Searching for the relevant scale for food transformation in dense urban areas in France

An empirical research to link Concentrated Solar Power and biogas generation for the joint conception of local heat networks and small food transformation units

CATHELINEAU Vincent, GENIN Chloé, DE MARIA Arnaud and BERTIN Kévin

CATHELINEAU Vincent, CEO of Transistore, M.D. entrepreneurship, MoS engineering, vincent.cathelineau@transistore.fr

GENIN Chloé, intern at Transistore, B.D. agronomy, chloe.genin@transistore.fr

DE MARIA Arnaud, President of Transistore, M.D. engineer, arnaud.demaria@transistore.fr

BERTIN Kévin, Associate at Transistore, M.D. engineer, kevin.bertin@transistore.fr

Abstract:

As social and environmental entrepreneurs, we try to contribute to the war on climate change. The game is set already: get carbon neutral before 2050 and start right now with a massive yearly decrease in GHG emissions. Since we need answers immediately, we will focus on the one we chose to work on, for it seems to us as one of the most relevant for this matter.

We develop two business models. Both are neighbourhood cooperative organizations. The first is dedicated to energy production and distribution, the second is dedicated to energy use for local food transformation. The concept that binds them is simple: if we want to reach energy market prices for solar thermal we need to find how to use summer heat. If we add up local biogas production, we can complement the lack of sunshine in winter and decrease the size of thermal storage, but we need the waste of food transformation to increase biogas production. With both axis, thermal autonomy becomes more accessible to old properties.

In this article we will describe a technical system containing a mix of CSP techniques along with a methanizer. We will describe the main devices required for using the energy and piloting the system. Then we will introduce a shift between a money oriented industry to multitask sun-oriented lines of food transformation at the scale of a neighboorhood. Beyond that, we will see how this project may contribute to spreading a mindset in which people start to rethink the city in terms of urban integrated agro-energetic partly autonomous systems.

Keywords: Transition, entrepreneurship, local food processing, concentrated solar power, methanization, cooperative organizations