



Shoolini University

7 AFFORDABLE AND
CLEAN ENERGY



ENERGY EFFICIENT
BUILDING
STANDARDS



REPORT- 2022

Shoolini University of Biotechnology and Management Sciences, Bajhol, Solan, Himachal Pradesh- 173229

Initiative on Solar Photovoltaic power generation -Installation of a 400 kWp Grid Connected Solar Photovoltaic Power Plant



400 kWp grid-connected Solar photovoltaic power plant

An initiative under United Nations Goals 7 and 13 Solar Energy is harnessed through Solar Photovoltaic panels installed on the rooftops of the University building blocks, hostels, and car parking. The University campus is connected to the main grid operated by HP State Electricity Board (HPSEB). The solar electricity generated is used to meet the partial energy needs of the University. The electrical energy used by the university was 6,422 GJ and that generated by the solar PV plant was 1476.4 GJ offsetting about 3,34,237 kgs of CO₂ in 2022.

Concentrated Solar Steam-Generating Cooking System



Solar steam cooking system

A solar steam-generating cooking system (Scheffler Type) is installed on the rooftop of the Girl's hostel at Shoolini University. The system is based on the concentrated solar technology. The solar radiation falling on the dish is concentrated onto a receiver, which heats the water and converts it into steam to cook food for 500 female students residing in the hostel saving about 2 LPG gas cylinders every day thus saving conventional fuel and money. The system is also used as a research facility by the Ph.D. student to design and monitor the performance of the CSP system.

Solar water Heating Systems for Hostels



Water heating system on the university campus.

Solar water heating systems with a capacity of 38,000 liters per day have been installed on campus, further reducing CO₂ emissions. Solar flat plate collectors and evacuated tube collectors are installed in all hostels of the University to provide hot water daily for hostel residents.

Reducing fossil fuel consumption and carbon dioxide emissions use of electric carts for local transportation on the campus



The university has introduced three electric carts for local transportation for students, faculty, and visitors inside the university campus to restrict the movement of personal vehicles inside the campus during working hours.

Bio-energy utilization - Use of biogas for Cooking from agriculture and Animal Wastes



Biogas plant for cooking installed in agriculture farm.

In order to utilize agriculture, cow dung, food waste, and kitchen waste, and promote the research and use of biogas as the fuel, the CEEST has installed a 1.5 m³ Plastic biogas system to demonstrate the use of non-polluting fuel in the agricultural farm of the University which is being used for cooking by the farm laborers.

Monitoring solar, wind, and other climate data for research



Automatic weather station installed to monitor changes in weather.

CEEST has installed a high-quality automatic weather station on the rooftop of the library building that monitors Global Solar Irradiance, Wind Speed, Wind Direction, Temperature, Relative Humidity, and Rainfall data as well as photosynthetic active radiation which are critical for 11 research and development of new Energy technologies, Climate Change related hence contributing towards research and development SDG-7 and SDG-13. The data are being used to boost the reliable research and development of renewable energy technologies, by utilization of renewable resources, and making plans for the sustainable township.

Installation of Solar Street Lights and Smart Sensor Lights



Solar street lamps to reduce usage of conventional energy sources

Shoolini University has installed about 42 solar streetlights of 40W capacity inside the campus for nighttime lighting purposes utilizing free Solar energy and saving conventional electricity. A number of smart sensor lights have also been installed that automatically turn off when not in use to save electricity.

Constructing Low-Carbon Footprint Buildings

Use of environment-friendly Building materials Under the mandatory Net Zero Energy and Passive Solar Housing Policy, the university has developed a Yoga Nanda Ville with a number of solar huts on the campus using sustainable building materials like wood, bamboo, slate, stone, mud, stabilized mud blocks.



Bamboo and slate Roof E-Studio for online lectures constructed during COVID-19 times.



The interiors of the green buildings at Shoolini University are also made of natural and sustainable materials for maximizing eco-friendliness. Ample windows are constructed for natural daylighting and minimal use of artificial lighting during the day. All lights used are energy-efficient LED lights.