Possibilities of Submetering Analysis

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IOT Analytics

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Agenda

Background
    What is Submetering
    What are the Possibilities of Submetering for IOT?

Analysis
    The Data
    Missing Data and Other Problems
    Basic Stats

Possible Applications
    Predictive Analytics
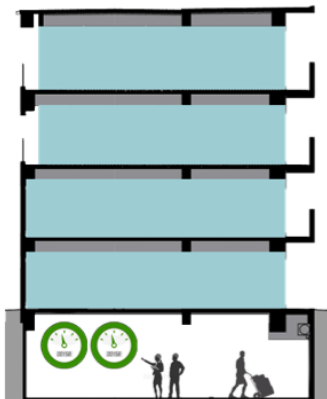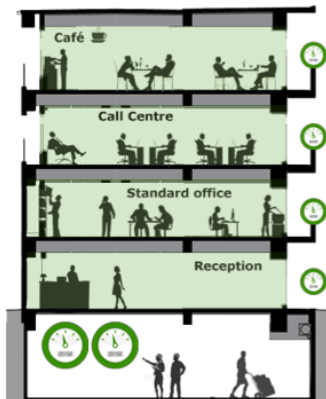   Dashboards

Recommendations for Next Steps

What is Submetering?

Building-level metering

Submetering by floor
- Café
- Call Centre
- Standard office
- Reception

What are the Possibilities of Submetering for IOT?

Connected Submeters give a real time reading of the energy use in different parts of buildings or even different device groups

This mean we can...

1. See what is actually spending that electricity
2. Pinpoint possible failure points fast and precisely
3. Gather time series data about the electricity use with a chosen granularity for further analysis
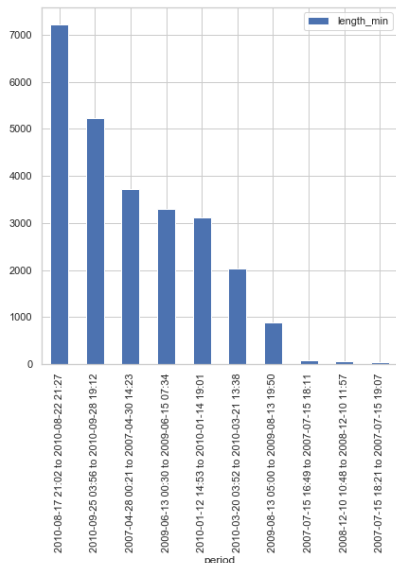
IOT ANALYTICS

The Data

- ▶ Minute level readings from 3 submeters and overall energy usage between December 2006 and November 2010 in House in Sceaux

- ▶ The three submeters cover the kitchen, the laundry room and the combination of the water-heater and air-conditioning

- ▶ Electricity use not covered by submeters can be calculated by deducting the submeter readings from overall electricity use

Missing Data and Other Problems

- ▶ Grouping of submeters is based on room and not function
  - ▶ Refrigerator is in the laundry room
  - ▶ Water heater and air-conditioner not separated
- ▶ 1.25 % of values missing. Sometimes in stretches over a day
  - ▶ Fixed with a predictive model
- ▶ Electricity use not covered by submeters makes up over half of the energy consumption

Basic Stats

Distribution by year month Distribution by weekday Distribution by hour

Problematic when taking too detailed view Work well on a larger scale

Dashboards

Customer facing application for monitoring electricity use can be combined with predictive analytics

Recommendations for Next Steps

Make sure that the submeter groupings are decided with the customer
Build customer facing dashboard with some predictive analytics
features

Questions?