Urban densification potentials and energy impacts in Switzerland

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Building sustainable cities, as set out in the Sustainable Development Goals by the UN, requires sustainable urbanization as well as reducing per capita environmental impacts of living in cities. As a result of a growing population and constrained availability of building space, countries such as Switzerland are faced with increasing pressure on their land resources. They will need to considerably densify in existing urbanized areas to prevent urban expansion. Even though Swiss regulation promote inward settlement development and the creation of compact settlements, only limited analysis is available on the densification potentials combined with sustainability implications. We develop a geospatial explicit analysis framework which allows to up-scale the assessment and evaluation of densification potentials for the whole of Switzerland. An energy simulation tool is used for exploring impacts of different densification strategies on a district scale with respect to energy consumption.