Response to Hon'ble BERC Queries for SBPDCL Business Plan for FY 2019-20 to FY 2021-22

1. Projections for number of consumers, connected load and sales for MYT control period

   a. Regulation 16.1 i.e. Forecasting Methodology, specify that the sales forecast of metered category shall be based on past trends in each of the slabs of consumer categories, whereas in the business plan submitted, SBPDCL has furnished total number of consumers in a particular category (without slab wise details) for years FY13-14 to FY17-18 and for the current year FY18-19.

Reply: It is submitted that the slab wise data of no. of consumers could not be derived for the past periods i.e. FY13-14 to FY17-18 using the existing billing software, since the data is continuously being updated. The consumption of a particular consumer for a month may change in every billing cycle in view of variation in its usage. Therefore, the consumption of a consumer does not fall in same slab every month, which keeps on changing and is not a static value. Considering the above issue if it is prepared it would be a voluminous task and compilation would require ample time. However, based on our best assumptions we have projected slab wise data for future years.

   b. Historical actual connected load details (category wise, slab wise) for the year FY13-14 to FY 17-18 are not furnished. It is said that average connected load per consumer has been taken as per the actual data for the past few years whereas this data is missing and has not been taken from FY 2013-14. Details may be furnished.

Reply: It is submitted that the slab wise data for connected load could not be derived for the past periods i.e. FY13-14 to FY17-18 using the existing billing software, since the data is continuously being updated. The consumption of a particular consumer for a month may change in every billing cycle in view of variation in its usage. Therefore, the consumption of a consumer does not fall in same slab every month, which keeps on changing and is not a static value. Considering the above issue if it is prepared it would be a voluminous task and compilation would require ample time. However, based on our best assumptions we have projected slab wise data for future years. Historical actual category wise connected load for FY 2013-14 to FY 2017-18 is provided in the table below:

Historical Connected Load (kW) for SBPDCL

Consumer Category	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
Domestic	**2049632**	**1763227**	**3188282**	**3547340**	**5064053**
Kutir Jyoti- BPL Consumers	328210	307132	323665	69142	89187
Domestic - I	324800	705917	1019584	1314933	1523232
Domestic - II	1396367	750105	1844909	2163227	3451634
Domestic - III	255	73	124	38	0
Commercial	**430902**	**219703**	**777450**	**882994**	**988476**
Non-Domestic - I	9297	17990	31091	44323	53848
Non-Domestic - II	420548	201106	745486	834710	934628

Consumer Category	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
Non-Domestic - III	1057	607	873	3905	
Non-Domestic - IV				55	0
Public Lighting	**4357**	**3363**	**5369**	**4289**	**10393**
Street Light - I	830	1097	2574	2051	5643
Street Light - II	3527	2266	2795	2239	4751
Irrigation	**126811**	**110551**	**144703**	**357402**	**379423**
IAS - I	107016	91280	123139	317355	338229
IAS - II	19795	19271	21564	40047	41194
Public Service Connections	**12588**	**9801**	**16959**	**19543**	**33817**
Public Water Works	12588	9801	16959	19543	33817
Industrial LT	**118918**	**72195**	**289926**	**408809**	**627114**
LTIS - I	75176	41974	113766	271394	416862
LTIS - II	43742	30221	176160	137414	210253
Industrial HT	**461381**	**420178**	**542884**	**537027**	**649396**
HTS - I	214769	208482	256317	263981	295283
HTS - II	76329	98406	151324	141850	171560
HTS - III	14400	25650	29500	32850	86850
HTSS	155883	87640	105743	98346	95703
Railway	**151022**	**151020**	**168000**	**153180**	**155160**
DF Bhagalpur & Gaya		549973	511725	542642	425346
Total	**3355611**	**3300011**	**5645297**	**6453226**	**8333179**

c. For FY 18-19, the category wise, slab wise consumers, connected load & energy sales actual for first half year and projections for second half year shall be provided separately.

Reply: The category wise provisional number of consumers, connected load and energy sales for first 6 months of FY 2018-19 and for FY 2018-19 is provided in the table below.

Consumer Category	No. of Consumers		Connected Load (kW)		Sales (MU)	
	FY 2018-19 (Apr-Sep)	**FY 2018-19**	FY 2018-19 (Apr-Sep)	FY 2018-19	FY 2018-19 (Apr-Sep)	FY 2018-19
Domestic	**4463674**	**5450398**	**4273121**	**6377369**	**3163**	**7285**
Kutir Jyoti- BPL	1348650	1834164	134865	183416	405	1100
Domestic - I	1793378	2241723	1833025	2274084	1065	2662
Domestic - II	1321646	1374512	2305231	3919869	1694	3523
Commercial	**343572**	**358445**	1067326	1162686	593	1235
Non-Domestic - I	56517	59908	62634	66392	25	54
Non-Domestic - II	287055	298537	1004693	1096294	568	1182

Consumer Category	No. of Consumers		Connected Load (kW)		Sales (MU)	
	FY 2018-19 (Apr-Sep)	**FY 2018-19**	FY 2018-19 (Apr-Sep)	FY 2018-19	FY 2018-19 (Apr-Sep)	FY 2018-19
Public Lighting	**1159**	**1275**	10012	14867	22	42
Street Light - I (Metered)	657	848	5891	10270	5	13
Street Light - II (Unmetered)	502	427	4121	4597	17	29
Irrigation	**97696**	**112869**	**282898**	**322042**	**190**	**479**
IAS - I	93865	108883	231743	268822	125	327
IAS - II	3831	3986	51155	53220	66	152
Public Service Connections	**2500**	**2750**	**35521**	**51493**	**58**	**127**
Public Water Works	2500	2750	35521	51493	58	127
Industrial LT	**50812**	**65103**	**584763**	**764265**	**298**	**714**
LTIS - I	47000	61100	399500	542336	178	464
LTIS - II	3812	4003	185263	221930	119	250
Industrial HT	**1737**	**1823**	**788935**	**822415**	**974**	**2005**
HTS - I	1608	1688	334055	350758	309	649
HTS - II	110	115	199702	209687	183	385
HTS - III	7	7	135833	142625	87	182
HTSS	13	13	119345	119345	395	790
Railway	15	15	51720	170200	289	579
Total	**4961165**	**5992678**	**7094296**	**9685338**	**5587**	**12467**

The slab wise data for consumers, connected load and sales could not be derived for the past period i.e. first 6 months of FY 2018-19 using the existing billing software, since the data is continuously being updated. The consumption of a particular consumer for a month may change in every billing cycle in view of variation in its usage. Therefore, the consumption of a consumer does not fall in same slab every month, which keeps on changing and is not a static value. Considering the above issue if it is prepared it would be a voluminous task and compilation would require ample time. However, based on our best assumptions we have projected slab wise data for future years.

d. Average consumption per consumer per month based on historical sales & number of consumers category wise, slab wise not furnished, which will be the basis for sales projections for MYT period FY19-20 to FY20-21. Details may be furnished.

Reply: Category wise number of consumers, sales for FY 2013-14 to FY 2018-19 has already been provided in the Business Plan and its additional submissions. Average consumption per consumer per month can be obtained by dividing the sales per month of the respective categories with the number of consumers.

e. Highlights of the approach and assumptions used for projecting the specific category wise, slab wise number of consumers connected and energy sales for the ensuring years, said to have been furnished is not available. Please forward the said details.

