

A Report on High Electricity Bills for Thimphu during the lockdown 2.0

Submitted by Office of Consumer Protection, Ministry of Economic Affairs and Bhutan Electricity Authority

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1. Executive Summary

A study on high electricity charges reported to be billed by the Bhutan Power Corporation Limited (BPC) for the consumers in Thimphu and Paro for the month of February 2021 amid lockdown that began from 20th December 2020 till January 31st 2021 was carried out to understand the rationale behind the relatively high electricity bills and impacts of average billing methods.

As BPC was constrained to visit consumer's premises for meter reading during the lockdown, BPC implemented an average billing method for the energy consumption during lockdown. Owing to this, the consumers took to various platforms to express dissatisfaction on the higher bills charged for February 2021.

In order to delve into the issue, trend analysis of energy consumption of 46,456 active consumers in Thimphu for the past 3 years was carried out and accordingly the scale of issue was assessed and areas of high incidence of relatively higher bills identified. Around 15% of 46,456 active consumers in Thimphu had received about 100% increase in electricity consumption bill for January and February 2021 compared to the corresponding months of the year 2020. It was found that the January bill was based on the average consumption of the preceding three months with much lower consumption which resulted in a much higher bill in February 2021. While there were discrepancies in the application of the block tariff benefits for January and February, the issue was resolved with the normalization of the bills for that period.

Further, in order to validate the energy consumption, a field visit was made to the premises of 36 complainants having higher bills issues spread across Thimphu. The field visit findings indicated that the estimated energy consumption of the consumers was similar to the revised bill issued by BPC for February 2021.

The further analysis of the consumption pattern of the consumers revealed that the average billing method adopted by BPC during the lockdown 1.0 had overestimated the consumption for the months of August and September 2020. This resulted in lower billing of consumption for the months of October and November 2020 and in the process, the consumers were not benefited with block tariff subsidy.

While BPC is carrying out the verification of the meter reading and billing, BPC has been directed to reassess the block tariff application and provide the forgone subsidy benefits to all affected consumers across the country for the lockdown 1.0, waive off the late-payment penalties, and facilitate part payment till June 2021. In addition, a set of remedial actions on the strengthening of existing standard operating procedures for metering and billing and consumer grievance redressal mechanisms have been provided to avoid recurrence of such issues.

2. Background

The Office of Consumer Protection (OCP), Ministry of Economic Affairs (MoEA) and the Bhutan Electricity Authority (BEA) jointly carried out an in depth analysis with regard to the high amount of electricity bill for the month of February 2021 issued by the Bhutan Power Corporation Limited (BPC) to the consumers after relaxation of the lockdown 2.0. As the electricity bills for the month of February 2021 was reported to be billed relatively higher for many of the consumers, the consumers expressed dissatisfaction through various platforms like consumer hotline number, online, walk-in, print media, social media, etc. The major complaints expressed by the consumers were noted to be based on the following:

- **a.** Billing based on average method is not convincing compared to actual energy consumption; and
- **b.** Offices/institutions/commercial space were billed energy charges despite closure during the lockdown period.

Based on the consumer complaints received through the hotline number, walk-in and also noting the grievances expressed by the consumers in social media and mainstream media, OCP reviewed the complaints and initiated an inquiry as per the provisions of the Consumer Protection Act 2012 and Consumer Protection Rules and Regulations 2015.

OCP visited the Head Office of BPC and carried out an inquiry, collected required information pertaining to the methodology, and the standard operating procedure (SoP) on meter reading and billing adopted by BPC during lockdown 2.0. The assessment by OCP indicated that the average billing method has impacted the block tariff benefits and energy charges in December 2020, January 2021 and February 2021. However, OCP noted that the energy subsidy benefits have been provided to 16,922 eligible consumers in Thimphu and 5,068 consumers in Paro through normalization of bills by equally distributing the total energy consumption to January 2021 and February 2021.

