Analysis of Submetered Household Energy Consumption

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Agenda

- Background

- Challenges

- Deliverables

- Approach

- Preliminary results

- Recommendations

Smart Home

- Can be determined as usage of technical systems, automated processes and connected, remote-controlled devices in flats and houses.

- The essential aim of the functions is to improve the quality of life and convenience in home.

- Last but not least is greater security and more efficient use of energy

Challenges

Will smart home owner benefit from submeterings based on:

- payoff despite installation and maintenance expenses
- more rational (controlled) energy usage and go-green reputation

Can smart home buyer take advantage of anonymous selling own data records?

Suggestions

- Electric power consumption reports in kWatt/hour and € terms
- Detailed energy records based on appliance nature and house location
- Prediction of future electric power usage trends

Approach

- Missing values treatment
- Adjustment of proper granularity level
- Predictive modelling
- Intercative dashboards

Deliverables

Commercially viable product

- I Deep data analysis (January 2011)
- II Predictive analytics (February 2011)
- III Dashboard software development (April 2011)

Elaboration

- Development of savings strategies
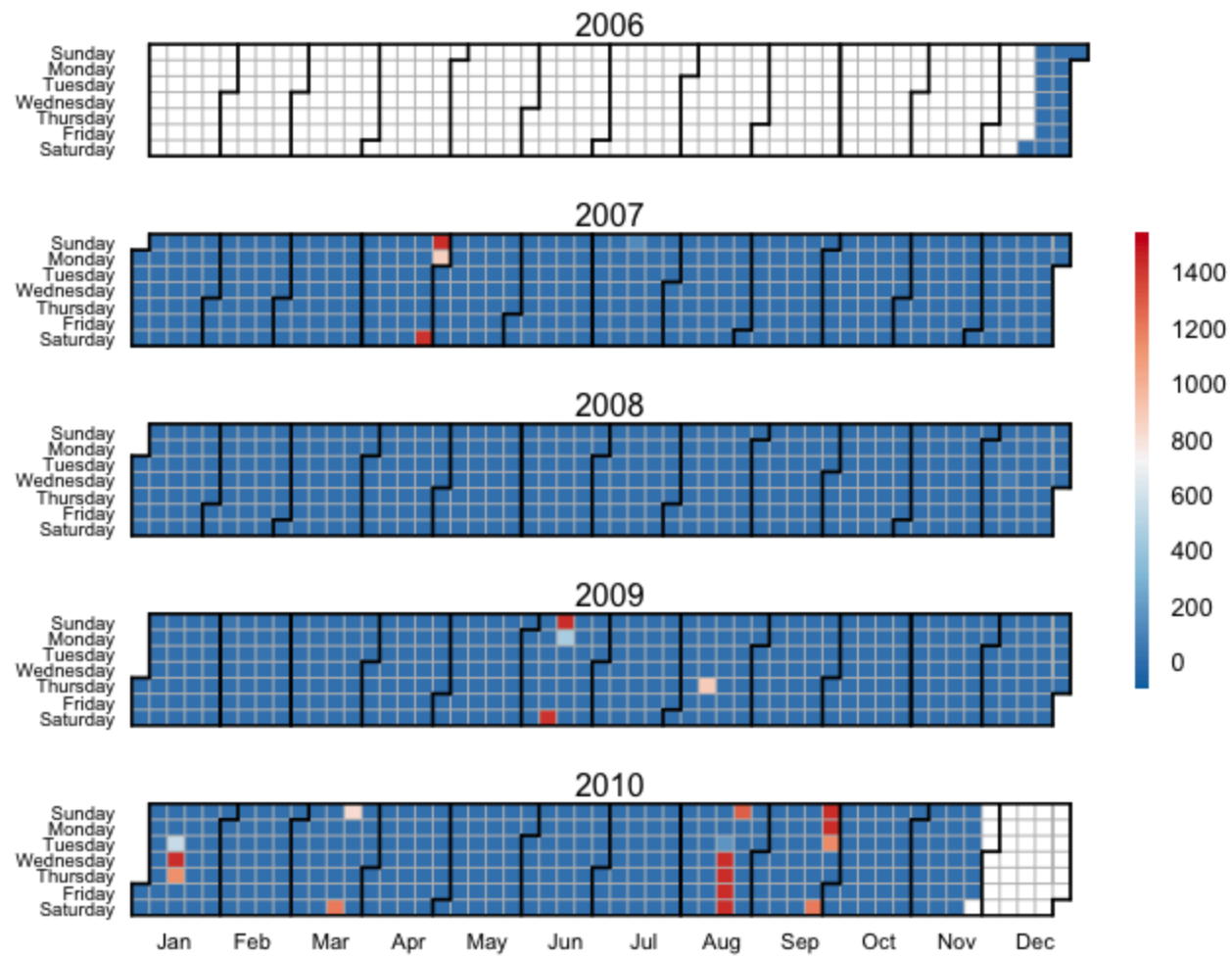- Correction of negative houshold behaviour patterns

