

# **Electricity Load Forecasting for Office Buildings - Evaluation of Alternatives**

- Project Group  
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# Goal

- Evaluating alternative approaches for ***short term load forecasting*** for office buildings
  - Using ARIMA models
- Predict electricity usage with 15 min. horizon

# Technical Problem Solved

- Inputs
  - KreSIT load data (3 months)
  - homeC load data (3 months)
- ARIMA forecasting using Arima(2, 1, 2) model
- MAPE (KreSIT): 9.9100

# Work Promised Work Achieved

- Promised:
  - ARIMA based forecasting
  - Use seasonality, humidity, occupancy data
- Achieved:
  - ARIMA based forecasting
- Seasonality: Not handled. Limited data
- Humidity, occupancy: No provision in ARIMA models

# Future Work

- Improve ARIMA model used for forecasting
  - Residuals have some correlation
- Seasonal ARIMA model with more data
- Explore advanced forecasting methods based on dynamic regression, neural networks

# References

- “Forecasting: principles and practice”  
<http://otexts.com/fpp/>
- KreSIT data (Courtesy: Uddhav and Surendra)
- homeC data (Courtesy: Prof. Shenoy)
- J. Contreras, R. Espinola, F.J. Nogales, and A.J. Conejo. Arima models to predict next-day electricity prices. *Power Systems, IEEE Transactions on*, 18(3):1014–1020, 2003.

Thank you