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## The contribution of spatiotemporal modelling to spatial planning instruments on the local level

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In the course of the energy transition, spatial and temporal aspects of energy demand and renewable energy supply are increasingly coming to the forefront of scientific studies and political debates. In this context, the use of spatiotemporal models has been identified as a decisive methodology for integrated spatial and energy planning. However, the transformation of spatiotemporal results into concrete spatial planning instruments has not yet been sufficiently discussed. Therefore, this research aims to provide answers by using specific results of a case study in Austria. In the case study evaluation, energy demand is considered in high spatial resolution using statistic data in 250m raster cells as a basis. The results are supplemented with an assessment of high spatio-temporal solar energy potentials. Taking these results as a basis, the following questions are addressed: How can spatial and temporal evaluations of energy demand and supply support the energy transition by means of spatial planning on the local level? What measures with respect to renewable energy generation, storage and grid capacity can be derived and which effects are expected to be achieved? With respect to renewable energy provision, initial results reveal added value for the spatial delimitation of district heating supply areas. Further, building integrated solar energy generation reveals high shares of excess energy – both thermal and electric – which has to be properly used, taking into account different sectors of energy demand. As a consequence, the results of this research also offer the opportunity to reflect on the benefits of sector coupling, as well as the new organization of energy supply via energy communities.