Total:	1,852.99	1,925.73
LT-2b(i) Urban	5.49	5.67
LT-2b(ii) Rural	5.13	5.57
LT-2b Sub Total:	10.62	11.24
LT-3(i) Urban	259.19	268.72
LT-3(ii) Rural	154.94	159.60
LT-3 Sub Total:	414.13	428.32
LT-4a	2,116.98	2,203.91
LT-4b	0.89	0.89
LT-4c	10.20	10.50
LT-5ai	1.30	1.30
LT-5aai	13.09	13.09
LT-5aaii	20.37	20.37
LT-5aiv	3.00	2.72
LT-5av	-	0.28
LT-5a Sub Total	37.76	37.76
LT-5bi	9.71	9.71
LT-5bii	35.02	35.02
LT-5bii	37.53	37.53
LT-5biv	3.72	3.47
LT-5bv	-	0.25
LT-5b Sub Total	85.98	85.98
LT-6a	176.93	183.13
LT-6b	69.73	70.33
LT-7	18.32	18.32
TOTAL- LT	4,856.84	5,040.40
HT-1	120.51	124.90
HT-2a	598.07	608.06
HT-2b	159.98	164.20
HT-2c	117.19	123.60
HT-3a	95.39	95.39
HT-3b	0.20	0.20
HT-4	23.79	24.45
HT-5	2.29	2.29
MSEZ	43.75	43.75
	6.57	6.57
TOTAL- HT	1,167.74	1,193.41
TOTAL- LT + HT	6,024.58	6,233.81

5.1.24 Transmission and Distribution Loss:

In the Tariff Order 2021, Hon’ble Commission has approved the transmission loss for KPTCL at 2.978% for FY22. MESCOM has considered the same for the years FY23 to FY27 also for arriving at the energy at generation point.

As for as distribution loss is concerned, MESCOM submitted as below;

For the years FY17 to FY21 loss trajectories approved by Hon’ble Commission and MESCOM’s performance as against the target are indicated below;

Table-64	FY17		FY18		FY19	
	Approved	Actuals	Approved	Actuals	Approved	Actuals
Upper Limit (%)	11.35	11.40	11.25	11.32	11.20	10.52
Average (%)	11.15		11.05		10.95	
Lower Limit (%)	10.95		10.85		10.70	

	FY20		FY21		FY22	
	Approved	Actuals	Approved	Actuals	Approved	Actuals
Upper Limit (%)	11.25	10.07	9.92	9.86	9.52	Year yet to be completed
Average (%)	11.00		9.67		9.27	
Lower Limit (%)	10.75		9.42		9.02	

As can be observed from the above table MESCOM’s distribution loss is very low and further drastic reduction is scarcely possible. However, MESCOM is putting its best efforts to reduce the same further with its capital expenditure program. In view of the above, MESCOM is proposing as below the distribution loss trajectory for MESCOM for the years FY22 to FY27.

Table-65	FY22		FY23	FY24	FY25	FY26	FY27
	Approved	Revised Projection	Projection	Projection	Projection	Projection	Projection
Upper Limit (%)	9.52	9.89	9.87	9.85	9.83	9.81	9.79
Average (%)	9.27	9.84	9.82	9.80	9.78	9.76	9.74
Lower Limit (%)	9.02	9.79	9.77	9.75	9.73	9.71	9.69

