

CO<sub>2</sub>  
FOOTPRINT  
FOR THE PROSPEROUS FUTURE

TSUULL further intends to implement energy conservation plans by examining the university energy management thoroughly. All departments of the university evaluate its energy consumption precisely and make suggestions on its own potential to save energy all year round.

TSUULL is comparatively young university but it takes first place among other universities in region in using energy saving appliances. LED lamps are installed in every room, corridor and entrance, and even outside there are lamps which are energy efficient. As TSUULL is established in 2016, it has the latest gadgets (computers, laptops, projectors, smart boards) which use significantly less energy



TSUULL has been established relatively recently therefore all the appliances that operate with energy are with the energy saving function. Led Lights are installed all over the buildings but those in all seminar, practical training rooms, computer labs and ground floor of the main campus are with motion sensing function.

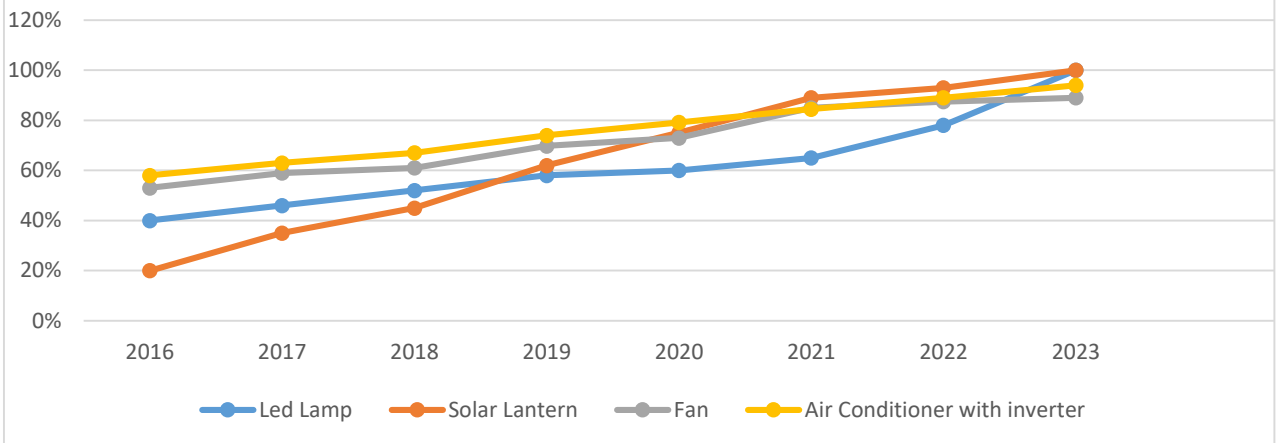


TSUULL uses solar panels efficiently to meet the electricity needs of the university dormitories. The panels are placed on the rooftop of both dormitories and absorb abundantly the sunlight in our climate and effectively convert it into direct current energy, transporting it ready to use to inverters inside the buildings.



All university computers are of recent production with energy saving and hibernation functions, air conditioners are with inverter, refrigerators, smoke sensors, dishwashers and washing machines are efficiently used by the dormitory residents and university dining hall staff.

### *Energy Efficient Appliances Usage in percentage*



Solar panels are installed on the rooftop of the main building and both of dormitories. The rated power generated by the solar cells makes up 9900 kW which is used for lighting and heating purposes all around the campus buildings; solar lights installed in the inner and outer yards are fully powered and function by the sunlight.

Ventilation Unit of the building which operates on biodiesel. The ventilation system of the university is considered one of the most powerful and it is extended all over the building. Since its operates vastly, the heat waste generates 3000 kW of power, which is used to heat the shower water in the dormitories.

Natural air ventilation system in big auditoriums and long corridors keep the spaces cool and supply fresh air to buildings by means of passive forces, in particular, by wind speed instead of using air conditioning system powered by energy.

***“TSUULL is recognized today as a leader in sustainability, in its academic and engagement endeavours, operational practices, and through supporting community and industry in their aspirations for leadership in sustainability. TSUULL is taking several impactful actions to halt CO2e emissions of carbon dioxide. The ambition of TSUULL is reduce environmental impact, promote sustainability and create economic growth.”***

For Example:

- TSUULL is organizing awareness campaigns and educational programs to educate students, staff, and the wider community about the importance of reducing CO2e emissions. This can include workshops, seminars, and educational materials that emphasize sustainable practices and the potential environmental impact. From 2022, TSUULL has set strict regulations against carbon emissions across the campuses. The number of shuttle buses has decreased to 9 from 11 buses and merely two university service cars are now entering campuses to run university errands.
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- Energy-efficient buildings: TSUULL implemented energy-efficient measures in its buildings such as installing insulation, using energy-efficient lighting. This will help reduce energy consumption and the associated CO<sub>2</sub>e emissions.

