GREEN ENERGY INITIATIVES

Guru Nanak Dev University
Amritsar
2020-2021

राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद

विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL

An Autonomous Institution of the University Grants Commission

Certificate of Accreditation

The Executive Committee of the
National Assessment and Accreditation Council
on the recommendation of the duly appointed
Peer Team is pleased to declare the
Guru Nanak Dev University
Amritsar, Punjab as
Accredited
with CGPA of 3.51 on four point scale
at A grade
valid up to December 09, 2021

Date : December 10, 2014

Director

EC(SC)/04/RAR/87

Preserve Protect Environment Save

Er. S.K.Goyal
M.E. (Env.), FIE (India)
Sr. Env. Engineer(Retd.)
Punjab Pollution Control Board(PPCB)

EIA Co-ordinator (QCI)
Chartered Engineer,PPCB

Certificate

Certified that a team of faculty members & students, under the leadership of **Prof. Ashwani Luthra, Director IQAC** of Guru Nanak Dev University, Amritsar has conducted a detailed **Environmental Green Audit of various Green Initiatives taken by the university** covering different aspects such as Green Cover, Green Mobility, Air Quality Monitoring, Water and Wastewater Management, Green Energy Initiatives, Solid Waste Management, Bio-Medical Waste Management, and E-Waste Management, for the preservation and protection of environment in its campus. Data and credentials in the report have been scrutinised and are found **Satisfactory**.

Efforts made by the leadership, faculty and students of the University towards environment and sustainability are commendable and worth appreciating.

Dated: NOV.25,2021

(Er. Samarjit K. Goyal)
Chartered Engineer
Pb Pollution Control Board

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CENTRE FOR SCIENCE AND ENVIRONMENT

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LEAVES OF IMPORTANT SURVIVAL TREES IN INDIA — MAHUA, KHEJDI, ALDER, PALMYRA AND OAK

November 29, 2021

The Coordinator
Centre for Sustainable Habitat
Guru Nanak Dev University
Amritsar

Subject: Certification for different Audits under Green Campus Initiatives

Dear Sir,

From the past six years, Centre for Science and Environment (CSE) and Guru Nanak Dev University (GNDU) Amritsar have been working together on CSE's Green Campus Initiative and audit programme. Under this engagement, CSE has supervised multiple environmental audits and trained the faculty, staff and students at GNDU as well as other universities and colleges across India. The results and outcomes of this engagement have been published by CSE in multiple reports such as 'A Green Campus Compendium: Incubation, Experimentation and Demonstration of a Green Future' and 'Green Campus Movement'. Appreciation letters have also been shared at the various stages of this programme. CSE appreciates that the faculty at GNDU has prepared the following audit reports:

1. Green Cover of GNDU
2. Green Mobility Initiatives
3. Air Quality Monitoring
4. Liquid Waste Management
5. Green Energy Initiatives
6. Solid Waste Management
7. Bio-Medical Waste Management
8. E-Waste Management

CSE commends GNDU's efforts towards realising Sustainable Development Goals and extends its full support and expertise in its future endeavours.

Yours' cordially,

Rajneesh Sareen

Rajneesh Sareen
Programme Director
Sustainable Buildings and Habitat Programme
Centre for Science and Environment

Preface

Energy audit of the Guru Nanak Dev University Campus has been conceded by a team for the period of May 2017 to April 2021. The audit has been carried out to assess the energy competence of the campus in terms of drop of energy consumption and efforts made for energy conservation practices. This audit to highlight the energy proficient appliances which sinked the expenditure on energy and paved ways to further the efforts and initiatives to reduce the energy consumption in future. The energy audit survey was conducted by Prof. (Dr.) M. L. Singh, Electronics Department, and the report was finalized by Prof. (Dr.) Ashwani Luthra, Director, IQAC, GNDU, Amritsar. The required data is supplied by the electricity department of the university. The energy requirements and consumption are analyzed for overall campus and for different appliances in different sections of the university such as academic departments, administrative buildings, residential areas and hostels. Electricity consumption by different appliances such as tubes, fan, A.Cs, electronic instruments, etc. is also considered for the audit. The audit has helped the team to suggest the ways forwards to look for options relating to green energy production and reduced consumption of conventional energy.

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GURU NANAK DEV UNIVERSITY

With the glorious history of past fifty years, Guru Nanak Dev University was established at Amritsar on November 24, 1969 to mark the Birth Quincentenary of Sri Guru Nanak Dev Ji, the apostle of universal brotherhood, truthfulness, non-violence, compassion, tolerance, harmony, humanity, strict observance of moral & ethical values in daily life, who is also revered as the founder of Sikhism. It won't be an exaggeration to state that His teachings and preaching & His own personal life are perfect examples to be emulated by the entire mankind even after about four and half a centuries and will remain so eternally. Ever since its foundation the endeavour of the university has always been to meet the objectives enshrined in the Guru Nanak Dev University Act 1969, which emphasized that the new University would make provision for imparting education and promoting research in the humanities, learned professions, sciences, especially of applied nature and technology. Studies and research on the life and teachings of Guru Nanak, in addition to working towards the promotion of Punjabi language and spreading education among educationally backward classes and communities are the other commitments. In consonance with these expectations, the university in its eventful history of 50 years has taken long strides in spreading the message of Guru Nanak Dev ji and promoting education in such fields as Science, Arts, Management, Information Technology, Industrial Technology, Environment, Planning and Architecture. To fulfil its commitment, the tuition fee charged from the students of the departments of Guru Nanak Studies and the School of Punjabi Studies has been waived. The UGC conferred this University with status of “University with Potential for Excellence” in 2012. The National Assessment and Accreditation Council (NAAC), Bangalore in November 2014 reaccredited the university in 3rd cycle with CGPA of 3.51 out of 4 point scale at “A++” grade, the highest in the region.

Guru Nanak Dev University is a high performing state public university as it has improved its ranking from 80 in 2017 to 51 in 2020 among all Central, Public and Private Universities in the country (NIRF, MHRD, GoI). It is reckoned among top 9% universities of the world and top 10 state public universities of India by Centre for World University Ranking (CWUR), a leading international agency engaged in grading the top ranking universities world-wide since 2012. QS I-GAUGE Rating System has rated the university in the Diamond Category in the field of ‘research, faculty quality and infrastructure’ by the. It was also shortlisted for the University of the Year Award in the 16th FICCI Higher Education Summit 2021 organized by FICCI jointly with the Ministry of Education and Ministry of Commerce & Industry, Government of India. High quality research has improved the H-index of the university from 64 to 119 with top 10 percent highly cited papers in Scopus. The university is placed among the top 4 Institutions in Punjab and 10 Institutions in North India by Nature Index,

The University today boasts of 43 teaching departments at the Campus and 149 affiliated colleges, 16 Constituent & University Colleges and 53 Associate Institutes, many of which are located in the rural areas. The university has always strived hard to make the benefits of higher education accessible to the rural masses. More than twenty thousand students, an overwhelming majority of

them being women, are enrolled in various Departments at University Campus and Constituent Colleges. On-line admission, on-line counselling, on-line re-evaluation, introduction of Credit Based Continuous Evaluation Grading System etc. are a few hallmarks of the university. All the results have been computerized and OMR (Optical Magnetic Recognition) system is being used to bring in more efficiency and transparency. This is the first University in the region to have computerized its examination and registration system. The students now have an all-time access to their results through SMS service. It acts as a model higher education institution for digital initiatives like e-office management system, digital library, Wi-Fi enabled campus, high speed online teaching modules, and smart classrooms to name a few.

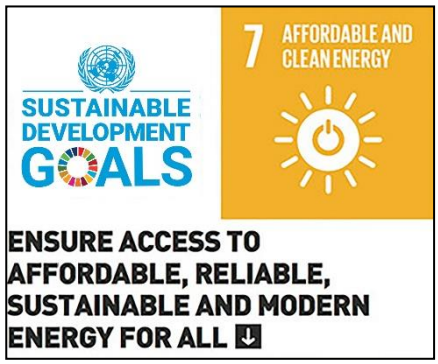
Academically also, the university has carved a niche for itself in the field of Higher Education in the country. Our University is recognized as one of the leading institutions in North India in the domain of Science and Technology. Many coveted projects from the apex bodies like the DST, CSIR, BARC and other organizations worth crores of rupees have been awarded to our faculty members. One of the four Nodal Calibration Centres established by Bhabha Atomic Research Centre is set up at our campus. The Centre of Emerging Life Sciences equipped with the state-of-the-art scientific instruments worth crores of rupees, well-maintained Botanical Garden, Department of Sports Medicine & Physiotherapy are a few of the jewels in the crown of the university. To more strengthen the university infrastructure and to prepare students for employments, computer lab with the help of TCS is also established. Further, the UGC has granted the University the Centre with Potential for Excellence in Life Sciences and Centre for Advanced Study in Chemistry.

In the field of culture and sports also, the achievements of the university are noteworthy. The university has been national Champion for 10 times & the winner of the North-Zone-Inter-Varsity Cultural Championship for 13 times. The winning of the coveted Maulana Abul Kalam Azad Trophy, the highest sports award for a university in the country, for a record number of 23 times, speaks volumes about its supremacy in the field of sports. An Astro Turf for hockey, a swimming pool of international standards, a velodrome, a Gymnasium hall, shooting range & many other state-of-the art sports facilities are the prized possessions of the university. The Lifelong Learning Department of the university is successfully catering to the female folk of the region to make them self-dependent by offering various skill development programmes. The Track record of employment of our students by big business Houses and Multi-National Companies has been very satisfactory. Our students of engineering, management and commerce field are employed by companies in India and abroad. They are all contributing to the creditworthiness of the University by their hard work and diligence. In the last year alone, almost all our engineering and management students were recruited by various companies through campus placements. It goes without saying that all these achievements would not have been achieved, but for the heart and soul put in by the students, faculty members, and administration of the university. Undoubtedly, the university remains committed to achieve the lofty goals, for which it was founded after the name of Sri Guru Nanak Dev Ji.

The university is known for its GREEN CAMPUS initiatives in the field of energy, water, solid waste management, micro mobility and health and hygiene. Some of the key initiatives of the university are energy efficient buildings, rooftop solar energy plant, solar water heaters, censor based urinals, toilets and wash basins, maintenance of lawns as water recharge systems, rooftop rainwater harvesting, on campus sewerage water treatment plant, organic waste management through bio-gas plant and vermi-compositing, natural processing to convert agro-waste into compost, involvement in recycling and reuse of paper, plastic, mettle and other waste, efficient medical waste management, regular thickening of tree cover by planning tree each year, making the campus car free, facilitating the students, staff and the visitors by free of charge e-vehicle facility for micro mobility within the campus, developing lush green covered footpaths, regular sweeping of the roads and buildings at least twice a day and regular disinfectant spray to help the university bag the second cleanest State University in India awarded by the Ministry of Human Resource Development, Government of India under Swachh Campus Ranking for the last two years continuously.

1. INTRODUCTION

Higher education institutions (HEIs) are the driving forces to nation building. They act as role models for the society and communities to execute the innovative techniques and technologies developed and adopted by them to benefit the financial health and environment of the nation. Hence, responsibilities have been fixed on the HEIs to act upon to achieve the sustainable development goals (SDGs) and their targets mandated to be achieved by 2030. Amongst the seventeen SDGs suggested by the United Nations, SDG 7 specifically focuses on 'Sustainable and Green Energy'. An audit of the existing energy scenario of a HEI will help it to develop energy saving/ conservation strategies along with the use of green energy options.



Energy audit exercise is undertaken for Guru Nanak Dev University, Amritsar to identify energy efficiency potentials and develop modifications that will reduce the use of conventional energy and promote maximum use of green energy leading to higher financial and environmental savings. The report incorporates an account of total energy consumption, its distributive pattern, potential savings through various design and technological interventions, and adoption of innovative energy conservation and renewable energy production techniques and technologies. The report highlights the innovative mechanisms adopted by the university to contribute to green energy sources and their optimum utilization to reduce its contribution to environmental damage and pollution. The audit identifies the areas and components where use of conventional energy needs to be replaced with green energy sources or energy conservation practices. The Internal Energy Audit of the university has been carried out by collecting the periodic data for May 2017 to April 2021 (refer annexure-I) about the consumption of electricity supplied by Punjab State Power Corporation Limited, New Delhi.

2. Energy Consumption

The university is committed to reduce its consumption of conventional energy by adopting different green initiatives in the campus. It has reduced its consumption of conventional energy from 74.78 lakh kilowatt in 2017-2018 to 44.17 lakh kilowatt (kWh) in 2020-2021, a fall of about 41 percent in 2017-2021 (refer table 1). The table reveals that that there was a marginal reduction in energy consumption of about 4 percent in 2018-2019, in comparison to the energy consumption in May 2017-2018. In 2019-2020, the University initiated its major conservation strategies through installation of solar water heaters and energy efficient LED light sources in its administrative, academic, and hostel buildings along with street lighting system. Hence, the conventional power consumption reduced to 46.30 lakh kWh, showing a reduction by almost 38 percent in 2019-2020, in comparison to that in 2017-2018. The year 2020-2021 witnessed energy consumption reduction to 44.17 lakh kWh, a fall by about 4.6 percent, in comparison to 2019-2020.

Table 1: Punjab State Power Corporation Limited (PSPCL) Energy Units Consumption

Period of Consumption	Total PSPCL Electricity Consumption (in Lakh Kilowatt)	Percentage Reduction in Electricity Consumption
May 2017 - April 2018	74.88	----
May 2018 - April 2019	71.88	- 4.01
May 2019 - April 2020	46.30	- 35.58
May 2020 - April 2021	44.17	- 4.60
Overall Reduction (May 2017 – April 2021)	30.71	- 41.01

Figure 1 indicates the conventional Punjab State Power Corporation Limited (PSPCL) energy consumption trends over the period of four years from May 2017 to April 2021. For clarity in data the energy consumption figures have been converted into whole numbers and units are lakhs of kilowatt.

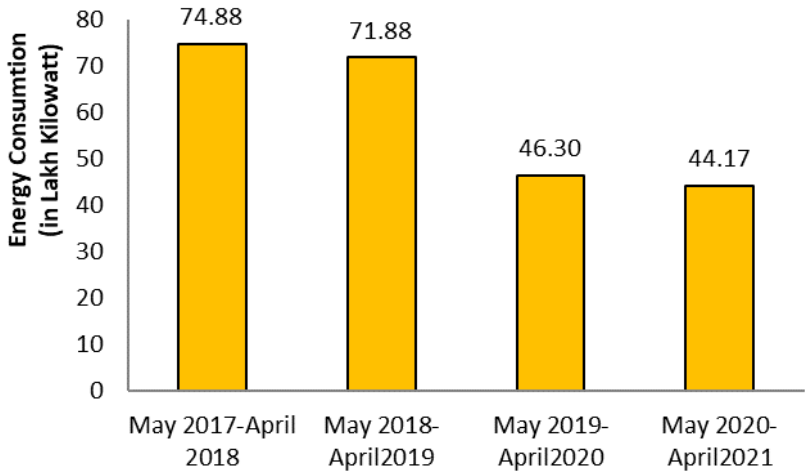


Figure 1: Periodic Conventional PSPCL Energy Consumption from May 2017 to April 2021

The details of electricity consumption for the four years (2017-2021) are described in annexure - I.

Green energy production initiative started in 2019 by installing 1.48 MW rooftop solar power generation plant, commissioned on 22/07/2019. In 2020-2021, the rooftop solar plant started working to its full capacity for the whole year. Rooftop solar power grid connected plant was sanctioned by Solar Energy Corporation of India Ltd., Ministry of New and Renewable Energy, Government of India and installed by Azure Power Rooftop One Pvt. Ltd, New Delhi, under the RESCO Model, free of cost. Its operation and maintenance is to be looked after by Azure Power for the period of 25 years (refer annexure - II). From the date of commissioning of the project i.e. 22/07/2019 till April 2020 it produced 8.73 lakh kWh of renewable energy, which has risen to 14.8 lakh kWh after the solar power generation plants have started working at full capacity of for full year (refer table 2).

Table 2: Solar Power Units Generation

Period of Solar Power Generation	Solar Units Generated (Lakh kWh)
From the date of commissioning 22/07/2019 to April 2020	8.73
May 2020 – April 2021	14.80

All the units generated by rooftop solar power plants are consumed to meet the power demand of the university. In case all the units are not consumed, then the excessive energy generated goes back to the grid which is recorded in the two way energy meters installed. This helps in lowering the consumption of PSPCL conventional energy. The University is paying only INR 3.32 per unit kWh of the solar power generated. Details of solar powered energy generation is given in annexure - III.

Table 3 indicates that the whereas total electricity consumed was 74.88 lakh kWh units in 2017-2018, it reduced to 55.03 lakh kWh units in 2019-2020, of which 15.86 percent were solar power units. Operation of few new buildings in 2020-2021 increased the total power consumption to 58.95 lakh kWh units, of which 25.11 percent were solar power units. The university is committed to increase its contribution to energy conservation and green energy production strategies in future as well.

Table 3: Total PSPCL Units and Solar Power Units Consumption

Period of Consumption	Electricity Units Consumed (Lakh kWh)			Contribution of Solar Power (in percentage)
	PSPCL	Solar Power	Total	
May 2017- April 2018	74.88	Nil	74.88	Nil
May 2018 – April 2019	71.88	Nil	71.88	Nil
May 2019 – April 2020	46.30	8.73	55.03	15.86
May 2020 – April 2021	44.17	14.80	58.95	25.11

Figure 2 presents the graphical scenario of contribution of conventional and solar power in meeting the total electricity requirement of the university.

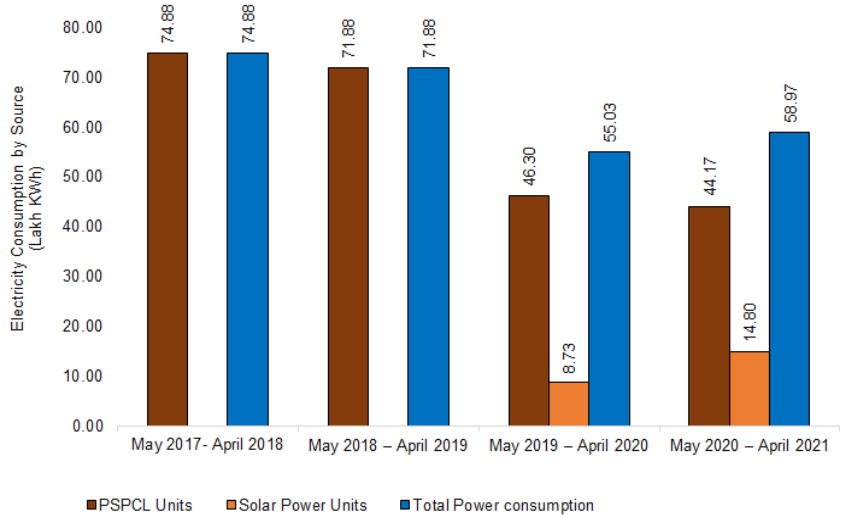


Figure 2: Periodic Consumption of Conventional PSPCL Energy & Renewable Solar Power Energy (May 2017 to April 2021)

2.1. Major Bifurcation of Electricity Energy Consumption

Table 4 and figure 3 show the major bifurcation of energy consumption in the university. Among this the energy consumption by academic and administrative departments is at the highest, consuming 2791071 kWh (45.53 percent) power during 2020-2021. About 2411301 kWh (39.33 percent) power is consumed by utilities, to include indoor stadium, gymnasiums, shops, swimming pools, canteens and other recreational facilities in the university.