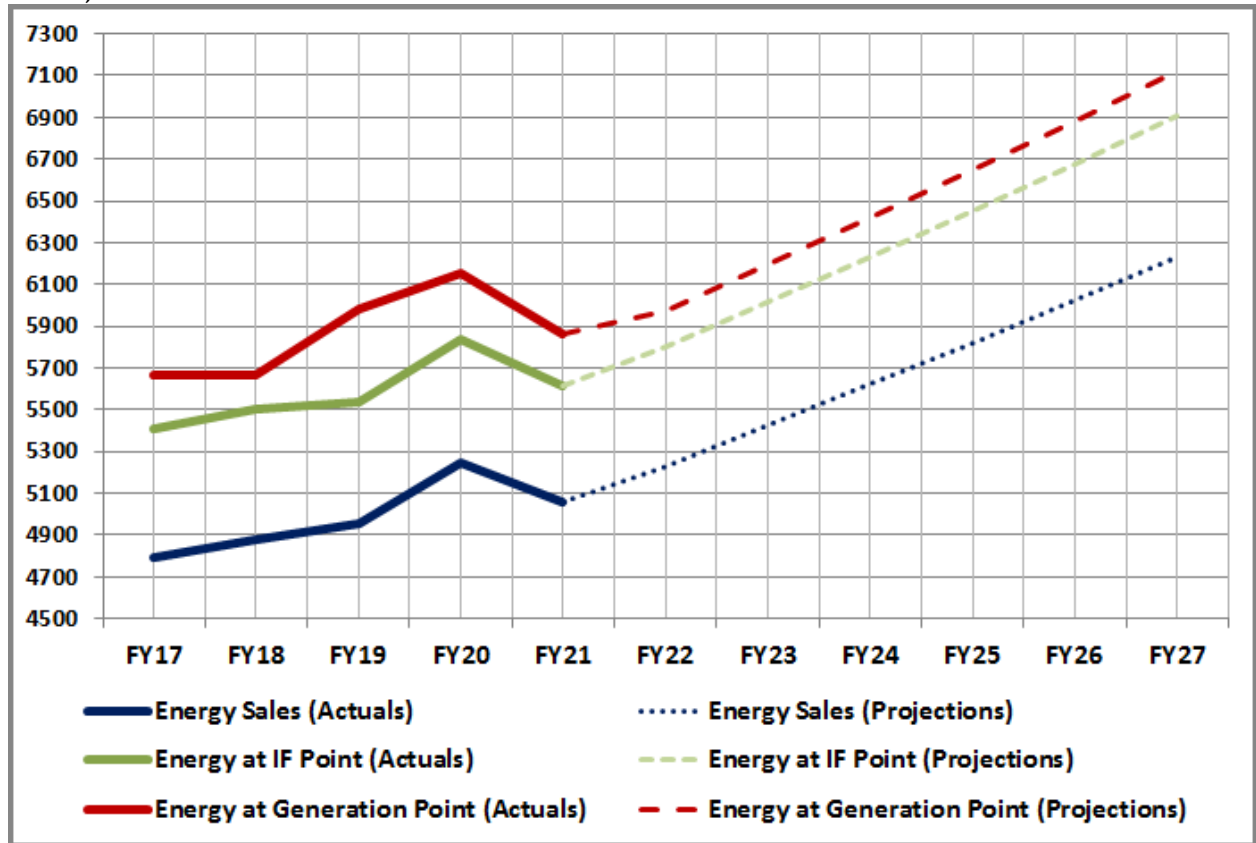
Hon’ble Commission is requested to approve the distribution loss trajectory for the years FY22 to FY27 as proposed in the above table.

5.1.25 Energy at Interface Point and Generation Point:

The energy requirement at interface point and generation point for the period from FY22 to FY27 is computed considering the distribution loss and transmission loss proposed in 5.1.24 and is tabulated below;

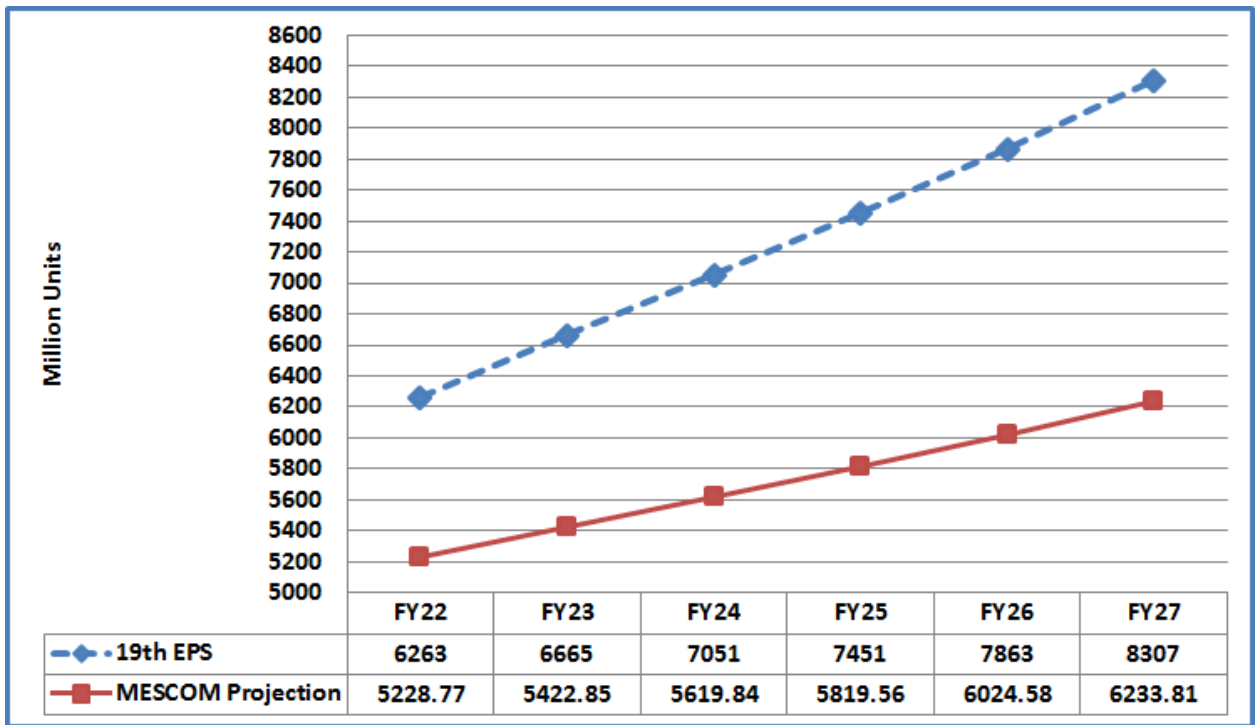
Table-66					
Year	Energy Sales (MU)	Dist. Loss (%)	Energy at IF point (MU)	Trans. Loss (%)	Energy at Gen. point (MU)
FY 17(Actuals)	4794.45	11.40%	5411.61	--	5668.84
FY 18(Actuals)	4881.92	11.32%	5504.81	--	5666.69
FY 19(Actuals)	4956.88	10.52%	5539.73	--	5981.65
FY 20(Actuals)	5247.18	10.07%	5835.03	--	6154.66
FY 21(Actuals)	5057.96	9.86%	5611.33	--	5863.54
FY 22(Revised Projection)	5228.77	9.84%	5799.43	2.978%	5977.44
FY23 (Projection)	5422.85	9.82%	6013.36	2.978%	6197.93
FY 24 (Projection)	5619.84	9.80%	6230.42	2.978%	6421.66
FY 25 (Projection)	5819.56	9.78%	6450.41	2.978%	6648.40
FY 26 (Projection)	6024.58	9.76%	6676.17	2.978%	6881.09
FY 27 (Projection)	6233.81	9.74%	6906.50	2.978%	7118.49

