***Submit your completed paper by 17:00 on the day of the last class of the semester – 9.12. You can submit it via a Word document or a Google doc link to my email: stadneri@fel.cvut.cz. Please no PDFs, etc. This paper represents 50% of your grade for the semester, so I strongly encourage you to do multiple drafts, ask me for feedback, etc. The remainder of your grade will be based on class attendance and participation.***

# The Assignment

*The university is debating measures to reduce its carbon footprint without seriously upsetting either the faculty (in English, the faculty is the teaching staff of an educational institution), the staff, or the student body. Within the Faculty of Electrical Engineering, several studies have been conducted, data has been collected, and opinions have been provided. You can find all of these in the section below entitled "The Data." Your task is to synthesize the information into a one page (about 400-600 words) recommendation paper that will be given to the Dean as a recommended course of action. You should at least mention all of the proposed options – though how much you write about each will vary – and recommend 1-2 options for the dean to propose to his counterparts across the university. As you are writing, remember the structures/guidelines we discussed for English argumentation, paragraph structure, data commentaries, cause & effect, comparing/contrasting, summarizing, and linking language.*

***PLEASE NOTE**: Some of this data is made up specifically for this task. Base your writing only on the data and information provided to you here. Do not use outside data or seek to correct the data given.*

# The Data

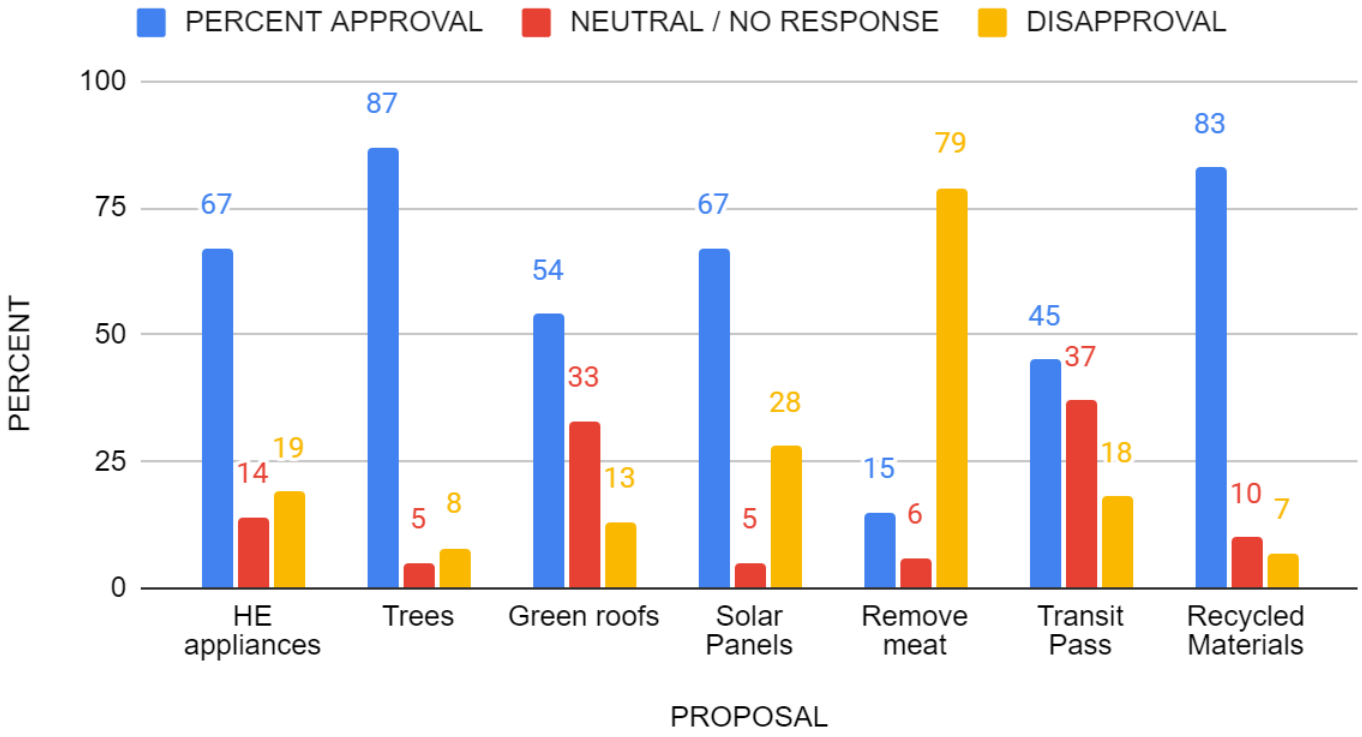
## Survey & Results

Both CTU students and employees were sent a survey that consisted of one question: "Which of these options do you think the university should pursue in order to reduce its carbon footprint?" They were instructed to choose either APPROVE, DISAPPROVE, or NEUTRAL for each option. The options given were