Consumption by flood light used in AstroTurf is not added as these lights are not connected load. During the events these flood lights are powered by portable generators of 500 kVA capacity arranged by the sponsors. Residential area consumes about 928138 kWh (15.14 percent) electricity units, which is the minimum amongst the three users. So, the major efforts for reducing the electricity power consumption is to be targeted at the academic and recreational areas.

Table 4: Major Bifurcation of Electricity Consumption

Category	Consumption (kWh) (June 2020 to July 2021)	Percentage Contribution
Academic and Administrative Departments	2791071	45.53
Residential Area	928138	15.14
Utilities	2411301	39.33
Total	6130510	100.00

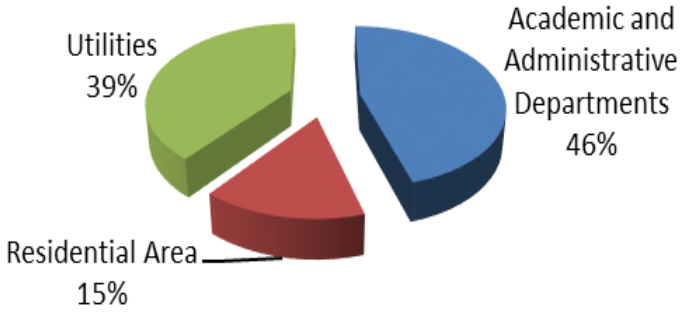


Figure 3: Major Bifurcation of Energy Consumption

Details of the power consumption by different uses has been calculated from annexure – IV.

2.2. Micro Bifurcation of Electricity Energy Consumption

Table 5 and figure 4 reveal the micro bifurcation of energy consumption by different appliances. It is clear that major consumer of electricity has been the cooling appliances, consuming 37.82 lakh kWh (61.80 percent) electricity units during 2020-2021. Cooling considers all the equipment such as standalone air conditioners, AC plants, water coolers, dessert coolers, refrigerators and fans. Lighting appliances, such as LED lights, fluorescent lights, sodium lights and other conventional lights, consume about 12.56 percent electricity.

Table 5: Micro Bifurcations of Electricity Consumption

Category	Consumption(kWh) (June 2020 to July 2021)	Percentage Contribution
Lighting	768888	12.56
Cooling	3782328	61.80
Water Pumping	728720	11.90
Wastewater Treatment	395280	6.46
Any other	445296	7.28
Total	6120512	100.00

Water pumping and wastewater treatment plant uses about 728720 kWh (11.90 percent) and 395280 kWh (6.46 percent) electricity. About 445296 kWh units of electricity is consumed by other appliances of the university.

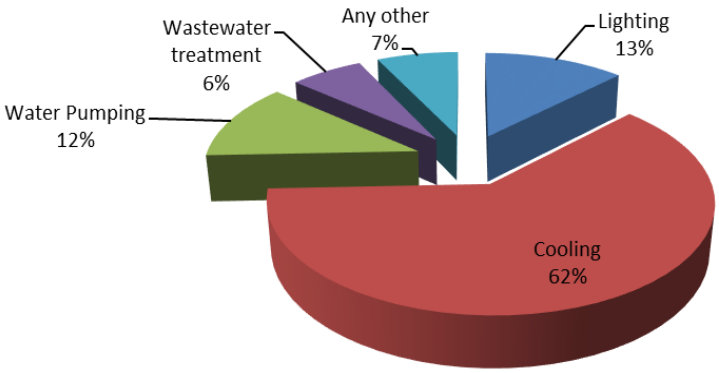


Figure 4: Micro Bifurcation of Energy Consumption

The university is making all its efforts to minimise the energy consumption on cooling equipment by adopting advanced technology cooling appliances. The consumption has been calculated taken into considerations the electric appliances with their load and approximate usage hours for the period of 12 months. The details of different kinds of loads is given in Annexure-V.

2.2.1. Cooling Equipment

Table 6 elaborates the energy consumption of the cooling equipment installed in the university campus. The energy consumptions because of the usage of this cooling equipment has been calculated for 12 months period and tabulated. Since there is no provision of energy meters for metering the consumptions due to the usage of these equipment separately, approximate usage hour and the load has been taken into account to calculate the consumption in a year (refer annexure - V).

It is clear from table 6 that about 13.31 kWh units (58.68 percent) of electricity is consumed by the air conditioners of the university. About 786240 kWh units (34.68 percent) of electricity is consumed by the fans in the hostels, departments. Remaining 6.63 percent electricity is used to run the AC plants, water coolers and desert coolers.

Table 6: Cooling Equipment Details

Cooling Equipment Type	Number	Tonnage	Power (in kW)	Running Hours per 12 months	Energy Consumption kWh for 12 months	
Air Conditioners	5	1 Ton	7.50	792	5940	1330560 (58.68%)
Air Conditioners	658	1.5 Ton	1480.50	792	1172556	
Air Conditioners	64	2 Ton	192.00	792	152064	
AC Plants	6	5.5 Ton	49.00	80	3920	26380 (1.16%)
AC Plant	3	11 Ton	49.00	80	3920	
AC Plant	4	12 Ton	72.00	120	8640	
AC Plant	10	16.5 Ton	247.50	40	9900	
Water Coolers	182	1.5 kW	273.00	360	98280	(4.33%)
Dessert Coolers	150	150 W	22.50	1152	25920	(1.14%)
Fans (in hostels)	2400	100 W	120.00	1456	349440	786240 (34.68%)
Fans (Departments)	3000	100 W	300.00	1456	436800	

Figure 5 presents the percentage of energy consumed by various cooling equipments in detail. It is clear that the 1.5 Ton ACs are the major consumers of electricity consuming about 52 percent of the total electricity consumed by cooling appliances. Fans in the departments and hostels consume about 19 percent and 15 percent of the electricity. The 2 tons air conditioners and water coolers consume about 7 percent and 4 percent electricity respectively. Every other appliance consumes less than 1 percent electricity.

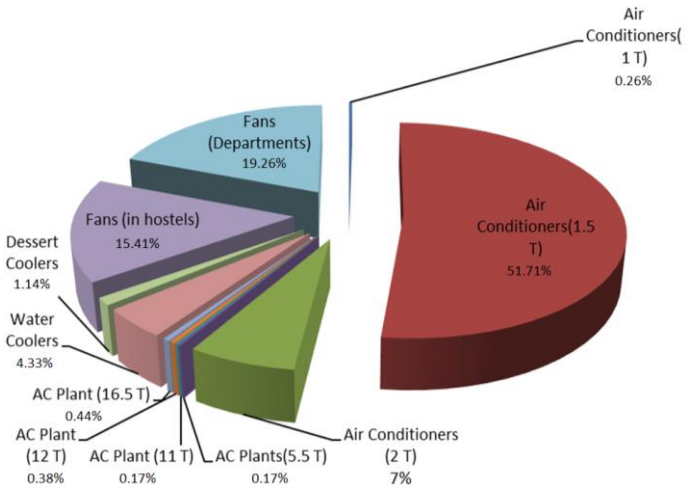


Figure 5: Energy Consumption by Major Cooling Equipments

It is estimated that if only 1.5 ton ACs are replaced by 20 percent more efficient equipments then about 2.34 lakh kWh energy can be saved annually. The old and worn out equipments are being replaced by more energy efficient equipment, which will help in lowering the energy consumption in due course of time.

3. GREEN ENERGY AND ENERGY CONSERVATION INITIATIVES

To make GNDU a green campus, several initiatives have been taken to produce green energy and to minimise the energy consumption. Following are some of the key initiatives taken by the university.

3.1. Rooftop PV Solar Power Plants

Total 26 rooftop solar power grid connected plants have been installed on the rooftops of 23 buildings (refer table 7). The capacity of the plants has been decided on the bases of rooftop area available without any shade throughout the day. Total capacity of these solar plants is 1.48 MWp and generate approximately 15 lakh kWh units of solar energy. The grid connected rooftop PV solar power plant has been sanctioned by Solar Power Corporation of India (SECI) under Renewable Energy Service Company (RESCO) model and installed by Azure Power Rooftop One Pvt Ltd, New Delhi free of cost with free operation and maintenance for 25 years. The solar power units generated are charged at the rate of INR 3.32 per kWh of solar power generated. 1.48 MW capacity is the maximum capacity allowed to be installed in the campus following the norms of PSPCL depending upon the connected load.

Table 7: Solar Power Plant Locations and Capacity at GNDU

Roof Top Location/Department Building)	Capacity (kWp)
Administrative Block	100
Bhai Gurdas Library	100
Bhai Gurdas Library	100
Planning and Architecture	100
Guru Nanak Bhavan	100
Chemistry Department	50
Chemistry Department	25
School of Financial Studies(Old Building) in MRS Building	25
Education Department(Old)	40
Social Science (Asia House)	50
Physics Department	50
Food Science Department	50
Botanical and Environment Science	50
Biology Department	50
Girls' Hostel	65
Boys' Hostel-3	25
Lifelong Learning Department	50
New Lecture Theatres Complex	50
Electronics Department (old Building)	100
Electronics Department (old Building)	20
Zoravar Boys' Hostel	45
Sociology and Economics(Arts Block)	65
Sports and Medicine (MYAS)	50
University Business School	70
Physiotherapy	25
Maths (Old Building)	25
Total Capacity	1480

The solar power consumption is helpful in reducing the CO_2 emission. As per the data available on internet, 1 MW solar power plant offsets about 730 tons of CO_2 emission per year. Therefore, GNDU is expected to lower about 1080.4 tons of CO_2 emission per year. The solar panels also act as shades on the rooftop and help in lowering the temperature of top floor which further results in energy saving. Figures 6 depicts the installation of solar power plants on the 23 building rooftops. On the rooftops of Bhai Gurdas Library, Chemistry Department and Electronics Department (Old Building) total 6 solar plants (two per building) have been installed. Other 20 plants are installed on 20 buildings of the university, as listed in table 7. Figure 8 depicts the solar plants being installed on the rooftops of the buildings of the university.

Figure 6: Installation of Solar Power Plants on the Rooftops of Buildings

3.2. Installing Energy Efficient LED Light Sources

The detail of street lights in the university is given in table 8. In the university campus there are 785 street lights. Majority of the lights have been converted into more efficient LED lights for lowering the energy consumption. Out of the 785 street light, 505 have already been replaced with more efficient LED lights. This has resulted into energy saving of almost (47925+20805+21845+4106)/2=47,340 kWh annually (refer table 8).

Table 8: Street Lights Details

Types of Street Lights	Number	Wattage	Running Hours for 12 Months	Energy Consumption for 12 Months (kWh)	Remarks
LED Pole Mounted	202	60W/70W	3650	47925	Sodium lamps of 150W has be placed with LED lamps 60W
LED Pole Mounted	95	60W	3650	20805	New Installed
LED Pole Mounted	133	45W	3650	21845	New Installed and replaced the older one.
LED Pole Mounted	45	25W	3650	4106	Replaced 40W fluorescent tube lights
Sodium Lamps Pole Mounted	220	70W	3650	56210	Old Fittings
Fluorescent Tube Lights	60	40W	3650	8760	Old fittings
Total	**755**			**1,59,651**	

Figure 7 is clearly shows that 35% of the total energy consumptions of the street light is due to sodium lamps. This energy consumption can be brought down by replacing sodium lamps with the LED Sources. Further by replacing 220 sodium lamps and 60 FTLs additional (56210+8760)/2=32,185 kWh of energy can be saved annually.

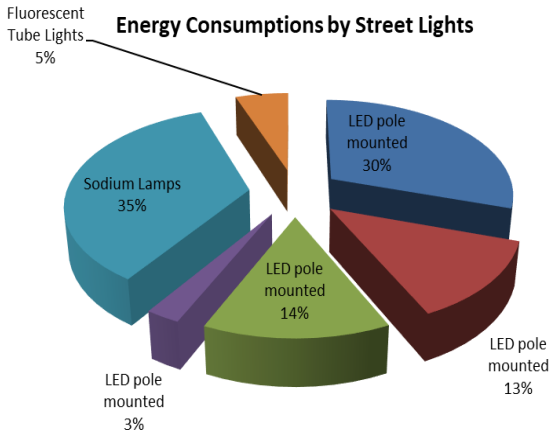


Figure 7: Energy Consumption of Street Lights

Further by replacing 220 sodium lamps and 60 FTLs additional (56210+8760)/2=32,185 kWh of energy can be saved annually. It is assumed that the wattage of LED based street light will be almost half the wattage of the conventional light source based street lights. In addition to this in all new department building like HRD centre, UIT building, new department of Education and department of Agriculture, all the light sources are energy efficient LED light sources. Further the old worn out traditional light sources are being replaced with LED light sources in retrofitting wherever possible. As per the building light details attached, presently in the hostel buildings and department buildings about 6500 FTLs (40W) are in place. These can be replaced by more efficient LED tube lights (20W) during the course of time. This will be helpful in further saving of about 1,87,200 kWh of energy annually (considering 8 hours per day on an average use for 180 working days). Figure 8 shows some photographs of energy efficient LED light sources as street lights and room lights in buildings. Extensive use of these energy efficient light sources is helpful in bringing down the energy consumption.

Figure 8: LED Light Sources for Street Lights and Room Luminaries

3.3. Use of Timer Switches for Street Lights

For additional energy saving, timer switches have been installed to switch on and off the street lights. Total 10 street light timers have been installed at suitable locations to control the on and off timing of 785 street lights in the campus. Figure 9 shows one such programmable timer switch. Different 'on' timings are programmed during the winter and summer days.

Figure 9: Timer Switches for controlling the 'On' duration of Street Lights

3.4. Use of Solar Water Heaters

Solar water heaters for the total capacity of 25600 litres have been installed in the boys and girls hostels of the university as per the detail given below in table 9. In electric heaters, for heating 20 litres of water approximately 1 kWh energy is used. The above mentioned heaters work in their full capacity for at least five months in winters. This leads to saving of approximately (25600/20) x 150= 1,92,000 kWh of conventional energy. Solar water heaters are installed on the rooftops of the hotels.

Table 9: Location and Capacity of Solar Water Heaters

Sr. No.	Location	Capacity (Litres)
1	Boys' Hostel-1	6500
2	Boys' Hostle-2	3500
3	Girls' Hostle-1	3500
4	Girls' Hostle-2	6100
5	Girls' Hostle-3	6000
	Total	**25600**

3.5. Energy Efficient Buildings

The university is very well planned campus to serve the sustainable needs of the students, staff and residents. All its buildings meet the energy efficient design standards as majority of them are placed in the best orientation for better energy efficiency and effective ventilation.

While designing the buildings, appropriate window-wall ratio is kept to maximise the use of natural light and minimise the use of light sources during day time inside the buildings, which leads to lot of energy saving. Also, most of its buildings are designed with central court yard for better light and ventilation, thus reducing the energy requirement in the buildings. Figure 10 depicts some of the university's energy efficient structures.

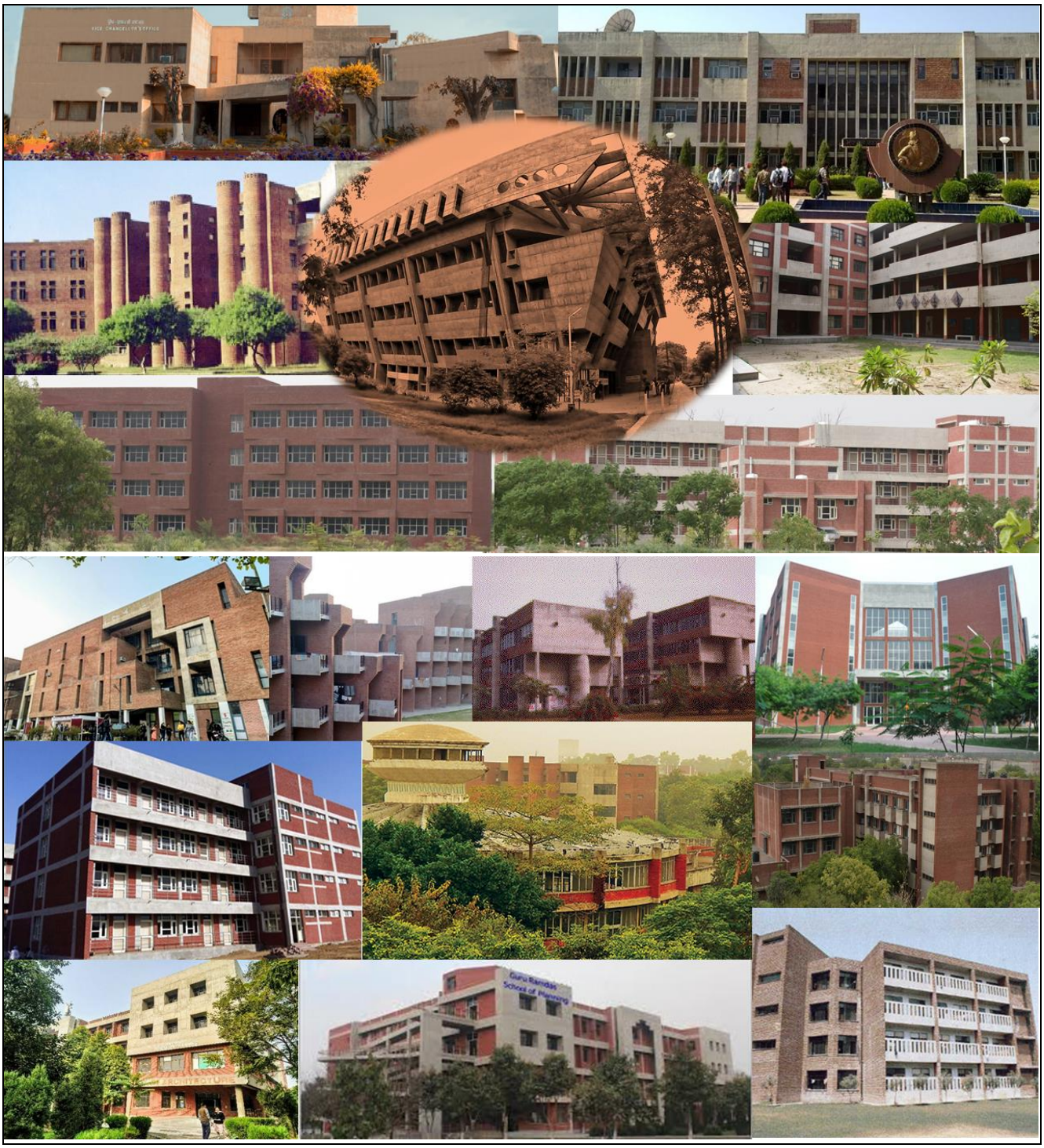


Figure 10: Energy Efficient Structures of GNDU

Disadvantage of some of the buildings from orientation point of view has been taken care of by planting trees and thick green foliage for providing protection from direct sun light. Sun breaker structures have also been incorporated in the building structures to minimise the heat penetration.

4. MINIMISING THE CONSUMPTION OF FOSSIL FUEL

University is committed to reduce the consumption of high speed diesel (HSD) and liquid petroleum gas (LPG). Following initiatives have been taken.

4.1. Operating Electric Buses

With an objective to facilitate the students, staff and the visitors to the university, 8 eco-friendly electric carts have been introduced to meet the micro mobility requirements within the campus (refer figure 11). Each bus is powered by a bank of 12, 6V batteries (72 V system). Current capacity of the battery is 225 Ah. Considering charging current equal to 15% of the current capacity, the energy consumed for charging one such bank for one hour is 33 x 72 = 2376. Taking into account the power factor of 0.9, approximately 2 kWh energy is required for charging this battery bank for one hour. Estimated energy consumption per year for charging 8 buses, for average 4 hours per day for 180 days comes out to be 2x4x8x180 = 11,520 kWh. Though the use of electric carts leads to electricity load for charging the batteries. But this much energy consumption is easily offset by the saving in high speed diesel.