Energy Sales, Energy at IF Point and Energy at Generation Point is graphically represented here below;



5.1.26 COMPARISON OF THE ENERGY SALES PROJECTIONS OF MESCOM AND 19TH EPS :

Table-67		
Year	19 th EPS (MU)	MESCOM projections (MU)
FY22	6263	5228.77
FY23	6665	5422.85
FY24	7051	5619.84
FY25	7451	5819.56
FY26	7863	6024.58
FY27	8307	6233.81



As can be observed from the above, the MESCOM’s projections have not exceeded the projections of 19th EPS. Hence, Hon’ble Commission is requested to consider MESCOM’s energy sales projections for the period from FY22 to FY27.

5.1.27 POWER REQUIREMENT IN MW:

As per the data obtained from DCC Mangalore, the recorded peak load, average load and minimum load in FY-21 is as follows;

Table-68			
Month	Peak load (MW)	Avg. load (MW)	Min load (MW)
Apr-2020	1120	880	519
May-2020	1022	682	338
Jun-2020	809	523	366
Jul-2020	740	499	289
Aug-2020	719	462	255
Sep-2020	751	466	256
Oct-2020	758	507	293
Nov-2020	972	656	386
Dec-2020	1155	801	467
Jan-2021	1199	782	440
Feb-2021	1251	895	474
Mar-2021	1289	1004	540

With reference to the above position, monthly load factor, ratio of minimum load to peak load has been derived which are as below;

Table-69		
Month	Load Factor	Ratio of minimum load to peak load
Apr-2020	78.57%	46.34%
May-2020	66.73%	33.07%
Jun-2020	64.65%	45.24%
Jul-2020	67.43%	39.05%
Aug-2020	64.26%	35.47%
Sep-2020	62.05%	34.09%
Oct-2020	66.89%	38.65%
Nov-2020	67.49%	39.71%
Dec-2020	69.35%	40.43%
Jan-2021	65.22%	36.70%
Feb-2021	71.54%	37.89%
Mar-2021	77.89%	41.89%

The above results have been applied to project the peak load and minimum load for the years FY22 to FY27 (for the period April to August of FY22 actuals as given by DCC center has been considered). Average load has been projected taking hourly average consumption of the projected annual energy requirement. The same are tabulated below;

Table-70						
Month	FY22 (MW)			FY23 (MW)		
	Peak load	Avg. load	Min load	Peak load	Avg. load	Min load
April	1301	889	603	1172	921	543
May	768	811	254	1260	841	417
June	785	566	355	908	587	411
July	844	446	330	687	463	268
August	794	475	282	766	492	272
September	790	490	269	819	508	279
October	718	480	277	745	498	288
November	919	620	365	953	643	378
December	1113	772	450	1155	801	467
January	1270	828	466	1317	859	483
February	1240	887	470	1286	920	487
March	1333	1038	558	1381	1076	579