Reply: The general approach followed for projection of all categories include the following:-

i. The consumer numbers for FY 2018-19 are projected considering the provisional figures as available for September, 2018 and thereafter a reduced growth rate across the categories has been considered resulting in total growth of 21% by the end of FY 2018-19 over September, 2018. Thereafter, the overall growth rate has been assumed to be around 9% for FY 2019-20 and 8% for the subsequent years in the next control period.
ii. For projecting the connected load, an average connected load per consumer has been taken as per the actual data of the past few years. This has then been then multiplied by projected number of consumers to arrive at the connected Load.
iii. The energy sales has been projected by considering the average consumption per consumer per month and then multiplying the same to the projected number of consumers.
iv. The number of years taken for estimating the CAGR however varies since the trend in certain categories is impacted by multiple other factors, and taking a uniform period for calculating the CAGR skews the outcome.
v. In addition to the CAGR, it has also been ensured that other factors impacting demand, such as growth in the no. of consumers (due to schemes including 24X7 Power For All, Chief Minister scheme and Saubhagya scheme), enhanced power procurement, strengthening of distribution network for enhancing quality of supply, energy efficiency and DSM measures etc., have been adequately incorporated to reflect a realistic demand scenario.

f. For MYT control period, the CAGRs adopted for projecting no. of consumers, connected load and energy sales shall be provided for each year. Wherever CAGR not considered the basis for the projections shall be clearly explained.

Reply: The detailed methodology for projecting the number of consumers, connected load and energy sales for each of the control period is provided below:

a. **Kutir Jyoti**: The projections in Kutir Jyoti category are done considering the following assumptions:-

Consumers: A major drive to enhance access to electricity in the State, and the majority of the new potential consumers under Kutir Jyoti, DS-I and IAS-I categories has been undertaken in recent years. It is expected that the programme of addition of new consumers

will achieve saturation in the near future. Therefore, the Petitioner In line with all schemes, has estimated a growth rate of 36% over the consumers as on September, 2018 for FY 2018-19. Subsequently a growth rate of 4%, 3% and 2% has been assumed for each year of the 3rd control period in view of saturation in addition of consumers in this category and finalization of the ongoing schemes.

Connected Load: The connected load for this category is projected considering average load per consumer at 100 W and multiplying it by number of consumers to arrive at the connected Load.

Units sold: An increase of 30% in the consumption pattern for KJY category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption of 50 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period also same average monthly consumption per consumer has been considered.

b. **Domestic Service I**: The projections in DS I category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 18%. Then the provisional figures for September, 2018 was considered which showed an increase of 19% over the number of consumers as on FY 2017-18. Keeping the same in view another 25% increase in number of consumers of this category has been projected for FY 2018-19. Thereafter, an increase of 10% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for FY 2017-18 and multiplying it by the projected number of consumers fur FY 2018-19. Similarly, no escalation has been considered for projection of connected load for the control period.

Units sold: An increase of 26% in the average consumption per month per consumer for DS-I category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption of 98.97 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, 15% over FY 2018-19 has been assumed for FY 2019-20 thereafter same average monthly consumption per consumer has been considered for rest of years of the control period.

c. **Domestic Service II**: The projections in DS II category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 12%. Then the provisional figures for September, 2018 was considered which showed an increase of 9% over the number of consumers as on FY 2017-18. Keeping the same in view another 4% increase in number of consumers of this category has been projected for FY 2018-19 considering the fact that majority of the new consumers has already been added. Thereafter, an increase of 8% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for FY 2017-18 and multiplying it by the projected number of consumers fur FY 2018-19. Similarly, no escalation has been considered for projection of connected load per consumer for the control period.

Units sold: An increase of 23% in the average consumption per month per consumer for DS-II category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption of 213.56 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For rest of the years of control period also, same average monthly consumption per consumer has been considered.

d. **Non-Domestic Service I:** The projections in NDS-I category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 25%. Then the provisional figures for September, 2018 was considered which showed an increase of 14% over the number of consumers as on FY 2017-18. Keeping the same in view another 6% increase in number of consumers of this category has been projected for FY 2018-19 considering the fact that majority of the new consumers has already been added. Thereafter, an increase of 10% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Similarly, no escalation has been considered for projection of connected load per consumer for the control period.

Units sold: No increase in the average consumption per month per consumer

for NDS-I category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption of 74.62 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

e. **Non-Domestic Service II:** The projections in NDS-II category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 14%. Then the provisional figures for September, 2018 was considered which showed an increase of 13% over the number of consumers as on FY 2017-18. Keeping the same in view another 4% increase in number of consumers of this category has been projected for FY 2018-19 considering the fact that majority of the new consumers has already been added. Thereafter, an increase of 10% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: No increase in the average consumption per month per consumer for NDS-II category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption of 329.81 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

f. **SS-I:** The projections in SS-I category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 23%. Then the provisional figures for September, 2018 was considered which showed an increase of 41% over the number of consumers as on FY 2017-18. Keeping the same in view another 29% increase in number of consumers of this category has been projected for FY 2018-19 considering the fact that majority of the new consumers has already been added and there will be conversion of unmetered consumers into metered consumers. Thereafter, an increase of 20%, 18% and

16% respectively over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The Petitioner has made efforts towards Demand Side Management (DSM) by replacement of 150W lamps with 40-50W sodium vapour lamps which has reduced the average connected load per consumer drastically. Therefore, Petitioner has considered average connected load per consumer for FY 2018-19 same as for FY 2017-18. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: No increase in the average consumption per month per consumer for SS-I category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption of 1291.13 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

g. **SS-II:** The projections in SS-II category are done considering the following assumptions:

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 37%. Then the provisional figures for September, 2018 was considered which showed an increase of 14% over the number of consumers as on FY 2017-18. Keeping the same in view and considering the fact that there will be conversion of unmetered consumers to metered ones there will be 15% decrease in number of consumers of this category has been projected for FY 2018-19. Thereafter, a decrease of 10% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The average Load in this category is calculated by considering 0% growth rate on average Load per consumer for FY 2017-18 over FY 2016-17 and multiplying by number of consumers projected in this category.

Units sold: No increase in the average consumption per month per consumer for SS-II category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption of 5701.06 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered. In the Street Lights category the process is going on for replacement of 150W lamps with 40-

50W Sodium vapour lamps which shall possibly reduce the units consumed in Street Lights category.

h. **IAS-I:** The projections in IAS-I category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 11%. Then the provisional figures for September, 2018 was considered which showed an decrease in the number of consumers as on FY 2017-18. The reduced number of IAS-I consumers considered as per the software data and only active consumers are considered. Most of these consumers which were not considered are unmetered and are kept under temporary disconnection. Due to logical constraint in the soft ware which requires meter number for removal of the specific consumers from the list could not be removed. The Discom is putting its continuous effort to address the issue and update the software with actual numbers which may also reflect in the audited accounts for next financial year. Keeping the same in view 16% increase in number of consumers of this category has been projected for FY 2018-19 over number of consumers as on September, 2018. Thereafter, 40,000 consumers over previous year in the number of consumers of this category has been considered for the control period in view of growing demand of the agricultural consumers.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: A 10% increase in the average consumption per month per consumer for IAS-I category over the consumption for FY 2015-16 has been assumed which otherwise was showing an abnormal drop in the consumption pattern for FY 2016-17 and FY 2017-18**.** The Petitioner has considered an average monthly consumption of 221.40 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For FY 2019-20, also 10% increase in average monthly consumption per consumer has been considered and thereafter an increase of 17% in sales over previous year has been considered during the control period. Agriculture feeder separation is under process, once it is done separate transformers will be issued connecting to pump sets. Promotion of Solar Pump sets will be done to reduce

demand.

