

Abstract

Cities run on energy and trust. One is measured in kilowatts; the other in the willingness of institutions, neighbours, and networks to act together. For a century, we expanded outward, feeding urban life with development and activities that made us prosper and relied on whatever energy source we had. That model is cracking. Grids strain. Prices swing. Climate math tightens. The question is no longer whether cities can generate more clean power, but whether they can organize it to replace the fossil fuel routine.

This thesis offers a tangible path: the Urban Energy Precinct. Think of it as a city's functional unit for decarbonization, an electrically coherent cluster of buildings, managed by an anchor institution, and run on a digital layer that turns solar potential into shared energy. It is where maps meet action, and where policy starts developing. The method is contextualized in a simple path, each step yields something buildable, precinct atlases, cabin-aligned clusters, standard agreements, and an Asset management system that eases in real time.

Two very different cities ground the work. In Turin, university buildings are grouped by primary cabin to form legally valid communities. In Geneva, consolidated ownership (UN district) shows the same logic under other rules, internalizing exchange through ZEV/CEL mechanisms. Together, they synthesize a path to post-carbon cities.

A future to design, one community, one precinct, one city at a time