



МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ  
КАФЕДРА ІНОЗЕМНИХ МОВ  
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ ЦЕНТР

## **МАТЕРІАЛИ**

**XIV ВСЕУКРАЇНСЬКОЇ  
НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ  
СТУДЕНТІВ, АСПІРАНТІВ ТА ВИКЛАДАЧІВ  
ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО ЦЕНТРУ  
КАФЕДРИ ІНОЗЕМНИХ МОВ**

**«TO MAKE THE WORLD SMARTER AND SAFER»**

26 березня 2020 року



Сумський державний університет  
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**Суми  
2020**

again, compressed air is raised to the surface and heated using previously collected heat. Hot air rotates the turbine, which generates electricity. The very principle of storing energy in the form of compressed air is nothing new, but usually systems of this type use natural gas to heat the air which reduces the overall efficiency of the method and leads to carbon dioxide emissions. Representatives of the company Hydrostor argue that the efficiency of their energy storage system is about 60%.

Also Beacon Power proposes storing energy in the form of kinetic energy of massive flywheels rotating at high speed. Massive carbon fiber flywheels with a diameter of 1 meter rotate at a speed of 16,000 rpm. So. To maintain this speed, the flywheel must rotate in a rarefied medium with minimal friction which is provided by a system of electromagnets that supports the flywheel in a soaring state.

So, we have a lot of developing technologies in this area and in the future they will help us decrease using of fossil fuels. It's good that some governments are trying to completely switch to renewable energy sources. But unfortunately, it will not happen soon.

## VERTICAL FARMING: THE FUTURE OF FOOD

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In 30 years, 6.5 billion people will live in megacities (about twice as much as today), and to feed such population will be a huge problem.

As humanity grows larger, space continues becoming a crucial issue. So, things like houses, interior design, and even garden are becoming more and more vertical. But we are starting to have a large version of gardens, farms. While the field and the greenhouse take their place, this alternative retains it.

Vertical farming is the cultivation of products in vertically laid layers. In this case, soil, hydroponic or aeroponic cultivation

methods are used. Vertical farms try to produce food in difficult conditions, for example, where arable land is rare or inaccessible. This method helps mountain cities, deserts, and cities grow various types of fruits and vegetables using skyscraper-like designs and precision farming techniques.

There are four main problems in understanding how vertical farming works: 1) physical layout; 2) lighting; 3) growing medium; 4) sustainability features.

First, the main goal of vertical farming is to produce more products per square meter. To achieve this aim, crops are grown in folded layers in the tower's life structure.

Secondly, the perfect combination of natural and artificial lighting is used to maintain the ideal level of lighting in the room. Technologies such as swivel beds are used to increase lighting efficiency.

Thirdly, instead of soil, aeroponic, aquaponic or hydroponic growing mediums are used. In vertical farming, moss or coconut husks and similar non-soil environments are very common.

Finally, the vertical farming method uses various sustainability functions to offset the energy costs in agriculture. In fact, vertical farming uses 95% less water.

The big productivity in a small cultivation area is not the only advantage of vertical farming. These are some of the main benefits of vertical farming:

1. Vertical farming uses significantly less water and pesticides than traditional farming methods. Being indoors, crops are not dependent on the time of year and, therefore, give high yields all year round. Lettuce, tomatoes and green crops can be obtained through this practice.
2. Vertical farming allows us to grow crops using 70-95% less water than normal cultivation requires.
3. There is no risk of natural disasters such as storm, cold weather or droughts. Insects can't harm the plants. Moreover, the system works 365 days a year, day and night.

Nevertheless, at the same time, vertical farming has its drawbacks. The most significant of them include:

1. Bugs or insects are excellent helpers for successful growing crops on farms. But vertical farming completely eliminates them from the process, so this is done manually. In addition, manual pollination is more expensive and requires a lot of human labor, which today is not the most effective method. The workers will also have to reach each layer, this decreases employee efficiency.
2. Financial feasibility of this new farming method remains uncertain. The cost of building skyscrapers for farming, combined with other costs such as lighting, heating and labor, can easily outweigh the benefits we can get from the output of vertical farming.
3. There will be fewer jobs, as people will not need to transport crops. And as a result, many people, mainly farmers, will lose their jobs.

Nevertheless, as the final analysis shows, vertical farming is beneficial to both the consumer and the producer. In addition, it could potentially reduce all these space problems or even deforestation in future. This type of agriculture is likely to become one of the ways to get food for future generations.

## TESLA CYBERTRUCK - BEAUTY IN SIMPLICITY

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Tesla CYBERTRUCK was unveiled in the November of the last year and is still being widely discussed. It is said to be a mix of utility and performance but not everyone is convinced by this statement.

Many people are concerned by its design. It is very planar and minimalistic but there is a reason for that, as the body of Tesla CYBERTRUCK is made of ultra-hard 30X steel. It cannot be stamped because it breaks the stamping press. This rigidity makes people question the safety of this truck which is not a concern