It is noted that the energy consumption is usually higher in winter months and bill amounts are high considering block tariffs. Although it has been reported that the BPC usually visits consumers' premises on a monthly basis based on the billing cycle schedule of the respective consumers to ensure fair application of the block tariff benefits, OCP is of the view that irregularities in meter reading based on the monthly billing cycle may have contributed to the high bill. However, with the commencement of lockdown 2.0 from 20th December 2020 till 31st January 2021 in Thimphu and Paro, BPC was constrained to visit consumers' premises in these areas for physical meter reading thereby affecting the billing cycle which could have deprived the consumers of block tariff benefits. Also, it was noted that the consumers were imposed penalties for January and February 2021 by BPC despite their own notification issued to waive off penalties.

BEA, on the other hand, had also carried out a study on the high electricity bill through sampling review of the consumer complaints. The initial assessment report by BEA indicated that BPC, in cognizant of the electricity subsidies provided by the Royal Government of Bhutan through various block tariffs and to ensure the consumers are not deprived of this benefit, has adopted a mechanism to issue bills for the month of January 2021 by taking an average consumption of the previous 3 months.

Since the lockdown 2.0 was during the peak winter season (December and January), the energy consumption was supposedly higher during the lockdown due to space heating as everyone was staying home throughout the period. Had there been no lockdown, the consumers would have been out in the office or business premise, and the space heating in their houses would have been lower during the day. As BPC was not able to carry out the physical monthly meter-reading, the difference between actual consumption and estimated consumption billed for the month of January 2021 was reflected in the bill of February 2021 resulting in higher bills than expected.

Therefore, in order to assess whether the consumers were unreasonably billed and the applicable energy subsidies were provided to the eligible consumers, a joint study by BEA and OCP was carried out in the following areas:

1. Energy consumption trend of 46,465 active consumers for the past three years (2018, 2019 and 2020) based in Thimphu to understand the extent of issue and

the percentage deviation pattern of the consumer to validate the consumption level;

- 2. The billing system and meter reading strategy adopted by BPC and its cascading impact to the consumers on block tariff benefits;
- Comparison of energy consumption pattern during the lockdown period through site visit of selected samples (use of space heating, meter standards, and occupancy); and
- 4. Necessary intervention measures taken up by BPC and provide further corrective measures, if required.

3. Scope of the Study

The energy consumption pattern of 46,465 active consumers for three years (2018, 2019 and 2020) was collected from BPC to identify billing patterns and the extent of the high bills issue. Further, a total of 316 consumers that registered complaints with BPC were also taken for the purpose of the study out of which 106 complaints were under review. The team selected 36 consumers from 106 complaints that were billed relatively higher in February 2021 and having irregularities in the previous billing pattern. The study covered the following areas:

- 1. Changangkha
- 2. Changbangdu/Changedaphu
- 3. Changzamtok
- 4. Depsi/Babesa
- 5. Olakha
- Pamtsho/Dangrina/Taba and
- 7. Simtokha

The target group of consumers include households, commercial buildings and institutes. However, the study could not cover 14,058 consumers of Paro due to time constraint and expecting the similar nature of the issue.

4. Definition

4.1Tariff schedule

The tariff schedule is an applicable rate for consumption of electricity per unit. The rates approved by the Bhutan Electricity Authority for Low Voltage, Medium Voltage and High Voltage consumers for the period 1st October 2019 to 30th June 2021 is as provided below:

Tariff structure	Unit	1st October 2019 to 30th June 2020	1st July 2020 to 30th June 2021		
1	Low Voltage((LV)			
LV Block I(Rural) 0-100 kWh	Nu./kWh	0	0		
LV Block I (High landers) 0-200 kWh	Nu./kWh	0	0		
LV Block I(Others) 0-100 kWh	Nu./kWh	1.28	1.28		
LV Block II(All) >101-500 kWh	Nu./kWh	2.68	2.68		
*LV Block III(All) >500 kWh	Nu./kWh	3.57	3.60		
LV Bulk	Nu./kWh	4.06	4.10		
Medium Voltage(MV)					
Energy Charge	Nu./kWh	2.24	2.45		
Demand Charge	Nu./kWh	325	325		
High Voltage(HV)					
Energy Charge	Nu./kWh	1.50	1.50		
Demand Charge	Nu./kWh	292	292		