i. **IAS- II:** The projections in IAS-II category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 4%. Then the provisional figures for September 2018 was considered which showed very marginal increase over the number of consumers as on FY 2017-18. Keeping the same in view, only 4% increase in number of consumers of this category has been projected for FY 2018-19. Thereafter, an increase of 4% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: A 30% increase in the average consumption per month per consumer for IAS-II category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption of 2857.45 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

j. **Public waterworks:** The projections in PWW category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 30%. Then the provisional figures for September 2018 was considered which showed an increase of 38% over the number of consumers as on FY 2017-18. Keeping the same in view, another 10% increase in number of consumers of this category has been projected for FY 2018-19. Thereafter, an increase of 39% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as

considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: No increase in the average consumption per month per consumer for PWW category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption of 3859.82 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

k. **Har Ghar Nal:** The GoB has decided to provide water connections to the households in rural and urban areas. For this purpose a total of 1,10,000 water distribution facility are proposed to be set up for the State. It requires a 2 or 3 HP pump to be installed for pumping of water to the overhead tank from where the water shall be distributed to the households. There are 152 Panchayats in NBPDCL and 91 Panchayats in SBPDCL. Accordingly, for the purpose of projection the total no. of connections are divided in the ratio of no. of panchayats between the Discoms. This new sub-category shall be proposed in the subsequent Tariff Petition to be filed by the Petitioner. The projections under this category are done considering the following assumptions:-

Consumers: To start with 13,000 consumers are proposed to be added in FY 2019-20 and which shall be added by 17,597, 10,597 number of consumers for the rest of the control period.

Connected Load: The connections released under this category shall be mainly used for the purpose of supplying water though pipeline to households for which a 2 HP, 3 HP and 5 HP pump shall be used for pumping the ground water to an overhead tank. Therefore, the connected load has been assumed to be on the basis 3 HP per connection.

Units sold: 6 hours consumption per kW per day has been assumed for calculation of average monthly consumption. Thereafter, it is multiplied with number of consumers for calculation of total consumption for the month.

l. **LTIS-I:** The projections in LTIS-I category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 79%. Then the provisional figures for September 2018 was considered which showed a marginal increase over the number of consumers as on FY 2017-18. Keeping the same in view, another 30% increase in number of consumers of this category has been projected for FY 2018-19. Thereafter, an increase of 33%, 26%, 23% over previous year in the number of consumers of this category has been considered

for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: An increase of 10% in the average consumption per month per consumer for this category over the consumption for FY 2016-17 has been assumed**.** The Petitioner has considered an average monthly consumption of 632.48 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

m. **LTIS-II:** The projections in LTIS-II category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 43%. Then the provisional figures for September 2018 was considered which showed a marginal increase over the number of consumers as on FY 2017-18. Keeping the same in view, another 5% increase in number of consumers over the consumers of as on September, 2018 has been projected for FY 2018-19. Thereafter, an increase of 35% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: An increase of 20% in the average consumption per month per consumer for this category over the consumption for FY 2016-17 has been assumed**.** The Petitioner has considered an average monthly consumption of 5210.65 kWh per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

n. **HTS-I:** The projections in HTS-I category are done considering the following assumptions:-

Consumers: Recently the Discoms have seen an increasing trend in the addition of consumers in the HTS-I category, including both conversions from the LTIS categories and addition of new consumers. The CAGR for FY 2017-18 over FY 2016-17 was found to be 18%. Then the provisional figures for September 2018 was considered which showed an increase of 9% over the number of consumers as on FY 2017-18. Keeping the same in view, another 5% increase in number of consumers of this category has been projected for FY 2018-19. Thereafter, an increase of 13% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: An increase of 10% in the average consumption per month per consumer for this category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

o. **HTS-II:** The projections in HTS-II category are done considering the following assumptions:-

Consumers: Recently the Discoms have seen an increasing trend in the addition of consumers in the HTS-II category, including both conversions from the LTIS categories and addition of new consumers. The CAGR for FY 2017-18 over FY 2016-17 was found to be 11%. Then the provisional figures for September 2018 was considered which showed an increase of 5% over the number of consumers as on FY 2017-18. Keeping the same in view, another 5% increase in number of consumers of this category has been projected for FY 2018-19. Thereafter, a uniform increase of 11% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum

of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: No increase in the average consumption per month per consumer for this category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

p. **HTS-III:** The projections in HTS-III category are done considering the following assumptions:-

Consumers: The CAGR for FY 2017-18 over FY 2016-17 was found to be 67% in comparison to last 2 year's CAGR of 29% and 3 year's CAGR of 19% which seems to be quite abnormal. Then the provisional figures for September 2018 was considered which showed an increase of 33% over the number of consumers as on FY 2017-18. Keeping the same in view, another 5% increase in number of consumers of this category has been projected for FY 2018-19. Thereafter, a uniform increase of 19% over previous year in the number of consumers of this category has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: No increase in the average consumption per month per consumer for this category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

q. **HTSS:** The projections in HTSS category are done considering the following assumptions:-

Consumers: The number of consumers for FY 2016-17 and FY 2017-18 has been found to be same. Then the provisional figures for September 2018 was

considered which also showed no increase in the number of consumers. Keeping the same in view, no increase in number of consumers of this category has been projected for FY 2018-19 and same number of consumers has been considered for the control period.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: 10% increase in the average consumption per month per consumer for this category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

r. **Railways:** The projections in RTS category are done considering the following assumptions:-

Consumers: There has been no growth rate assumed in the railways category for projecting number of consumers. The number of consumers are considered as 15, which is equivalent to last year.

Connected Load: The overall connected load for this category has been projected considering no escalation on the average connected load per consumer for maximum of FY 2017-18 and September, 2018 and multiplying it by the projected number of consumers fur FY 2018-19. Same average connected load per consumer as considered for FY 2018-19 has been considered for projection of connected load for the control period.

Units sold: No increase in the average consumption per month per consumer for this category over the consumption for FY 2017-18 has been assumed**.** The Petitioner has considered an average monthly consumption per consumer per month and multiplying with total number of consumers projected in this category for FY 2018-19 to arrive at an estimated sales figure. For the control period, also same average monthly consumption per consumer has been considered.

s. **Distribution Franchisee**: Since, both the DFs i.e. Bhagalpur and Gaya have been terminated during FY 2017-18 and FY 2018-19. The number of consumers, load and

sales for the DF area are merged with that of the Discom. Therefore, same has not been projected separately.

g. For the MYT period FY19-20 to FY21-22, projection of no. of consumers, connected load and sales are shown as category wise, which should be subcategory wise and slab wise.

Reply: The detailed slab wise projection of number of consumers, connected load and sales for the MYT period FY 2019-20 to FY 2021-22 is provided in the table below:

Category	Projection for FY 2019-20			Projection for FY 2020-21			Projection for FY 2021-22		
	Consumers	Connected Load (KW)	Sales (MU)	Consumers	Connected Load (KW)	Sales (MU)	Consumers	Connected Load (KW)	Sales (MU)
Domestic									
Kutir Jyoti									
Unmetered	47688	4769	43	39295	3930	42	0	0	0
Metered (0-50)	1859842	185984	1101	1925461	192546	1136	2004052	200405	1202
Total - KJ	**1907531**	**190753**	**1145**	**1964756**	**196476**	**1179**	**2004052**	**200405**	**1202**
DS-I (Rural)									
Unmetered	36988	40024	51	35262	38523	48	0	0	0
Metered									
First 50 Units	2066420	2093602	2077	2278487	2308465	2295	2545124	2581687	2580
51 - 100 Units	217492	220720	576	239241	242792	635	263165	267071	699
Above 100 Units	144995	147147	676	159494	161861	744	175443	178047	820
Total	**2465895**	**2501492**	**3379**	**2712484**	**2751641**	**3722**	**2983733**	**3026806**	**4099**
DS-II (Urban- Demand Based)									
1-100 U/Month	371108	1058318	647	400796	1142983	698	432860	1234422	754
101 - 200 U/Month	667994	1904972	1408	721433	2057369	1520	779148	2221959	1642
201 -300 U/Month	371108	1058318	1370	400796	1142983	1479	432860	1234422	1597
above 300 U/Month	74264	211852	380	80205	228800	411	86622	247104	444
Total	**1484473**	**4233459**	**3804**	**1603231**	**4572135**	**4109**	**1731489**	**4937906**	**4437**
Total - Domestic	**5857898**	**6925704**	**8328**	**6280471**	**7520252**	**9010**	**6719273**	**8165117**	**9739**
NDS-I (Rural)									
Unmetered		Abolished			Abolished			Abolished	
Metered									
1-100 U/Month	31510	31359	10	34661	38413	11	38127	37944	12
101 - 200 U/Month	28485	34662	34	31334	38129	38	34467	41941	41
above 200 U/Month	5903	7010	15	6493	7711	16	7143	8482	18
Total	**65899**	**73031**	**59**	**72489**	**80334**	**65**	**79738**	**88368**	**71**
NDS-II (Demand Based)									
Contract Demand < 0.5 kW	5178	6161	7	5695	7601	7	6265	8361	8