## **THE TOTAL CARBON FOOTPRINT (CO<sub>2</sub> EMISSION IN THE LAST 12 MONTHS, IN METRIC TONS)**

### **Data:**

#### **CO<sub>2</sub> (electricity)**

$$= (21,482 / 1000) \times 0.84$$

$$= \mathbf{18.04488 \text{ metric ton}}$$

#### **CO<sub>2</sub> (bus)**

$$= (9 \times 72 \times 1 \times 240/100) \times 0.01$$

$$= \mathbf{15.552 \text{ metric ton}}$$

#### **CO<sub>2</sub> (cars)**

$$= ((2 \times 2 \times 1 \times 240)/100) \times 0.02$$

$$= \mathbf{0,192 \text{ metric ton}}$$

#### **CO<sub>2</sub> (motorcycle)**

No motorcycle enters the campus

#### **Total Emission per year**

$$= 18.04488 + (15.552 + 0.192 + 0)$$

$$= \mathbf{33.78888 \text{ metric ton}}$$

## ENERGY AND CLIMATE



### Greenhouse gas emission reduction program



TSUULL is considered one of the leading universities in the region which promotes and helps fight climate change. As a result, with the initiative of the university rector, Campus Carbon Neutrality Plan has been developed and aimed for realization by 2030.



TSUULL had its dormitories built on Campus in order to avoid its students and staff from commuting. Doing so, the nearby location of the university population accommodation results in no net release of carbon dioxide.



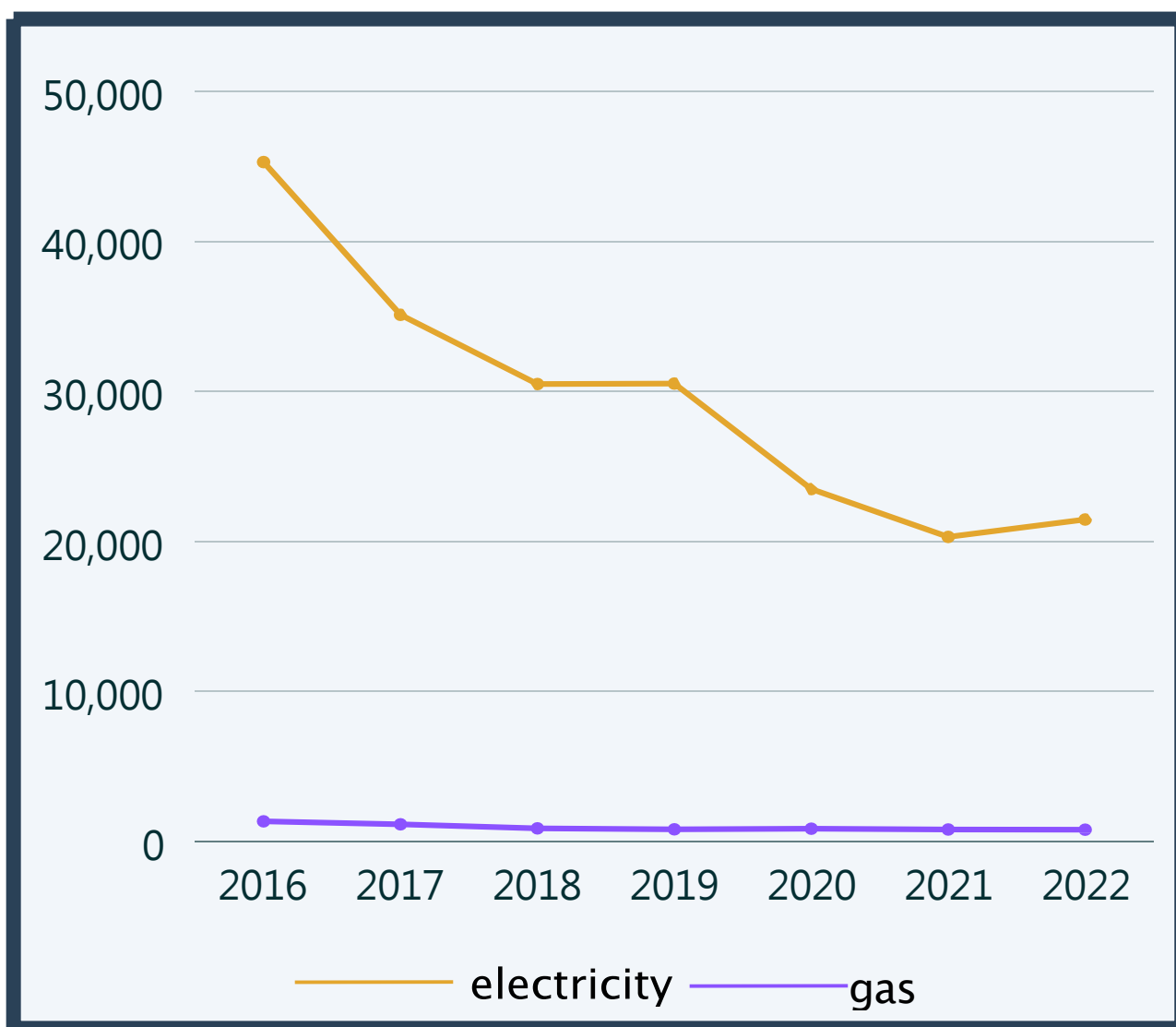
TSUULL car parking has set the charging policy private vehicles entering the premises. The policy is intended to reduce the private vehicle use which contributes to the greenhouse gas emission reduction policy.



