

Project plan

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1 Project description

Title: Statistical models for analysis of frequent readings of electricity, water and heat consumption from smart meters.

SEAS-NVE has seen the potential and have, in cooperation with DTU Compute, developed the app Watts, which analyze the electricity consumption for a costumer and advises the consumer on how to make better use of electricity, be more green and save money on the bill. In this project we will extend the features to include the heat consumption for a costumer. We will choose some of many interesting ideas we have to further develop features in the app. Hence the core is to apply statistical modelling techniques - exactly which type of model is most suited depends on the application, and use the model output as basis for a feature in the app.

<https://projektbank.dtu.dk/da-dk/Sider/BulletinView.aspx?EntityId=12fafbd2-a980-e611-80f8-005056a057de>

2 Work plan

- 1 We want to make an exploratory analysis to examine dependencies in the available data. We also want to be able to detect periods in the data that deviates from the normal behavior, e.g. summer vs winter, weekdays vs weekends or holidays.
- 2 Simple statistical models in order to investigate/examine the influence of different parameters on the heat consumption for each house. This could include a moving window analysis of the parameters, and comparing significance of the parameters for different houses.

- 3 We want to establish models for the hourly data as a time series, to make a mapping of different tendencies for the heat consumption during the day.
- 4 Using the chosen models, we want to make forecasts for the heat consumption in the different households. We want to make the models as robust as possible, so that they might be used in the Watts app.

3 Timeline

During each period, we will make sure to write the corresponding chapters of the report.

Week 1-4: Processing the data.

Week 4-6: Exploratory analysis.

Week 7-10: Simple statistical models.

Week 11-13: Time series models for the hourly data.

May: Exam

Week a (30/5-6/6): Forecasts.

Week b (7/6-13/6): Fixing possible 'problems', finishing the report.

Week c (14/6-20/6): Finalizing the report (brownie points). Proofreading.

20th of June: Submission.