NUML Climate Action Plan

Year 2021

Plan created on: May 28, 2021

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Climate Action Plan

1. Purpose:

The purpose of this plan is to reduce greenhouse gas (GHG) emissions with the goal of carbon neutrality. University recognizes that sustainability demands progress on multiple fronts and that lasting change cannot be achieved without coordinated efforts campus-wide.

2. Scope:

The policy applies to the whole University including its campuses and Rawalpindi Branch.

3. Indicators:

The plan is based on following indicators:

a. Energy-efficient buildings and its renovation
b. Upgradation of buildings to higher energy efficiency
c. Carbon reduction and emission reduction process
d. Reduction of energy consumption
e. Energy wastage identification
f. Renewable energy pledge
g. Fossil fuel divestment

a. Energy-efficient buildings and its renovation

University plans to establish measures and policies, which would battle the harms of climate change and will help achieve the goal of reducing emissions and provide a clean environment. University will ensure all renovations or new builds are following energy efficiency standards.

Following energy efficiency measures for energy consumption will be taken:

- Reduce heating demand.
- Reduce cooling demand.
- Reduce the energy requirements for ventilation.
- Reduce energy use for lighting.
- Reduce energy used for heating water.
- Reduce electricity consumption of office equipment and appliances.
- Arrange and organize training of personnel and specialists in the techniques for efficient use of energy in buildings.
- Promote research and development in the field.
- Formulate and facilitate implementation of pilot projects and demonstration projects for promotion of efficient use of energy in buildings.
- Promote use of energy-efficient processes, equipment, devices and systems.
- Promote innovative financing of energy efficiency projects.
- Create awareness and disseminate information for efficient use of energy in buildings.

b. Upgradation of buildings to higher energy efficiency

NUML will upgrade our existing buildings to have higher energy efficiency and we are currently working on that. University will estimate potential savings both in terms of

energy use and reduction of capacity. We will plan and work on energy efficiency through efficient energy consumption through following measures:

- Will involve architects and engineers for incorporating energy efficiency improvements in their designs.
- Will purchase energy-efficient equipment and systems. While gathering energy-efficient equipment requirements, test protocols and labelling rules will be established and enforced.
- Will opt for sustainable materials like cement sidings to make buildings weather and fire resistant. Will consider following energy-related choices after determining standardized measurements:
  - Thermal conductivity of insulation, thermal transmission qualities of windows, the heat capacity of building materials, the solar heat transmission qualities of windows, the visible light transmission of windows, the air and water movement output of fans and pumps, the efficiency of motors, heat transfer efficiencies of heaters for air and water, etc.

c. Carbon reduction and emission reduction process

University will improve the process for carbon management and reducing carbon dioxide emissions. University plans to take following actions for reduction of CO2 emissions:

- Installation of grid-connected solar panels in the campus. Measure the amount of low carbon energy used across the University.
- Installation of solar water heating systems in the campus.
- Introduction of electric carts (battery operated) in the campus for local transportation and it has restricted all other conventional petroleum/diesel-based mode of transportation inside the campus.
- Design and create bicycle routes to facilitate accessing the campus regionally, when traveling from perimeter shuttle lots and moving within the campus.
- Configure the campus to encourage and support pedestrian movement by offering efficient and safe pedestrian walks that lead to the campus and connect primary campus destinations.
- Initiate regular tree plantation in the campus and surrounding area.
- To increase fuel efficiency and reduction of CO2, purchase light-duty vehicles for transportation of staff and students.

d. Reduction of energy consumption

University will set university-wide standards and expectations to reduce overall energy consumption. The University will do the following:

- Establish and maintain practical thermal environments with appropriate illumination levels.
- Design environmentally compliant buildings and facilities to satisfy the requirements of the present while preserving resources for future.
- Purchase energy efficient hardware (computers, monitors, refrigerators, printers etc.).
- Instruct IT support staff in all departments to set all existing and new computers to hibernate after fifteen minutes of inactivity.

- Instruct all cleaning and security staff to turn off lights when they are done cleaning.
- Create model residence hall rooms, offices, labs and classrooms that incorporate energy efficient lighting and electronic equipment to show what environmentally sustainable rooms would look like.
- Encourage employees and students to suggest ways the University can reduce energy use. The person could be rewarded through a recognition program and also monetarily from an employee suggestion pool, with the amount based on how much their idea is estimated to save the University.
- Turn off lights when a room will be empty for 15 minutes.
- Don't turn on lights when there is adequate natural sunlight.
- Use task lights to reduce use of overhead lights.

e. Energy wastage identification

University will undergo energy reviews to identify areas where energy waste is highest. Through the patterns (or profiles) of energy usage contained within interval energy data, the University will discover where a building is wasting energy. The fine-grained detail of interval data (such as half-hourly data) is key to find how energy is being used.

If the profiles show energy being used on times or days when staff is not aware of a good reason for energy to be used, that's an indication that energy is possibly being wasted. Following points will be taken into consideration to identify energy waste:

- *Occupancy – when people come and go;* what are the core occupancy hours. Do certain staff stay on after the official closing time. Does anyone come in on weekends or holidays?
- *HVAC – heating, ventilation and air conditioning* - what fuels are used for heating (e.g. gas, electricity. Is there air conditioning - is it used just for cooling in summer, or is it used all year round (e.g. to keep equipment cool). How is the heating controlled. Is it on a timer. When is it set to switch on and off. Are there different timer settings for weekends and holidays. The upshot of this is that HVAC energy wastage can usually be identified from patterns of electricity consumption alone.
- *Lighting* - what controls when the lights come on and off. Are they automatically controlled, or are they turned on and off by the staff. Do lights remain on when they're not needed. Are there enough light-switches (for example, if one person is working late in a large open office, will they have to light the entire office just to light their desk).
- *Office equipment* - do staff turn their computers off when they leave work. Is there office equipment such as photocopiers / printers. Is it turned off when not in use.
- *Other energy-consuming equipment / processes* - what processes or items of equipment exist that use energy. What sort of energy do they use (e.g. electricity, or gas, or both). When do they use energy. When do the processes run. When is the equipment switched on and off.

f. Renewable energy pledge

University will promote a public pledge towards 100% renewable energy beyond the campus. The staff and faculty members will pledge to conserve energy, protect environment, and use clean renewable energy resources / systems to achieve United

Nations Sustainable Goal (SDG)# 7, "Affordable Clean Energy" and SDG# 13 "Climate Action" to NUML - a Green Campus and strive to make it a Carbon neutral university using 100% renewable energy by 2030.

g. Fossil Fuel Divestment

NUML discourages the utilization of fossil fuels, oil based public transportation inside the campus. The University has opted for fossil fuel divestment and is investing in climate change solutions to reduce carbon emissions in the campus. NUML encourages the utilization of alternate solar energy to generate electricity rather than electricity generated from coal based thermal power plants. University meets forty percent of the energy needs through solar energy (panels installed at various buildings of the campus).

The University plans to introduce electric carts inside the campus for public transportation, concentrated solar steam community cooking system and install more solar geysers in the cafeterias and hostels.

4. Roles & Responsibilities

	Roles (Tasks/Activities)	**Responsibilities**
a.	Energy-efficient buildings and its renovation	Director Technical
b.	Upgradation of buildings to higher energy efficiency	Director Administration
c.	Carbon reduction and emission reduction process	Director Technical
d.	Reduction of energy consumption	Director Administration
e.	Energy wastage identification	Director Technical
f.	Renewable energy pledge	Registrar
g.	Fossil Fuel Divestment	Director Administration