Vignan's Foundation for Science, Technology & Research (Deemed to be University)

ENERGY POLICY

VIGNAN'S
Foundation for Science, Technology & Research
(Deemed to be UNIVERSITY)
-Estd. u/s 3 of UGC Act 1956

Vadlamudi, Guntur District - 522213

Background

VFSTR spends each year on essential utilities, including electricity, natural gas, and water. The unit price of all forms of energy is generally expected to continually increase in the future. Every rupee we save, rather than spending on utilities, we can apply toward:

- Improving the academic programs of the university
- Improving the quality of our buildings and grounds
- Avoiding potential cutbacks in faculty and staff positions
- Limiting potential increases to student housing costs

Spurred by a number of factors – including rising utility costs, tighter budgets, a growing emphasis on the need to conserve our limited natural resources, VFSTR is dedicated to reducing the energy use of our campus. Despite significant growth in both enrolment and facilities over the past decade, VFSTR has managed to decrease its energy consumption by performing energy efficiency upgrades and investing in technology. Through the efforts of the VFSTR Facilities and Planning Department and the Energy Conservation Committee, many technological upgrades have been made which have had a significant impact on reducing VFSTR's annual energy usage and costs. The Action Steps contained in this Energy Conservation Policy are easily implemented steps that every VFSTR community member can take to conserve energy, reduce VFSTR's annual energy costs, and benefit the environment.

Action Steps

The following action steps are hereby incorporated into the VFSTR Energy Conservation Policy and reflect best management energy conservation practices intended to reduce the campus's energy use by consciously using less energy where less is needed.

Action Step 1:
Reduce Artificial Lighting Energy Use

Employees and students shall endeavour to reduce the amount of energy associated with artificial lighting in all University facilities by:

i. Maximizing the use of natural lighting, turning off unessential lighting, and using task lighting whenever possible.
ii. Minimizing the use of artificial lighting by turning off lights when leaving a space, no matter how long they plan to be gone.
iii. Using energy efficient Lamp Types where financially feasible. As incandescent bulbs are being phased out, all new indoor lighting shall be fluorescent, compact- fluorescent or LED.

iv. Establish late-night hours when unessential (non-safety or security related) landscape or architectural lighting is turned off. Personal safety shall not be compromised from lighting energy reduction decisions.

Action Step 2:
Reduce Energy Use of Computers & Office Equipment

All users of computers, projectors, and other electronic equipment are encouraged to practice the following energy-saving practices:

i. **Power Down** – Computers, projectors and monitors should be turned off when not in use. Other office equipment (e.g. copiers, faxes, & shredders) should be placed on standby when not in use and turned off at the end of the work day, and in particular, during the weekend and/or holiday periods.
ii. **Computer Sleep Mode** - Energy savings features should be enabled within 15 minutes or less of inactivity.
iii. **Management Software** - Computer management software should be enabled to minimize the operation and consumption of electricity when computers and projectors are not in use.
iv. **Unplug** – Equipment chargers, electronics, and unessential devices should be unplugged when not in use to prevent "vampire" energy consumption.

Action Step 3:
Use Energy-Conserving Practices in Controlling the Interior Environment

Use the campus Building Automation System to apply standard thermostat set points to all University buildings, whose Heating, Ventilation, and Air Conditioning (HVAC) systems have the ability to maintain reasonable temperature control. This can be attained as follows:

i. **Summer Set points** - During the air-conditioning season, room thermostats will be set at 20-21 degree Celsius during the "occupied" mode, meaning the room temperature should be maintained between 24-25 degree Celsius when occupied. Whenever it is economically and technically feasible, without adversely affecting processes such as printing or critical laboratory functions, night set-up features of the Building Automation System will be utilized to allow temperatures to rise to 25–32 °C during unoccupied periods.
ii. **Ventilation** - Doors and windows are generally designed to be kept closed at all times and should not be opened to alleviate cooling problems in the buildings. Furnishings should not block cooling vents nor should devices be placed near thermostats that would affect the space temperature sensed.

Action Step 4:
Adoption of Solar Power as alternate source

i. State of art solar generation is adopted at rooftop of all the blocks of university buildings. Total generation is 1MWp which is grid interactive.

