

Rapport stage

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1 Introduction

Oze-Energies is a French company specialized in real estate management. Through innovative and durable methods, it aims at improving air quality and confort, while simultaneous reducing energy consumption, without requiring any site work.

The premise of buidling management at Oze is the ability to produce tailored roadmap for managing a building, based on a precise understanding of its behavior, combined with prior knowledge in thermal physics as well as meteo forecasts. While environnemental sensors are integrated in the building using LoRa (a secured and public network), thermics experts known as Energy Managers aim at reaching the best compromise between indoor comfort and energy consumption, while also improving air quality (CO₂ levels, humidity, etc.). These roadmaps average in a 25% reduction in consumption, in just a few weeks : this is Oze-Energies' main product, OPTIMZEN®.

OPTIMZEN® targets tertiary buidlings, whose occupation behavior are usually well understood (workday hours, no occupation during the weekend, no heavy machinery creating heat beside computers and lighting systems), as well as residential buidlings. The analysis of the building, as well as regular roadmaps for the buidling maintainer are delivered for a recurring subscription, usually largely covered by the energy savings generated.

In order to accurately predict the best management settings for a buidling, a machine learning model is trained to best approximate its behavior, using sensor data collected. Since a wide variety of building behavior can encountered, due to the number of heat, cold or electricity providers for instance, this calibration step becomes more and more important as Oze-Energies acquies new clients.

Oze-Energies was created in 2014, and currently covers over 3 millions m^2 over 500 buidlings, []. During the epidemy of the COVID-19, air quality improvement becomes a pillar of any indoor sanitary measure. Oze-Energies is able to use years of experience in air quality management, in addition to being able to alert on any potential risk, to help creating a safe workplace.