^{*} LV consumers such as street lightings, temporary connections for non-residential purpose, institutions, commercial and industrial consumers are charged at LV Block III

4.2 Billing cycle

Billing cycle refers to the length of time in a month between the last statement of closing date and the next. BPC carries out the meter reading and electricity bills are delivered between 1st to 28th day of each month depending on the routes and billing cycles of the respective consumers.

5. Methodology

The bilateral discussions were held with BPC on billing strategy adopted by BPC during the lockdown period especially the average method, energy consumption pattern of the past three years (2018, 2019 and 2020) for the consumers in Thimphu, list of consumer complaints received by BPC and the consumer grievance redressal mechanism in place.

Trend analysis of energy consumption of 46,456 active consumers for the past 3 years was carried out and accordingly the scale of issue was assessed. In addition, the percentage level of deviation compared to the past years has been ascertained to understand the proportion of increase in energy consumption by the consumers and identify factors contributing to such irregularities.

The study was carried out through field visits to those selected consumers who had lodged complaints to the BPC office and also resided in areas of high incidences of abnormal bills as per trend analysis. Information pertaining to household appliances, occupancy during lockdown, perspectives of the consumers, types of meter used and its reading, consumption pattern, etc. was collected via interviews and standard form to provide general consumption patterns and identify factors contributing to energy consumption.

6. Assessment and Finding:

6.1 Trend Analysis of Energy Consumption

BPC has 92 billing routes/areas catered by 14 service centers for the 46,456 active consumers in Thimphu. Since the issue pertains to the higher bills of February 2021, the percentage deviation of the energy consumption was compared with the months of January and February 2020 with the corresponding months of the year 2021 and it was found that there is a major increase in the energy consumption as shown in table below.

Service	Total Number of	No. of Consumers with more than 100% increase bill amt.	B/A
Center	Consumers (A)	(B)	Ratio
SC-01	4117	711	9%
SC-02	4693	901	11%
SC-03	3064	499	6%
SC-04	3071	517	6%
SC-05	6191	1175	15%
SC-06	3453	287	4%
SC-07	3273	271	3%
SC-08	3608	606	8%
SC-09	1332	228	3%
SC-10	2995	569	7%
SC-11	2531	403	5%
SC-12	1163	188	2%
SC-13	3752	579	7%
SC-14	5657	1026	13%
	48900(including inactive)	7960	100%

Out of 46,456 consumers, 7,960 consumers have received more than 100% increase of energy consumption in January and February 2021 compared to 2020 in the same months. Amongst 14 service centers, service center SC-05 (which includes Jungshina, Taba, Zilukha, Babena, Hejo, Samtenling and Pamtsho) recorded the highest number of consumers followed by service center SC-14 (which includes Simtokha, Olarongchu, Babesa, Depsi village and below expressway to Depsi). Third highest deviation was recorded in the service center SC-02 (which includes Changbangdo, Changzamtog and Changedaphu).

6.2 Billing Strategy adopted by BPC during 1st and 2nd lockdown and the impacts

BPC has adopted a past three month average billing method as per the Standard Operating Procedure approved by their Board. BPC reported that this is a standard practice followed by similar utility companies during such emergencies and as such, the same billing methodology was adopted to calculate the electricity bill for the lockdown 1.0 and 2.0.