Action Step 5:
Implement Sustainable Purchasing Procedures

i. **Energy Star** - University employees may purchase only Energy Star certified products for all authorized appliances and equipment where this rating exists.

Action Step 6:
External Audit on Energy consumption

i. VFSTR has a best practice of conducting regular audit every year on energy consumption through an External agency. A detailed report will be given about the measures to be taken for efficient use of energy.

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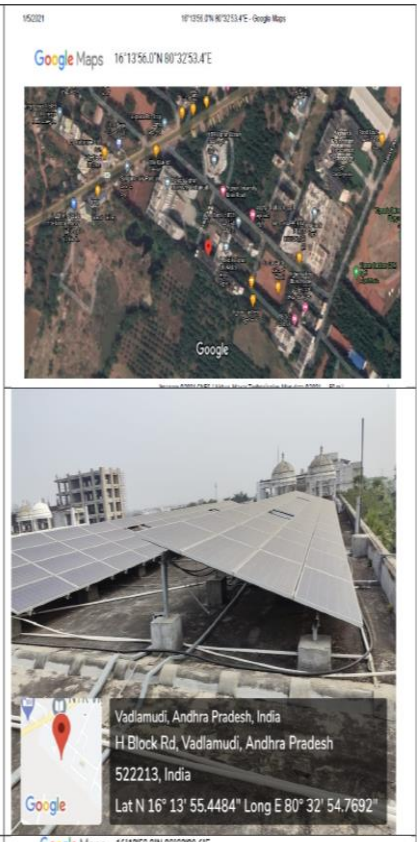
1. Energy Conservation Practices at VFSTR

1.1 Solar Energy:

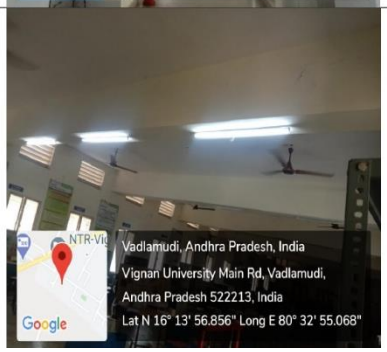
The campus has adopted a very sustainable approach towards energy consumption. While the architecture of the campus is such that natural sunlight and ventilation can be availed to its maximum. VFSTR utilizes about 61% energy from grid supply and 39% from 1MW solar PV Power plant solar power plant which was installed and became operational in 2018 (Figure 1). The efficient use of LEDs, smart sensing ACs are also in action at the campus to reduce energy consumption.

JC BOSE – Block – VFSTR campus Google map location with Solar Plant photo

Visvesvaraya Block – VFSTR campus Google map location with Solar Plant photo



Vignan Vihar Hostel – VFSTR campus Google map location with Solar Plant photo

Aryabhatta Block – VFSTR campus Google map location with Solar Plant photo	 		
Priyadharshini Hostel – VFSTR campus Google map location with Solar Plant photo		LED Lights	 

Sensor Based Control	

1.2 Biogas Plant

Vignan's Foundation for Science, Technology and Research, Vadlamudi, is a technical educational institute in the state of Andhra Pradesh with a great emphasis on providing eco-friendly and green campus environment to students and faculty. As an additional feather on the cap, in the year 2018, an idea of establishing industrial scale Biogas plant within the University campus was initiated. The generated organic waste is converted into biogas in the BioUrja-1000KPD which was inaugurated on December16th, 2018.

To make a clean, green, and eco-friendly campus, the department of Biotechnology with the immense support of the administration, have procured and commissioned Biogas Plant, BioUrja-1000 KPD at a total cost of Rupees 65.00 Lakhs which was supplied by M/S GPS Renewables Pvt.Ltd., Bengaluru. The VFSTR caters about 3000 residential students. The food for Students is being served four times a day. The food waste and the organic kitchen waste generated in three hostel kitchens will be completely converted into bioenergy using the Biogas plant. The capacity of the installed Biogas plant is to digest 1000 kg of food waste per day. The biogas yield is ~70 kg of LPG equivalent per day.

Biogas Plant