Category	Projection for FY 2019-20			Projection for FY 2020-21			Projection for FY 2021-22		
	Consumers	Connected Load (KW)	Sales (MU)	Consumers	Connected Load (KW)	Sales (MU)	Consumers	Connected Load (KW)	Sales (MU)
Contract Demand > 0.5 kW									
First 100 Units	151846	710291	766	167031	561990	842	183734	618189	926
101 - 200 Units	141950	429699	463	156145	629597	509	171760	692557	560
Above 200 Units	29417	59771	64	32358	127328	71	35594	140060	78
Total	**328391**	**1205923**	**1300**	**361230**	**1326516**	**1430**	**397353**	**1459167**	**1573**
Total - NDS	**394290**	**1278955**	**1359**	**433719**	**1406850**	**1495**	**477091**	**1547535**	**1644**
Street Light Services									
SS-I (Metered)	1018	12331	16	1197	14494	19	1386	16780	21
SS-II (Unmetered)	384	4137	26	346	3723	24	311	3351	21
Total - Street Light	**1402**	**16468**	**42**	**1543**	**18217**	**42**	**1697**	**20131**	**43**
IAS-I (Pvt Tube well)									
Unmetered	66998	110273	261	0	0	0	0	0	0
Metered	81886	257304	174	188883	466333	646	228883	565089	916
Total	**148883**	**367578**	**435**	**188883**	**466333**	**646**	**228883**	**565089**	**916**
IAS-II (State Tube well)									
Unmetered		Abolished			Abolished			Abolished	
Metered	4147	55369	142	4314	57604	148	4488	59930	154
Total	**4146.57**	**55369**	**142**	**4313.97**	**57604**	**148**	**4488.13**	**59930**	**154**
Total - IAS	**153030**	**422946**	**577**	**193197**	**523938**	**794**	**233372**	**625019**	**1070**
PWW - Public Water Works (Demand Based)									
PWW	3827	71664	177	5326	99735	247	7413	138801	343
Har Ghar Nal	13000	29081	63	30597	68445	148	41193	92150	199
Total PWW	**16827**	**100745**	**240**	**35923**	**168180**	**395**	**48606**	**230951**	**542**
LTIS									
LTIS-I (Contract Demand < 19 kW)	80652	715883	612	101622	902012	771	124994	1109475	949
LTIS-II (Contract Demand 19-74 kW))	5385	298578	337	7245	401698	453	9747	540433	609
Total - LTIS	**86037**	**1014460**	**949**	**108866**	**1303710**	**1224**	**134741**	**1649908**	**1558**
HTS-I (11 kV)	1915	397952	736	2173	451497	835	2465	512245	947
HTS-II (33 kV)	127	231994	426	141	256674	471	156	283980	522
HTS-III (132 kV)	8	169101	215	10	200491	255	12	237708	303
HTSS (33 / 11 kV)	13	119345	790	13	119345	790	13	119345	790
Total - HTS & HTSS	**2064**	**918392**	**2167**	**2337**	**1028007**	**2351**	**2646**	**1153279**	**2561**
RTS (132 kV)	**15**	**170200**	**579**	**15**	**170200**	**579**	**15**	**170200**	**579**
Grand Total	**6511563**	**10847870**	**14241**	**7056071**	**12139354**	**15889**	**7617441**	**13562140**	**17736**

2. **Distribution Loss:** The distribution loss target for FY19-20, as agreed in the UDAY MoU is 15%, which is taken as loss level for whole 3rd MYT control period which is without any reduction year on year. Reasons for not considering loss reduction ' may be reported.

   Reply: In FY 2017-18 and FY 2018-19, a large number of rural consumers have been added to the Discom's consumer database. Due to this addition in the number of consumers at a Low Tension level in rural areas, where the length of feeders are generally longer, the technical losses are expected to go up. Therefore, for the Discom as a whole, it would not be possible to drastically reduce losses.

   It is submitted to the Hon'ble Commission that although the Discoms are making the best possible efforts to reduce the losses with the introduction of feeder separation schemes, spot billing etc. and various other IT initiatives, the reduction in losses would still occur in a phased manner.

   Given the fact that the Discoms of Bihar have already entered into a MoU that clearly lays out a loss reduction target agreed by the Government of Bihar and the Government of India, this target may be treated as the base for setting the loss reduction trajectory.

   Addition of rural domestic consumers and thereby providing uninterrupted power supply and maintaining same level of distribution loss is a huge challenge for the Discoms. Therefore, it is prayed before the Hon'ble Commission to adopt the trajectory agreed under UDAY scheme and approve a Distribution loss of 15% for SBPDCL for FY 2019-20 and retain the same distribution loss for FY 2020-21 and FY 2021-22 as well.

3. **State Transmission Losses:** In the Tariff order dated 21-03-18, the commission has directed both the DISCOMs, jointly to record the meter readings with concerned transmission licensees, input energy at all their interface points every month and compute the transmission loss and submit reports to the commission. The SBPDCL is requested to furnish actual transmission loss calculation for FY17-18 and first half year of FY18-19.

   Reply: The actual STU loss for FY 2017-18 is 707.55 MUs (as per audited accounts). The detailed calculation of state transmission loss for FY 2017-18 and first half of FY 2018-19 for SBPDCL is annexed in soft copy(CD) to this submission.

4. **Central Transmission Losses:** The CTU loss actual for FY2017-18 and first half of FY18-19 maybe furnished subject to correction based on the 52 weeks average for the particular year.

   Reply: The actual CTU loss for FY 2017-18 is 317.35 MUs (as per audited accounts). The detailed calculation of CTU loss for FY 2017-18 and first half of FY 2018-19 for SBPDCL is annexed in soft copy(CD) to this submission.

5. **Energy Balance:** Under the table, energy balance for 3rd control period, computation of energy required at state transmission periphery by grossing up with distribution losses and state transmission losses is done. Instead energy balance is to be struck by considering CTU losses and purchase from generating stations outside the Bihar state. Details may be furnished.

