Eine Smart Grid Architektur und Umsetzung zwecks Datenanalyse und Leistungsmanagement am Beispiel des Stromnetzes der OTH Regensburg

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Agenda

1. Introduction
2. Project goals
3. Energy landscape OTH Regensburg
4. Architecture and Reorganisation
5. Software for Monitoring and Analysing
6. Data analysis
7. Results and Future Work
Smart Grid

- Renewable energy production is not predictable
- Unbalance in power grid between energy consumption and production
- Optimization and monitoring of energy data through Smart Grids
Smart Grid

Renewable energy production is not predictable

Energy supply > Energy demand

Demand - Side - Management
Project goals

- Software development for monitoring and analyzing of energy data
- Reorganisation of the architecture for data collection
- Load peeks analysis
- Future: Automated Demand-Side-Management
Energy Campus

- small photovoltaic installation
- About 35 energy analyzers
- linked via ethernet
Energy Campus - Architecture after reorganisation
Energy Campus - Webview

- JavaScript
- HTML5
- Real-time monitoring of important buildings
- Refresh every second
Energy Campus - Webview

- Map View
- Visualization of different energy analyzers and their data
Data analysis

- Different chart types
Data analysis - Load peaks Mensa

Max Wirkenergie 06.10 - 12.10.2014
Zeitliches Auftreten der Lastspitze

Susanne Kenner

12 / 15
Data analysis - Elevators

- Semester break
- Irregular

- During semester time
- Regular
- Power consumption is proportional to lectures
Results and Future Work

• Implemented software makes analysis of power data easier

• We need more energy analyzers for a detailed analysis

• Then we could develop algorithms for automated Demand - Side - Management
Thank you for listening.