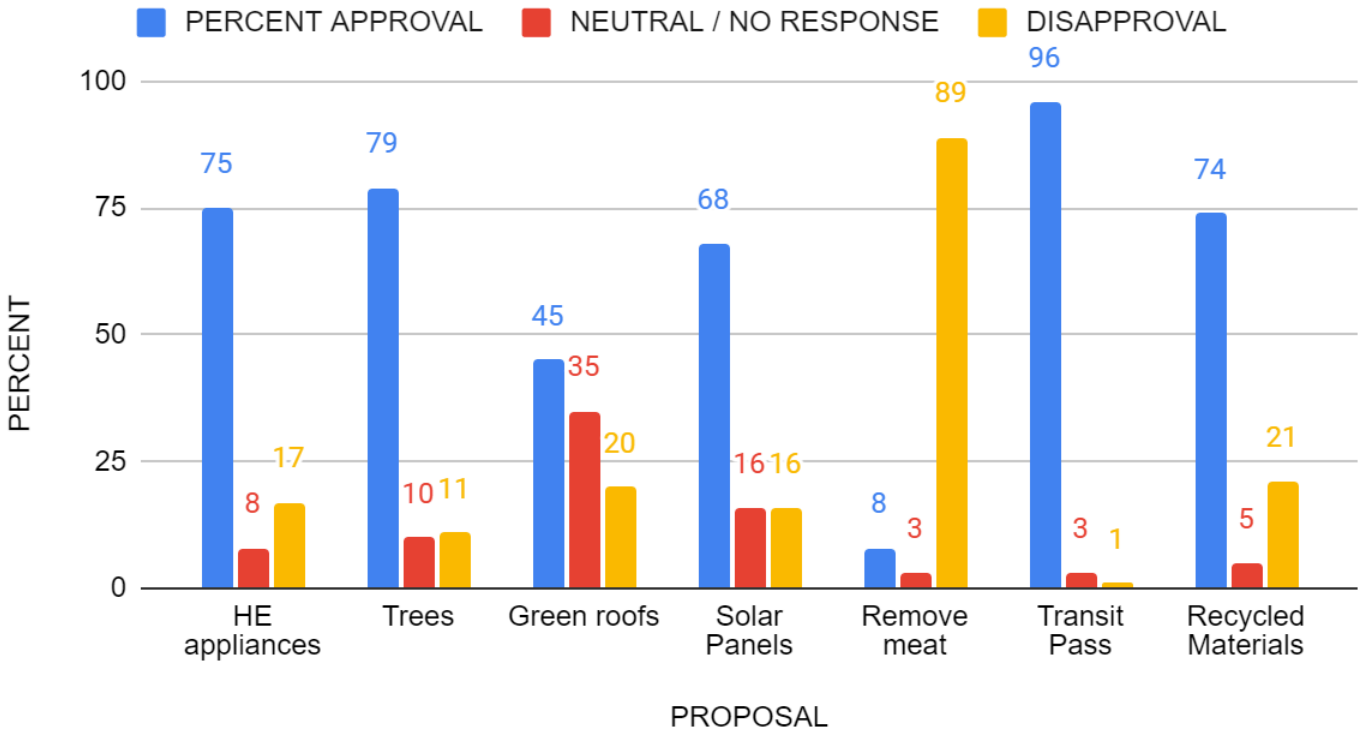
- Investing in higher efficiency appliances/equipment
- Planting more trees on campus grounds
- Installing "green roofs" on all campus buildings
- Installing solar panels on all campus buildings
- Eliminating meat/animal products from university canteens
- Subsidizing staff transit pass to encourage transit use
- Committing to purchasing only recycled/reused materials whenever possible

Over 40% of each group responded, suggesting that the results are sufficiently representative to be useful as guidance. When a survey respondent did not rate an individual option, it was assigned a NEUTRAL value. The results follow on the next page.