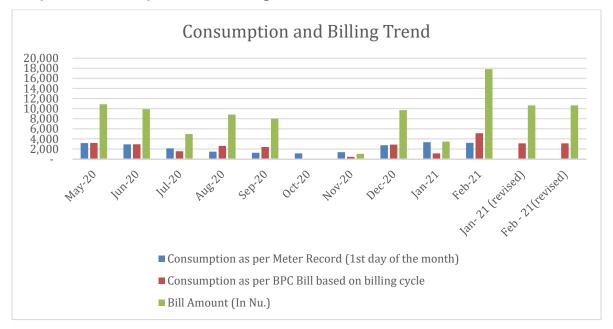
6.2.1 Impact of One Cycle Average Billing Method

Based on the above average billing methodology, a sample test of the consumer number: **130025069** from LV urban domestic category was selected from the service center area, SC-05 (Taba), that has maximum incidence of higher bills in Thimphu to ascertain the impact of implementing one cycle average billing method to the consumers in terms of block tariffs benefits and calculation of bills for the subsequent months. In addition, a consumer number **40067390** (LV urban domestic category) was selected for the same study and the findings are shown in *Annexure 1*.

Table 1: A sample of one cycle average billing method

Month	Consumption as per Meter Record (1st day of the month)	Consumption as per BPC Bill based on billing cycle	Bill Amount (In Nu.)
May-20	3,162	3201	10860.42
Jun-20	2,920	2934	9889.38
Jul-20	2,123	1551	4961.53
Aug-20	1,476	2620	8832.04
Sep-20	1,259	2394	8018.69
Oct-20	1,124	0.91	1.16
Nov-20	1,363	441	1041.88
Dec-20	2,745	2863	9706.8
Jan-21	3,345	1125	3453.06
Feb-21	3,217	5116	17818.14
Jan- 21 (revised)		3121	10635.6
Feb - 21(revised)		3121	10635.6

Graph 1: Consumption and Billing Trend



As shown in table 1 and graph 1, BPC adopted an average billing method for the month of August and September 2020 due to the lockdown 1.0 (11 August to 7th September 2020), whereby BPC was not able to go for physical verification of the electricity meter to generate the actual reading. Thus, the average bill of three preceding months (May, June and July 2020) were considered and computed as the bill for the August 2020, and similarly, the average bills of June, July and August 2020 was computed as September 2020 bill. However, as the calculated averaged bill of 3 months was higher than the actual reading, BPC adjusted the excess amount in the months of October and November 2020 in some cases.

The application of average method and adjustment in lockdown 1.0 had a cascading effect during lockdown 2.0 as the average of October, November and December months of the year 2020, computed for January 2021, was much lower than actual consumption. However, when the consumers were billed on actual reading for the month of February 2021, the amount was relatively higher resulting in several complaints from the consumers. Therefore, BPC, after adjusting the energy charges and eligible energy subsidies, reissued the bills for these two months by taking the average bills of January and February 2021.

Nevertheless, it was noted that as a result of the average billing method implemented for the months of August and September 2020 has led to loss of block tariff benefits/subsidy in the subsequent months of October and November 2020. These subsidy foregone were not adjusted by BPC through normalization of the bills.

Table 2: Subsidy Impacts

Month	Energy Unit billed (kWh)	Amount Billed (Nu.)	Units to be adjusted(kWh)	Revised units(kWh)	Revised amount (Nu.)
		(A)			(B)
August	2620	8832.04	499.09	2120.91	7035.276
2020					
September	2394	8018.69	59	2335	7806
2020					
October	0.91	1.16		500	1200
2020					
November	441	1041.88		500	1200
2020					
Total		17893.77			17241.276
		Subsidy loss in Nu (column A- B)		652.5	

The table 2 above elucidates the energy consumption for the months of August and September 2020, determined through an average method which was higher than the actual consumption. This led to billing less in the subsequent months of October and November 2020 to adjust the higher consumption estimated through average method in August and September months. This average bill and adjustment led to loss of block tariff benefits/ energy subsidy of October 2020 and November 2020 months. For example, a consumer did not receive the benefits/subsidy of about **Nu. 652.5** as shown in table 2. Out of 92 routes/areas in Thimphu, two routes/area were considered for analysis and found that 391 consumers in route/area 48 (Lungtenphu - Olakha) and 726 consumers in route 13 (Taba lower lap) did not receive the full block tariff benefits/subsidies for the month of October 2020.