Total Energy Consumption

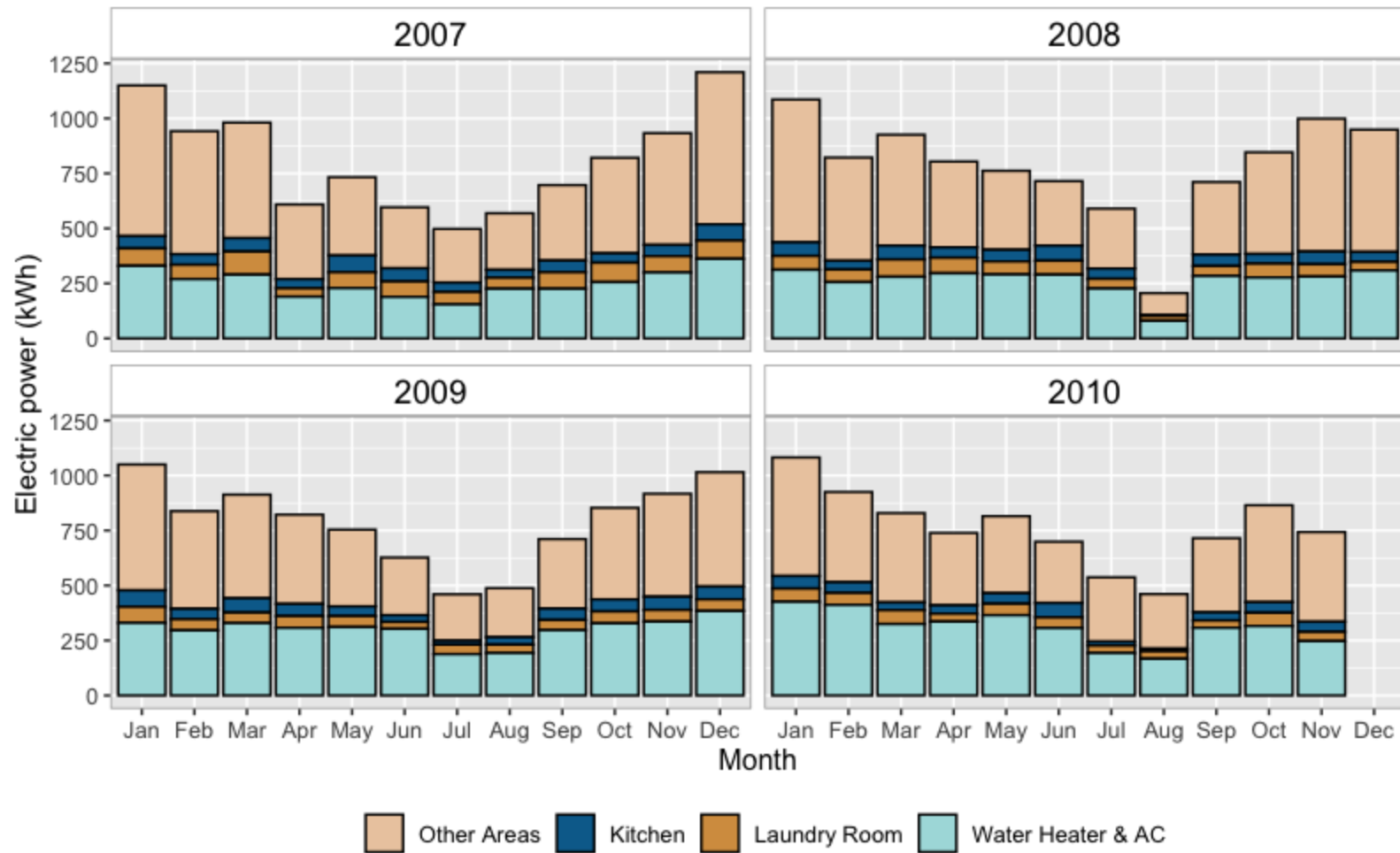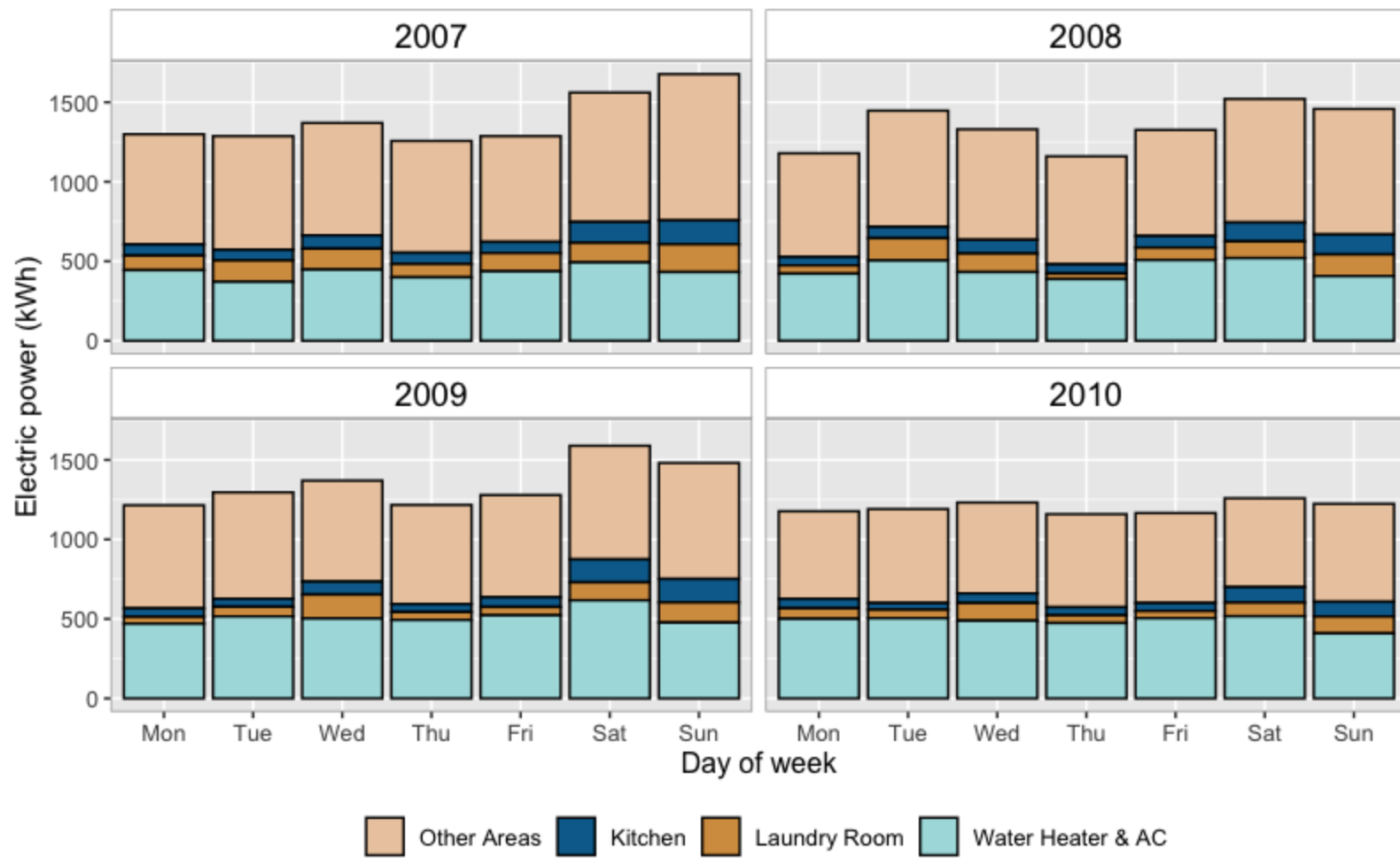|	GAP	Submeter_1	Submeter_2	Submeter_3
Min.	: 1.267	: 0.000	: 0.000	: 0.000
1st Qu.	: 5.133	: 0.000	: 0.000	: 0.000
Median	: 10.033	: 0.000	: 0.000	: 1.000
Mean	: 18.194	: 1.122	: 1.299	: 6.458
3rd Qu.	: 25.467	: 0.000	: 1.000	:17.000
Max.	:185.367	:88.000	:80.000	:31.000
NA's	:25979	:25979	:25979	:25979

Missing Values

Energy Usage (by month)

Energy Usage (by day of week)

Recommendations

- Gas submeter can be advised for consideration as overall gas consumption can compromise kitchen performance. Depending on cooking preferances (mainly using gas powered hot plates) kitchen data would be biased.

- Eating outside may reduce energy consumption in the kitchen area. Collection of catering bills on monthly basis could facilitate kitchen associated data quality.

Thank you!