Figure 11: Electric Bus for the Convenience of Students, Staff and Visitors

4.2. Rationing of Power Generation using Diesel Generator Sets

Total 4 diesel generator sets are installed in the campus as emergency back up to meet the power requirement in case of power cut from PSPCL. Two Generator sets are of 500 kVA capacity each and two of 380 kVA capacity each (refer annexure - VI).

Figure 12: Diesel Generator Sets

Fuel consumption is lowered by rationing the DG power supply to the departments during the power cuts. Table 10 clearly shows the reduction in the consumption of HSD from 27835 litre per year in 2017-2018 to 12965 litre per year in 2019-2020, a reduction by about 53 percent.

Table 10: Generator Sets Details

Ratings of DG SETS	**Number of DG Sets**		
500kVA	2		
380kVA	2		
Total No. DG Sets	HSD Consumption (Litre/Year) 2017-18	HSD Consumption (Litre /Year) 2018-19	HSD Consumption (Litre /Year) 2019-20
4	27835	17450	12965

4.3. LPG Consumption

LPG cylinders are used in the messes of the girls and boys hostel messes and canteens of the university. Total consumption of LGP is approximately 6000 cylinders (on average) annually. The details of the same are shown in annexure - VII. With an objective to reduce the consumption of LPG, alternative means such as Bio-Gas Plants and or Solar Boiler Cooking Systems are also being explored.

5. OVERALL ENERGY SAVING SCENERIO

Overall, the university is able to save about 17.39 lakh kWh per year by adopting green energy production and energy conservation strategies. Table 11 describes the actual saving on energy consumption annually. The major contribution (86.24 percent) being from 1.48 MW solar power plants, followed by solar water heaters (11.04 percent) installed in the hostels of the university. LED street lights save conventional energy to the tune of 2.72 percent.

Table11: Annual Energy Saving

Means	**Annual Saving in kWh**	**Percentage Contribution**
1.48 MW Solar Power Plants	15,00,000	86.24
LED Street Lights	47,340	2.72
Solar Water Heating	1,92,000	11.04
Total	17,39,340	100.00

6. CARBON FOOTPRINTS REDUCTIONS BY GNDU

Fruitful efforts have been made to reduce the conventional electricity consumption which further leads to reduction in university's contribution to the carbon footprints. Saving of 10,00,000 kWh energy results into 730 tons of less CO_2 emission. As such 17,39,340 will result into 1270 tons of less CO_2 emission. Saving of 10,00,000 kWh of energy is equivalent to planting 33183 fully grown trees to absorb the equivalent CO_2 emission. As such the university has contributed towards planting of 57,717 fully grown trees annually in terms of annual energy saving. In addition to this the university has potential to further reduce the annual energy consumption as explained in the table 12.

Table 12: Potential for Further Reduction of Annual Energy Consumption by the University

Means	Annual Saving in kWh
Replacing the existing 1.5 Ton capacity ACs with 20% more efficient ACs	2,34,511
Replacing 6500 TFTs with power efficient LED lights	1,87,200
Replacing existing Sodium Lamps and FTL based street lights	32,185
Using Solar Powered sheds for charging stations for E-Buses	11,520
Total Saving	**4,65,416**

This will result into additional reduction in CO_2 emission by 340 tons annually and equivalent to planting 15,430 fully grown trees annually.

In addition to the above mentioned saving in the consumption of conventional electricity energy, saving of HSD has also been achieved. E-Buses save around 14,400 Lts of HSD annually. Every bus travels around 50-60 km daily inside campus. In case of diesel powered bus this will lead to 10 Lts HSD consumption plus pollution. Eight E-Buses used for the whole year for at least 180 working days lead to saving of 180x80=14,400 Lts of HSD in 2019-2020 in comparison to that in 2017-2018. Rationing of diesel generator power has also resulted into around 55 percent less consumption of HSD. This is a considerable contribution towards lowering of carbon foot prints.

By implementing Bio-Gas plants and/or solar boiler based cooking the consumption of LPG gas can be reduced from current 6000 LPG cylinder to almost zero.

7. RECOMMENDATIONS

For reducing the energy consumption further, the following recommendations will be useful.

1. Replacing the exiting Fluorescent tube lights and other filament based light sources with the more energy efficient LED light sources either in new fittings or in the retro fittings wherever possible. This can be achieved in a phased manner to match life cycle completion of the older lighting systems.

2. Smart meters can be implemented at all the departments to keep a check on consumption and to study the trend of consumption over the period of full year. This will be helpful in suggesting methods for lowering the energy consumption.

3. Sensor systems can be installed in the class rooms and laboratories to switch off the electrical appliance when nobody is present in the rooms.

4. Sensors can also be used in corridors to switch on and off the lights on the need base.

5. For charging E-Buses, standalone solar power based charging station can be developed.

6. The university campus is well planned. Only a few buildings are west and south facing. By planting large trees and growing green foliage cover on the west and south of the buildings, the energy consumption can be further reduced.

7. By replacing the older worn out cooling equipment with the latest more power efficient cooling equipment having better BEE rating.

8. Water cooled or Air cooled HVAC systems can also be explored to replace the traditional air conditioning.

9. Designing / renovating the buildings with better cross ventilation and less heat absorption by utilising heat reflecting tiles on building roofs and films on window pans.

10. LPG consumption can be lowered by installing biogas plants and solar boilers for cooking in hostels.

8. CONCLUSIONS

Since its establishment, Guru Nanak Dev University has remained a role model in different fields, be it research in sciences, life sciences, humanities or any professional discipline. By practicing its research and applying the innovative mechanisms in the energy sector with an objective to play its pro-active role in reducing the consumption of conventional energy, the university has emerged as one of the few higher education institutions in the region to have contributed to production of green energy (solar energy) and lessening its contribution to the carbon footprints. Its commitment to further contribute towards reduced consumption of conventional energy and promoting green energy sources will make it expert institution to guide the others in energy conservation practices in the near future.

****

Annexure - I

Consumption of Electricity for last Four Years

Month	Units Consumed for connection No.① A25GC3300067	Units Consumed for connection No.-② A25GC3300068	Total
May-17	471280.00	283668.00	754948.00
June-17	376560.00	233796.00	610356.00
July-17	429800.00	286704.00	716504.00
August-17	497000.00	327210.00	824210.00
September-17	462080.00	283284.00	745364.00
October-17	417120.00	229722.00	646842.00
November-17	326640.00	171534.00	498174.00
December-17	317960.00	188004.00	505964.00
January-18	361440.00	193752.00	555192.00
February-18	289560.00	204558.00	494118.00
March-18	307320.00	205152.00	512472.00
April-18	393080.00	230772.00	623852.00
May-18	512960.00	256188.00	769148.00
June-18	432160.00	206520.00	638680.00
July-18	0.00	263094.00	263094.00
August-18	1005640.00	341190.00	1346830.00
September-18	486880.00	248466.00	735346.00
October-18	377560.00	197820.00	575380.00
November-18	298160.00	163428.00	461588.00
December-18	298760.00	188232.00	486992.00
January-19	339400.00	233334.00	572734.00
February-19	291440.00	201090.00	492530.00
March-19	264920.00	212976.00	477896.00
April-19	367520.00	0.00	367520.00
May-19	456400.00	0.00	456400.00
June-19	333640.00	0.00	333640.00
July-19	168840.00	0.00	168840.00

August-19	0.00	366390.00	366390.00
September-19	0.00	0.00	0.00
October-19	764240.00	1016070.00	1780310.00
November-19	0.00	0.00	0.00
December-19	0.00	0.00	0.00
January-20	0.00	0.00	0.00
February-20	755680.00	768882.00	1524562.00
March-20	0.00	0.00	0.00
April-20	0.00	0.00	0.00
May-20	0.00	0.00	0.00
June-20	0.00	0.00	0.00
July-20	238000.00	477558.00	715558.00
August-20	227960.00	421752.00	649712.00
September-20	270240.00	366264.00	636504.00
October-20	117160.00	155310.00	272470.00
November-20	125480.00	124212.00	249692.00
December-20	146000.00	124758.00	270758.00
January-21	171320.00	156252.00	327572.00
February-21	312760.00	271608.00	584368.00
March-21	228000.00	153246.00	381246.00
April-21	199480.00	129786.00	329266.00
Total	**13840440.00**	**9882582.00**	**23723022.00** units

Incharge Div I & W(E)
GNDU
Amritsar

29/4/21

Annexure - II

original

सोलर एनर्जी कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उपक्रम)
Solar Energy Corporation of India Ltd.
(A Government of India Enterprise)
स्वच्छ भारत – स्वच्छ ऊर्जा

Ref. No.: SECI/C&P/MNRE/1000MW RT/IND/122016/NOA/ 15823
Date: 12.09.2017

Azure Power Rooftop One Pvt. Limited
8, Local Shopping Complex
Pushp Vihar, Madangir
New Delhi - 110 062

Attn: Mr. Gaurang Sethi (Head - Business Development)

Sub.: Letter of Allocation (LOA) as Successful Bidder/ Developer for Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX and/ or RESCO Model (PHASE - I) against RfS No.: SECI/C&P/MNRE/1000MW RT/IND/122016

Dear Sir,

1.0 REFERENCE

This has reference to the following:

1.1 Our Invitation for Bids (IFB) dated 09.12.2016

1.2 Bidding documents for the subject package issued vide our NIT Ref. No. SECI/C&P /MNRE/1000MW RT/IND/122016 dated 09.12.2016

1.2.1 Amendments to Bidding Documents issued vide our Amendment no. I dated 29.12.2016, Amendment no. II dated 20.01.2017, Amendment no. III dated 14.04.2017, Amendment no. IV dated 21.04.2017 and Amendment no. V dated 26.04.2017

1.2.2 Clarifications to the Bidding Documents, pursuant to pre-bid conference held on 10.01.2017, issued vide our clarifications dated 20.01.2017

1.3 First envelope of the Bid submitted by the bidder for the subject package and was opened on 15.05.2017

1.4 Second Envelope of the Bid by the bidder for the subject package and was opened on 21.07.2017

1.5 Consent for matching with L-1 Price

2.0 AWARD OF CONTRACT AND ITS SCOPE

2.1 We confirm having accepted bid of the successful bidder/ developer (referred to at para 1.3 & 1.4 above) read in conjunction with all the specifications, terms & conditions of the bidding documents (referred to at para 1.2, 1.2.1 & 1.2.2) and specific consent offered (referred to at para 1.5 above), and award on the successful bidder/ developer the 'Contract' (also referred to as the "Project" or "Scheme") for performance of all activities, as set forth in the documents, viz. Implementation of 1000MW Grid Connected Roof Top

Regd. Office : D-3, 1st floor, Wing-A, Religare Building, District Center, Saket, New Delhi - 110017
Phone : (011) 71989200, Email : corporate@seci.gov.in, Website : www.seci.gov.in
CIN : U40106DL2011GOI225263

State	CAPEX (Part-A)		RESCO (Part-B)	
	Capacity (in kWp)	Project Cost/kWp (in INR)	Capacity (in kWp)	Tariff/kWh (in INR)
Uttar Pradesh	NIL	Not Applicable	10946.300	3.910
West Bengal	NIL	Not Applicable	5502.870	3.620
GRAND TOTAL	**NIL**		**50000.000**	

3.2 The details of the levelized tariff (for Kerala) is enclosed at Annexure-I to this LOA. The details of the levelized tariff for other allocated states/ UTs (duly stamped and signed) of 25 years under RESCO (Part - B) shall be furnished by you within 30 (Thirty) days from the date of issuance of this LOA. The same should be in the prescribed format attached at Annexure-I and final value shall not exceed the L-1 price of the allocated state/ UT/ Island.

3.3 The benchmark cost of Ministry of New and Renewable Energy (MNRE) is as mentioned below: -

For Projects having size of 1 kWp to 10 kWp : INR 70,000/- per kWp
For Projects having size of 10.1 kWp to 100 kWp : INR 65,000/- per kWp
For Projects having size of 100.1 kWp to 500 kWp : INR 60,000/- per kWp

The total outgo (i.e. sum of indicated Project Cost in the table under clause no. 3.1 of this LOA Plus Incentive against each State/ UT/ Island) shall not exceed the benchmark cost of MNRE mentioned above under clause no. 3.3.

3.4 The incentive structure applicable is tabulated below: -

Sl. No.	Achievment vis-à-vis Target Allocation	Incentives for General Category States/ UTs	Incentives for Special Category States/ UTs/ Islands
1	80% and above within the sanctioned period	INR 16,250/- per kW	INR 39,000/- per kW
2	Below 80% and above 50% (including 50%) within the sanctioned period	INR 9,750/- per kW	INR 23,400/- per kW
3	Below 50% and above 40% (including 40%) within the sanctioned period	INR 6,500/- per kW	INR 15,600/- per kW
4	Below 40% within the sanctioned period	NIL	NIL

Special Category States/ UTs/ Islands include - North Eastern States including Sikkim, Uttarakhand, Himachal Pradesh, Jammu & Kashmir, Andaman & Nicobar Islands and Lakshadweep Islands

The incentives indicated above are subject to revision on Annual basis and shall be read in conjunction with clause nos. 3.5 and 3.6.

3.5 Incase of CAPEX Mode, the incentives mentioned in the table under clause no. 3.3 of LOA shall be limited to

3.5.1 For Sr. No. 01 (INR 16,250/- per kW for general category states/ UTs and INR 39,000/- per kW for special category states/ UTs/ Islands) upto 25% of the benchmark cost or the cost of allocated state mentioned under clause no. 3.1, whichever is lower, for general category states/ UTs and upto 60% of the benchmark cost or the cost of allocated state mentioned under clause no. 3.1, whichever is lower, for special category states/ UTs/ Islands.

3.5.2 For Sr. No. 02 (INR 9,750/- per kW for general category states/ UTs and INR 23,400/- per kW for special category states/ UTs/ Islands) upto 15% of the benchmark cost or the cost of allocated state mentioned under clause no. 3.1, whichever is lower, for general category states/ UTs and upto 36% of the benchmark cost or the cost of allocated state mentioned under clause no. 3.1, whichever is lower, for special category states/ UTs/ Islands.

3.5.3 For Sr. No. 03 (INR 6,500/- per kW for general category states/ UTs and INR 15,600/- per kW for special category states/ UTs/ Islands) upto 10% of the benchmark cost or the cost of allocated state mentioned under clause no. 3.1, whichever is lower, for general category states/ UTs and upto 24% of the benchmark cost or the cost of allocated state mentioned under clause no. 3.1, whichever is lower, for special category states/ UTs/ Islands.

3.6 Incase of RESCO Mode, the incentive amount for general category states/ UTs will be upto 25% of the benchmark cost as mentioned under Clause no. 3.3 of this LOA. The benefit of the incentives should be passed on to the customer in the form of reduced tariff by factoring incentive. In case of special category states/ UTs/ Islands the applicable incentives will be upto 60% of the benchmark cost as mentioned under Clause no. 3.3 of this LOA.

4.0 DISBURSEMENT OF INCENTIVE

The incentive shall be disbursed as follows

The incentive shall be released after commissioning of the project and submission of Project Commissioning Reports (PCRs) in SPIN portal at the end of sanction period and submission of original audited Statement of Expenditure (SOE). The successful bidder/ developer will also make the sites/ premises available for inspection by MNRE/ SECI or its designated team/ agency. Minimum 40% of the sanctioned capacity has to be installed in order to avail incentives.

The First Lot of the applicable incentive amount (2/3 of the amount) shall be released against successful demonstration of the desired PR of 75% against commissioning. The Second Lot of the applicable incentive amount (1/3 of the amount) shall be released against successful demonstration of the desired CUF of 15% for general category states/ UTs and 13.5% for special category states/ UTs/ Islands against completion of first year of successful O & M. In case of non-achievement of above mentioned 02 different milestones (first at commissioning and second at first year of O & M), no incentive shall be disbursed. However, SECI may extend an option to developer(s) for re-demonstration of performance parameters after due rectification at its sole discretion.

SECI may consider to release incentive on case to case basis depending on the actions taken by the successful bidder/ developer and subject to meeting the following conditions:

- The rooftop SPV power plant should be completed as per the scope of RfS.
- The rooftop SPV power plant must get CEIG inspection certificate.
- Intimation to the concerned DISCOM : All the developers shall intimate the concerned DISCOMS regarding implementation of grid connected roof top solar PV projects as per the given format in Annexure-M of RfS and submit the copy of same to SECI for the purpose of release of Incentive.
- Owner Consent : In case the successful bidder/ developer is not the Owner of the Project, subsidy shall be released to successful bidder/ project developer after written consent of roof top owner only. For RESCO projects, owner shall be the successful bidder/ developer.

5.0 PERFORMANCE SECURITY

The successful bidder/ developer is required to furnish at the earliest but not later than 30 days from the date of issuance of this Letter of Allocation the Performance Security(ies), as per the bidding documents, for an amount of as described below: -

For general category states/ UTs:
PBG amount = (INR 16.25 Lakh) X Allocated Capacity in MWp in a State.

For special category states/ UTs/ Islands:
PBG amount = (INR 39.00 Lakh) X Allocated Capacity in MWp in a State

The Performance Securities shall be submitted separately for all the States. Part Performance Security shall not be accepted.

Any delay in submission of Performance Security beyond 30 (Thirty) days shall attract interest @ 1.25 % per month on the total amount, calculated on day to day basis. SECI at its sole discretion may cancel the allocated capacity and forfeit 100% of Bid Bond/ EMD, in case the requisite Performance security is not submitted within 60 days from issuance of Letter of Allocation.

The Performance Security shall be valid for a minimum period of 5 (Five) years from the date of issuance of Letter of Allocation and shall be renewed/ extended till the completion of 5 years of O & M period. The Performance Security shall be released after 5 years from the date of commissioning with the compliance of entire obligations in the contract

In case, due to delay, Performance Security submitted by the successful bidder/ developer is forfeited in full/ part, the successful bidder/ developer has to resubmit the Performance Security of requisite amount and validity as per the RfS, failing which their Incentive amount shall not be released.

The Performance Security shall be submitted in the form of bank guarantee in requisite format from an eligible bank as described in the RfS documents.

6.0 SCHEDULE FOR COMPLETION OF PROJECT/ SANCTION PERIOD

The schedule for completion of project shall be **30.06.2018 for general category states/ UTs** and **30.09.2018 for special category states/ UTs/ Islands** for all contractual purposes.

If the successful bidder/ developer fails to commission the sanctioned project within specified time i.e. on or before 30.06.2018/ 30.09.2018, as the case may be, no incentive shall be disbursed. However, further period of 06 (Six) months shall be allowed to successful bidder/ developer for completion of entire unexecuted allocated capacity and penalty/ LD on per day basis calculated for the Performance Security on a 06 (Six) months period would be levied. After 06 months [i.e. after 30.12.2018/ 30.03.2019, as the case may be], the entire project will get cancelled and the total PBG would be forfeited.

7.0 INITIAL ALLOCATION OF BUILDINGS

For facilitating successful bidder/ developer, a list of Government Buildings/ Institutions indicating location/ address/ tentative roof top size/ approximate capacity potential etc. is enclosed at Annexure-II. Initially SECI will allocate buildings/ capacities as per the clause no. 1.5.3 (Allocation of Capacity) of the original RfS documents including its amendment.

The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly, the indicative Solar Roof Top Potential may also vary.

The list is purely indicative. This indicative list has been prepared (by an agency after assessment) along with the building addresses and the states which it belongs to. Based on the above, the initial allocation has been made as per methodology stipulated in original tender documents including its amendments and clarifications. Though due care has been taken in such allocation, successful bidders/ developers are requested to ascertain the buildings, feasibility of space including their capacities allocated to them and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI. In case of any discrepancies in initial allocation of buildings/ capacities, bidders are requested to factor in those discrepancies prior to giving acceptance of LOA. The final installation capacity shall be sanctioned by SECI based on submission of Project Sanction Documents to SECI.

