SHIV NADAR
INSTITUTION OF EMINENCE DEEMED TO BE UNIVERSITY
DELHI NCR

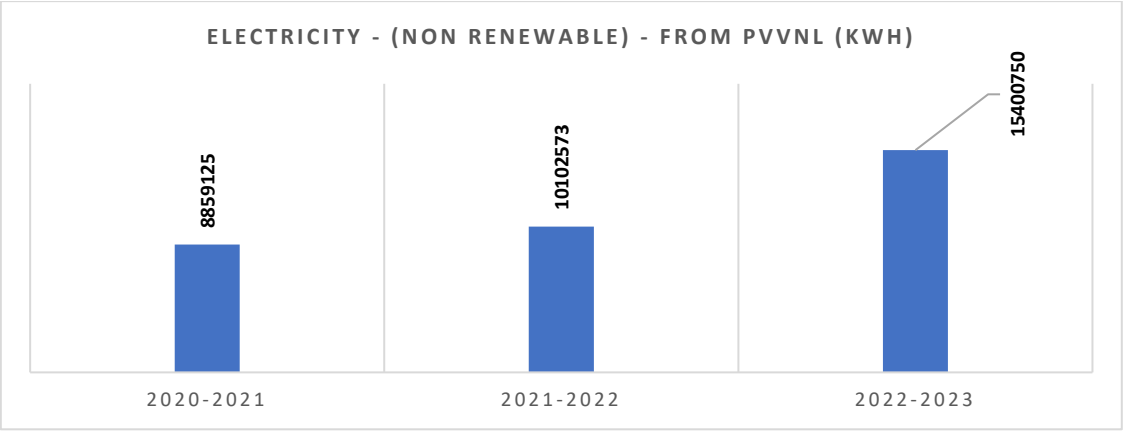
Energy Consumption Analysis and Energy Conservation Plan

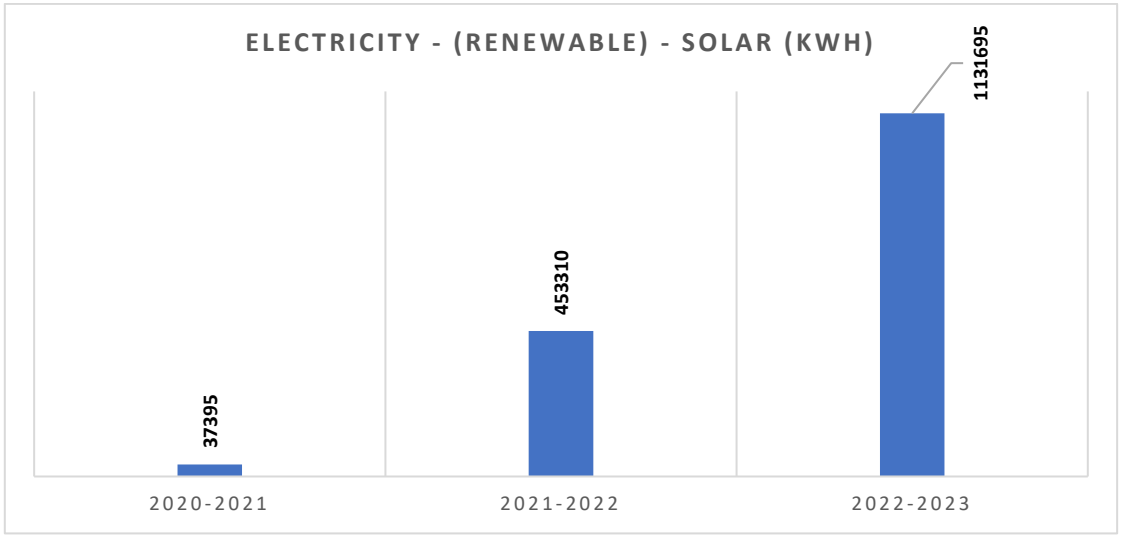
Shiv Nadar University is committed to judicious energy usage and increasing energy efficiency. To identify areas of high energy usage, an energy consumption analysis of the university is performed, and then areas of concern are discussed, and solutions are worked upon.