Reply: The revised energy balance for 3rd MYT Control Period in reference to our letter under reference in the letter is provided below:

Sl No	Particulars	Unit	Ensuing Years (Projections)		
			FY 19-20	FY 20-21	FY 21-22
A	**Energy Requirement**				
1	Energy sales	MU	14,240.66	15,889.09	17,735.58
2	Less: Inter-state sales, DF if any	MU	-	-	-
3	Energy sales excluding Inter-state sales, if any	MU	14,240.66	15,889.09	17,735.58
4	Distribution Loss excluding DF	%	15%	15%	15%
5	Add: Distribution Loss	MU	2,513.06	2,803.96	3,129.81
6	**Total energy required at Distribution periphery**	MU	16,753.72	18,693.05	20,865.39
7	Add: Inter-state sales, if any	MU	-	-	-
8	**Total energy required at Distribution periphery including** Inter-state sales	MU	16,753.72	18,693.05	20,865.39
9	State Transmission Loss	%	3.92%	3.92%	3.92%
10	Add: State Transmission Loss	MU	683.54	762.66	851.29
11	**Total energy required at State Transmission periphery**	MU	**17,437.26**	**19,455.71**	**21,716.69**
B	**Energy Available**				
1	From Central Sector	MU	16,728.08	18,602.45	18,284.38
2	From IPP	MU			
4	From Renewable Sources	MU			
6	Others(please specify)	MU			
5	UI (Net)	MU	0	0	0
3	From State Generating Stations	MU	1,087.24	1,273.67	3,845.53
7	CTU losses	%	2.26%	2.26%	2.26%
8	CTU Losses	MU	378.05	420.42	413.23
9	Net power available at State periphery (1+2+3+4+5+6-8)	MU	17,437.26	19,455.71	21,716.69
10	**Energy Surplus/(Deficit) at State Periphery**	MU	0	(0)	0

Details of the power to be purchased from various sources inside and outside the State is attached as **Annexure-I** and in soft copy(CD) to this letter.

6. **Power Purchase Details**

Reply: Kindly refer to response for the observation no. 5.

7. **Study Report on Load Flow Analysis, Load Growth, Loss Reduction:** Regulation 4.1 of the BERC (Procedure for tiling Capital Investment and Capitalisation Plan) Regulations 2018 specify the procedure and factors to be considered for assessing the infrastructure requirement for capital investment plan to meet the demand and energy requirement to ensure unrestricted 24 hours supply to all categories of consumers. According to the regulation, the distribution licensee shall consider prescribed performance parameters such as voltage regulation, reactive energy flow, power factor, load growth, demand and energy requirement and improvement in operational efficiency and reduction of T&D loss initiatives, etc. for projecting the infrastructure requirement and capital investment plan.

   The Business plans submitted by the SBPDCL do not include the report/study conducted on year on year load flow, load growth, loss reduction, etc. for the control period. The distribution loss levels are retained at 15% constantly year on year during the control period of FY 2019-20 to FY 2021-22 without showing any improvement. The load flow/growth study report may be furnished.

   Reply: Based on scheme announced by different agencies of Govt. of India as well as Bihar Govt. scheme specific studies has been carried out and the same was considered in the form of Detailed Project Report(DPR) for that scheme.

   Implementation of RE-DDUGJY 11th Plan Phase-II, RE-DDUGJY 12th Plan, RAPDRP, BRGF,NABARD, ADB, State Plan, etc. schemes is being carried out. Demand and energy requirement for these schemes was studied on the parameters / guidelines provided by Nodal Agency of the respective schemes.

   Based on implementation of different schemes , adequate infrastructure is under construction for improvement in voltage and operational efficiency , reduction in T&D losses so as to ensure 24 hours quality supply to all categories of consumers.

   For reactive energy flow and regulation of power factor, capacitor banks of adequate capacity are being installed in the PSS .

8. Capital Investment Plan

   Ongoing Work

   a) It is observed from the scheme-wise details of capital expenditure, SBPDCL has projected at total capital investment of Rs.8435.18 crore and capitalisation of Rs.10463.16 crore during the period from FY 2018-19 to FY 2021-22. The details of capital expenditure and capitalization are shown as below.

(Rs. crore)

Year	Capital expenditure	Capitalisation
FY 2018-19	3309.37	4641.53
FY 2019-20	3640.30	3794.09
FY 2020-21	1207.51	1574.49
FY 2021-22	278.00	453.05
Total	**8435.18**	**10463.16**

Schedule of CAPEX and Capitalization for 3rd Control Period Rs.3640.30 Crore and 453.05 Cr seems to have totaling error. Further, Description and exact nomenclature of new scheme along with supporting documents is missing.

However, SBPDCL has not furnished the work-wise details such as no. of substations, length of lines, exact geographical location etc. in the Business Plan. The work-wise details under each scheme along with year-wise capex and capitalisation may be furnished. It is also requested to furnish copies of cost estimates of each upcoming project/work/scheme for vitiation and corroboration of the cost of the scheme and Current Status of ongoing project a per Annexure-A.

Further, Capex under RGGVY has been projected during FY 2019-20 (Rs.336.18 cr) and FY 2020-21 (Rs.571.51 cr) of coming control period. The RGGVY scheme was subsumed in DDUGJY. Reasons thereof may be furnished. Details of adjustments of Rs.577.53 crore made in capex for FY 2017-18 may be furnished.

For New Project

Detailed Assessment of Distribution Licensees Infrastructure Requirements, Supporting documents clearly stating purpose of investment, capital structure, DPR, capitalization schedule, financing plan and cost benefit analysis etc as per BERC (Procedure for filing Capital investment and Capitalisation plan) Regulations, 2018 is missing in this business plan petition.

Reply: The detailed capitalization plan has been attached as **Annexure-II** for kind consideration of the Hon'ble Commission. The Discom is compiling the existing work-wise, scheme wise details such as no. of substations, length of lines, exact geographical location etc. from its field offices and shall submit the same before the Hon'ble Commission along with projection for future years subsequently.

As per MoP notification the nomenclature of RGGVY has been changed to DDUGJY. The progress and fund to be received under the erstwhile RGGVY scheme has been shown separately for the sake of clarity whereas the progress under the head DDUGJY is shown under a separate head which came into existence in 2017 for accounting purpose. REC is also disbursing the funds under the two separate schemes i.e. RGGVY-12th Plan and DDUGJY.

9. Regulation 5 of the BERC (Procedure for filing capital investment and capitalisation plan) Regulations 2018 specify "on the basis of infrastructure requirement assessed the distribution licensee shall prepare a rolling plan of ten years for capital investment plan and capitalisation…". SBPDCL has not submitted the ten year capex and capitalisation rolling plan with the business plan, which may be submitted.

Reply: The capitalization plan for the 3rd MYT control period has been submitted as a part of the Business Plan. It can be observed from the detailed capitalization plan for the control period that most of the schemes shall expire by end of FY 2021-22. Further, the future schemes are also not clear. Keeping the uncertainty of the schemes run by Central and State Govt., also the draft amendment in Electricity Act, 2003 under consideration the Discom is

unable to project for rest seven years and requests the Hon'ble Commission to accept the same.

10. Regulation 5.2 of BERC (Multi Year Distribution Tariff) Regulations 2018 specify "business plan shall comprise but not limited to ". The business plan shall contain all the cost parameters of the ARR for the control period. Reasons for not projecting other ARR components in the business plan may be furnished.

    Reply: The Regulation 5.2 does not specify that the business plan shall contain all the cost parameters of the ARR for the control period. However, the Petitioner has already filed the Tariff Petition for MYT control period on 30.11.2018 with all required details which may be considered by the Hon'ble Commission for all the cost parameters of the ARR.

11. Regulation 22 of BERC (Multi Year Distribution Tariff) Regulations 2018 specify norms shall be fixed for O&M expenses. Reasons for not proposing norms may be communicated.

    Reply: The actual O&M expense incurred by the Petitioner is reflected in the audited accounts and is also certified by the Auditor. The consumer base of both the Discoms are under expansion and is expected to get saturated in subsequent years. The consumers are mainly expected to be added to the domestic category and distribution network is also expected to expand to match the growing demand. Therefore, setting norms based on the historical data where the system was not stabilized shall not be a reasonable proposition. In view of the same the Hon'ble Commission is requested to allow the O&M expense as per actual in line with the audited accounts for the 3rd control period.