## STUDENT RESPONSES




## FACULTY & STAFF RESPONSES



## Written Opinions

In addition to the survey, proponents and opponents for each of the various proposals were asked to organize and submit a brief version of their argument. Each of those is provided below.

### Proposal: Investing in Higher Efficiency Equipment

**PRO**: In order to successfully transition to a zero-carbon community, we need to reduce our energy consumption. As is the case with many businesses and organisations, the energy our appliances use is a major part of our energy bill. To reduce costs and our carbon footprint in the long run, it is worth investing in more energy efficient appliances once our old ones come to the end of their life.

Many older appliances and pieces of equipment are not very energy efficient. By investing more in their efficiency it is possible to generate considerable savings with these products over time. The least efficient appliance is the refrigerator: The most efficient models consume up to 5 times less energy than a standard refrigerator. Other equipment can also be replaced with significantly more energy efficient models. Using the most efficient appliances across the board will have a massive impact on the amount of energy we consume. Moreover, while smaller electrical appliances are often overlooked, using energy efficient Compact Fluorescent bulbs can save up to 4 times more energy than a standard bulb.

Cataloging, rating, and replacing our least energy efficient appliances and equipment may be time consuming and require a sizable initial investment. However, we will reap the benefits, as we will not only save money in the long run, but also contribute to a better global environment.

**CON**: Let us talk about the disadvantages of energy efficient appliances honestly. Most importantly, the cost of these appliances is extremely high, which would require significant expenditure of funds if we were to replace appliances on a widespread scale. Secondly, these devices often require a different method of installation, along with extra care and maintenance. These again contribute to the cost of the equipment, both in terms of time and money. It will also likely require additional workers to handle the extra care and maintenance. Lastly, the performance of many of these high efficiency appliances and pieces of equipment has not been proven over the long term, which may lead to the need for replacement much sooner than with conventional ones.

### Planting More Trees on Campus Grounds

**PRO**: Planting additional trees has many benefits – too many to go into great detail about all of them. For a start, trees remove carbon dioxide from the air. A mature hectare of trees can absorb the CO2 released by driving a car almost 100,000 kilometers. Moreover, trees absorb other gases, purifying and cleaning the air without having to pay for electric air purifiers. Trees also provide shade, which cools down both indoor and outdoor areas, allowing savings on energy costs during the summer. For all of these reasons, and more, the university should plant as many trees wherever possible.

**CON**: We are not anti-tree. However, as James Temple, senior editor at MIT Technology Review wrote, “It’s great that trees are having a moment. Nations absolutely should plant and protect as many as possible. … But it’s also a limited and unreliable way of addressing climate change.” Plus, trees take decades to reach maturity and to be able to offset large amounts of carbon emissions. Planting trees is a nice gesture, but it is insufficient – especially at the university level – to actually address carbon emissions. What’s more, some people might think, “Well, we planted trees, so we solved the problem.” That is simply not true, so planting trees might even make the problem worse.

## Proposal: Installing Green Roofs on All Campus Buildings

**PRO**: Installing green roofs would be hugely beneficial to the university. Without doubt, one of a green roof's biggest advantages is thermal performance. It's staggering just how much of a difference this can make. One of the biggest problems facing a typical roof is poor insulation, leading to substantial heat loss in winter and sweltering conditions over the summer months. This all changes with the aid of a green roof. By implementing a green roof we can ensure energy efficiency improvement. Plants absorb the sun's energy and therefore reduce the temperature of the roof in summer, whilst aiding thermal efficiency in the colder winter by locking heat inside. Moreover, according to a UK report, 44% of total CO2 emissions are released from buildings. Green roofs reduce the need for cooling devices, whilst also ensuring less heat is required for the winter. Both of these would reduce the creation of CO2.

**CON**: Green roofs are a costly intervention with very mixed results. Green roofs are significantly more expensive than traditional roofs, both due to high installation costs and ongoing maintenance. What's more, many roofs need to be reinforced to support the vastly increased weight that a green roof entails. It is likely, given the age and condition of many university buildings, that retrofitting them with green roofs would involve costly upgrades. All this for a fairly small increase in energy efficiency that could much more easily be achieved by other means. It hardly seems worth it.

