

# Development and Demonstration of Financial and Technical Concepts for Deep Energy Retrofits

Darmstadt, DE, September 9, 2013



## Essential Facts about PFC in Siemens Elektromotory Mohelnice



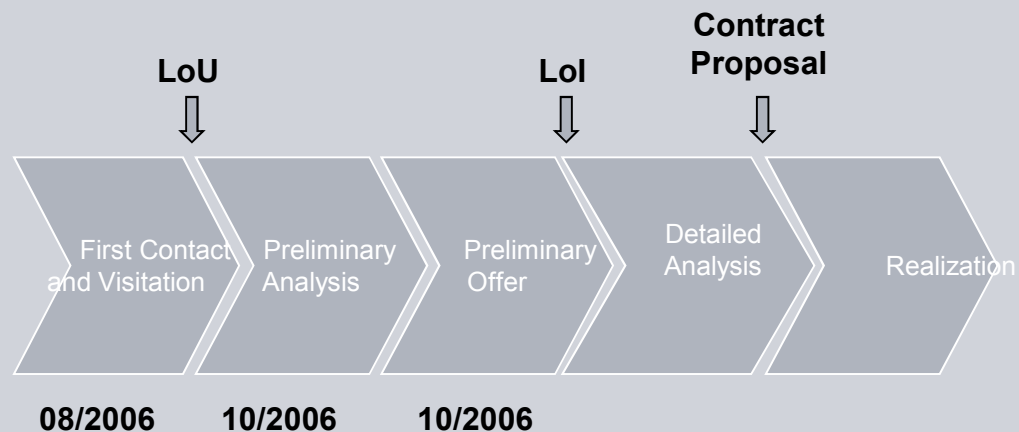
## Who is the Customer

- The biggest Siemens plant in Europe
- Covered area of > 30 ha
- 2 100 employees
- > 50 buildings and halls
- Design and production of electric motors with output 0,3 - 15 kW
- Own iron foundry
- ø 7000 motors per day



## The Very Beginning

- First meetings and negotiations in 3.Q 2006
- High savings potential discovered, short payback time
- Customer interest in energy efficiency
- Preliminary Analysis Report submitted in October 2006





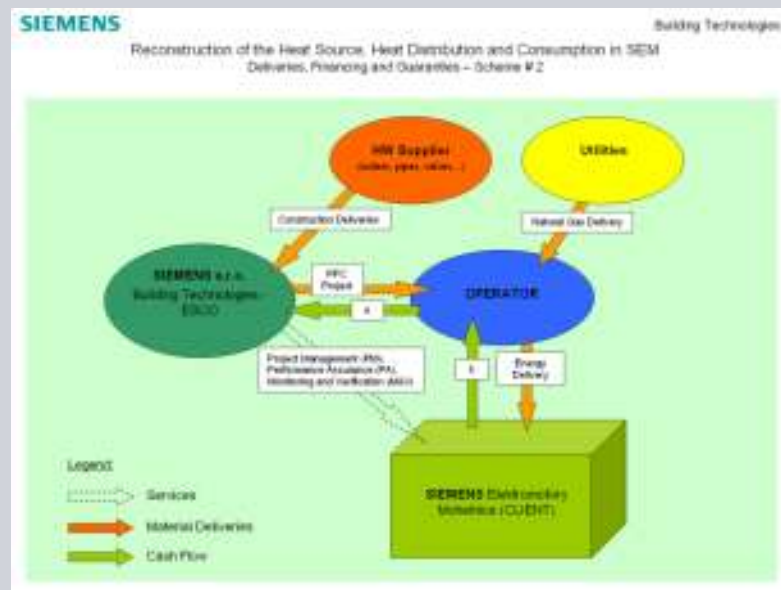
## Pre - Project Situation

- Central heat supply
- High loss in distribution system
- Obsolete heat exchanger stations in buildings
- Incomplete BMS
- Good energy management with limited control possibilities
- Baseline heat consumption 122 900 GJ p.a.
- Continuously rising energy unit price



## Acquisition Phase

- January 2007 – April 2007 ...searching possible ways to finance the project
- May 2007 ...the only solution is:
- October 2007 ...Lol signed the plant must finance alone
- November 2007 – February 2008 ...Detailed Analysis
- **November 2007 ...Heat delivery contract terminated by the plant!!!**
- March – July 2008 ...PFC contract negotiations