Month	FY24 (MW)			FY25 (MW)		
	Peak load	Avg. load	Min load	Peak load	Avg. load	Min load
April	1215	955	563	1257	988	582
May	1307	872	432	1352	902	447
June	940	608	425	975	630	441
July	710	479	277	736	496	287
August	794	510	282	822	528	292
September	848	526	289	878	545	299
October	771	516	298	798	534	308
November	987	666	392	1021	689	405
December	1197	830	484	1239	859	501
January	1365	890	501	1412	921	518
February	1332	953	505	1380	987	523
March	1432	1115	600	1482	1154	621

Month	FY26 (MW)			FY27 (MW)		
	Peak load	Avg. load	Min load	Peak load	Avg. load	Min load
April	1302	1023	603	1347	1058	624
May	1400	934	463	1448	966	479
June	1009	652	456	1044	675	472
July	762	514	298	787	531	307
August	850	546	301	879	565	312
September	909	564	310	940	583	320
October	827	553	320	855	572	330
November	1056	713	419	1094	738	434
December	1282	889	518	1327	920	537
January	1461	953	536	1512	986	555
February	1427	1021	541	1476	1056	559
March	1534	1195	643	1587	1236	665

5.1.28 CAPITAL EXPENDITURE:

MESCOM is proposing the CAPEX for the period from FY23 to FY-27 as indicated in the below table;

(Rs. In Crores)						
Sl. No	Particulars	2022-23	2023-24	2024-25	2025-26	2026-27
1	E&I Works (Addl. Transformers, Link-Lines, HT/LT Re-conductoring, HVDS, UG/AB cable)	250.00	250.00	250.00	250.00	250.00
2	DTC metering,	13.65	0.00	0.00	0.00	0.00
3	Replacement of MNR/DC & Electromagnetic meters by Static meters and SMART metering	29.70	32.67	35.94	39.50	43.47
4	Replacement of faulty Distribution Transformers	5.00	5.00	5.00	5.00	5.00
5	Service Connection including promoter vanished layout Works	60.00	60.00	60.00	60.00	60.00
	Sub- Total	358.35	347.67	350.94	354.50	358.47
6	Rural Electrification (General)					
a	Electrification of Hamlets	2.00	2.00	2.00	2.00	2.00
b	Energisation of general IP sets Including Ganga Kalyana	65.00	65.00	65.00	65.00	65.00
c	Electrification of BPL Households	0.25	0.25	0.25	0.25	0.25
	Sub- Total	67.25	67.25	67.25	67.25	67.25
7	Tribal Sub-Plan					
a	Electrification of Tribal Colonies	0.50	0.50	0.50	0.50	0.50
b	Energisation of IP sets	1.00	1.00	1.00	1.00	1.00
c	Improvement works in Tribal Colonies	1.00	1.00	1.00	1.00	1.00
	Sub- Total	2.50	2.50	2.50	2.50	2.50
8	Special Component Plan					
a	Electrification of S.C Colonies	1.00	1.00	1.00	1.00	1.00
b	Energisation of IP sets	1.50	1.50	1.50	1.50	1.50
c	Improvement works in SC Colonies	1.50	1.50	1.50	1.50	1.50
	Sub- Total	4.00	4.00	4.00	4.00	4.00
9	Tools & Plants & Computers	10.00	10.00	10.00	10.00	10.00
10	Civil Engineering Works	40.00	40.00	40.00	40.00	40.00
11	IT Infrastructure and Software, DSM	5.00	5.00	5.00	5.00	5.00
12	33 KV Station and Line Works (UG/AB cable)	30.00	30.00	30.00	30.00	30.00
13	Solar Roof top on Company Buildings	1.00	0.00	0.00	0.00	0.00
	Total	518.10	506.42	509.69	513.25	517.22
Schemes under progress						
1	Deen Dayal Upadyaya Grama Jyoti Yojana (DDUGJY)	0.00	0.00	0.00	0.00	0.00
2	IPDS: System improvement & Strengthening works in R-APDRP/statutory towns	0.00	0.00	0.00	0.00	0.00
3	IPDS:Gas insulated substations	0.00	0.00	0.00	0.00	0.00
4	IPDS (Integrated Power Development Scheme) Phase II-IT	7.00	0.00	0.00	0.00	0.00
5	Providing Infrastructure to regularized UIP and general IP	16.72	0.00	0.00	0.00	0.00
6	Improvement works for Model Electricity Village	33.93	0.00	0.00	0.00	0.00
7	Improvement works for Model Sub-division	86.17	0.00	0.00	0.00	0.00
	Total	143.82	0.00	0.00	0.00	0.00
	Grand Total	661.92	506.42	509.69	513.25	517.22
<p>Government of India has announced the RRDS scheme which is at the preliminarily stage and the financial limitation/allocations are yet to be decided for the state. Hence, the projection for budget requirements are not done.</p>						

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