## Proposal: Installing Solar Panels on All Campus Buildings

**PRO**: Solar energy is the future, and we here at CTU are committed to building the future. Surely, then, we should play a leading role in bringing solar panels to the forefront. The decrease in emissions we'd receive from installing solar panels could be extremely impactful, especially when compared to the relatively low cost and improved performance of modern solar panels compared to their older ancestors. Proudly displaying solar panels on all campus buildings would also encourage others to do the same, reducing carbon emissions even beyond the university. The future begins today.

**CON:** Only 43% of daylight hours in Prague actually feature strong sunshine. The rest – which is the majority – are either cloudy or have low sun intensity. Solar panels, and solar energy generally, are excellent alternatives for areas that reliably receive strong sunshine. In Prague, they would largely be a waste of money and an expensive, but empty, gesture of the university's commitment to reducing carbon emissions. It's a good solution, but not for us. Our limited resources would be better spent on solutions that actually have an impact as opposed to ones that mostly make a statement.

## Proposal: Eliminating Meat/Animal Products from University Canteens

**PRO**: Wherever you stand on the ethical and health questions raised by eating meat and factory farming, it is undeniable that diets involving meat and animal products have a much more serious environmental impact than those that do not. A 2023 study found that plant-based diets produce 75 percent less heat-trapping gas, generate 75 percent less water pollution, and use 75 percent less land than meat-rich diets — those that include at least 100 grams of meat daily, the equivalent of one steak around the size of a deck of cards. Lower speaking, the less meat there was in a person's diet, the smaller negative environmental impact it had. CTU feeds hundreds of people a day, largely relying on meat and other animal products to do so. Eliminating these products and replacing them with more plant-based options could have a real impact on the size of the university's carbon footprint. Those who object are free to purchase meals elsewhere or bring food from home.

The university is under no obligation to feed people at the expense of environmental damage. The choice is clear if the university is brave enough to make it.

**CON**: We do not dispute the 2023 study our opponents have based the entirety of their argument around. Instead, we argue that the food offered at the canteen should be determined by economic concerns, not environmental ones. The various canteens and cafeterias operated throughout the university have a responsibility to both students and staff to serve them nourishing meals which are both affordable and appealing. If they were all to switch to plant-based alternatives, the food may be just as nourishing as before, but it is likely to be much more expensive and likely much less appealing to many students who are accustomed to a traditional Czech diet. And what is the purpose of the university canteens if they serve food students both can't afford and don't want to eat?

### Proposal: Subsidizing Staff Transit Passes to Encourage Transit Use

**PRO**: Currently, an annual parking pass costs as little as 2400 Kč. This extremely low price means that many employees of the university commute via car. However, there is currently no subsidy of any kind for employees who use mass transit, who pay almost 4000 Kč per year for the ability to do so. Many employees will look at these two figures and decide that driving to work is the better financial choice for them than using transit. This leads to a significant increase in emissions, which the university is partly responsible for. Many other employers offer transit subsidies, or even cover the entire cost of transit. Even if the university subsidized transit to make it the same price as parking, it could shift the decision making for employees, which might reduce emissions.

**CON**: The vast majority of people who commute to both main CTU campuses are students, and they overwhelmingly use mass transit to do so. Simply put, subsidizing transit passes for employees would likely have only the smallest of effects. While it is true that many other employers offer transit pass subsidies, they also have totally different financial models and can likely afford to offer more costly benefits. This would be an expensive measure that the university almost certainly cannot afford that would generate minimal benefits. It is a bad idea and should not be taken as a serious proposal to reduce carbon emissions.

### Proposal: Committing to Purchasing Only Recycled/Reused Materials Whenever Possible

**PRO:** This is a measure that we should institute right away. There is little to no downside, as recycled or reused materials are usually cheaper or comparably priced to new products. Moreover, by choosing recycled or reused products instead of buying new, we'll be making sure our money goes to support businesses that sell such items, which will help support their mission. Recycled and reused materials are still of extremely high quality, and there is no reason why the university should not publicly commit to buying them whenever possible.

**CON**: While it is true that there are very few reasons not to choose recycled or reused materials when possible, doing so is unlikely to have a substantial effect on the university's overall carbon emissions. The areas and industries where recycling can be relatively easily installed – such as paper and packaging – have led to a wide range of products made from those recycled materials on the market. A public commitment from the university will not change that fact. Meanwhile, in industries where recycling has been difficult to institute or where it is simply impractical, trying to find quality recycled or reused materials is simply not feasible. While the costs or drawbacks of making such a commitment would be low, the benefits would be lower still.