6.2.2 Impact of two cycle average billing method

BPC implemented two average billing methods for those consumers whose billing cycle fell during the lockdown 2.0 period (December 20th 2020 to January 31st 2021). In such cases, the bills for the month of December 2020 and January 2021 were determined by taking average methods for the lockdown 2.0. For example, the bills for December 2020 were computed as an average of preceding three months (September, October and November 2020). Subsequently, the bill for January 2021 was computed as the average of October, November and December 2020 bills. After the lockdown was relaxed, the actual meter reading was taken in the month of February 2021, and the bills were prepared after adjusting the average bills for December 2020 and January 2021. The normalization of bills was carried out by dividing the total energy consumption equally for December 2020, January 2021 and February 2021.

Considering the financial year-end closing of BPC in December 2020, the subsidy block benefits to the eligible consumers of the December 2020 were provided in the March 2021 bills.

There were about 12,134 consumers where BPC could not record the energy consumption for two consecutive months (December 20 to January 31) due to the billing cycle that fell during lockdown 2.0.

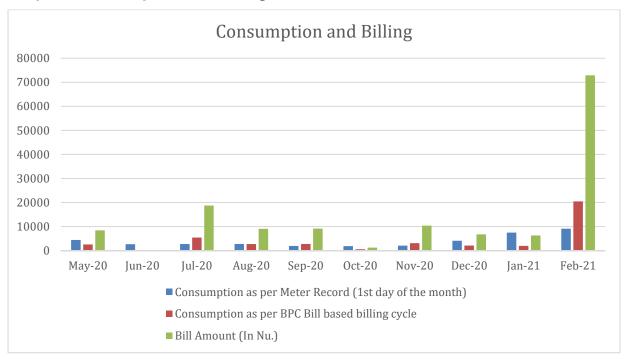
A sample test of the consumer number **30115862** of rural domestic category in Thimphu whose billing cycle was during the lockdown period (December 21st, 2020) and where the energy consumption is reflected zero in the preceding month was selected to ascertain the impact of the average billing method to the consumers in terms of block tariffs benefits and calculation of bills for the subsequent months. Similarly, a consumer with number **40005004** falling under LV urban residential category was selected for the same study and findings are given in *Annexure 2*.

Table 3: A sample of two cycle average billing method

Month	Energy Consumption as per Meter Record (1st day of the month)	Energy Consumption as per BPC Billing Cycle	Bill Amount (In Nu.)
May 2020	4409	2558	8,419.06
June 2020	2662	0	-
July 2020	2725	5420	18,739.72
August 2020	2763	2717	9,056.01
September 2020	1910	2742	9,143.49
October 2020	1853	544	1,230.90
November 2020	2047	3084	10,374.40
December 2020	4091	2077	6,750.10
January 2021	7460	1943	6,268.92
February 2021	9096	20450	72,892.58

Billing cycle: 21st December, Consumer number: 30115862

Graph 2: Consumption and Billing Trend



It was observed that there are some instances where the energy consumption unit is reflected relatively low or zero consumption in some months although actual consumption was much higher. Such cases could have resulted in forgoing subsidy benefits and charging high in subsequent months. For example, as shown in the table 3 above, energy consumption for the month of June 2020 was recorded to be zero units and billed high in

July 2020. This had resulted in subsidy benefits loss in the month of June and high energy charges in July 2020.

6.3 Field visit report

As per the record maintained by BPC, a total of 316 consumer complaints were registered with BPC with regard to high electricity bills out of which a total of 210 consumer complaints had been resolved. A total of 36 consumers were selected out of 106 balance consumers, residing in the areas of high incidences of abnormal bills as per the trend analysis. The consumers are spread in 8 different routes (Babesa, Olakha, Debsi, Semtokha, Changzamtog, Changbangdu/Changidaphu, Changgangkha, Pamtsho/Taba/Dangrina). Assessment was carried out on the following areas:

- A. The energy consumption patterns;
- B. Meter capacity versus the load;
- C. Timely meter reading.