All the buildings having proposed installation capacity of less than and including 105 kWp shall be allocated under CAPEX Model initially based on assumption Only. Similarly, all the buildings having proposed installation capacity of more than 105 kWp shall be allocated under RESCO Model initially based on assumption only.

The initial allocation of buildings shall be indicative and valid for 30 (Thirty) days only from the date of issuance of Letter of Allocation. The bidders may submit their consent/ project sanction documents to SECI during this initial 30 (Thirty) days for the allocated buildings. After 30 (Thirty) days from LOA, any successful bidder/ developer shall be allowed to execute the Project on the allocated building(s) for which no consent/ project sanction documents are received by SECI. Final sanction shall be accorded by SECI to those successful bidder/ developer who will come with sanction documents on "First Come" basis

7.1 Any successful bidder/ developer, who do not wish to adopt the initially allocated buildings by SECI, shall submit their consent preferably within 30 (Thirty) days from the date of issuance of Letter of Allocation. Alternatively, those successful bidder/ developer may bring his own proposal related to Central/ State government buildings on the allocated state/ any other state. Similar proposal may be considered by SECI on its own discretion and subject to approval by Competent Authority. In case the proposal of successful bidder/ developer corresponds to any other state, the lowest L-1 Price between both the states (i.e. Allocated Vs. Proposed) shall prevail.

7.2 The successful bidder/ developer needs to contact and obtain the consent from building owner immediately. In case the building owner does not agree for installation under allocated model (either CAPEX/ RESCO), successful bidder/ developer need to intimate such case along with consent from building owner in writing preferably within 30 (Thirty) days from the date of issuance of Letter of Allocation. In case the building owner does not agree for the allocated model (either CAPEX/ RESCO), the successful bidder/ developer will have an option to execute the allocated capacity on the desired model (either CAPEX/ RESCO) of the building owner by matching the L-1 Price of the desired model corresponding to that particular state. A written request duly approved by the building owner shall be submitted to SECI for reference, records and further necessary actions.

7.3 In case the successful bidder/ developer does not want to execute the allocated capacity as mentioned above under clause no. 7.2, SECI will re-allocate alternative buildings on the quoted model of the successful bidder/ developer either in same state or in different state subject to availability and upon successful bidder's/ developer's consent. In this case the lowest L-1 Price of both the states shall prevail.

7.4 Incase SECI will not able to re-allocate alternative buildings, the successful bidder/ developer may come up with its own proposal related to any Central/ State government buildings either on the allocated state or in different state. The desired model (either CAPEX/ RESCO) shall be clearly written and duly approved by the building owner on the said alternative proposal. The alternative proposal may be considered by SECI on its own discretion and subject to approval by Competent Authority. In this case the lowest L-1 price of both the states shall prevail.

7.5 In case of non-availability of alternative roof tops, the successful bidder/ developer shall have an option for Interstate Transfer of Capacities as per clause no. 1.7.2 of the RfS documents subject to availability. In this case the lowest L-1 price of both the states shall prevail.

7.6 In case of non-fulfilment of any of the conditions mentioned above under Clause no. 7 maximum within 30.06.2018 for general category states/ UTs or 30.09.2018 for special category states/ UTs/ Islands, the PBG for the unexecuted capacity(ies) shall be forfeited at the sole discretion of SECI.

7.7 In case the successful bidder/ developer opts for any of the options indicated above under clause nos. 7.2, 7.3, 7.4 or 7.5, the amended Performance security (PBG pertaining to additional capacity allocated or capacity transferred) shall be submitted within 15 (Fifteen) days from the date of issuance of such notification in line with clause no. 1.7.3, Page 38 of original RfS documents. Similarly, in case of decrease in revised allocated capacity with respect to that of original allocated capacity, Performance Security of respective decreased capacity shall be released by SECI without any interest charges.

8.0 SANCTION OF PROJECT

After submission of project sanction documents by the successful bidder/ developer and accepted by SECI, SECI will issue the sanction letter(s) for the project(s) indicating the incentive amount(s) which will be disbursed in line with the provisions of the RfS document including its amendment(s). The successful bidder/ developer shall complete the entire scope of the work within 30.06.2018/ 30.09.2018, as the case may be.

9.0 SERVICE CHARGES OF SECI

In both general category states/ UTs and special category states/ UTs/ Islands, service charges of SECI shall be computed as 5% of the [Quoted Project Cost/ MNRE benchmark cost, whichever is lower, minus incentives].

The above charges are exclusive of Goods and Service Tax (GST) which shall be paid extra as per applicable norms.

As the service charges of SECI shall be collected at the time of submission of project sanction documents i.e. prior to execution of the project, the amount of incentive to be disbursed can't be computed at that point of time. Hence the Service/ PMC Charges of SECI shall be computed as 5% of the [Quoted Project Cost/ MNRE benchmark cost, whichever is lower]. However, after disbursement of incentive, a proportionate adjustment may be done at the sole discretion of SECI and refund shall be made if any.

10.0 LIQUIDATED DAMAGES

If the successful bidder/ developer fails to commission the sanctioned project within specified time, Liquidated Damages on per day basis calculated for the Performance Security on a 06 (Six) months period would be levied. After 06 (Six) months the project will get cancelled and the total Performance Security amount would be forfeited.

10.1 If a project of 1 MWp in general category state/ UT is delayed by 36 days then the Liquidated Damages will be levied as given below

Liquidated Damages = [(Performance Security)/180 Days] * delayed days = (1,625,000/180) * 36 = INR 325,000/-

10.2 If a project of 1 MWp in special category state is delayed by 36 days then the Liquidated Damages will be levied as given below

Liquidated Damages = [(Performance Security)/180 Days] * delayed days = (3,900,000/180) * 36 = INR 780,000/-

11.0 This Letter of Allocation constitutes formation of the Contract and comes into force with effect from the date of issuance of this Letter of Allocation.

12.0 All other terms and conditions including technical specifications and details shall be as per the bidding documents (referred to at para 1.2, 1.2.1 & 1.2.2, Page 01 of this LOA).

13.0 PROJECT MANAGER/ ENGINEER-IN-CHARGE

The authorized Project Manager/ Engineer-in-Charge for implementation of the Project on behalf of SECI is mentioned below: -

Shri Rajesh Kumar Jain (Addl. General Manager - Solar)

Solar Energy Corporation of India Limited
D - 3, 1st Floor, Wing - A, Religare Building
District Center, Saket
New Delhi - 110 017
Phone : 0091 (11) 71989211 Fax : 0091 (11) 71989243
E-mail : agmsolar@seci.co.in

All future correspondence shall be addressed to the authorized Project Manager/ Engineer-in-Charge as mentioned above.

14.0 This Letter of Allocation is being issued to you in duplicate. We request you to return its duplicate copy duly signed and stamped on each page including the enclosed Annexure as a token of your acknowledgement within 30 (Thirty) days from the date of its issuance.

Please take the necessary action to commence the work and confirm action.

Yours faithfully,

For and on behalf of

Solar Energy Corporation of India Limited

Manas Ranjan Mishra
12.09.2017

Manas Ranjan Mishra
Manager (Contracts & Procurement)

मानस रंजन मिश्रा / Manas Ranjan Mishra
प्रबन्धक (संविदा एवं खरीद) / Manager (Contracts & Procurement)
Solar Energy Corp. of India Ltd.
(भारत सरकार का उद्यम) / (A Govt. of India Enterprise)
डी-3,प्रथम तल, 'ए' विंग, डिस्ट्रिक्ट सेन्टर, साकेत, नई दिल्ली-17
D-3, 1st Floor, 'A' Wing, District Centre, Saket, New Delhi-110017

Enclosures:

ANNEXURE - I - Details of Levelized Tariff/ Format for Levelized Tariff
ANNEXURE - II - List of Initial Allocated Buildings

Annexure-I

Azure Power®

NIT No. SECI/C&P/MNRE/1000MW RT/IND/122016

Format For Price Schedule

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in States

PRICE BID for RESCO (For Projects Ranging From 2 MWp to 50 MWp) - MAIN BID

General Category State of India - Kerala (2892.600 KWp)

Sl. No.	Year of Operation	Tariff (INR / kWh)	Discount Factor @ 11%	Discounted Tariff (INR / kWh)
1	2	3	4	6 = 3 * 4
1	1st Year (First Year)	3.97	1.000	3.97
2	2nd Year (Second Year)	3.97	0.901	3.57697
3	3rd Year (Third Year)	3.97	0.812	3.22364
4	4th Year (Fourth Year)	3.97	0.731	2.90207
5	5th Year (Fifth Year)	3.97	0.659	2.61623
6	6th Year (Sixth Year)	3.97	0.593	2.35421
7	7th Year (Seventh Year)	3.97	0.535	2.12395
8	8th Year (Eighth Year)	3.97	0.482	1.91354
9	9th Year (Ninth Year)	3.97	0.434	1.72298
10	10th Year (Tenth Year)	3.97	0.391	1.55227
11	11th Year (Eleventh Year)	3.97	0.352	1.39744
12	12th Year (Twelveth Year)	3.97	0.317	1.25849
13	13th Year (Thirteenth Year)	3.97	0.286	1.13542
14	14th Year (Forteenth Year)	3.97	0.258	1.02426
15	15th Year (Fifteenth Year)	3.97	0.232	0.92104
16	16th Year (Sixteenth Year)	3.97	0.209	0.82973
17	17th Year (Seventeenth Year)	3.97	0.188	0.74636
18	18th Year (Eighteenth Year)	3.97	0.170	0.6749
19	19th Year (Nineteenth Year)	3.97	0.153	0.60741
20	20th Year (Twentieth Year)	3.97	0.138	0.54786
21	21st Year (Twenty First Year)	3.97	0.124	0.49228
22	22nd Year (Twenty Second Year)	3.97	0.112	0.44464
23	23rd Year (Twenty Third Year)	3.97	0.101	0.40097
24	24th Year (Twenty Fourth Year)	3.97	0.091	0.36127
25	25th Year (Twenty Fifth Year)	3.97	0.082	0.32554
	Total	INR 37.123		
Levellized Tariff for 25 Years (in INR / kWh) = X/9.351				INR 3.97
Levellized Tariff for 25 Years in Words				Three Rupees and Ninety Seven Paise

Note-1: - In case of discrepancy in the Main Bid (Excel File) and Electronic Form, the Price mentioned in the Excel File will prevail. Also it may be noted that the applicable incentive amount shall be released directly to successful bidder / developer in Indian Rupees (INR) only.

Note - 2: - The year of operation for first year shall be calculated w.e.f. date of commercial operation to 31st March of immediately succeeding financial year.

Note - 3: - The year of operation from second year upto twenty fifth year shall be calculated w.e.f. 1st April to 31st March of immediately succeeding financial year.

a. The levellized tariff shall be calculated up to three decimal places. However in case of a tie it may be
b. Tariff stream quoted by the bidder shall be levellized with a discounting rate of 11% only.
c. Maximum allowable Levellized Tariff for this part is as per clause no. 2 of Amendment-V.
d. Bids not in confirmity with above provisions will be rejected

Gaurang Sethi

Date 11.05.2017
Place New Delhi
Address 8, LSC, Madangir, PushpBhavan, New Delhi-110062

Name Gaurang Sethi
Designation Authorised Signatory

AZURE POWER ROOFTOP ONE PVT. LTD. New Delhi

Azure Power Rooftop One Pvt. Ltd.
CIN U40300DL2017PTC316260
Regd. Office: 8, Local Shopping Complex, Pushp Vihar, Madangir, New Delhi - 110062
Ph.: 011-49409800 Fax: 011-49409807 E-mail: bd.rooftop@azurepower.com Web: www.azurepower.com

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN CHANDIGARH

(680.130 kWp)

RESCO MODEL (INR 3.440 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	Chandigarh	Ministry of Consumer Affairs, Food & Public Distribution	BIS NRO Building, Sector-27B, Madhya Marg, Chandigarh	260
2	Chandigarh	Ministry of Consumer Affairs, Food & Public Distribution	Central Warehousing Corporation, RegionalL Office- Bay No.39-42, Sec.31A, CHANDIGARH-160030	236
3	Chandigarh	MHRD	Kendriya Vidyalaya 3 BRD, Air Force Station, Near Kalibadi Mandir, Chandigarh, 160002	205
TOTAL				701

Note: The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN CHHATTISGARH (1945.080 kWp) RESCO MODEL (INR 3.220 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	Chattisgarh	MHRD	Kendriya Vidyalaya No.2 Din Dayal Upaddhayay Nagar, Sector 4, Amanaka, Raipur, Chhattisgarh 492010	304
2	Chhattisgarh	Dena Bank	Bhilai, sector 10, plot No B1, Bhilai, Dist. Dur9	276
3	Chattisgarh	MHRD	Higher Education Department Govt. D.B Girls P.G. (Autonomous) College Raipur, C.G	252
4	Chattisgarh	MHRD	Kendriya Vidyalaya Chitalanka Bailadila, Dantewada District, Chitalanka, Chhattisgarh 494449	230
5	Chhattisgarh	Ministry of Culture	Sita Devi Temple & Sati Pillar, Deorbija, Tehsil-Berla, Distt. Bametara	207
6	Chhattisgarh	Ministry of Culture	Chandraditya temple & Sculpture Shed, Barsoor, Tehsil-Gidam, Distt. South Bastar Dantewada	207
7	Chhattisgarh	Ministry of Culture	Mahadev Temple & sculpture Shed, Tuman, tehsil-Padui Upora, Distt. Bilaspur	207
8	Chhattisgarh	Ministry of Culture	Brick Temple Savari, Kharod, Tehsil-Pamgarh, Distt. Janjgir Champa	207
9	Chhattisgarh	Ministry of Culture	Mahadeo Temple & Sculpture Shed, pali, Tehsil-Pali, Distt.Kobra	207
TOTAL				2096

Note: *The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.*

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Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN DELHI (9235.890 kWp) RESCO MODEL (INR 3.390 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	Delhi	MHRD	IIT, Hauz Khas, New Delhi, Delhi 110016	1863
2	Delhi	Ministry of Agriculture	NASC Complex, Dev Prakash Shastri Marg Opp. Dasghara,, Pusa Campus, Pusa, New Delhi, Delhi 110012	696
3	Delhi	Ministry of Agriculture	ICAR-National Bureau Plant Genetic Resources, Wz-256f/7, Dev Prakash Shastri Marg, Inder Puri, New Delhi, Delhi 110012	521
4	Delhi	Ministry of Textiles	National Institute Of Fashion Technology (NIFT), Campus, Main Road, Hauz Khas, New Delhi, Delhi 110016	451
5	Delhi	Ministry of Culture	National Archives of India, Janpath Road, Opposite Indira Gandhi National Centre for the Arts, Near Shastri Bhavan, New Delhi, Delhi 110001	448
6	Delhi	MHRD	Kendriya Vidyalaya No. 3, Narayana Ring Road, Opp Nausena Bagh, Naraina, Delhi Cantonment, New Delhi, Delhi 110010	444
7	Delhi	MHRD	Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha, B-4, Qutub Institutional Area, Shaheed Jeet Singh Marg, Qutab Institutional Area, Katwaria Sarai, New Delhi, Delhi 110016	423
8	Delhi	Ministry of Textiles	Office of the Development Commissioner Handlooms, Udhyog Bhawan, Rafi Ahmed Kidwai Marg, Rajpath Road Area, Central Secretariat, Rajpath Area, Central Secretariat, New Delhi, Delhi 110011	416
9	Delhi	MHRD	Kendriya Vidyalaya, Air Force Station, Mehrauli Badarpur Road, Opp Jamia Hamdard University, Talimabad, Sangam Vihar, New Delhi, Delhi 110080	377
10	Delhi	MHRD	Kendriya Vidyalaya No - 2, Gurgaon Road, N.H. No. - 8, Near A.P.S. Colony, Delhi Cantt, New Delhi, Delhi 110010	372
11	Delhi	Ministry of Culture	Nehru Memorial Museum & Library, Teen Murti Bhawan, New Delhi, Delhi 110011	371
12	Delhi	MHRD	Kendriya Vidyalaya, AFS Ghoga Road, Bawana, North West Delhi, Delhi, 110039	354
13	Delhi	MHRD	Kendriya Vidyalaya, Near Vivek Vihar Police Station Rd Number 71, Vigyan Vihar, Surajmal Vihar, Delhi 110092, Delhi	346
14	Delhi	MHRD	Kendriya Vidyalaya No. 1, Delhi Cantonment, Near Sadar Bazar, New Delhi, Delhi 110010	345

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN DELHI (9235.890 kWp)
RESCO MODEL (INR 3.390 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
15	Delhi	Ministry of Housing and Urban Poverty Alleviation	Housing & Urban Development Corporation Ltd. (HUDCO) Under Min. Of Housing & Urban Poverty Alleviation, August Kranti Bhawan at Plot No.25, Bhikaji Cama Place,New Delhi.	345
16	Delhi	Ministry of Culture	National Science Centre, Delhi, Near Gate 1, Pragati Maidan Bhairon Road, New Delhi-110001	276
17	Delhi	Ministry of Minority Affairs	Ministry of Minority Affairs, 11th Floor, Paryavaran Bhavan, CGO Complex, Lodhi Road, New Delhi, Delhi 110003	276
18	Delhi	Ministry of Personnel, Public Grievances and Pensions	Samaj Kalyan Kendra, Moti Bagh North, Block F, Moti Bagh, New Delhi, Delhi 110021	276
19	Delhi	Ministry of Personnel, Public Grievances and Pensions	Grih Kalyan Kendra, Community Center, Maharani Lakshmi Bai Marg, Laxmi Bai Nagar, New Delhi, Delhi 110023	276
20	Delhi	Ministry of Culture	Lalit kala Akademi ministry of culture, Rabindra Bhavan, 35, Ferozeshah Road, New Delhi, Delhi 110001	205
21	Delhi	MHRD	Kendriya Vidyalaya Keshavpuram, A-2, Keshav Puram, Lowrence Road Industrial Area, Near Jain Mandir, Delhi, 110035	159
TOTAL				9237

Note: ***The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.***

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN HARYANA (3014.010 kWp) RESCO MODEL (INR 3.320 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	Haryana	Ministry of Agriculture	ICAR-National Dairy Research Institute, Near Jewels Hotel, GT Rd, Nyaypuri, Karnal, Haryana 132001	1063
2	Haryana	MHRD	Guru Jambheshwar University of Science & Technology Hisar	545
3	Haryana	MHRD	Kendriya Vidyalaya No. 1 Ambala Cantt, Near Patel Park Haryana, Ambala, Haryana	422
4	Haryana	MHRD	Kanganpur Road, Kirti Nagar, Sirsa, Haryana 125055	379
5	Haryana	MHRD	Karnal	367
6	Haryana	MHRD	Abhor	323
		TOTAL		3100

Note: The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.