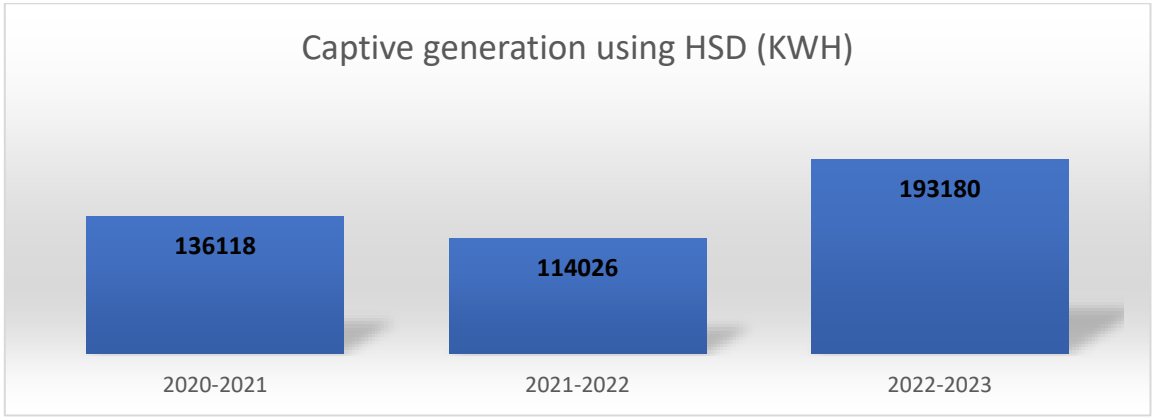
Committed to judicious energy usage and optimization through energy-efficient equipment and practices in its operations, energy conservation targets are agreed upon with the university management each year, and the performance against the agreed targets is tracked throughout the year. Performance is reported to management in periodic reports. Cross-functional teams across various functions, including representation from Teaching, nonteaching, Faculty, Staff, and Students, are formed, and they are encouraged to identify the opportunities for energy optimization. Multiple projects, including Zero Cost Improvements (ZCI), are identified, and teams are encouraged to execute them to drive tangible gains. Technological and process interventions are undertaken, including transitioning to low energy-consuming equipment across functions to help achieve the agreed targets. Further, strategic initiatives are also undertaken with the approval and support of the management to transition to “Clean Power” and reduce the dependence on “fossil fuel” to create energy on campus.

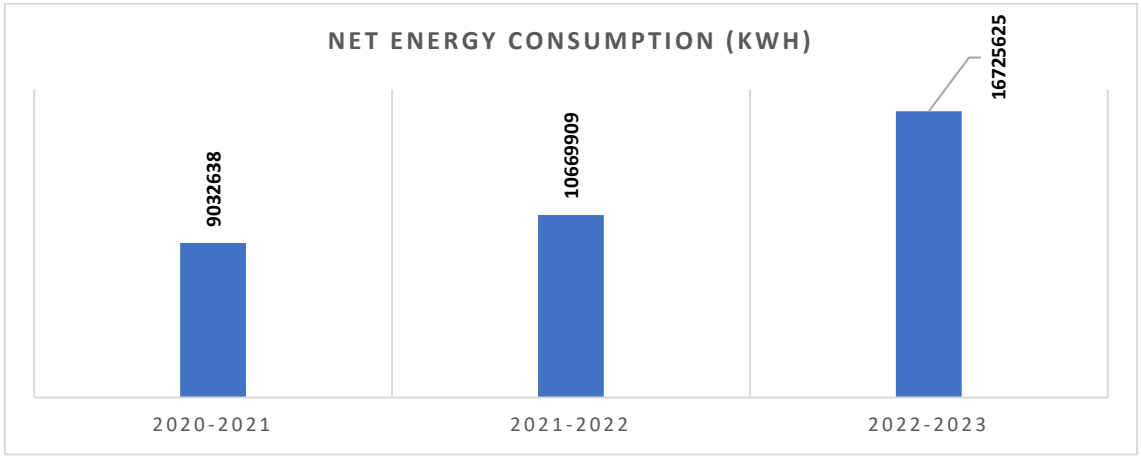
Data is available to reflect the transition in the desired direction.

