



**AMITY**  
**UNIVERSITY**  
— HARYANA —

**NAAC 'A'**  
**GRADE**  
ACCREDITED UNIVERSITY

# REPORT ON SUSTAINABLE DEVELOPMENT GOAL

**7** AFFORDABLE AND  
CLEAN ENERGY



**YEAR 2021-22**



## PREAMBLE

The SDG 7: Clean and Affordable Energy report offers a summary of progress on energy access, energy efficiency, renewable energy, clean cooking, and international cooperation to advance SDG 7 at Amity University Haryana. The report provides updated statistics for each of the indicators emphasizing on the policy measures taken on priority areas and actions taken to implement the SDG goals. The progress in implementation of the SDG7 initiatives is majorly affected by COVID-19 pandemic and also by the steady rise in energy prices since summer 2021 which affected the prices of all commodities.

The Amity University Haryana has been awarded as India's first University and Asia's 2nd to earn LEED Platinum Certificate from US Green Building Council. The University is relentlessly contributing to transform the campus into a clean and green campus thereby contributing to the SDG 7 through following measures:

- Research, educational programs and collaborations focused on clean energy practices
- Green campus initiatives, measuring energy wastes & mitigation plan, energy efficient technology adoption
- Supporting Government of India in Renewable Energy policy implementation
- Integrating energy efficiency measures into University's policy framework
- Promoting energy conservation and energy efficiency through various outreach programs to local and regional community.



LED Lighting in Library



Glass façade for Daylight utilization



Agrivoltaic at AUH



Connectors between buildings to reduce energy consumption



Herbal Garden at AUH supported by APUSH

## TEACHING AND LEARNING

Education is the key that will allow attainment of Sustainable Development Goals (SDGs). When people are aware of the technology they can break free from the inefficient energy sources and adapt the clean energy sources for their energy needs.

To educate the young adults for adaptation of renewable and sustainable energy practices within and outside the AUH campus, AUH offers UG and PG courses in the field of renewable and sustainable energy viz. M Tech Solar and Alternate Energy, M Sc Renewable Energy, Bachelor of Architecture, Bachelor of Planning, Master of Planning.

Energy Auditing & Risk assessment of RE projects are also dealt in this program and students perform energy auditing of buildings and industry. An elective course- Renewable Energy Track is offered to all UG students across all programs to create awareness about the technology. Amity University has joined hand with GBCI to train and educate students to cater the upcoming industry need of green building by initiating an educational module; LEED Lab. LEED Lab is a unique academic initiative which integrates a policy framework to classroom activity to get desired outcome in arena of sustainable built environment.

Sno	Programes	School/Institute
1	M.Tech (Solar & Alternate Energy)	Amity School of Applied Sciences
2	M.Sc. (Renewable Energy)	
3	B.Sc. (Hons) - Earth Sciences	Amity School of Earth and Environmental sciences
4	M.Sc. - Environmental Sciences & Management	
5	Bachelor of Architecture #	Amity School of Architecture and Planning
6	Bachelor of Planning	
7	Master of Planning (Urban and Regional)	
8	B.Tech (Civil Engineering)	Amity School of Engineering and Technology
9	M.Tech (Civil Engineering)	

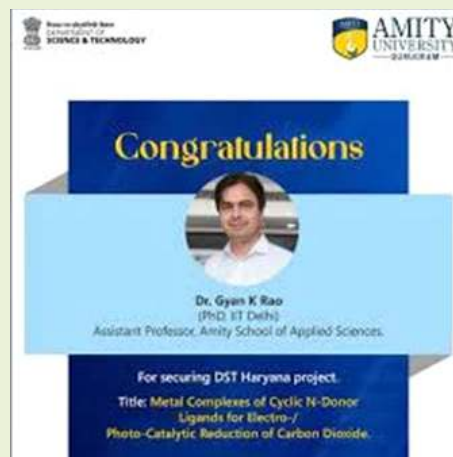
The students after completion of their PG programs are presently serving in the renewable energy sector in various job roles and contributing to the National Solar Mission of the country. The alumni are working in the Ministry of New and Renewable Energy as Young Professional, Solar Industry as Solar Designer, Solar PV Installation Engineers, or as Business Development Executives and also started their own entrepreneurial venture. Some of them are into active research and has taken up jobs as faculty members in the University.



## CLEAN ENERGY RESEARCH

The faculty members and students are involved in clean energy research which are funded by different Government & Non- Government Agencies viz. Sustainable use of unconventional fibers of Indian Himalayas for Agro Textiles ( funded by Ministry of Textiles), Development of Novel metamaterials using nanoferrite composites for microwave absorber application (funded by SERB), Metal Complexes of cyclic N-donor ligands for electro-/Photo-catalytic reduction of Carbon dioxide (funded by DST- Haryana), Green-synthesized nanoparticles dispersed liquid crystals for display applications (funded by SERB-SURE), Development of High-resolution future climate scenarios for the NCR region under climate change and urbanization (funded by SERB-SURE) and Development of Nanomaterials for High Density Application (funded by Global Affairs Office. Yuan Ze University) amounting to Rs. 20203948.

Air quality is monitored for all major air pollutants under SAFAR program at AUH jointly with IITM, Pune. It provides awareness about air quality among stakeholders of University. Apart from SAFAR, several other air quality parameters are also monitored jointly with NASA, USA.