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Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN KERALA (2892.600 kWp) RESCO MODEL (INR 3.970 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	Kerala	Ministry of Textiles	National Institute Of Fashion Technology (NIFT), Kannur	462
2	Kerala	MHRD	Kendriya Vidyalaya No.1, Kochi, Kerala	379
3	Kerala	MHRD	Kendriya Vidyalaya, Pattom, Thiruvananthapuram, Kerala	365
4	Kerala	Ministry of Textiles	NTC,Mahatma Gandhi Road, Ernakulam South, Ernakulam, Kerala 682016	276
5	Kerala	MHRD	National Institute of Technology Calicut	276
6	Kerala	Ministry of Textiles	National Textile Corporation, Pullazhi, Thrssur, Kerela	276
7	Kerala	Ministry of Textiles	National Textile Corporation, Thrissur, Kerela	276
8	Kerala	Ministry of Agriculture	ICAR-CTCRI,Sreekariyam,Kerla	242
9	Kerala	MHRD	Kendriya Vidyalaya Ernakulam, Kochi, Kerala	234
10	Kerala	MHRD	Kendriya Vidyalaya,Pallippuram, Thiruvananthapuram, Kerala 695316	207
TOTAL				2992

Note: *The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.*

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model
(PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN ODISHA (4287.060 kWp)
RESCO MODEL (INR 3.620 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	Odisha	MHRD	Near NCC Office, Talabania, Purussottam Nagar, Puri, Odisha 752002	511
2	Odisha	MHRD	Bikrampur, Angul, Odisha 759122	500
3	Odisha	MHRD	BED College St, Ekamra Vihar, Kharabela Nagar, Bhubaneswar, Odisha 751001	495
4	Odisha	MHRD	Kendriya Vidyalaya, Berhampur, Gamjam, Odisha 760010	464
5	Odisha	MHRD	Gothapatna, PO Malipada, Bhubaneswar, Odisha 751003	454
6	Odisha	MHRD	Kendriya Vidyalaya, Malkangiri Gaudaguda, Odisha 764048	434
7	Odisha	MHRD	Kendriya Vidyalaya,Nabarangpur Chutiaguda, Odisha 764063	414
8	Odisha	MHRD	SH 1, Kandhamal, Phulbani, Odisha 762001	397
9	Odisha	MHRD	Kanheipur, Jajpur Road, Odisha 755019	357
10	Odisha	Ministry of Textiles	India Institute of Handloom Technology, Bargarh, Odisha	276
TOTAL				4302

Note: *The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.*

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN PUNJAB (4408.020 kWp) RESCO MODEL (INR 3.320 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	Punjab	MHRD	Guru Nanak Dev University, Grand Trunk Road, Off NH1, Amritsar, Punjab 143001	3316
2	Punjab	MHRD	G.H.G. Khalsa College, Gurusar Sadhar,GURUSAR SADHAR,TEHSIL RAIKOT,, LUDHIANA, Punjab 141104	512
3	Punjab	MHRD	Kenriya Vidyalaya No-1, Air force station Halwara, Halwara A.D.Distt Ludhiana. pin 141106	377
4	Punjab	Ministry of Culture	Maharaja Ranjit Singh Museum,Maharaja Ranjit Singh Bagh, Ram Bagh, Lawrence Road, Amritsar, Punjab 143001	207
TOTAL				4412

Note: The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN RAJASTHAN

(7088.040 kWp)

RESCO MODEL (INR 3.190 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	Rajasthan	MHRD	Lohia College Station Road, Churu (Rajasthan) - 331001	1557
2	Rajasthan	MHRD	Janaki Devi Bajaj Government Girls College, Near Antaghar Circle, Baran Rd, Nayapura, Kota, Rajasthan	1120
3	Rajasthan	MHRD	Rajasthan Technical University, Kota, National Highway 76, Akelgarh, Rajasthan Technical University, Akelgarh, Kota, Rajasthan	967
4	Rajasthan	MHRD	Kendriya Vidyalaya 1, Cantt Area, Jodhpur, Rajasthan 342006	966
5	Rajasthan	MHRD	National Law University, NH-65, Mandore Road, Mandor, Jodhpur, Rajasthan 342304	921
6	Rajasthan	MHRD	MLVT Engineering College, Pratap Nagar, Bhilwara, Rajasthan	544
7	Rajasthan	MHRD	Kendriya Vidyalaya, Itarana, Alwar, Rajasthan 301030	517
8	Rajasthan	MHRD	Kendriya Vidyalaya No. 2, Iitary Station, Jhotwara, Om Shiv Colony, Jhotwara, Jaipur, Rajasthan	428
9	Rajasthan	Ministry of Consumer Affairs, Food & Public Distribution	Bureau of Indian Standards, C Scheme, Ashok Nagar, Jaipur, Rajasthan	69
TOTAL				7088

Note: *The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.*

Page 1 of 1

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN UTTAR PRADESH (10946.300 kWp) RESCO MODEL (INR 3.910 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	Uttar Pradesh	MHRD	Gautam Buddha University, Yamuna Expressway, Gautam Budh Nagar, Near Pari Chowk, Greater Noida, Uttar Pradesh 201312	8497
2	Uttar Pradesh	MHRD	Kendriya Vidyalaya New Cantt, Allahabad, V.D. Road, Top Khana Bazar, Allahabad, Uttar Pradesh 211001	998
3	Uttar Pradesh	MHRD	Kendriya Vidyalay 3, Railway Quarters Rd, Railway Colony, Jhansi, Uttar Pradesh 284003	687
4	Uttar Pradesh	MHRD	Indian Institute of Management Lucknow, Prabandh Nagar, IIM Road, Lucknow, Uttar Pradesh 226013	610
5	Uttar Pradesh	MHRD	Kendriya Vidyalaya, Circular Road, Muzaffarnagar, Uttar Pradesh 251001	155
		TOTAL		10947

Note: *The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.*

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN WEST BENGAL

(5502.870 kWp)

RESCO MODEL (INR 3.620 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
1	West Bengal	Ministry of Defence - Department of Ex-Servicemen Welfare	ECHS Polyclinic Kolkata Judge Court Road, Opp AIMS & BSNL Alipore Kolkata-27	276
2	West Bengal	Ministry of Culture	NCSM (HQRs) & CRTL Premises, 33, Block-GN, Sector-V, Salt Lake, Kolkata-700091	276
3	West Bengal	Ministry of Social Justice & Empowerment	NIOH Kolkata	276
4	West Bengal	MHRD	Kendriya Vidyalaya - No. 1 Ishapore ,No. 4 , The Park, Ichhapur Defence Estate, P.O. Ichapur, Nawabganj, West Bengal 743144	270
5	West Bengal	MHRD	Kendriya Vidyalaya Sukna ,Khoklong, West Bengal 7340009	256
6	West Bengal	MHRD	Kendriya Vidyalaya ,Sevoke Road, District Jalpaiguri, Salugara, West Bengal 734008	214
7	West Bengal	Ministry of Culture	North Bengal Science Centre ,Matigara, Siliguri, West Bengal 734010	207
8	West Bengal	MINISTRY OF CULTURE	Cooch Behar Rajbari ,Rajbari Gate on Keshab Road, Near Central Bus Terminus, Kesab Road, Cooch Behar, West Bengal 736101	207
9	West Bengal	MINISTRY OF CULTURE	Rajbari Gate on Keshab Road, Near Central Bus Terminus, Kesab Road, Cooch Behar, West Bengal 736101	207
10	West Bengal	MINISTRY OF CULTURE	Lalbagh - Hazarduari Rd, Hazarduari, Murshidabad, West Bengal 742149	207
11	West Bengal	MINISTRY OF CULTURE	Chowk Bazaar, Hazarduari Museum Rd, Hazarduari, Murshidabad, West Bengal 742149	207
12	West Bengal	MINISTRY OF CULTURE	Chowk Bazaar, Hazarduari Museum Rd, Hazarduari, Murshidabad, West Bengal 742149	207
13	West Bengal	Ministry of Culture	DSC PRULIA WEST BENGAL	207
14	West Bengal	Ministry of Culture	Bardhaman Science Centre ,University Rd, Bardhaman University, Burdwan, West Bengal 713104	207
15	West Bengal	MINISTRY OF CULTURE	Institut De Chandernagore,Strand Road, Chandernagore, Barabazar, Hooghly, West Bengal 712136	207
16	West Bengal	Ministry of Culture	Raja Rammohan Roy Library Foundation ,Block-DD - 34, Sector - I, Salt Lake City, Kolkata, West Bengal 700064	207
17	West Bengal	MINISTRY OF CULTURE	Synagogue St, Bara Bazar, Kolkata, West Bengal 700001	207
18	West Bengal	Ministry of Culture	National Council of Science Museums ,NCSM33, Block - GN, Sector - V, Bidhan Nagar, GN Block, Sector V, Salt Lake City, Kolkata, West Bengal 700091	207

Annexure-II

Implementation of 1000MW Grid Connected Roof Top Solar PV System Scheme for Government Buildings in Different States/ Union Territory of India for 500MW Identified Capacity under CAPEX/ RESCO Model (PHASE - I)

LIST OF PROPOSED SITES ALONGWITH PROPOSED INSTALLATION CAPACITY FOR M/s AZURE POWER ROOFTOP ONE PVT. LIMITED IN WEST BENGAL

(5502.870 kWp)

RESCO MODEL (INR 3.620 per kWh)

(INDICATIVE)

Sl. No.	State/ UT/ Island	Ministry	Name and Address of the Proposed Site	Indicative Rooftop Capacity (kWp)
19	West Bengal	Ministry of Consumer Affairs, Food & Public Distribution	NATIONAL TEST HOUSE ,Service Road, BP Block, Sector V, Salt Lake City, Kolkata, West Bengal 700091	207
20	West Bengal	MINISTRY OF CULTURE	Chitpur, BBD Bagh, Kolkata, West Bengal 700001	207
21	West Bengal	Ministry of Culture	Eastern Zonal Cultural Centre,IB 201, Sector III, IA Block, Salt Lake, Kolkata, West Bengal 700106	207
22	West Bengal	MINISTRY OF CULTURE	12, Strand Rd, BBD Bagh, Kolkata, West Bengal 700001	207
23	West Bengal	Ministry of Culture	Maulana Azad Museum, 5, Ashraf Mistri Lane, Kolkata- 700019	207
24	West Bengal	MINISTRY OF CULTURE	11B, Dalhousie, Lal Dighi, BBD Bagh, Kolkata, West Bengal 700001	207
25	West Bengal	Ministry of Culture	Asiatic Society ,Asiatic Society,1, Park Street, Taltala, Kolkata, West Bengal 700016	207
26	West Bengal	Ministry of Culture	Science City, J.B.S Haldane Avenue, Kolkata, West Bengal 700046	207
TOTAL				5706

Note: *The list is purely indicative. The capacity is estimated considering 1 kWp=15 Sq Mtr. However, in actual scenario it may vary typically in the range of 12 Sq Mtr to 15 Sq Mtr as per the actual site conditions such as type of roof, shading, free space availability, load conditions etc. Accordingly the indicative Solar Roof Top Potential may also varySuccessful Bidder need to ascertain the feasibility of space including installation capacity and signing of PPA/ EPC Agreement in consultation with the owner of the building upon allocation by SECI.*

Annexure - III

Solar power Plant (Roof Top Insatallation under RESCO model) at Guru Nanak Dev University Amritsar

Date of Commissioning of Grid Connected Roof Top PV Solar Plant 22/07/2019*

Roof Top Location/Department building)	Capacicty (kWp)	Energy Generation (kWh)	
		JUL'19-Ap'20	May'20-Ap'21
Administrative Block	100		
Bhai Gurdas Library	100		
Bhai Gurdas Library	100		
Planning and Architecture	100		
Guru Nanak Bhavan	100		
Chemistry Department	50		
Chemistry Department	25		
School of Finacial Studies	25		
Education Department	40		
Social Science	50		
Physics Department	50		
Food Science Department	50		
Botanical and Environment Science	50		
Biology Department	50		
Girls' Hostel	65		
Boys' Hostel-3	25		
Lifelong Learning Department	50		
New Lecture Theatres Complex	50		
Electronics Department (old Building)	100		
Electronics Department (old Building)	20		
Zoravar Boys' Hostel	45		
Sociology and Economics	65		
Sports and Medicine	50		
University Business School	70		
Physiotherapy	25		
Maths	25		
Total Capacity	1480		
	Totak Energy Generation in kWh	8,72,919*	14,78,140

Annexure - IV

INDEX

Sl No.	Building Name	Capacity	Meter Serial No.
1.	Dept. of long life	50 KW	916135
2.	New Lecture Theatre	50 KW	916134
3.	Dept. of electronics	100 KW	919727
4.	Dept. of electronics	20 KW	194349
5.	Zoravar Boys Hostel	45 KW	916133
6.	Dept. of Sociology & Economics	65 KW	916170
7.	Sports & Medicines	50 KW	916649
8.	University of Business School	70 KW	916169
9.	Dept. of Physiotherapy	25 KW	194352
10.	Dept. of Maths	25 KW	194350
11.	Administrative Block	100 KW	321917
12.	Bhai Gurdas library	100 KW	321927
13.	Bhai Gurdas library	100 KW	919728
14.	Planning & Arc	100 KW	322248
15.	Guru Nanak Bhawan	100 KW	321813
16.	Dept. of Chemistry	50 KW	916168
17.	Dept. of Chemistry	25 KW	194359
18.	University School of Financial Studies	25 KW	194356
19.	Dept of Education	40 KW	916085
20.	Social Science (Arts Block)	50 KW	916348
21.	Dept. of Physics	50 KW	916101
22.	Dept. of food Science	50 KW	916658
23	Dept. of Botanical & Env. Science.	50 KW	916659
24	Dept. of Biology	50 KW	916660
25	Girls Hostel	65 KW	916136
26.	Boy's Hostel	25 KW	194900

INVOICE FOR September 2019 (22nd July 2019 – 10 Oct 2019

Sl no.	Meter Serial No.	Present Reading (KWh)	Past Reading (KWh)	Total Consumption (KWh)	Remarks
1.	916135	10821.3	40.7	10780.6	
2.	916134	11636.9	40.6	11596.3	
3.	919727	1393.4	77.6	1315.8	
4.	194349	4488.74	0	4488.74	
5.	916133	1113.2	40.7	1072.5	
6.	916170	13975.2	40.7	13934.5	
7.	916649	7992.9	44.6	7948.3	
8.	916169	4997.3	40.5	4956.8	
9.	194352	1.81	0.09	1.72	
10.	194350	5497.43	0.01	5497.42	
11.	321917	22882.9	77.4	22805.5	
12.	321927	24982.2	58.8	24923.4	
13.	919728	3570.59	77.5	3493.09	
14.	322248	15498.7	76.3	15422.4	
15.	321813	21604.4	77.4	21527	
16.	916168	2070.6	40.7	2029.9	
17.	194359	4362.6	0	4362.6	
18.	194356	5444.17	0.01	5444.16	
19.	916085	9608.5	38.6	9569.9	
20.	916348	6286.6	37.5	6249.1	
21.	916101	55.24	38.6	16.64	
22.	916658	11918.1	38.5	11879.6	
23.	916659	11502.6	38.6	11464	
24.	916660	9198.6	38.6	9160	
25.	916136	11396.1	40.7	11355.4	
26.	194900	4460	0.01	4459.99	

Total Consumption = 22575[illegible]
(Kwh)

225755.36 units @ Rs 3.32 = Rs 749,508

749508

Verified for Rs

9/3/2020

OS/ Sr Asst ... for needful action

Incharge ... DCP&I, Engg

4/3/2020

INVOICE FOR October 2019 (10th oct 2019 - 13 Nov 2019)

Sl No.	Meter Serial No.	Present Reading (KWh)	Past Reading (KWh)	Total Consumption (KWh)	Remarks
1.	916135	15349.5	10821.3	4528.2	
2.	916134	16436	11636.9	4799.1	
3.	919727	8672.4	1393.4	7279	
4.	194349	6333.9	4488.74	1845.16	
5.	916133	3070.4	1113.2	1957.2	
6.	916170	19857.5	13975.2	5882.3	
7.	916649	10537.6	7992.9	2544.7	
8.	916169	6695.6	4997.3	1698.3	
9.	194352	1471.4	1.81	1469.59	
10.	194350	7827.9	5497.43	2330.47	
11.	321917	32122.9	22882.9	9240	
12.	321927	35089.8	24982.2	10107.6	
13.	919728	13784.7	3570.59	10214.11	
14.	322248	24220.2	15498.7	8721.5	
15.	321813	30755.7	21604.4	9151.3	
16.	916168	5381.8	2070.6	3311.2	
17.	194359	6297.7	4362.6	1935.1	
18.	194356	7858.1	5444.17	2413.93	
19.	916085	13622.6	9608.5	4014.1	
20.	916348	8962.9	6286.6	2676.3	
21.	916101	8868.5	55.24	8813.26	
22.	916658	16775.1	11918.1	4857	
23.	916659	16582.9	11502.6	5080.3	
24.	916660	14091.5	9198.6	4892.9	
25.	916136	16357.1	11396.1	4961	
26.	194900	6404.6	4460	1944.6	

Total Consumption = 126,668.220 (KWh)

126,668.220 units @ Rs 3.32 = Rs 420,538.00

Verified for Rs. 420538

Incharge DIV I BIU Civil Deptt

INVOICE FOR NOVEMBER 2019 (13 Nov 19 – 4 Dec 19) 5.

Sl No.	Meter Serial No.	Present Reading (KWh)	Past Reading (KWh)	Total Consumption (KWh)	Remarks
1.	916135	17586.7	15349.5	2237.2	
2.	916134	18872.5	16436	2436.5	
3.	919727	14004.3	8672.4	5331.9	
4.	194349	7373.1	6333.9	1039.2	
5.	916133	4986.5	3070.4	1916.1	
6.	916170	22787.9	19857.5	2930.4	
7.	916649	13049	10537.6	2511.4	
8.	916169	7583.4	6695.6	887.8	
9.	194352	2433.8	1471.4	962.4	
10.	194350	8950.7	7827.9	1122.8	
11.	321917	36533.7	32122.9	4410.8	
12.	321927	40188.4	35089.8	5098.6	
13.	919728	18993.8	13784.7	5209.1	
14.	322248	28843.4	24220.2	4623.2	
15.	321813	35309.8	30755.7	4554.1	
16.	916168	7189.2	5381.8	1807.4	
17.	194359	7271.4	6297.7	973.7	
18.	194356	9225	7858.1	1366.9	
19.	916085	15646.9	13622.6	2024.3	
20.	916348	10103	8962.9	1140.1	
21.	916101	11431	8868.5	2562.5	
22.	916658	19326.7	16775.1	2551.6	
23.	916659	19144.4	16582.9	2561.5	
24.	916660	16542.9	14091.5	2451.4	
25.	916136	18776.5	16357.1	2419.4	
26.	194900	7312.4	6404.6	907.8	

Total Consumption = 66,038.100 (KWh)

66,038.100 units @ Rs 3.32 = Rs 219,246.00

Verified for Rs. 219246/-

Incharge DIV I & IV
E&S Deptt GNDU,
ASR

4/3/20

INVOICE FOR DECEMBER'2019 (4 Dec 2019 – 31 Dec 2019) 6.

Sl no.	Meter Serial no.	Present Reading (KWh)	Past Reading (KWh)	Total Consumption (KWh)	Remarks
1.	916135	19405	17586.7	1818.3	
2.	916134	20818	18872.5	1945.5	
3.	919727	18535	14004.3	4530.7	
4.	194349	8301	7373.1	927.9	
5.	916133	5068	4986.5	81.5	
6.	916170	25148	22787.5	2360.1	
7.	916649	14961	13049	1912	
8.	916169	8323	7583.4	739.6	
9.	194352	3212	2433.8	778.2	
10.	194350	9884	8950.7	933.3	
11.	321917	40195	36533.7	3661.3	
12	321927	44273	40188.4	4084.6	
13	919728	23129	18993.8	4135.2	
14	322248	32462	28843.4	3618.6	
15	321813	39070	35309.8	3760.2	
16	916168	8677	7189.2	1487.8	
17.	194359	8004	7271.4	732.6	
18.	194356	10395	9225	1170	
19.	916085	17373	15646.9	1726.1	
20.	916348	11119	10103	1016	
21.	916101	13607	11431	2176	
22.	916658	21476	19326.7	2149.3	
23.	916659	21288	19144.4	2143.6	
24.	916660	18624	16542.9	2081.1	
25.	916136	20828	18776.5	2051.5	
26.	194900	8097	7312.4	784.6	

Total Consumption = 52,805.600 (KWh)

52,805.600 units @ Rs 3.32 = Rs 175,315.00

Verified for Rs 175315

Dy. Dr. I. & IV GNDU

Incharge CMS Deptt.

