Shiv Nadar Institution of Eminence

# Plan to reduce energy consumption

Objective: Shiv Nadar University is committed to reducing energy consumption through judicious energy usage, increasing energy efficiency, identifying and eliminating wastage and energy conservation. The goal is to optimize through energy-efficient equipment and practices in all operations, and consumption reduction targets are agreed upon with the university management each year. The Carbon Footprint report tracks the performance in periodic reports. As part of the Government of India's Net Zero Campus initiative, a Net Zero plan is also being worked upon.

Activities Undertaken

Cross-functional teams across various functions, including representation from Faculty, Staff, and Students, are formed, and encouraged to identify the opportunities for energy optimization. Multiple projects, including Zero Cost Improvements (ZCI), have been 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" for the energy needs of university operations.

1. Carbon Footprint Reports

Carbon Footprint computation is one such initiative which is undertaken by the university covering all academic, non-academic, sports, recreational, biodiversity and residential activities at the campus. This being an annual exercise, the CFP is computed, and analysis is undertaken to reflect the key elements contributing to the overall emissions and then identify specific initiatives which could be planned and executed to drive the university to a sustainable and green campus in true sense. Undertook carbon footprint determination and analysis of changes in trend to identify further opportunities for improvement and roll out projects.

2. Enhancing Energy Efficiency

There are systems and processes in place for continually reviewing campus energy use and identifying opportunities for improvement to update our energy consumption analysis and conservation plan. As a part of our Energy Consumption Analysis and Conservation Plan, we review our energy use continually to identify opportunities for improvement. To document the energy consumption of each building, electricity meters are installed in every building,

and a complete analysis of energy consumption is reported every month in the "Energy Performance Index Report." This helps to check waste continuously.

Many energy-efficient appliances have been incorporated, such as:

- Energy Optimization Monitors in our LEED and IGBC- Gold certified building with integrated sensors, IoT devices, and automation systems for optimized energy use and reduced overall environmental impact
- Modular sewage treatment plant technology is installed on campus and has a capacity of 734 KLD. The STP currently treats 550 KLD of water from the entire campus, including campus housing.
- Monitoring platforms installed to track energy usage, waste generation, water consumption, and other sustainability metrics to enable informed decisions for continuous improvement
    - 1.6 MW solar panels installed on campus across academic and residential blocks to transition from complete captive power and generate clean, sustainable energy on campus
- Energy-saving policy embraced, replacing 11 KV grid power with a 33 KV grid power supply and removing the need to run standby power through diesel generators.
- Increase energy efficiency.
- Ensure water-efficient processes.
- Implement natural lighting and ventilation.
- Display of signages to increase awareness about rules regarding energy conservation and promotion of conscious energy usage.
- Installation of solar power plants.
- Installation of rainwater harvesting system.
- The electrical fitting and fixtures are designed to ensure optimum utilization of the energy while ensuring conformance with occupational health and safety guidelines, to which the university is certified.
- HVAC design: The selection of HVAC systems for new buildings is undertaken with due consideration for the selection of more effective and efficient HVAC systems, including environmentally friendly refrigerants with low Global Warming Potential and related emission factors like R290, R600, and R32, to name a few.
- Ensure water-efficient processes.
- Implement natural lighting and ventilation.
- Display of signages to increase awareness about rules regarding energy conservation and promotion of conscious energy usage.

3. Clean Energy

- We have undertaken an initiative to transition to clean energy sources on campus. As part of this, a 1.6 MW solar power plant is installed and commissioned on campus that takes care of as much as 26 percent of the needs of the campus. The goal is to go to 30 percent and beyond.

4. Water conservation, through:

- Careful consideration is given to plumbing and piping design, as well as equipment selection, to ensure the use of optimal water-saving equipment on the campus, including taps, showerheads, urinals, shunting systems, etc.
- Installation of rainwater harvesting system.

5. Alternative Mode of transport to achieve sustainable transportation

- Effective electric vehicle infrastructure on campus to transition 50% of the car fleet to electric vehicles, increase mobility on campus, and reduce carbon footprint and dependency on fossil fuels.
- We are a residential campus for all students and many faculty members. For those who stay outside the campus, a well-planned transport system is in place, and employees are encouraged to be sensitive to their use and optimize their air and road travel.
- For weekly needs, planned shuttles are provided. To transition to clean power and reduce dependence on fossil fuels, we plan to transition 50% of the car fleet to electric vehicles. The university currently has 60% CNG, 30% petrol, and 10% diesel cars. The plan is that any new inventory added to this would be an electric vehicle.
- On campus, we use sustainable transportation options such as walking, biking, carpooling, and public transit. We have a fleet of E-buses and Golf carts with over 150 seating capacity. This, in turn, has helped increase mobility on a large campus like ours and is also a step towards reducing the carbon footprint and dependency on fossil fuels.

6. Preserving biodiversity

- During the development processes, it is ensured that biodiversity (including flora and fauna) and the terrestrial ecosystem are taken into consideration. The university does not remove old or native trees planted previously and steps are taken to ensure its continued survival.
- The old Date Palm Forest was left intact during the construction phase, and it is a restricted area to protect and conserve the natural habitat of the associated wild species.

- The Natural Lake area is restored and managed to provide a safe habitat for a wide variety of aquatic animals and plants.
- Water-conscious plants are planted in all building blocks.
- Tree plantation and sequestration activities are carried out regularly.

7. Tree plantation

   We signed a Memorandum of Understanding (MoU) with the Greater Noida Industrial Development Authority (GNIDA) on June 2, 2019. Under this MoU, the University has agreed to adopt the green area on behalf of GNIDA. This area is called Veer Savarkar Chowk.

   Since then, we have developed and maintained the green area, cultivating flower beds, trees, shrubs, and community gardens. Besides, we have regularly maintained the area by raking leaves, picking up litter, removing graffiti, pulling weeds, and bearing the total cost of this maintenance.

   To date, we have planted 160 trees, 1107 shrubs, and 5175.63 sqm of grass with a survival rate of 95%

Annexure: CFP report 2024