12. Copy of the annual accounts for FY 2017-18 approved by the Board may be provided. Further first half year of FY 2018-19 trial balance showing revenue and expenses (account / nature of expenditure head wise), category wise sales (slab-wise), no. of consumers and purchase of power (source-wise) may be furnished.

    Reply: The copy of the annual accounts for FY 2017-18 approved by the Board of Directors is attached as **Annexure-III**. Further, the trial balance showing revenue and expenses (account / nature of expenditure head wise), category wise sales (slab-wise), no. of consumers and purchase of power (source-wise) is under compilation and shall be made available to Hon'ble Commission after finalization.

Annexure-I

Detailed power purchase costs for FY 2019-20 (in INR Crore)

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Central Sector Stations	2,391	13,130	62.53%	1.337	1,756.15	2.612	3,429.07	-	5,185.22	3.95
Talcher – I (2 x 500 MW)	223	1,541	78.8%	1.05	161.58	1.86	286.60		448.19	2.91
Farakka – I & II (1600 MW)	271	1,739	73.0%	0.96	167.75	2.49	433.86		601.61	3.46
Farakka – III (500 MW)	72	491	78.1%	1.68	82.65	2.51	123.15		205.80	4.19
Kahalgaon – I (840 MW)	190	1,239	74.3%	1.32	163.44	2.48	307.78		471.22	3.80
Kahalgaon – II (1500 MW)	40	286	80.7%	1.10	31.47	2.41	69.01		100.49	3.52
Barh-II	542	3,735	78.4%	2.00	747.99	2.49	930.73		1,678.71	4.49
Korba	14	97	81.8%	1.37	13.31	1.33	12.93		26.24	2.70
Rangit – HEP	11	96	96.0%	2.01	19.24	2.08	19.87		39.11	4.09
Teesta - HEP	59	321	62.5%	1.07	34.49	1.20	38.62		73.11	2.27
Chukha	43	272	71.7%	-	-	2.47	67.14		67.14	2.47
Tala	140	374	30.3%	-	-	2.25	84.04		84.04	2.25
Barh Stage-I (3 X 660 MW)	-	-		-	-	-	-		-	-
KBUNL 1	59	309	59.2%	1.44	44.36	3.74	115.60		159.96	5.18
KBUNL 2	143	899	71.8%	2.70	242.65	2.92	262.60		505.25	5.62
Barauni Stage I	119	600	85.0%		-	4.10	246.15		246.15	4.10

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Barauni Stage II	135	227	85.0%		-	3.97	90.28		90.28	3.97
PFC_ Medium Term	108	133	14.0%	-	-	4.24	56.21		56.21	4.24
Talcher-II (2x500)	-							-	-	-
Arun –III	-							-	-	-
Mangdechhu, HEP,	135	468	40.0%	-	-	4.00	187.32	-	187.32	4.00
Punatsangchhu &	-							-	-	-
North Karanpura, Jharkhand (3 X 660MW)	-							-	-	-
Darlipalli STPS (4 X 800 MW)	87	303	85.0%	1.56	47.22	3.21	97.16	-	144.37	4.77
TAWANG-I	-							-	-	-
TAWANAG-II	-							-	-	-
TEESTA-IV	-							-	-	-
State Generating Stations	5	3	7.1%	-	-	2.59	0.87	-	0.87	2.59
Small Hydro (BSHPCL)	5	3	7.1%	-	-	2.59	0.87	-	0.87	2.59
IPP	290	1,719	69%	2.516	432.32	1.11	190.02	72.59	694.93	4.04
GMR Kamalanga Energy	128	928	83%	2.03	188.14	1.07	99.58	72.39	360.11	3.88
JITPL	162	791	17%	3.09	244.19	1.14	90.44	0.20	334.82	4.24
JV projects	308	1,879	71%	2.02	378.89	1.69	316.61	-	695.50	3.70

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Nabinagar Railway (4 X 250 Mw)	54	141	30%	2.71	38.27	0.39	5.53		43.81	3.10
Nabinagar Stage-I (3 X 660	254	1,738	85%	1.96	340.62	1.79	311.08	-	651.70	3.75
Nabinagar JV (3 X 660 MW) Stage-II	-		-	-	-	-	-	-	-	-
Renewable	340	716	70.52%	-	-	3.68	263.57	0.14	263.71	3.68
SECI-Solar	5	9	19%	-	-	5.50	5.01	0.14	5.15	5.66
SECI-Wind-300 MW	108	224	24%	-		2.52	56.36	-	56.36	2.52
PTC-Wind- 300 MW	108	224	24%	-		2.52	56.36	-	56.36	2.52
SECI-Solar -500 MW								-		-
NTPC-Nokh - 500 MW								-		-
NTPC-Solar -500 MW								-		-
ACME Magadh	5	9	0.18	-		8.73	7.58	-	7.58	8.73
ACME Nalanda	8	13	0.18	-		8.73	11.07	-	11.07	8.73
Sunmark	5	9	0.18	-		5.67	4.89	-	4.89	5.67
Avantika	3	3	0.13	-		7.69	2.37	-	2.37	7.69
AZURE	5	7	0.15	-		8.39	5.88	-	5.88	8.39
Udipta Energy & Equipment Pvt ltd	3	4	0.16	-		7.98	3.11	-	3.11	7.98
Glatt	2	3	0.19	-		6.11	1.63	-	1.63	6.11
Welspun 2	8	13	0.18	-		8.64	10.90	-	10.90	8.64

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Welspun 1	5	8	0.18	-		8.70	7.30	-	7.30	8.70
Welspun 3	8	13	0.18	-		8.65	11.08	-	11.08	8.65
Response Renewable Energy	5	9	0.18	-		5.67	4.92	-	4.92	5.67
ALFA INFRAPOP	8	15	0.21	-		4.76	6.99	-	6.99	4.76
TIRUPATI SUGAR	5	13	0.27	-		3.61	4.62	-	4.62	3.61
New Swadeshi Sugar Mill,Narkatiaganj	4	10	0.30	-		3.71	3.76	-	3.76	3.71
Harinagar Sugar Mills,Harinagar	6	33	0.63	-		4.44	14.49	-	14.49	4.44
Bharat SugarMills,SidhiwaliaGopalganj	6	27	0.51	-		4.91	13.13	-	13.13	4.91
Lauriya Sugar Mill	11	27	0.28	-		3.67	9.78	-	9.78	3.67
Sugauli Sugar Mill	11	25	0.27	-		5.34	13.60	-	13.60	5.34
Hasanpur Sugar Mills,Samastipur	5	14	0.30	-		3.79	5.31	-	5.31	3.79
Riga Sugar Company Ltd,Sitamarhi	2	4	0.27	-		3.62	1.39	-	1.39	3.62
Siddhashram Rice Mill Cluster Pvt Ltd	1	1	0.24	-		5.60	0.64	-	0.64	5.60
BDBPL	2	3	0.19	-		5.35	1.42	-	1.42	5.35
Open Market Purchase		368		-	-	4.36	160.25	-	160.25	4.36
IEX/PXIL	-	368	-	-		4.36	160.25		160.25	4.36
DB Power	-									-

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
JAYPEE NIGRIE	-									-
GMR ETL	-									-
TATA ETL	-									-
Manikaran Power	-									-
NEA	-									-
NVVNL	-	-	-	-		-			-	-
PVVNL	-	-	-	-		-			-	-
KSEB- Short Term										-
Tata Power - Short Term										-
PTC -Ostro Kutch - Short Term										-
PTC-Short Term										-
Adani Short Term							-	-		-
UI	-	-	-	-		-	-	-	-	-
Solar REC to meet RPO						1.00			56.41	-
Non-solar REC to meet RPO						1.25			44.35	-
Sub Total Power Purchase	**3,334**	**17,815**		**1.44**	**2,567.37**	**2.45**	**4,360.38**	**72.73**	**7,101.24**	3.99