AR

4/3/2

748508
420538
218246
175315
1564607

Passed for Rs. 1564607

Ch. No. 710906 Dt. 27/05/2020

Incharge
Engineering Department,
Guru Nanak Dev University,
Amritsar.

INvoice FOR JANUARY'2020 [31 Dec 2019 - 05 Feb 2020]

SL No	METER Serial No.	Present Reading (KWH)	Past Reading (KWH)	Total Consumption (KWH)	Remarks
1	916135	23097	19405	3692	
2	916134	24814	20818	3996	
3	919727	26437	18535	7902	
4	194349	9559	8301	1258	
5	916133	6849	5068	1781	
6	916170	29996	25148	4848	
7	916649	19134	14961	4173	
8	916169	9872	8323	1549	
9	194352	4863	3212	1651	
10	194350	11295	9884	1411	
11	321917	47129	40195	6934	
12	321927	53013	44293	8740	
13	919728	31939	23129	8810	
14	322248	40320	32462	7858	
15	321813	46628	39070	7558	
16	916168	11695	8677	3018	
17	194359	9572	8004	1568	
18	194356	12398	10395	2003	
19	916085	20725	17373	3352	
20	916348	13304	11119	2185	
21	916101	17880	13607	4273	
22	916658	25816	21476	4340	
23	916659	25427	21288	4139	
24	916660	22508	18624	3884	
25	916136	24794	20828	3966	
26	194900	8890	8097	793	

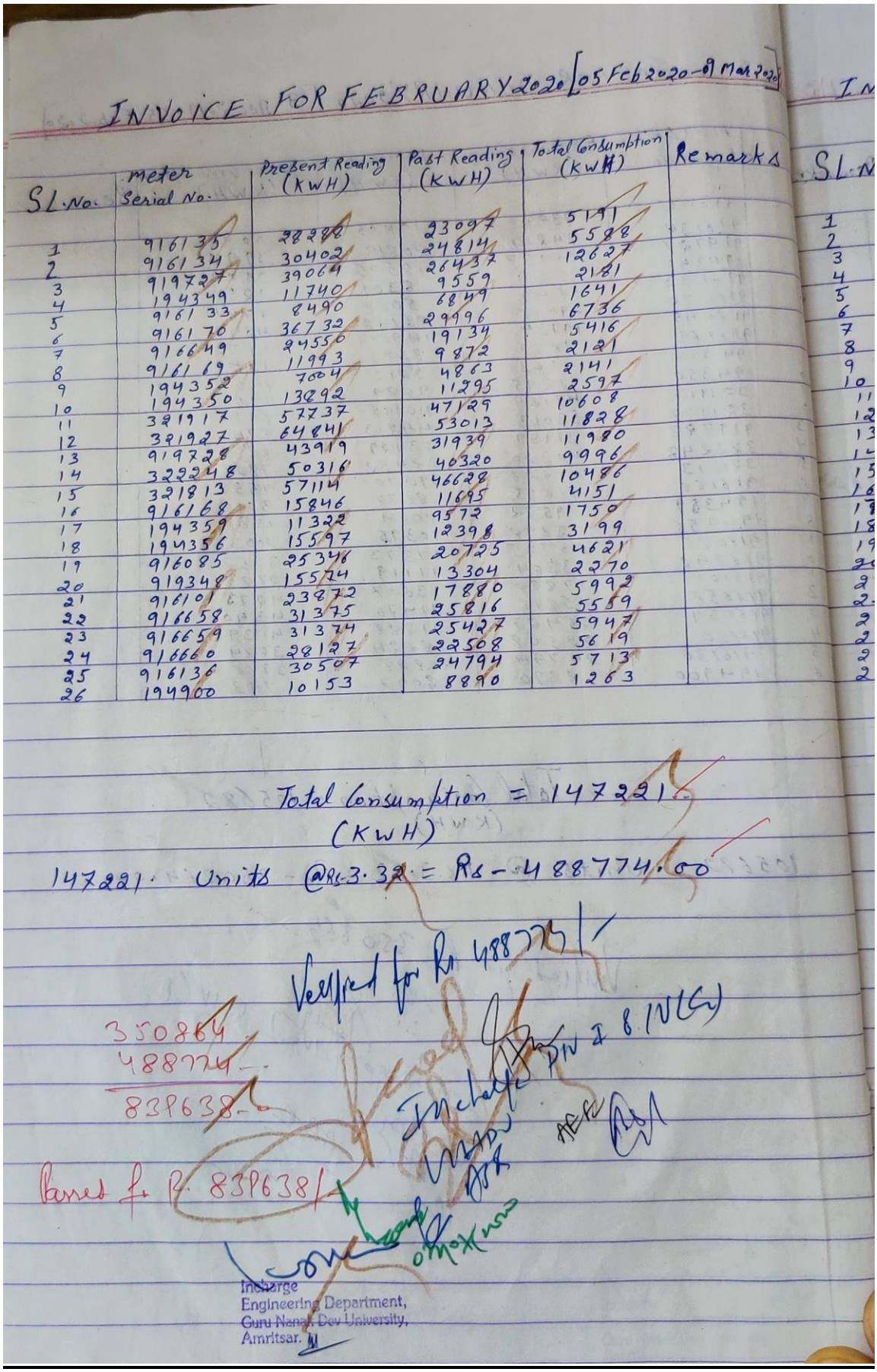
Total Consumption = 105682 (KWH)

105682 Units @ Rs. 3.32 = Rs - 350864.00

Verified for Rs. 350864

Incharge

AEE



INVOICE FOR FEBRUARY 2020 [05 Feb 2020 - 09 Mar 2020]

SL.No.	meter Serial No.	Present Reading (KWH)	Past Reading (KWH)	Total Consumption (KWH)	Remarks
1	916135	28286	23097	5191	
2	916134	30402	24814	5588	
3	919727	39064	26437	12627	
4	194349	11740	9559	2181	
5	916133	8490	6849	1641	
6	916170	36732	29996	6736	
7	916649	24550	19134	5416	
8	916169	11993	9872	2121	
9	194352	7004	4863	2141	
10	194350	13892	11295	2597	
11	321917	57737	47129	10608	
12	321927	64841	53013	11828	
13	919728	43919	31939	11980	
14	322248	50316	40320	9996	
15	321813	57114	46628	10486	
16	916168	15846	11695	4151	
17	194359	11322	9572	1750	
18	194356	15597	12398	3199	
19	916085	25346	20725	4621	
20	919348	15574	13304	2270	
21	916101	23872	17880	5992	
22	916658	31375	25816	5559	
23	916659	31374	25427	5947	
24	916660	28127	22508	5619	
25	916136	30507	24794	5713	
26	194900	10153	8890	1263	

Total Consumption = 147221/-
(KWH)

147221 Units @Rs 3.32 = Rs - 488774.00

Verified for Rs 488774/-

350864
488774
839638

Passed for Rs. 839638/-

Incharge
Engineering Department,
Guru Nanak Dev University,
Amritsar.

8. INVOICE FOR MARCH 2020 [09 Mar 2020 – 04 Apr 2020] 9.

SL.No	Meter Serial No	Present Reading (KWH)	Past Reading (KWH)	Total Consumption (KWH)	Remarks
1	916135	33498	28288	5210	Lockdown 24 March to 14 April Extended
2	916134	36344	30402	5942	
3	919727	51591	39064	12527	
4	194349	13921	11740	2181	
5	916133	10130	8490	1640	
6	916170	43468	36732	6736	
7	916649	29966	24550	5416	
8	916169	14114	11993	2121	
9	194352	9145	7004	2141	
10	194350	16489	13892	2597	
11	321917	68345	57737	10608	
12	321927	76669	64841	11828	
13	919728	55899	43919	11980	
14	322248	60312	50316	9996	
15	321813	67600	57114	10486	
16	916168	19997	15846	4151	
17	194359	13072	11322	1750	
18	194356	18796	15597	3199	
19	916085	29967	25346	4621	
20	919348	17844	15574	2270	
21	916101	29864	23872	5992	
22	916658	36934	31375	5559	
23	916659	37321	31374	5947	
24	916660	33746	28127	5619	
25	916136	36220	30507	5713	
26	194900	11416	8890	2526	
		Total Consumption (KWH)		148756/-	

148756/- Units @Rs 3.32 = Rs – 493870/-

Verified for Rs 493870/-

Incharge DIV E&W(E)

6/7/22

Invoice For April 2020 [04 Apr 2020 – 04 May 2020]

SL.No.	Meter Serial No.	Present Reading (KWH)	Past Reading (KWH)	Total Consumption (KWH)	Rem[arks]
1	916135	38889	33498	5391	
2	916134	42352	36344	6008	
3	919727	63288	51591	11697	
4	194349	16480	13921	2559	
5	916133	11809	10130	1679	
6	916170	50342	43468	6874	
7	916649	35480	29966	5514	
8	916169	16430	14114	2316	
9	194352	11380	9145	2235	
10	194350	19210	16489	2721	
11	321917	79120	68345	10775	
12	321927	87868	76669	11199	
13	919728	66897	55899	10998	
14	322248	69650	60312	9338	
15	321813	77456	67600	9856	Lock[ed]
16	916168	24478	19997	4481	
17	194359	15112	13072	2040	
18	194356	22324	18796	3528	
19	916085	34120	29967	4153	
20	916348	20325	17844	2481	
21	916101	35996	29864	6132	
22	916658	42764	36934	5830	
23	916659	43686	37321	6365	
24	916660	39666	33746	5920	
25	916136	42160	36220	5940	
26	194900	12784	11,416	1368	
			Total Consumption (KWH)	147398/-	

147398/- Units @Rs 3.32 = Rs-489361/-

Verified for Rs 489361/-

Incharge UHDU

4P3870

48P361

P83231/-

Passed for R P83231/-

6/7/20

Incharge
Engineering Department,
Guru Nanak Dev University,
Amritsar.

Invoice For May 2020 [04 May 2020 – 11 June 2020]

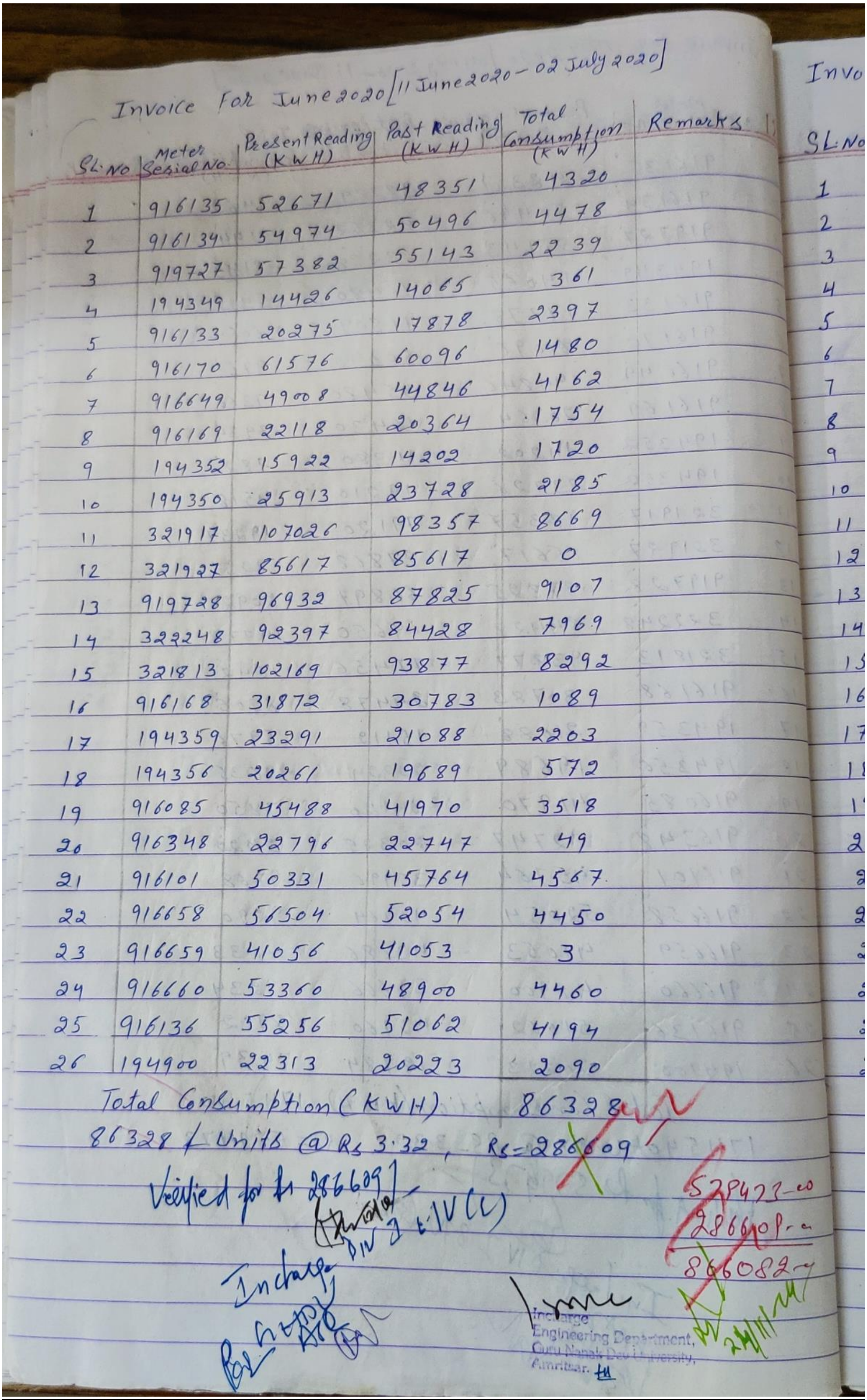
Sl. No	Meter Serial No	Present Reading (KWH)	Past Reading (KWH)	Total Consumption (KWH)	Remarks
1	916135	48351	38889	9462	
2	916134	50496	42352	8144	
3	919727	55143	63288	-8145	
4	194349	14065	16480	-2415	
5	916133	17878	11809	6069	
6	916170	60096	50342	9754	
7	916649	44846	35480	9366	
8	916169	20364	16430	3934	
9	194352	14202	11380	2822	
10	194350	23728	19210	4518	
11	321917	98357	79120	19237	
12	321927	85617	87868	-2251	
13	919728	87825	66897	20928	
14	322248	84428	69650	14778	
15	321813	93877	77456	16421	
16	916168	30783	24478	6305	
17	194359	21088	15112	5976	
18	194356	19689	22324	-2635	
19	916085	41970	34120	7850	
20	916348	22747	20325	2422	
21	916101	45764	35996	9768	
22	916658	52054	42764	9290	
23	916659	41053	43686	-2633	
24	916660	48900	39666	9234	
25	916136	51062	42160	8902	
26	194900	20223	12784	7439	

Total Consumption (KWH) 174540

174540 Units @ Rs. 3.32, Rs = 579473

Verified for Rs 579473

Include [illegible]


Invoice For June2020 [11 June2020 - 02 July 2020]

SL.No	Meter Serial No.	Present Reading (KWH)	Past Reading (KWH)	Total Consumption (KWH)	Remarks
1	916135	52671	48351	4320	
2	916134	54974	50496	4478	
3	919727	57382	55143	2239	
4	194349	14426	14065	361	
5	916133	20275	17878	2397	
6	916170	61576	60096	1480	
7	916649	49008	44846	4162	
8	916169	22118	20364	1754	
9	194352	15922	14202	1720	
10	194350	25913	23728	2185	
11	321917	107026	98357	8669	
12	321927	85617	85617	0	
13	919728	96932	87825	9107	
14	322248	92397	84428	7969	
15	321813	102169	93877	8292	
16	916168	31872	30783	1089	
17	194359	23291	21088	2203	
18	194356	20261	19689	572	
19	916085	45488	41970	3518	
20	916348	22796	22747	49	
21	916101	50331	45764	4567	
22	916658	56504	52054	4450	
23	916659	41056	41053	3	
24	916660	53360	48900	4460	
25	916136	55256	51062	4194	
26	194900	22313	20223	2090	

Total Consumption (KWH) 86328

86328 / Units @ Rs 3.32, Rs=286609

Verified for Rs 286609/-

Incharge

Incharge
Engineering Department,
Guru Nanak Dev University,
Amritsar.

579473-00
286609-00
866082-00

Invoice For July 2020 [02 July 2020 – 25 August 2020]

SL.No	Meter Serial No	Present Reading (KWH)	Past Reading (KWH)	Total Consumption	Remarks
1	916135	62852	52671	10181	
2	916134	65922	54974	10948	
3	919727	58773	57382	1391	
4	194349	14448	14426	22	
5	916133	25996	20275	5721	
6	916170	64861	61576	3285	
7	916649	58990	49008	9982	
8	916169	26510	22118	4392	
9	194352	16364	15922	442	
10	194350	31059	25913	5146	
11	321917	128706	107026	21680	
12	321927	85617	85617	0	
13	919728	119326	96932	22394	
14	322248	108118	92397	15721	
15	321813	122340	102169	20171	
16	916168	34170	31872	2298	
17	194359	28550	23291	5259	
18	194356	20626	20261	365	
19	916085	54063	45488	8575	
20	916348	22933	22796	137	
21	916101	61520	50331	11189	
22	916658	65093	56504	8589	
23	916659	51062	41056	10006	
24	916660	64261	53360	10901	
25	916136	65864	55256	10608	
26	194900	27262	22313	4949	