TSUULL has considerably extended its solar energy production to meet its consumption needs this year. To date, the university covers its all energy needs on the expense of solar cells and panels installed on the rooftops of university buildings.

# ELEMENTS OF GREEN BUILDING IMPLEMENTATION AS REFLECTED IN ALL CONSTRUCTION AND RENOVATION POLICIES

## Electricity Usage Per Year (In Kilo Watt Hour)

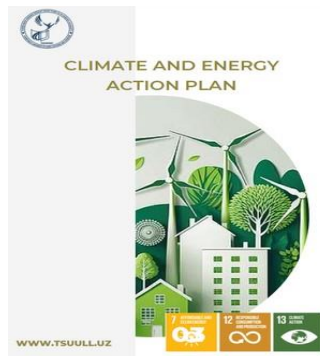


The total amount of electricity used on both campuses of TSUULL in 2022 is 21,482 kWh. The amount appears to be slightly more than the previous year of 2021 since the university acquired another campus off City – in Akkurgan, Tashkent Region. Yet, the university is committed to keeping the total electricity usage low with its huge efforts in calling the university population to save and replace natural resources with renewable energy. In the same way, the total amount of gas usage stably decreasing (7,87 m<sup>3</sup> in 2022) yearly because the solar cells have been teaking over.

TSUULL has established The Energy Efficiency Committee which monitors monthly energy usage for TSUULL campuses against energy saving goals and required benchmarks and report results to the Sustainability Council and Built Environment Working Group. The committee is also responsible for managing and mitigating energy consumption, monitoring and reporting solar and biodiesel generators in order to report monthly and yearly proportions of renewable energy production and consumption in general. The commitee includes the chief of electrical, chief of energy systems, and chief of HVAC and meet biweeklyto discuss energy efficiency strategies.

TSUULL Climate and Energy Action Plan launched in 2022 has been the first institutional plan that lays out key directions and actions that will be mobilized across campus to enable a shift to carbon neutrality by 2050 and increase the energy efficiency of the University Campuses.





1) TSUULL buildings are designed to use the natural light to the fullest to minimize the power usage on lightning during daylight. The wide transparent and translucent windows allow to save energy efficiently in halls, corridors, staircases and rooms.

2) Natural air ventilation system in big auditoriums and long corridors keep the spaces cool and supply fresh air to buildings by means of passive forces, in particular, by wind speed instead of using air conditioning system powered by energy.

3) The piping system has been developed at the university which is spread out around the main campus to water plants and grass daily by means of water sprinklers. The water run into the pipes from the storage of the excessive water drainage collector in case of flood, snow and rain.

TSUULL Akkurgan Campus uses solar powered water pumps to water trees and plants, drip crops in the field. To date, TSUULL solar panels meet all university electricity demand thus, it as well as excessive energy equal to UZS 100 mln to local electric network enterprises.

## **TSUULL UI GreenMetric Questionnaire**

- **Energy and Climate Change (EC)**
- **Smart Building Implementation**

***Min. at least five requirements for each building***



## **IMPACTFUL UNIVERSITY PROGRAM(S) ON CLIMATE CHANGE:**

### **ANNUAL GREEN SPACE PROGRAM (LOCAL)**

The Green Space Movement began its activity on Main Campus of the university in 2020 and has expanded to all university belonging premises. To date, the Project has planted over 2,000 trees and keeps doing so until it reaches 30,000. The Project was inspired by the rector, Sh.S Samariddinov and all university staff including himself voluntarily contributes to the goal of the project every season of year.



## **LECTURE SERIES ON WASTE MANAGEMENT (REGIONAL AND NATIONAL)**

Every Fall Semester TSUULL holds Waste Management courses open to public inviting national and regional experts of the field. The course thoroughly teaches and trains participants to be able to sort waste out into different categories, how to treat them, in particular waste containing hazardous materials and chemicals aka toxic. Participants are often offered to voluntarily take part in large cleanup operations to help environment.



## **ENVIRONMENTAL SUSTAINABILITY TRAINING (INTERNATIONAL)**

TSUULL hosted an online ten day training on environmental sustainability together with an Italian NGO ALTERNATIVE - an independent learning initiative exploring and promoting social, environmental and climate justice experiences and projects. The training was attended by about 150 people of different territories of the world including Europe, Central Asia and East Asia. The attendees of the training were able to explore more sustainable agri-food system through agroecology, permaculture, aquaponics and other organic techniques.

**Tashkent 2022**