Table 87: Detailed power purchase costs for FY 2020-21 (in INR Crore)

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Central Sector Stations	2,512	15,005	68.18%	1.273	1,910.53	2.79	4,187.68	-	6,098.21	4.06
Talcher – I (2 x 500 MW)	223	1,541	78.8%	1.09	168.05	1.93	298.07		466.12	3.03
Farakka – I & II (1600 MW)	271	1,739	73.0%	1.00	174.46	2.59	451.21		625.68	3.60
Farakka – III (500 MW)	72	491	78.1%	1.75	85.95	2.61	128.08		214.03	4.36
Kahalgaon – I (840 MW)	190	1,239	74.3%	1.37	169.97	2.58	320.09		490.07	3.96
Kahalgaon – II (1500 MW)	40	286	80.7%	1.15	32.73	2.51	71.77		104.51	3.66
Barh-II	542	3,735	78.4%	2.08	777.91	2.59	967.95		1,745.86	4.67
Korba										
Rangit – HEP	11	96	96.0%	2.09	20.01	2.16	20.67		40.68	4.25
Teesta - HEP	59	321	62.5%	1.12	35.87	1.25	40.16		76.03	2.37
Chukha	43	272	71.7%	-	-	2.47	67.14		67.14	2.47
Tala	140	374	30.3%	-	-	2.25	84.04		84.04	2.25
Barh Stage-I (3 X 660 MW)	-								-	-
KBUNL 1	59	309	59.2%	1.49	46.14	3.89	120.23		166.36	5.38
KBUNL 2	143	899	71.8%	2.81	252.36	3.04	273.10		525.46	5.84
Barauni Stage I	119	734	85.0%	-	-	3.49	256.00		256.00	3.49
Barauni Stage II	270	1,668	85.0%	-	-	3.97	662.07		662.07	3.97
PFC_ Medium Term	108	530	55.0%	-	-	4.24	224.86		224.86	4.24

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Talcher-II (2x660)										-
Arun –III										-
Mangdechhu, HEP,	135	468	40.0%	2.09	97.97	2.16	101.20		199.17	4.25
Punatsangchhu &	-	-							-	-
North Karanpura, Jharkhand (3 X 660MW)	-		85.0%		-		-	-	-	-
Darlipalli STPS (4 X 800 MW)	87	303	85.0%	1.62	49.11	3.34	101.04	-	150.15	4.96
TAWANG-I	-	-						-	-	-
TAWANAG-II	-	-						-	-	-
TEESTA-IV	-	-						-	-	-
State Generating Stations	5	3	7.1%	-	-	2.69	0.90	-	0.90	2.69
Small Hydro (BSHPCL)	5	3	7.1%	-	-	2.69	0.90	-	0.90	2.69
IPP	290	1,719	68.65%	2.616	449.62	1.15	197.62	75.49	722.73	4.21
GMR Kamalanga Energy	128	928	0.83	2.11	195.66	1.12	103.56	75.28	374.51	4.04
JITPL	162	791	0.56	3.21	253.95	1.19	94.06	0.20	348.22	4.40
JV projects	308	1,879	70.52%	2.02	380.43	1.69	316.83	-	697.25	3.71
Nabinagar Railway (4 X 250 Mw)	54	141	30%	2.82	39.80	0.41	5.75	-	45.56	3.23
Nabinagar Stage-I (3 X 660)	254	1,738	85%	1.96	340.62	1.79	311.08	-	651.70	3.75
Nabinagar JV (3 X 660 MW) Stage-II	-	-	-	-	-	-	-	-	-	-

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Renewable	340	716	24.41%	-	-	3.68	263.57	0.15	263.72	3.68
SECI	5	9	19.19%	-	-	5.50	5.01	0.15	5.15	5.66
SECI-Wind-300	108	224	24.00%			2.520	56.36	-	56.36	2.52
PTC-Wind-	108	224	24.00%			2.520	56.36	-	56.36	2.52
SECI-Solar -500	-					2.750	-	-	-	-
NTPC-Nokh - 500	-					2.800	-	-	-	-
NTPC-Solar -500										-
ACME Magadh	5	9	18.3%	-	-	8.73	7.58	-	7.58	8.73
ACME Nalanda	8	13	17.8%	-	-	8.73	11.07	-	11.07	8.73
Sunmark	5	9	18.2%	-	-	5.67	4.89	-	4.89	5.67
Avantika	3	3	13.0%	-	-	7.69	2.37	-	2.37	7.69
AZURE	5	7	14.8%	-	-	8.39	5.88	-	5.88	8.39
Udipta Energy & Equipment Pvt ltd	3	4	16.4%	-	-	7.98	3.11	-	3.11	7.98
Glatt	2	3	18.8%	-	-	6.11	1.63	-	1.63	6.11
Welspun 2	8	13	17.7%	-	-	8.64	10.90	-	10.90	8.64
Welspun 1	5	8	17.7%	-	-	8.70	7.30	-	7.30	8.70
Welspun 3	8	13	18.0%	-	-	8.65	11.08	-	11.08	8.65
Response Renewable Energy	5	9	18.3%	-	-	5.67	4.92	-	4.92	5.67
ALFA INFRAPOP	8	15	20.6%	-	-	4.76	6.99	-	6.99	4.76

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
TIRUPATI SUGAR	5	13	27.0%	-	-	3.61	4.62	-	4.62	3.61
New Swadeshi Sugar Mill,Narkatiaganj	4	10	30.5%	-	-	3.71	3.76	-	3.76	3.71
Harinagar Sugar Mills,Harinagar	6	33	62.5%	-	-	4.44	14.49	-	14.49	4.44
Bharat SugarMills,SidhiwaliaGopalganj	6	27	51.2%	-	-	4.91	13.13	-	13.13	4.91
Lauriya Sugar Mill	11	27	28.1%	-	-	3.67	9.78	-	9.78	3.67
Sugauli Sugar Mill	11	25	26.9%	-	-	5.34	13.60	-	13.60	5.34
Hasanpur Sugar Mills,Samastipur	5	14	29.6%	-	-	3.79	5.31	-	5.31	3.79
Riga Sugar Company Ltd,Sitamarhi	2	4	27.0%	-	-	3.62	1.39	-	1.39	3.62
Siddhashram Rice Mill Cluster Pvt Ltd	1	1	23.9%	-	-	5.60	0.64	-	0.64	5.60
BDBPL	2	3	18.7%	-	-	5.35	1.42	-	1.42	5.35
Open Market Purchase		554		-	-	4.36	241.52	-	241.52	4.36
IEX/PXIL		554	-	-	-	4.36	241.52		241.52	4.36
DB Power										-
JAYPEE NIGRIE										-
GMR ETL										-
TATA ETL										-

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Manikaran Power										-
NEA										-
NVVNL										-
PVVNL										-
KSEB- Short Term										-
Tata Power - Short Term										-
PTC -Ostro Kutch - Short Term										-
PTC-Short Term										-
Adani Short Term										-
UI	-	-	-	-	-	-	-	-	-	-
Solar REC to meet RPO						1.00			96.06	
Non-solar REC to meet RPO						1.25			73.18	
Sub Total Power Purchase	**3,455**	**19,876**		**1.38**	**2,740.57**	**2.62**	**5,208.13**	**75.64**	**8,193.57**	4.12

Table 87: Detailed power purchase costs for FY 2021-22 (in INR Crore)