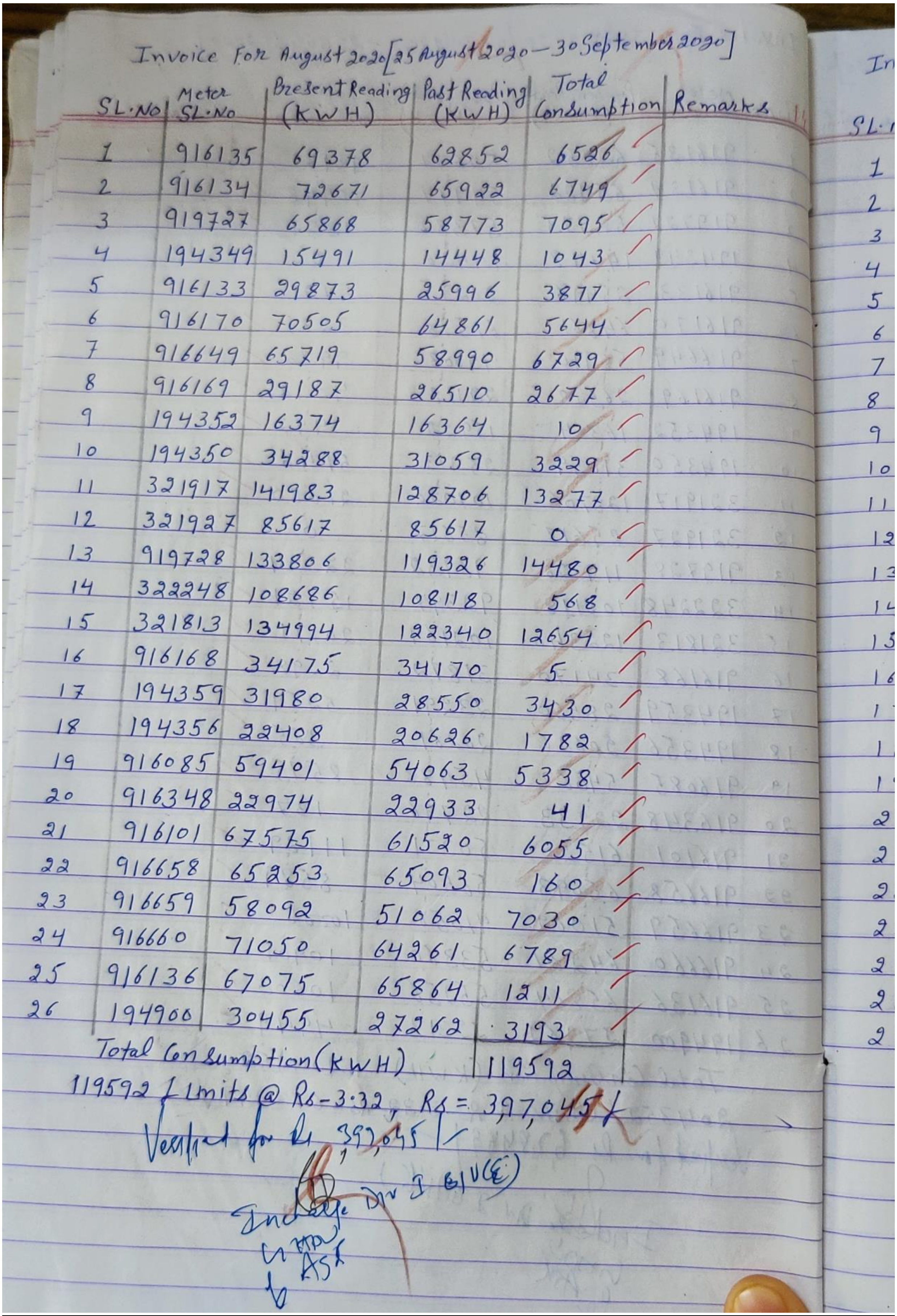
Total Consumption (KWH) 204352

204352/- Units @ Rs-3.32, Rs = 678449/-

Verified for Rs. 6,78,449/-

Incharge, Dr I & IVC

Gaspu



Invoice For August 2020 [25 August 2020 – 30 September 2020]

SL. No	Meter SL. No	Present Reading (KWH)	Past Reading (KWH)	Total Consumption	Remarks
1	916135	69378	62852	6526	
2	916134	72671	65922	6749	
3	919727	65868	58773	7095	
4	194349	15491	14448	1043	
5	916133	29873	25996	3877	
6	916170	70505	64861	5644	
7	916649	65719	58990	6729	
8	916169	29187	26510	2677	
9	194352	16374	16364	10	
10	194350	34288	31059	3229	
11	321917	141983	128706	13277	
12	321927	85617	85617	0	
13	919728	133806	119326	14480	
14	322248	108686	108118	568	
15	321813	134994	122340	12654	
16	916168	34175	34170	5	
17	194359	31980	28550	3430	
18	194356	22408	20626	1782	
19	916085	59401	54063	5338	
20	916348	22974	22933	41	
21	916101	67575	61520	6055	
22	916658	65253	65093	160	
23	916659	58092	51062	7030	
24	916660	71050	64261	6789	
25	916136	67075	65864	1211	
26	194900	30455	27262	3193	
Total Consumption (KWH)				119592	

119592 Units @ Rs-3.32, Rs = 397,045/-

Verified for Rs 397,045/-

Incharge Div I GNDU(E)

Invoice For September 2020 [30 September 2020 – 27 October 2020]

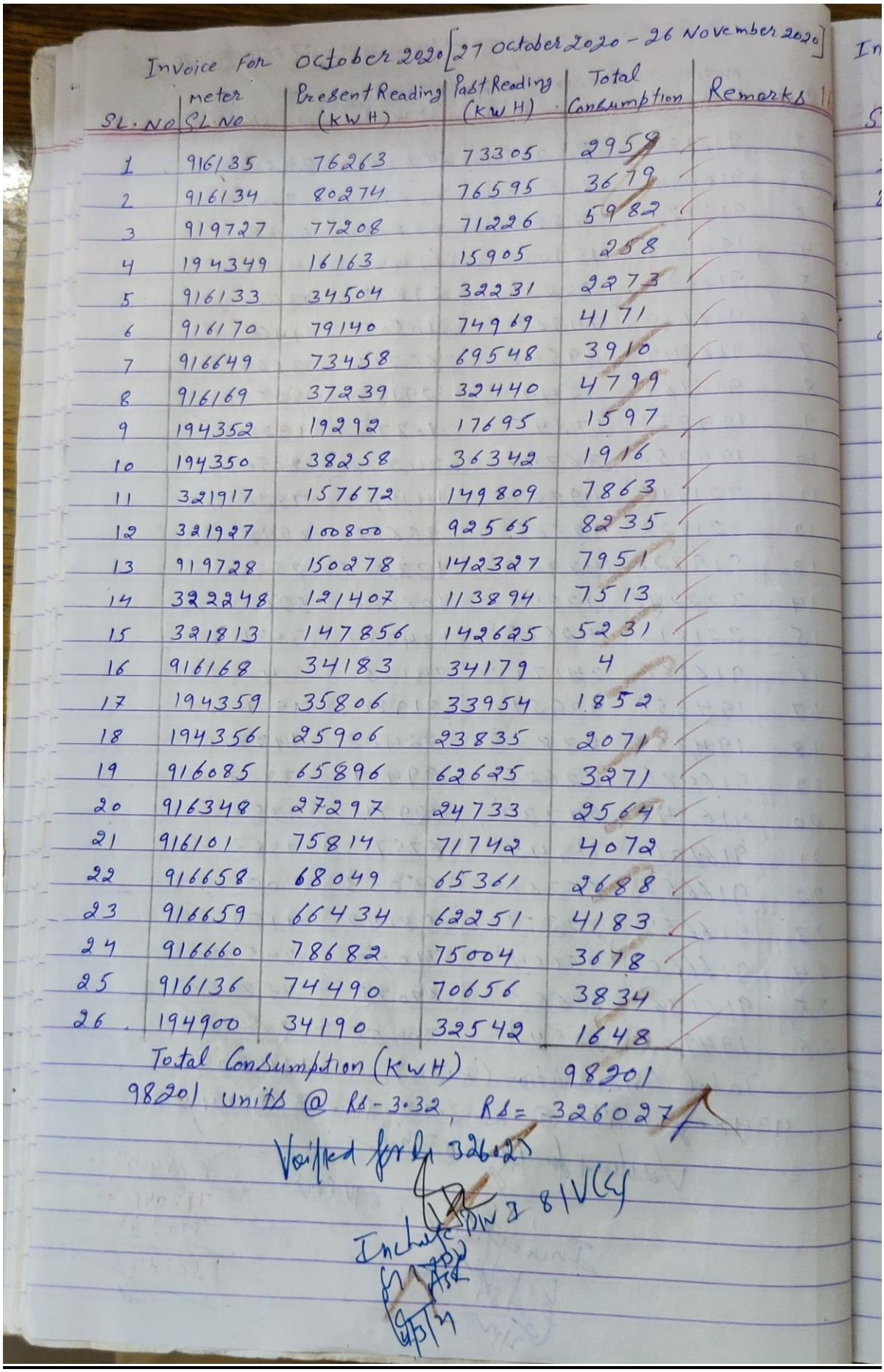
SL.NO	Meter SL.NO	Present Reading (KWH)	Past Reading (KWH)	Total Consumption
1	916135	73305	69378	3927
2	916134	76595	72671	3924
3	919727	71226	65868	5358
4	194349	15905	15491	414
5	916133	32231	29873	2358
6	916170	74969	70505	4464
7	916649	69548	65719	3829
8	916169	32440	29187	3253
9	194352	17695	16374	1321
10	194350	36342	34288	2054
11	321917	149809	141983	7826
12	321927	92565	85617	6948
13	919728	142327	133806	8521
14	322248	113894	108686	5208
15	321813	142625	134994	7631
16	916168	34179	34175	4
17	194359	33954	31980	1974
18	194356	23835	22408	1427
19	916085	62625	59401	3224
20	916348	24733	22974	1759
21	916101	71742	67575	4167
22	916658	65361	65253	108
23	916659	62251	58092	4159
24	916660	75004	71050	3954
25	916136	70656	67075	3581
26	194900	32542	30455	2087
	Total Consumption (KWH)			93480

93480/- Units @ Rs-3.32, RS = 310354/-

Verified for Rs 310354/-

Incharge Div I & W (E)

678449.00
397045.00
310354.00
1385848.00



Invoice For October 2020 [27 October 2020 - 26 November 2020]

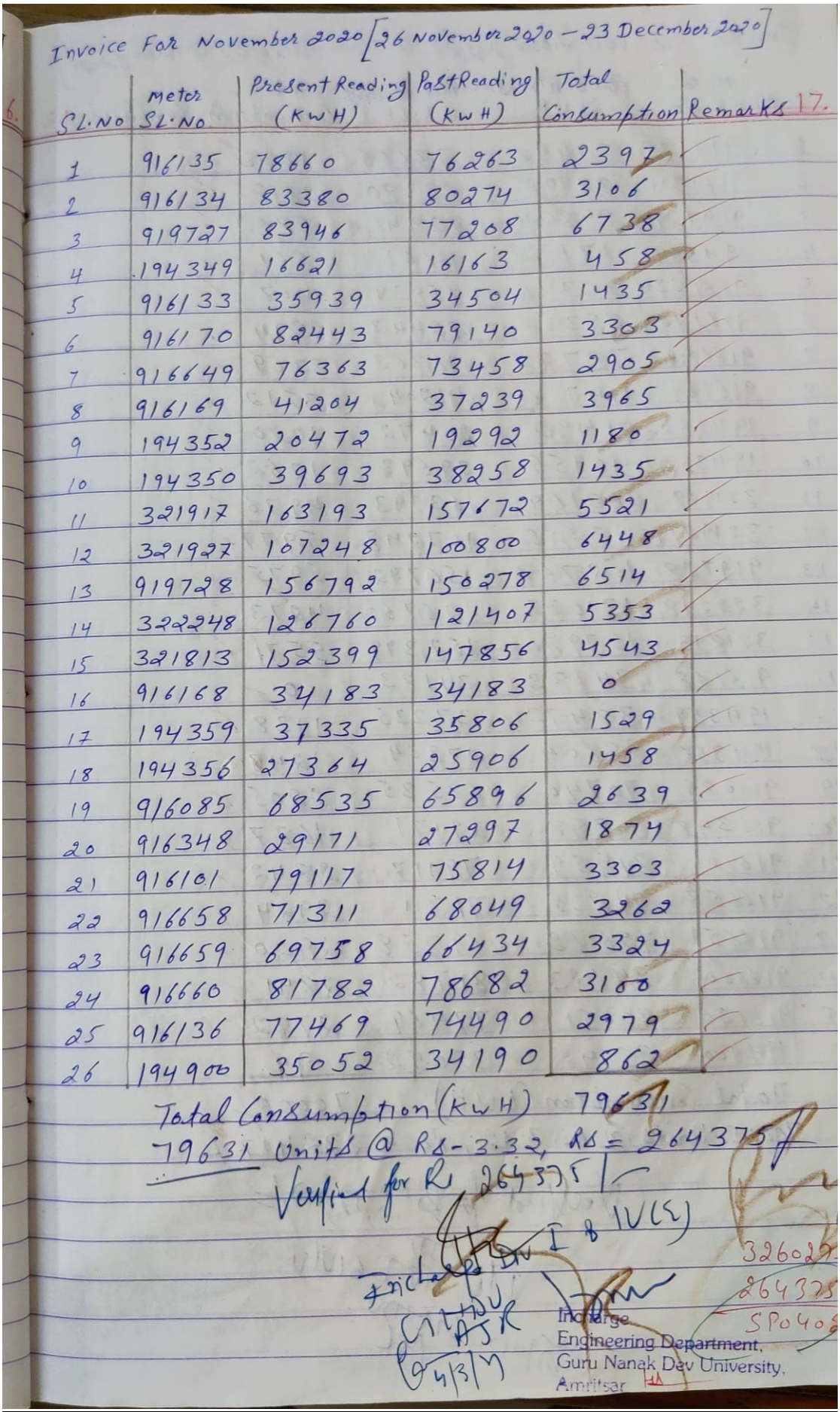
SL.NO	meter SL.NO	Present Reading (KWH)	Past Reading (KWH)	Total Consumption	Remarks
1	916135	76263	73305	2958	
2	916134	80274	76595	3679	
3	919727	77208	71226	5982	
4	194349	16163	15905	258	
5	916133	34504	32231	2273	
6	916170	79140	74969	4171	
7	916649	73458	69548	3910	
8	916169	37239	32440	4799	
9	194352	19292	17695	1597	
10	194350	38258	36342	1916	
11	321917	157672	149809	7863	
12	321927	100800	92565	8235	
13	919728	150278	142327	7951	
14	322248	121407	113894	7513	
15	321813	147856	142625	5231	
16	916168	34183	34179	4	
17	194359	35806	33954	1852	
18	194356	25906	23835	2071	
19	916085	65896	62625	3271	
20	916348	27297	24733	2564	
21	916101	75814	71742	4072	
22	916658	68049	65361	2688	
23	916659	66434	62251	4183	
24	916660	78682	75004	3678	
25	916136	74490	70656	3834	
26	194900	34190	32542	1648	

Total Consumption (KWH) 98201

98201 units @ Rs-3.32, Rs= 326027/-

Verified for Rs 326027

Incharge



Invoice For November 2020 [26 November 2020 – 23 December 2020]

Sl.No	Meter Sl.No	Present Reading (KWH)	Past Reading (KWH)	Total Consumption	Remarks
1	916135	78660	76263	2397	
2	916134	83380	80274	3106	
3	919727	83946	77208	6738	
4	194349	16621	16163	458	
5	916133	35939	34504	1435	
6	916170	82443	79140	3303	
7	916649	76363	73458	2905	
8	916169	41204	37239	3965	
9	194352	20472	19292	1180	
10	194350	39693	38258	1435	
11	321917	163193	157672	5521	
12	321927	107248	100800	6448	
13	919728	156792	150278	6514	
14	322248	126760	121407	5353	
15	321813	152399	147856	4543	
16	916168	34183	34183	0	
17	194359	37335	35806	1529	
18	194356	27364	25906	1458	
19	916085	68535	65896	2639	
20	916348	29171	27297	1874	
21	916101	79117	75814	3303	
22	916658	71311	68049	3262	
23	916659	69758	66434	3324	
24	916660	81782	78682	3100	
25	916136	77469	74490	2979	
26	194900	35052	34190	862	

Total Consumption (KWH) 79631

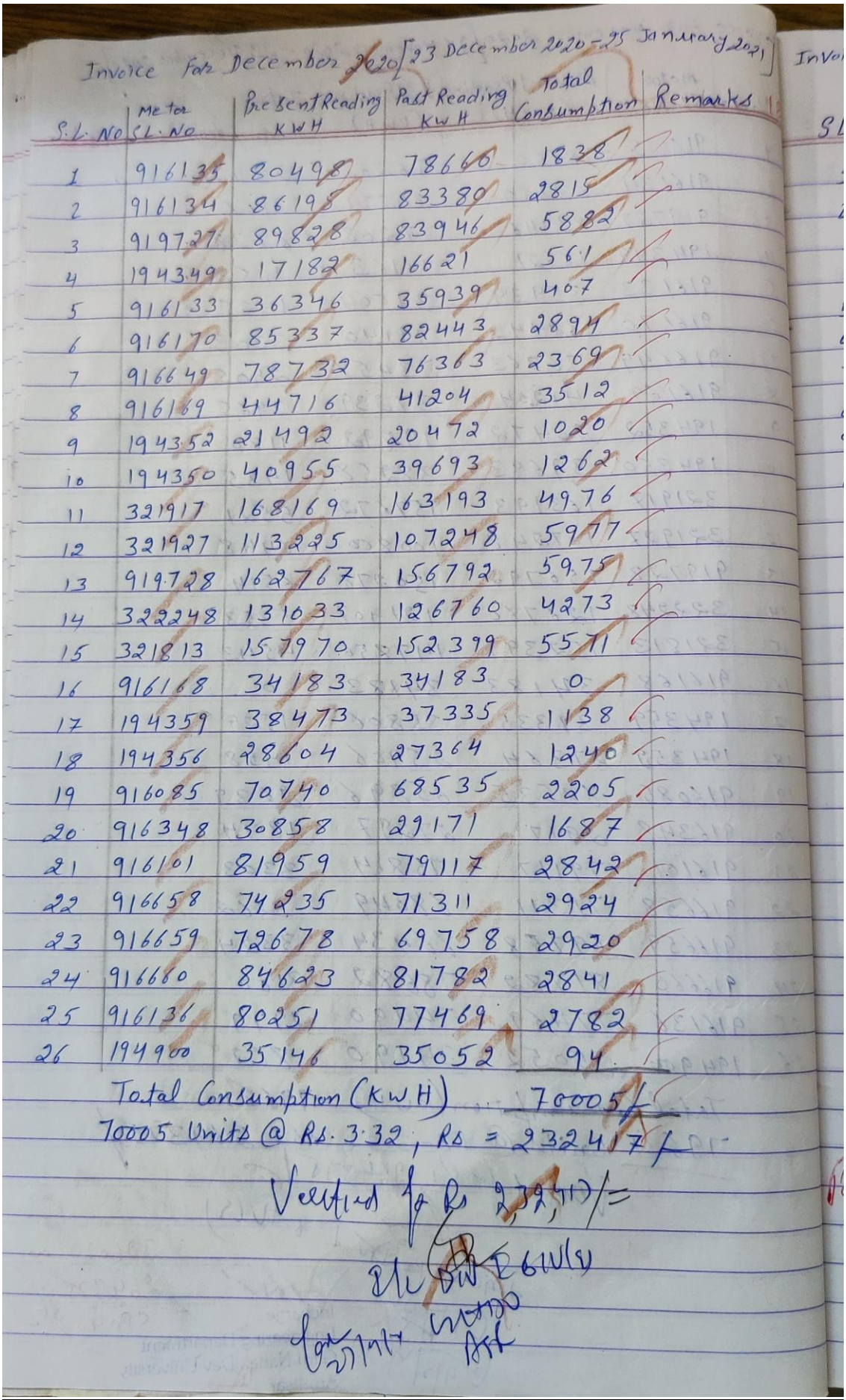
79631 Units @ Rs-3.32, Rs = 264375/-

∴ Verified for Rs 264375/-

I & IV(S)