### Parameters

#### Particulate Matter (PM)

- (i) PM<sub>1</sub> (Super-fine)
- (ii) PM<sub>2.5</sub> (Fine)
- (iii) PM<sub>10</sub> (Coarse)
- (iv) SO<sub>2</sub>
- (v) O<sub>3</sub>
- (vi) NO<sub>x</sub>
- (vii) NO
- (viii) NO<sub>2</sub>
- (ix) NH<sub>3</sub>

#### Volatile Organic Compounds (VOCs)

- (x) Benzene
- (xi) Ethyl Benzene
- (xii) Toluene
- (xiii) Xylene
- (xiv) m&p Xylene
- (xv) CO
- (xvi) CO<sub>2</sub>

#### Surface Meteorology

- (xvii) Wind Speed
- (xviii) Wind Direction
- (xix) Temperature
- (xx) Humidity
- (xxi) Pressure and
- (xxii) Rainfall

Front-view with data display of the AQMS and rack-mounted PM, Gas Analyzers and

## UNIVERSITY OPERATIONS: INFRASTRUCTURE, GOVERNANCE AND MANDATES

Energy transition and divesting investment from energy intensive systems to clean energy systems is a major step taken by Amity University Haryana to drive low carbon scenario in all its operations including academic delivery, administration, and maintenance. To ensure low carbon transformation, University is mandated through Sustainable Energy Policy and Building Commissioning Policy to ensure carbon neutrality in phase wise manner.

A 500 kWp rooftop solar PV system ensures mitigating 14145-ton CO<sub>2</sub> emissions and is equivalent to planting 22632 Teak trees over the lifetime. The Solar Plant Operates with Zero breakdown and generate Solar energy round the year. The University has a dedicated 33 KV independent feeder which is very stable have negligible breakdowns reducing utilization of DG sets ensuring control on carbon emission. Regular Emission analysis & Monitoring of DG sets is carried out to ensure low pollution. A plan has been taken to replace 240 Conventional Halogen Lamps of 400 Watt with 200 Watt LED Flood Lights having same illumination.



Rooftop Solar PV Plant at AUH



Biogas Plant at AUH

The replacement will be done in four phases (60 no each phase). After the first phase on replacement & installation of 50 LED flood lights, a savings of Rs. 195750/- has been estimated. A biogas plant is housed in the AUH farm which provides the energy requirement of the dairy.

University encourages uses of public transport for daily commuting of day scholars, faculty and staff. A large number of buses are maintained, which ensure less carbon footprint for remotely located campus like AUH. All vehicles entering University have "Pollution Under Control" certificate. Campus strictly follows "No Smoking Zone" principle.



Transport Facility at AUH



## ENERGY EFFICIENT BUILDINGS

Amity University Haryana (AUH) is situated in the picturesque 110-acre Amity Education Valley, in the close proximity of Gurgaon, one of India's biggest corporate hubs. Based upon innovation in design, location & transport, water efficiency, energy & atmosphere, sustainable site, indoor environmental quality and material & resources, Amity University Haryana building is accredited with LEED Platinum (highest rating for green building); 1st university building in India and 2nd only in Asia in operation and maintenance category.

University building contains series of sunken courts which reduce heat regime in summer and winter together which helps in minimising air conditioning energy consumption. All the buildings have multiple windows and glass facades to increase the daylight utilization and the roofs are painted with reflective paint to reduce the heat absorption by the building thereby reducing the heat load of the buildings. The building architecture, ramps, connectors between the buildings help in reducing the usage of lifts and electrical lightings.



AUH- Green Campus



## EVENTS AND SOCIAL OUTREACH

Plantation drive is an integral part of AUH system. Over 100 of different variety of native plants are grown on campus. AUH houses a herbal garden supported by Ministry of AYUSH which grows different types of medicinal plants and also conduct programs to educate the college and school children regarding the benefits of these plants <https://www.facebook.com/AmityUniversityGurgaon/videos/inauguration-of-ayush-amity-herbal-garden-and-launch-of-amity-institute-of-india/1538073999648496/>.



Plantation Drive at Amity University Haryana



## COLLABORATIONS FOR POLICY SUPPORT & COMMUNITY OUTREACH

Amity University Haryana has been awarded as a Partnering Institution for Unnat Bharat Abhiyan, a flagship program under the Ministry of Education. Under the UBA initiative, the faculty members, students and staffs had conducted serve in 5 selected villages and had also done a household survey using structured questionnaire provided by IIT Delhi in these villages accounting to 30% of the household in each of the villages. Meeting with village Heads (Sarpanch) has been conducted to establish relationship of mutual respect and conduct developmental work.



Interaction with Sarpanch at Fakharpur Village under Unnat Bharat Abhiyan







AUH is aware of its responsibilities to encourage people to adapt clean energy sources for sustainable development to minimize adverse environmental impact. Amity conducts local outreach program by its UG and PG students through Social Awareness Program to create awareness about the clean energy technologies and burning social & health issues which is a part of their course curriculum.



Solar Training for Women at Faizhawas Village Anganwadi by Students of ASET under Unnat Bharat Abhiyan

At AUH, an agrivoltaic plant has been developed partly under a 185kWp ground mounted solar PV power plant. Farmers from the villages were involved in developing the plant along with faculty members and students thereby sharing the knowledge to the stakeholders.



Agrivoltaic Plant Developed by faculty members in collaboration with local farmers at AUH

The United Nations Sustainable Development Goals (SDGs) are the focus of Amity University Haryana of Eminence. The four pillars of our approach to the SDGs are research, teaching, basic institutional practices, and collaborations.

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