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Central Sector Stations	2,589	14,687	64.77%	1.358	1,994.33	2.815	4,134.53	-	6,128.86	4.17
Talcher – I (2 x 500 MW)	223	1,541	79.0%	1.13	174.77	2.01	309.99	-	484.76	3.15
Farakka – I & II (1600 MW)	271	1,739	73.2%	1.04	181.44	2.70	469.26	-	650.70	3.74
Farakka – III (500 MW)	72	491	78.3%	1.82	89.39	2.71	133.20	-	222.60	4.53
Kahalgaon – I (840 MW)	190	1,239	74.5%	1.43	176.77	2.69	332.90	-	509.67	4.11
Kahalgaon – II (1500 MW)	40	286	80.9%	1.19	34.04	2.61	74.64	-	108.69	3.80
Barh-II	542	3,735	78.6%	2.17	809.02	2.70	1,006.67	-	1,815.70	4.86
Korba	-				-	-	-	-	-	-
Rangit – HEP	11	96	96.3%	2.18	20.81	2.25	21.49	-	42.30	4.42
Teesta - HEP	59	321	62.7%	1.16	37.30	1.30	41.77	-	79.07	2.46
Chukha	43	272	71.9%	-	-	2.47	67.14	-	67.14	2.47
Tala	140	374	30.4%	-	-	2.25	84.04	-	84.04	2.25
Barh Stage-I (3 X 660 MW)	185	-	85.0%		-		-	-	-	-
KBUNL 1	59	309	59.4%	1.79	55.36	4.67	144.27	-	199.64	6.46
KBUNL 2	143	899	72.0%	2.92	262.45	3.16	284.03	-	546.48	6.08
Barauni Stage I	119	734	70.3%	-	-	3.63	266.24	-	266.24	3.63
Barauni Stage II	270	1,880	85.0%	-	-	3.66	688.55	-	688.55	3.66

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
PFC_ Medium Term	-	-								-
Talcher-II (2x660)	-	-	85.0%		-		-	-	-	-
Arun –III	-	-	40.0%		-		-	-	-	-
Mangdechhu, HEP,	135	468	40.0%	2.18	101.89	2.25	105.24	-	207.13	4.42
Punatsangchhu &	-	-			-		-	-	-	-
North Karanpura, Jharkhand (3 X 660MW)	-						-	-	-	-
Darlipalli STPS (4 X 800 MW)	87	303	85.0%	1.69	51.07	3.47	105.08	-	156.15	5.16
TAWANG-I	-	-			-		-	-	-	-
TAWANAG-II	-	-			-		-	-	-	-
TEESTA-IV	-	-			-		-	-	-	-
State Generating Stations	5	3	7%	-	-	2.80	0.94	-	0.94	2.80
Small Hydro (BSHPCL)	5	3	7.1%	-	-	2.80	0.94	-	0.94	2.80
IPP	290	1,719	67.71%	5.53	467.60	2.40	205.53	78.51	751.64	4.37
GMR Kamalanga Energy	128	928	83%	2.19	203.49	1.16	107.71	78.30	389.49	4.20
JITPL	162	791	56%	3.34	264.11	1.24	97.82	0.21	362.14	4.58
JV projects	308	1,879	7.18%	2.11	395.64	1.75	329.50	-	725.14	3.86
Nabinagar Railway (4 X 250 Mw)	54	141	30%	2.93	41.40	0.42	5.98	-	47.38	3.36

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Nabinagar Stage-I (3 X 660)	254	1,738	85%	2.04	354.25	1.86	323.52	-	677.76	3.90
Nabinagar JV (3 X 660 MW) Stage-II	-	-	-	-	-	-	-	-	-	-
Renewable	1,258	2,306	21.22%	-	-	2.99	690.40	0.15	690.55	2.99
SECI	5	9	19.19%	-	-	5.50	5.01	0.15	5.16	5.67
SECI-Wind-300	216	456	24.00%			2.52	114.88	-	114.88	2.52
PTC-Wind-	108	228	24.00%			2.52	57.44	-	57.44	2.52
SECI-Solar -500	270	451	19.00%			2.75	124.06	-	124.06	2.75
NTPC-Nokh - 500	270	451	19.00%			2.80	126.32	-	126.32	2.80
NTPC-Solar -500	270	451	19.00%			2.59	116.84	-	116.84	2.59
ACME Magadh	5	9	18.30%	-	-	8.73	7.58	-	7.58	8.73
ACME Nalanda	8	13	17.82%	-	-	8.73	11.07	-	11.07	8.73
Sunmark	5	9	18.17%	-	-	5.67	4.89	-	4.89	5.67
Avantika	3	3	12.97%	-	-	7.69	2.37	-	2.37	7.69
AZURE	5	7	14.76%	-	-	8.39	5.88	-	5.88	8.39
Udipta Energy & Equipment Pvt ltd	3	4	16.44%	-	-	7.98	3.11	-	3.11	7.98
Glatt	2	3	18.75%	-	-	6.11	1.63	-	1.63	6.11
Welspun 2	8	13	17.73%	-	-	8.64	10.90	-	10.90	8.64
Welspun 1	5	8	17.69%	-	-	8.70	7.30	-	7.30	8.70

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
Welspun 3	8	13	18.01%	-	-	8.65	11.08	-	11.08	8.65
Response Renewable Energy	5	9	18.30%	-	-	5.67	4.92	-	4.92	5.67
ALFA INFRAPOP	8	15	20.64%	-	-	4.76	6.99	-	6.99	4.76
TIRUPATI SUGAR	5	13	26.98%	-	-	3.61	4.62	-	4.62	3.61
New Swadeshi Sugar Mill,Narkatiaganj	4	10	30.50%	-	-	3.71	3.76	-	3.76	3.71
Harinagar Sugar Mills,Harinagar	6	33	62.54%	-	-	4.44	14.49	-	14.49	4.44
Bharat SugarMills,SidhiwaliaGopalganj	6	27	51.25%	-	-	4.91	13.13	-	13.13	4.91
Lauriya Sugar Mill	11	27	28.09%	-	-	3.67	9.78	-	9.78	3.67
Sugauli Sugar Mill	11	25	26.85%	-	-	5.34	13.60	-	13.60	5.34
Hasanpur Sugar Mills,Samastipur	5	14	29.56%	-	-	3.79	5.31	-	5.31	3.79
Riga Sugar Company Ltd,Sitamarhi	2	4	26.97%	-	-	3.62	1.39	-	1.39	3.62
Siddhashram Rice Mill Cluster Pvt Ltd	1	1	23.93%	-	-	5.60	0.64	-	0.64	5.60
BDBPL	2	3	18.67%	-	-	5.35	1.42	-	1.42	5.35
Open Market Purchase		1,536		-	-	4.36	669.56	-	669.56	4.36
IEX/PXIL		1,536	-	-	-	4.36	669.56		669.56	4.36
DB Power										-
JAYPEE NIGRIE										-

Name of The Source	Share allocated (MW)	Units purchased (MU)	PLF (%)	Fixed Cost (Rs/kWh)	Fixed charge (Rs Crs)	Energy Cost (Rs/kWh)	Energy cost (Rs Crs)	Misc. cost (Rs Crs)	Total Cost (Rs Crs)	Average Cost
GMR ETL										-
TATA ETL										-
Manikaran Power										-
NEA										-
NVVNL										-
PVVNL										-
KSEB- Short Term										-
Tata Power - Short Term										-
PTC -Ostro Kutch - Short Term										-
PTC-Short Term										-
Adani Short Term										-
UI										-
Solar REC to meet RPO						1.00			-	
Non-solar REC to meet RPO						1.25			94.20	
Sub Total Power Purchase	**4,450**	**22,130**		**1.29**	**2,857.58**	**2.73**	**6,030.45**	**78.66**	**9,060.88**	4.09