Incharge
Engineering Department,
Guru Nanak Dev University,
Amritsar

326025
264375
SP040



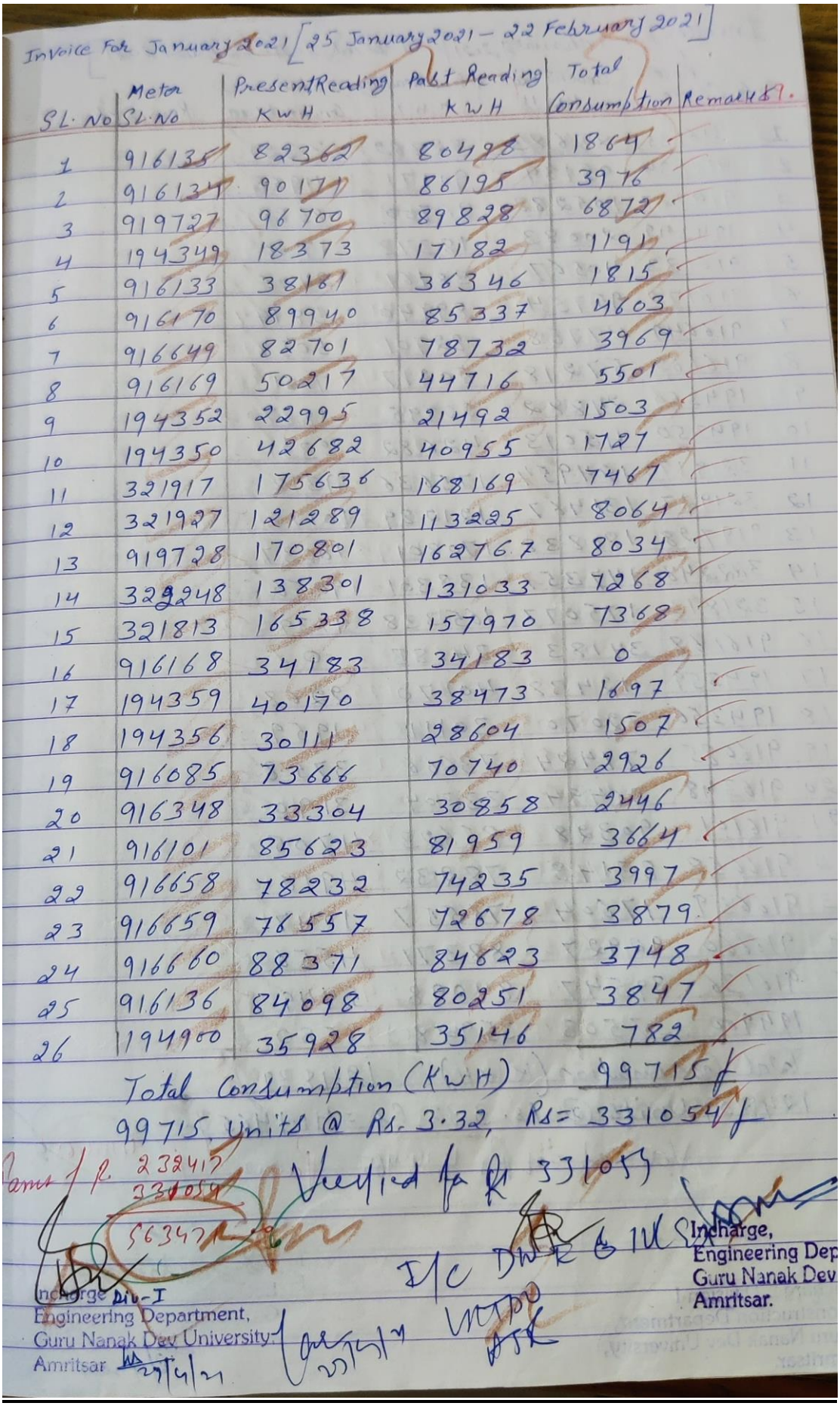
Invoice for December 2020 [23 December 2020 – 25 January 2021]

S.L. No	Meter SL. No	Present Reading KWH	Past Reading KWH	Total Consumption	Remarks
1	916135	80498	78660	1838	
2	916134	86195	83380	2815	
3	919727	89828	83946	5882	
4	194349	17182	16621	561	
5	916133	36346	35939	407	
6	916170	85337	82443	2894	
7	916649	78732	76363	2369	
8	916169	44716	41204	3512	
9	194352	21492	20472	1020	
10	194350	40955	39693	1262	
11	321917	168169	163193	4976	
12	321927	113225	107248	5977	
13	919728	162767	156792	5975	
14	322248	131033	126760	4273	
15	321813	157970	152399	5571	
16	916168	34183	34183	0	
17	194359	38473	37335	1138	
18	194356	28604	27364	1240	
19	916085	70740	68535	2205	
20	916348	30858	29171	1687	
21	916101	81959	79117	2842	
22	916658	74235	71311	2924	
23	916659	72678	69758	2920	
24	916660	84623	81782	2841	
25	916136	80251	77469	2782	
26	194900	35146	35052	94	

Total Consumption (KWH) ... 70005/-

70005 Units @ Rs. 3.32, Rs = 232417/-

Verified for Rs 2,32,417/=



Invoice For January 2021 [25 January 2021 – 22 February 2021]

Sl. No	Meter Sl. No	Present Reading KWH	Past Reading KWH	Total Consumption	Remarks.
1	916135	82362	80498	1864	
2	916134	90171	86195	3976	
3	919727	96700	89828	6872	
4	194349	18373	17182	1191	
5	916133	38161	36346	1815	
6	916170	89940	85337	4603	
7	916649	82701	78732	3969	
8	916169	50217	44716	5501	
9	194352	22995	21492	1503	
10	194350	42682	40955	1727	
11	321917	175636	168169	7467	
12	321927	121289	113225	8064	
13	919728	170801	162767	8034	
14	329248	138301	131033	7268	
15	321813	165338	157970	7368	
16	916168	34183	34183	0	
17	194359	40170	38473	1697	
18	194356	30111	28604	1507	
19	916085	73666	70740	2926	
20	916348	33304	30858	2446	
21	916101	85623	81959	3664	
22	916658	78232	74235	3997	
23	916659	76557	72678	3879	
24	916660	88371	84623	3748	
25	916136	84098	80251	3847	
26	194360	35928	35146	782	

Total Consumption (KWH) 99715

99715 Units @ Rs. 3.32, Rs = 331054/-

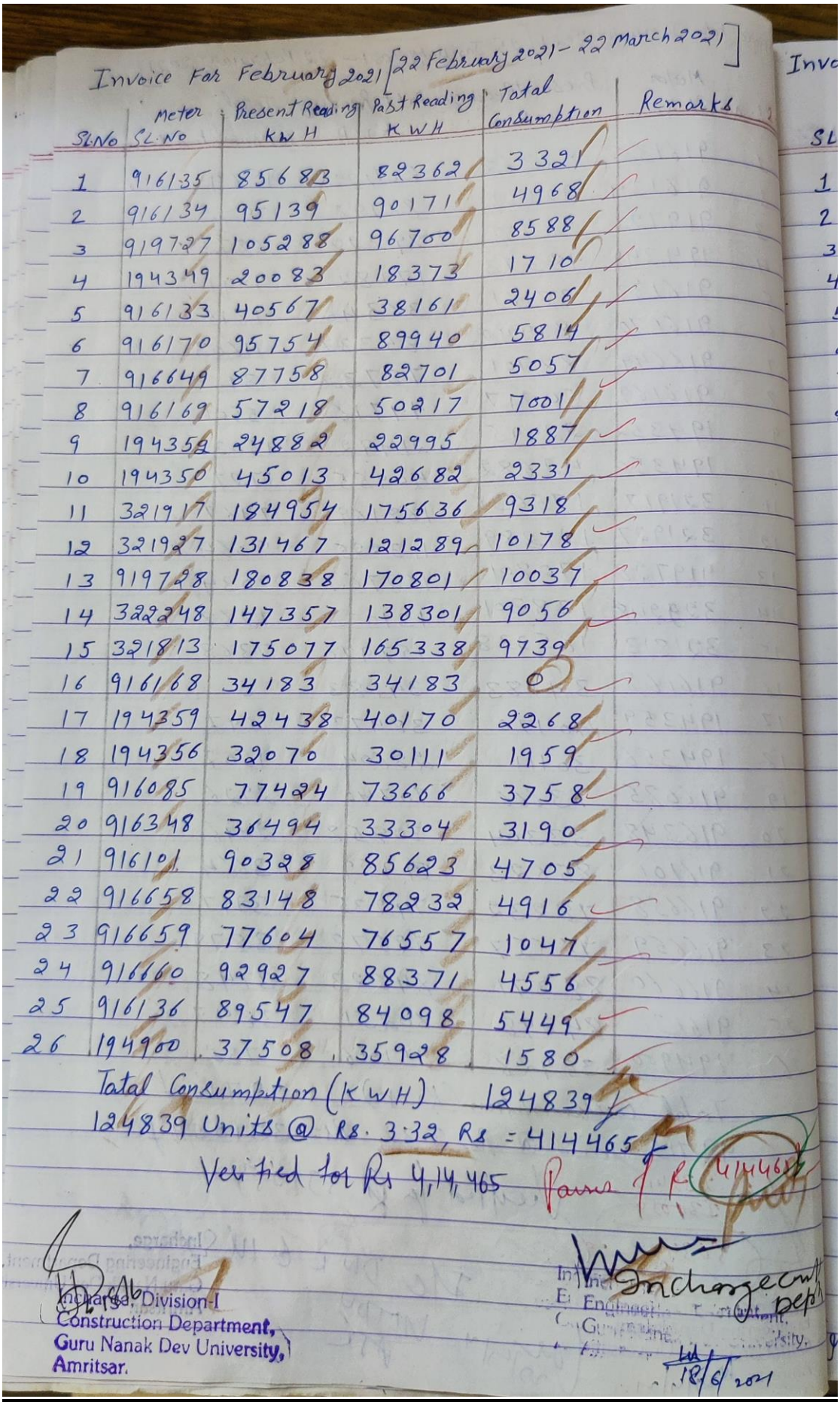
Rs. 232417
331054
563471

Verified for Rs 331054

Incharge Div-I
Engineering Department,
Guru Nanak Dev University,
Amritsar 29/4/21

I/C DWK & IUCSA

Incharge,
Engineering Dep
Guru Nanak Dev
Amritsar.



Invoice For February 2021 [22 February 2021 – 22 March 2021]

Sl.No	Meter Sl.No	Present Reading KWH	Past Reading KWH	Total Consumption	Remarks
1	916135	85683	82362	3321	
2	916134	95139	90171	4968	
3	919727	105288	96700	8588	
4	194349	20083	18373	1710	
5	916133	40567	38161	2406	
6	916170	95754	89940	5814	
7	916649	87758	82701	5057	
8	916169	57218	50217	7001	
9	194352	24882	22995	1887	
10	194350	45013	42682	2331	
11	321917	184954	175636	9318	
12	321927	131467	121289	10178	
13	919728	180838	170801	10037	
14	322248	147357	138301	9056	
15	321813	175077	165338	9739	
16	916168	34183	34183	0	
17	194359	42438	40170	2268	
18	194356	32070	30111	1959	
19	916085	77424	73666	3758	
20	916348	36494	33304	3190	
21	916101	90328	85623	4705	
22	916658	83148	78232	4916	
23	916659	77604	76557	1047	
24	916660	92927	88371	4556	
25	916136	89547	84098	5449	
26	194900	37508	35928	1580	

Total Consumption (KWH) 124839

124839 Units @ Rs. 3.32, Rs = 414465

Verified for Rs 4,14,465 Paid Rs 414465

Incharge, Division-I
Construction Department,
Guru Nanak Dev University,
Amritsar.

Incharge Civil Dept
Executive Engineer
Construction Department
Guru Nanak Dev University
Amritsar
18/6/2021

Invoice For March 2021 [22 March 2021 - 23 April 2021]

Sl.No	meter Sl.No	Present Reading KWH	Past Reading KWH	Total Consumption	Remarks
1	916135	91504	85683	5821	
2	916134	102083	95139	6944	
3	919727	119510	105288	14222	
4	194349	22909	20083	2826	
5	916133	44202	40567	3635	
6	916170	104158	95754	8404	
7	916649	94823	87758	7065	
8	916169	67144	57218	9926	
9	194352	27821	24882	2939	
10	194350	48338	45013	3325	
11	321917	198059	184954	13105	
12	321927	145574	131467	14107	
13	919728	194988	180838	14150	
14	322248	160221	147357	12864	
15	321813	188532	175077	13455	
16	916168	34183	34183	0	
17	194359	45775	42438	3337	
18	194356	35650	32070	3580	
19	916085	83013	77424	5589	
20	916348	40825	36494	4331	
21	916101	97518	90328	7190	
22	916658	90060	83148	6912	
23	916659	81260	77604	3656	
24	916660	99747	92927	6820	
25	916136	92684	89547	3137	
26	194900	40219	37508	2711	

Total Consumption (KWH) - 180051/-

180051 Units @ Rs-3.32, Rs= 597769/-

Verified for Rs 597769/-

Incharge, Division-IV
Construction Department,
Guru Nanak Dev University,
Amritsar.

Annexure – V

Total Electricity usage on Campus:-

Category	Consumption (kwh) Monthly for 12 Months
Department Wise	232589.75x12 = 2791071kwh
Residential Area	77344.83x12 = 928138 kwh
Utilities	200941.75 x 12 = 2411301 kwh

Bifurcation of Electricity for Different Purposes if Possible

Category	Consumption (kwh) Monthly for 12 Months
Lighting	64074 x 12 = 768888 kwh
Cooling	315194 x 12 = 3782328 kwh
Water Pumping	61560 x 12 = 738720 kwh
Wastewater Treatment	32940 x 12 = 395280 kwh
Any Other	37108 x 12 = 445296 kwh

Information About Electricity Cuts:_____ her on_____ days

Alternative Sources of electricity Generation

Source	**Capacity/ Number**
Solar	Nill
DG Sets	500 kva x 2 nos 380 kva x 2 nos
Inverters	500 watt x 150 nos
Others	Nill
Stationary Combustion (DG sets):- Fuel Consumed is DG sets to produce electricity_____1100Litre_____(monthly)	

Incharge Division-IV
Construction Department,
Guru Nanak Dev University,
Amritsar.

Light Load Detail

Street Light Details

S.No.	Lightfitting	Nos	Running Hrs for 12 month	Energy (kwh) for 12 month	Remarks
1	LED 60/70 watt	202	3650	47925	Replaced for Sodium 150 watt
2	LED 60 watt	95	3650	20805	New installed
3	LED 45 watt	133	3650	21845	Replaced for old and new installed
4	LED 25 watt	45	3650	4106	Replaced for FTL 40 Watt
5	FTL 1x40 watt	60	3650	8760	Old Fitting
6	Sodium 70 watt	220	3650	56210	Old Fitting

Incharge, Division IV
Construction Department,
Guru Nanak Dev University,
Amritsar.

Building Light Details

S.No.	Category	Light fitting	Power KW	Nos	Running Hrs for 12 month	Energy (kwh) for 12 month
1	Girl Hostel 1,2,3,4,	FTL 1x40 watt	100	2000	1248	124800
		LED 20 watt		1000		
2	Boy's Hostel 1, 2, 3	FTL 1x40 watt	100	2000	1248	124800
		LED 20 watt		1000		
3	Total Deptt.	FTL 1x40 watt	136.5	2500	2304	276480
		LED 20 watt		1000		
		Other Fitting 23 - 42 watt	15	500	2304	34560
4	Residential Area		135 / Per day	360 day Hrs		48600

Cooling Load Detail

AC Load Detail

S.No.	Category	Nos	Power KW	Running Hrs for 12 month	Energy (kwh) for 12 month
1	Ac - 2 Ton	64	192	792	152064
2	Ac - 1.5 Ton	658	1480.5	792	1172556
3	Ac - 1.5 Ton	400	900	1248	1123200
4	Ac - 1 Ton	5	750	792	5940

AC Plant Load Detail

S.No.	Plant capacity	Power KW	Running Hrs for 12 month	Energy (kwh) for 12 month
1	6 x 5.5 = 33 Ton	49	80	3920
2	11 x 3 = 33 Ton	49	80	3920
3	12 x 4 = 48 Ton	72	120	8640
4	16.5 x 10 = 165 Ton	247.5	40	9900

Water Cooler Detail

S.No.	Water Cooler 150 Lt	Power KW	Running Hrs for 12 month	Energy (kwh) for 12 month
1	182 Nos	273	360	98280

Desert Cooler

S.No.	Desert Cooler	Power KW	Running Hrs for 12 month	Energy (kwh) for 12 month
1	150 Nos	22.5	1152	25920

Refrigerator Detail

S.No.	Refrigerator 150/300 Lt	Power KW Per Day	Total Days	Energy (kwh) for 12 month
1	Deptt. 163 Nos	163	365	59495
2	Res:- 450 Nos	450	365	164250

Fan Load Detail

S.No.	Category	Nos	Power KW	Running Hrs for 12 month	Energy (kwh) for 12 month
1	Girl Hostel	1200	120	1456	174720
2	Boy's Hostel	1200	120	1456	174720
3	Residential Area	1000	100	1680	168000
4	Deptt	3000	300	1456	436800

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Waste water Treatment Plant

S.No.	Category	Power KW	Running Hrs for 12 month	Energy (kwh) for 12 month
1	Disposal Water Plant	122	3240	395280

Water Supply

S.No.	Category	Power KW	Running Hrs for 12 month	Energy (kwh) for 12 month
1	Water pumps 50hp x 5 nos 30 hp x 2 = 310 hp	228	3240	738720

Solar Water Heater Detail

S. No	Category	Capacity (Litre)
1	Boy's Hostel - 1	6500
2	Boy's Hostel - 2	3500
3	Girl's Hostel - 1	3500
4	Girl's Hostel - 2	6100
5	Girl's Hostel - 3	6000
	Total	**25600**

Annexure – VI

DG Details			
Rating (kVA)	No Of DG		
500 KVA	2		
380 KVA	2		
Total No of DG	HSD Consumption (Ltr)/Year 2017-18	HSD Consumption (Ltr)/Year 2018-19	HSD Consumption (Ltr)/Year 2019-20
4	27835	17450	12965

Annexure – VII

GURU NANAK DEV UNIVERSITY, AMRITSAR

(Established by the State Legislature Act No. 21 of 1969 and University with Potential for Excellence recognized by UGC)

OFFICE OF DEAN STUDENTS' WELFARE

No. 1443/DSW

Date 23-4-2021

Ref : Your email dated 20.04.2021 regarding LPG consumption in the hostels messes and canteens for the year 2017-18 to 2020-21.

With reference to your above said email, the LPG consumption in the hostels messes and canteens for the year 2017-18 to 2020-21 is as below:

LPG Cylinders consumed in Mess (Approx.)					
		2017-18	**2018-19**	**2019-20**	**2020-21**
1	Boys Hostel-1 (Mess No. 1)	625	625	625	185
2	Boys Hostel-1 (Mess No. 2)	625	625	625	465
3	Boys Hostel-2 (Mess No. 1)	550	590	700	200
4	Boys Hostel-2 (Mess No. 2)	750	800	830	240
5	Boys Hostel-3 (Mess cum Canteen)	360	540	900	175
6	Girls Hostel-1	660	660	495	225
7	Girls Hostel-2	605	605	530	225
8	Girls Hostel-3	650	650	585	180
9	Girls Hostel-4	730	690	520	341
	Total	**5555**	**5785**	**5810**	**2236**
LPG Cylinders consumed in Canteens(Approx.)					
1	Boys Hostel-1 (Canteen No. 1)	170	170	170	37
2	Boys Hostel-1 (Canteen No. 2)	170	170	170	110
3	Boys Hostel-2	350	335	370	64
4	Girls Hostel-1	86	86	54	15
5	Girls Hostel-2	180	132	72	8
6	Girls Hostel-3	49	120	80	4
7	Girls Hostel-4	No Canteen			
	Total	**1005**	**1013**	**916**	**238**

Lockdown was imposed in the Month of March 2020 so Canteens and Messes were closed from March 2020 to November 2020.

In the year 2017-18 Canteen Contractor of the Hostel No.4 had changed, so the information can not be given. Canteen of Girl Hostel-4 was closed from 2018-19 to 2020-21.

(Prof. Anish K. Dua)
Dean Students' Welfare

O.S.D. (Vice-Chancellor)


ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ
GURU NANAK DEV UNIVERSITY

Power Purchase Agreement

Azure Power Rooftop One Pvt. Ltd, New Delhi
and
Guru Nanak Dev University, Amritsar, Punjab

Prepared by:
Internal Quality Assurance Cell, Guru Nanak Dev University, Amritsar