A total of 14 consumers were found using electric room heaters for space heating. Assuming that the rest of the load remains status quo, room heaters could have contributed to the energy consumption based on which the following observations were noted:

- The estimated energy consumption of 35% of the consumers was similar to the consumption billed by BPC during the month of February 2021;
- ii. BPC has issued meter capacity according to the actual load of the consumers;
- iii. The meter readers were reported to have visited these consumers as per the billing cycle schedule except during the lockdown period.

During the field visit, it was observed that BPC calibrates the meter as well as carry out the meter reading which may be conflicting as BPC being the bill collector. Further, it was noted that there is no system in place to ensure correct reading of the meter as stipulated in the billing cycle schedule. The current set up indicates flexibility to the meter readers whereby they have the discretion to visit the consumer premise irrespective of the billing schedule. As such, the consumers may be deprived of the block tariff benefits. Further, upon inquiry with the consumers, it was found out that the majority of the consumers were

not made aware regarding the implementation of the average billing methodology that BPC adopted, thus, creating apprehensions among the public.

7. Interventions

In light of the above findings and observations, the following specific interventions are being carried out:

- **7.1** The differences in the amount reflected in the March 2021 bill and the clarification letter issued by BPC regarding bills for the months of December 2020, January 2021 and February 2021 including the penalties reflected are being resolved by BPC in the April bill. BPC shall submit a compliance report to BEA for verification.
- 7.2 BPC has made an arrangement to facilitate the payment options through part payments of the accumulated bill amounts, without penalty, for the months of December 2020, January 2021, February 2021, and March 2021 until May 2021. However, as the bill amount is quite huge for most of the consumers, BPC is directed to work towards extending the part payments until June 2021 to reduce the financial burden of the consumers caused due to the average billing method.
- **7.3** While 16,922 consumers impacted during the lockdown 2.0 have been provided block tariff benefits by BPC through the normalization of bills, similarly, BPC is directed to work out the block tariff benefits for lockdown 1.0 and provide applicable benefits to all affected consumers across the country through adjustment in subsequent bills.
- 7.4 There are few cases where the zero or abnormally low energy consumption and the corresponding low amount was billed to the consumers inadvertently. This has led to the loss of eligible block tariff benefit/energy subsidy. Therefore, the BPC is directed to verify all these anomalies and adjust energy subsidy benefits in the subsequent months to the consumers, where eligible. In addition, the internal system to ensure periodic and accurate meter reading needs to be reviewed and strengthened to ensure application of fair block tariffs.

- 7.5 BPC is currently carrying out a detailed verification of metering and billing for a sample of 9200 consumers in Thimphu by engaging an independent team to verify the meter readings at sites. Further, BPC is reviewing the existing SoPs for metering & billing for similar exigencies and also revising overall metering policy. BPC shall report the outcomes of this verification to BEA.
- **7.6** BPC shall provide information to consumers in a timely and clear manner on any changes impacting the consumers through an enhanced public relation (PR) system.
- **7.7** During the course of the study, it was observed that the meter calibration is carried out by the BPC. Therefore, BEA in collaboration with Bhutan Standard Bureau shall review the standards for meter calibration.
- **7.8** Consumer grievance redressal mechanisms should be strengthened within BPC to address consumer issues during emergency times like lockdown 1.0 and 2.0.
- **7.9** BPC adopts a billing cycle ranging from 1st to 28th day of the month in Thimphu whereby the energy consumption is recorded manually. As such, since the movement was restricted during the lockdown period, BPC resorted to implement the average billing method. However, it was observed that the digital meter records the monthly reading on the first day of the following month. Therefore, it is recommended to replace analog meter by digital/smart meters, wherever feasible, to enable BPC to retrieve the meter reading corresponding to 1st day of every month.