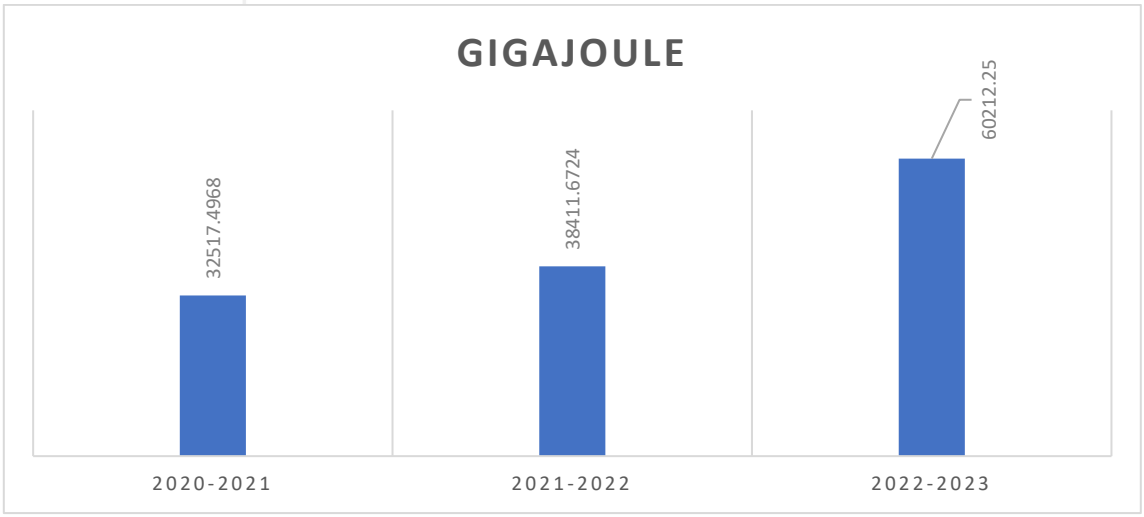
Financial Year	Grid Non-Renewable/ PVVNL (KWH)	Electricity - (Renewable) - Solar (KWH)	Captive generation using HSD (KWH)	Net Energy Consumption (KWH)	Gigajoule (Gj)
2020-2021	8859125	37395	136118	9032638	32517.4968
2021-2022	10102573	453310	114026	10669909	38411.6724
2022-2023	15400750	1131695	193180	16725625	60212.25




ELECTRICITY - (RENEWABLE) - SOLAR (KWH)
37395
453310
1131695
2020-2021
2021-2022
2022-2023


Captive generation using HSD (KWH)
136118
114026
193180
2020-2021
2021-2022
2022-2023


NET ENERGY CONSUMPTION (KWH)
9032638
10669909
16725625
2020-2021
2021-2022
2022-2023



There appears to be a notable increase in the total energy consumed in the current submission compared to last year. The reason is that the university was not fully functional during the previous two reporting years due to the second wave of COVID-19. For significant periods, the campus was under a government-mandated lockdown. Accordingly, as expected, the last two years had unusually low energy consumption. With the university back in full capacity and operation since October 2022 and increased campus populations, built-up area, number of 24/7 AC labs, and extreme weather conditions, energy consumption has increased.

Current achievements for increasing energy efficiency

1. The university conducts energy consumption reviews to identify further opportunities for improvement in energy conservation.

2. A 33kV substation was installed in September 2017. With power uptime above 99%, this initiative saves approximately Rs. 2.5 crore annually by reducing the need for HSD procurement.

3. Motion sensors have been installed in all toilets across academic and hostel areas.

4. Conventional CFL/T5 light fixtures are being replaced with LED fixtures. This project is 90% complete in hostel areas and fully complete in academic areas.

5. Battery-operated urinal sensors have been converted to electrical sensors, reducing battery consumption.

6. Solar water heaters are installed in the hostel.

7. Timers and daylight photo sensors are used to operate external lighting.

8. AC fans are replaced with DC BLDC fans.

9. The university buildings are IGBC LEED certified, with measures implemented to:

- Increase energy efficiency,

- Install solar power plants, and

- Enhance natural lighting and ventilation.

Plans for energy efficiency in new buildings and renovations in buildings:

1. Addition of energy-efficient lighting in new buildings
2. Review, analysis, and refurbishment of Labs for safety of operations and environmental conservation.
3. Carbon Neutral efforts and computation.
4. A comprehensive Building Management System (BMS) for the chiller plant (high side), air handling units, and ceiling-suspended units to monitor energy usage closely and take necessary actions for energy conservation.