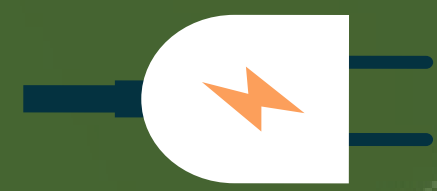


# FEEdBACk: Monthly Disaggregation App for Commercial Savings Meta-data Approach



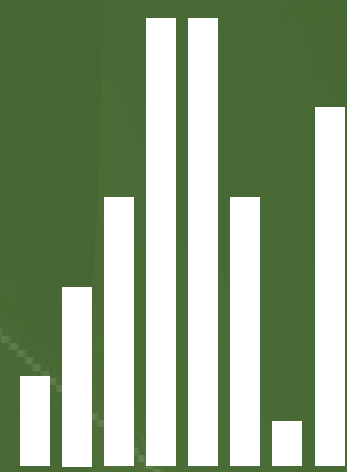
## Abstract



The objectives of the FEEdBACk project are to develop, integrate and trial a wide range of energy-focused ICT and behaviour modification applications that will be used to engage energy users and permit them to understand and change their energy consumption related behaviour.

Monthly disaggregation (HVAC, lighting...) is a key step to provide specific saving recommendations, and to reduce consumption in a target-oriented way.

## Available Data



Our database has more than 24,000 locations with years of energy consumption readings. The frames ranges go from 5-min to monthly. We found that 40% of our locations have only MAIN consumption metering. The other 60% have MAIN device and at least one sub-metering: HVAC or LIGHTING.

## Introduction



Saving money in energy is (or should be) a goal for all companies or a way to improve their productivity, however not all of them has the resources or the ability to know their hidden savings opportunities or want to pay for an external audit.

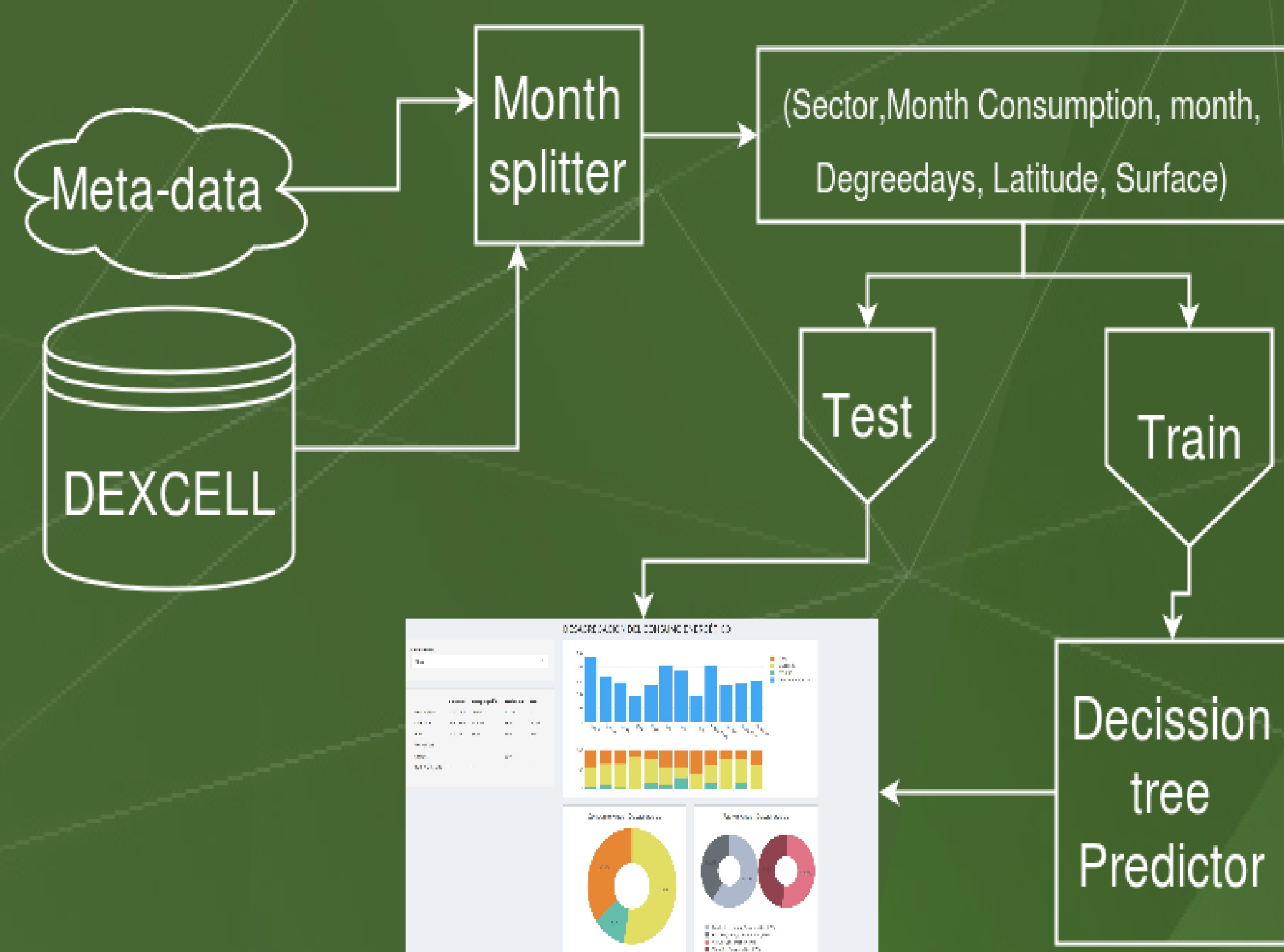
Our objective is to provide an end-to-end low price solution, not intrusive audit.

Given very basic information of your location we will return a mark of your efficiency with respect your competitors, your disaggregated consumption, your potential savings and show where to focus the efficiency efforts first.

## Approach



We decided to estimate disaggregation month by month. For each month, given the metadata and the consumption, return its disaggregation. We tried several machine learning techniques: Gradient Boost Decision Tree returned the best performance.



## The problem to solve



- Given:
- Metadata: Sector, Lat, Long and Monthly Temperature (Degree Days)
  - Data: Vector of N points of aggregated Monthly Consumption
- Return:
- Vector with disaggregation percentage: HVAC, LIGHTING, OTHERS.

## Results

