

LESO **LUNCHTIME*** LECTURES

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EPFL Campus CO2 Emission Free? A case study

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Introduction by Dr Silvia Coccolo – Followed by open discussion

Summary

All scenarios projected by climate experts agree on the immediate necessity of reducing CO2 emissions to prevent the dangerous consequences of climate change. Higher Education Institutes such as EPFL must be leaders in the shift towards reduced emissions, implementing known solutions and proving their feasibility.

In my Master thesis, I have mapped CO2 emissions of the EPFL Ecublens campus starting from data of the last few years. Potential cuts as well as ways to compensate remaining CO2 emissions were identified with a view to reducing campus net emissions to zero. Analysed solutions include retrofitting of buildings, evolution of commuting and of business travel as well as a reduction of building embedded emissions based on their life cycle analysis (LCA).

With regard to compensation strategies, I focused in particular on greening systems with their direct and indirect benefits. An automated computing technique exploiting LiDAR data from Swiss Topo was applied for this purpose. Furthermore, Direct Air Capture systems (DAC) were considered as a key player.

Similar studies should be performed on other campuses to identify best practices according to local conditions. Further investigations need to be carried out on the evolution of commuting (e.g. electric vehicles) and the impact of the food chain, which could be significant.

About the speaker

Giovanni Mori holds a Bachelor's degree in Environmental Engineering from University of Brescia. His bachelor thesis investigated innovative insulation materials. He is currently working toward a Master's degree in Energy Engineering, an inter-university course of University of Trento and Free University of Bolzano, with focus on Energy Efficiency. His research focus is on the correlation between campus energy efficiency and CO2 emissions at urban scale.

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