8. Annexure

Annexure 1: A sample of one cycle average method

Consumer Number: 40067390 Billing Cycle: 10 Category: LV Urban Domestic

Month	Energy Consumption as per Meter Record (1st day of the month)	Energy Consumption as per BPC Bill based on billing cycle	Bill Amount (In Nu.) based on BPC billing cycle
May-20	595	688	1871
Jun-20	627	479	1143
Jul-20	138	72	92
Aug-20	99	422	991
Sep-20	119	327	1749
Oct-20	104	0.03	0.04
Nov-20	20	0	0
Dec-20	493	277	602
Jan-21	672	94	120
Feb-21	715	1411	4481
		Adjustment amount	381.06

Note: Nu.381.06 was adjusted in March 2021 since BPC could not normalize the bill

Graph 3: Consumption and Billing Trend

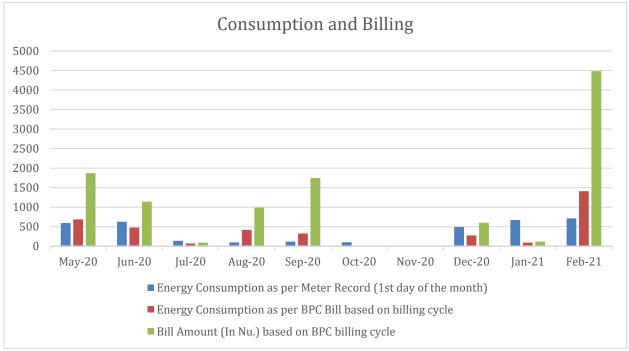


Table 4: Subsidy Impact

Moth	Units Calculate	Amount Charged	Units to be adjusted	Revised units	Revised amount
August 2020	422	991	399.97	322.03	559.31
September 2020	327	1749			1749.00
October 2020	0.03	0.04		99.97	127.96
November 2020	277	602			602.00
Total		3342.04			3038.27
Subsidy benefit loss			303.77		

Annexure 2: A sample of two cycle average billing

Consumer no: 40005004 Billing cycle: 20 Category: LV Urban Domestic

Month	Energy Consumption as per Meter Record (1st day of the month)	Energy Consumption as per BPC Bill based on billing cycle.	Bill Amount (In Nu.) based on BPC billing cycle
May-20	3140	4,305.00	14783
Jun-20	3899	2,260.00	7483
Jul-20	2095	2,219.00	7371
Aug-20	2049	2,992.35	10172
Sep-20	1670	2,517.52	8463
Oct-20	1685	0.13	0.17
Nov-20	2147	4,617.00	16021
Dec-20	5793	2,326.52	7775
Jan-21	6434	2,365.42	7915
Feb-21	5973	14,271.06	50775

Graph 4: Consumption and Billing Trend

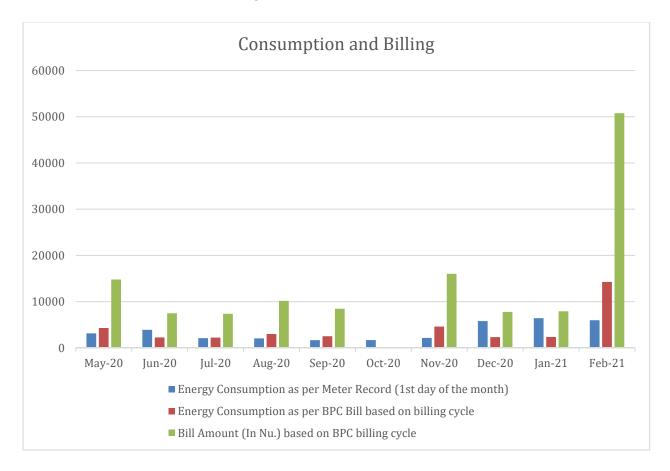


Table 5: Subsidy Impact

Month	Units Calculate	Amount Charged in Nu.	Units to be adjusted	Revised units	Revised amount in Nu.
September 2020	2517.52	8463	499.87	2017.65	6663.54
October 2020	0.13	0.17		500	1200
		8463.17			7863.54
			Subsidy ben	efit loss	599.63