

Achieving the Carbon Neutrality of New District in Czech Context

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Keywords: photovoltaics, heat pump, energy simulation

Abstract A new district with about 50 residential apartment buildings in Prague (CZ) is being developed as positive clean energy district (PCED) within the Horizon project ASCEND. Beside the organizational, financial and regulatory issues, the planning phase also includes the number of analyses regarding the energy system concept leading to carbon emissions neutrality. Energy simulations of given district performance (heat and electricity) have shown the realistic use, efficiency and benefits resulting from the application of different technologies as solar thermal, photovoltaics, heat pumps, combined heat and power, bioenergy etc. Paper shows how the individual energy sources solutions and their combination influence the final result, i.e. possibility of carbon neutrality achievement, expected investment costs and real annual operation costs for the district in the context of Czech Republic (carbon emission factors, energy prices, technology costs) compared to legal building energy requirements (business as usual). A specific attention will be paid to time-step of energy balancing which significantly affects the real potential for achievement of district carbon neutrality.