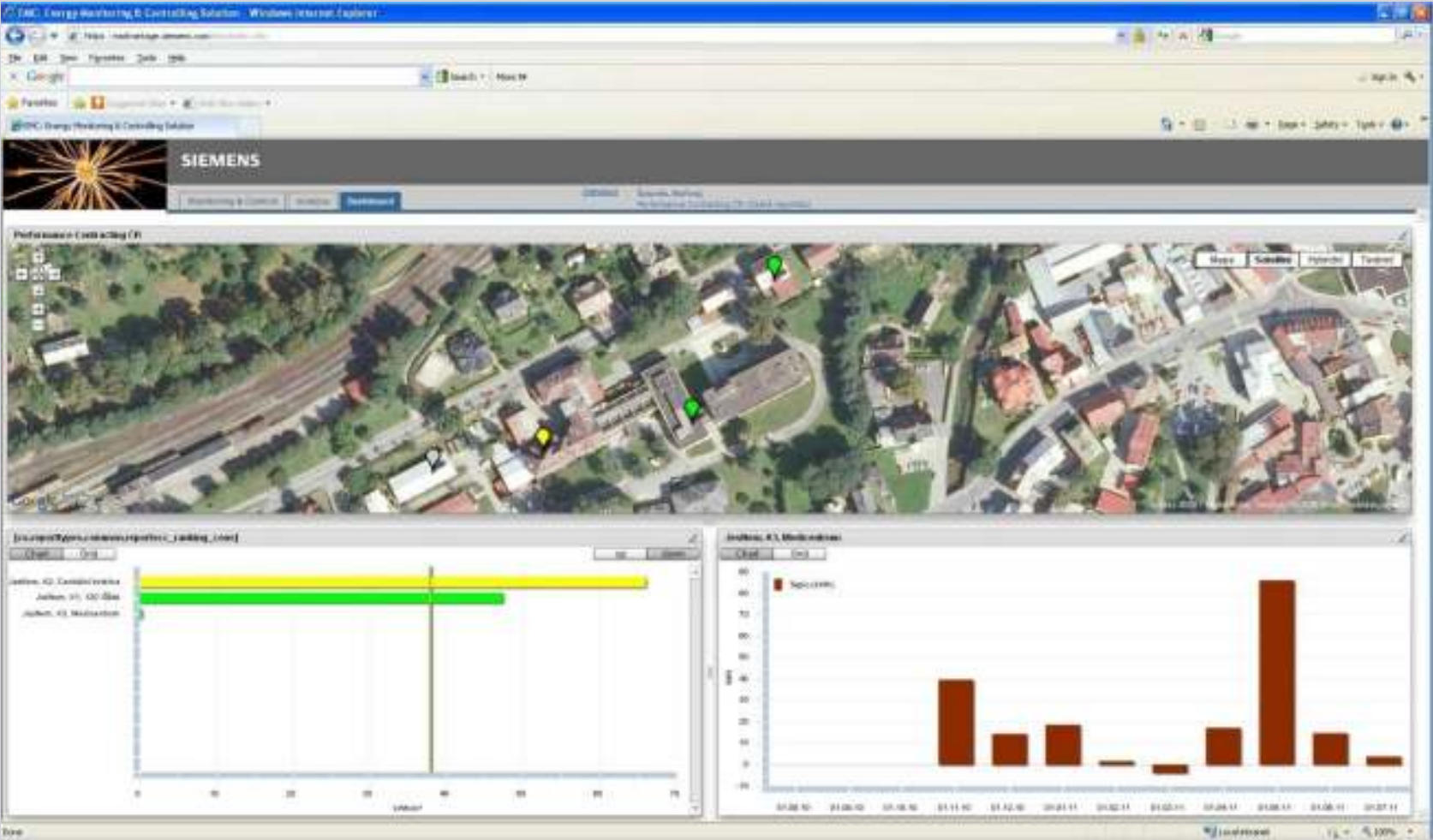


## Project Description

- design + project management
  - new gas pipeline network
  - new local boiler plants
  - new quick steam generators for production purposes
  - reconstruction of heat-exchanger stations
  - new BMS Desigo PX incl. 36 submeters and control center
  - integration of existing Honeywell controllers
  - tariff measure
  - energy management + EMC
- 
- Guaranteed savings: 6 795 GJ p.a. (EUR 0,59 million)
  - Implementation phase: 04/2008 – 03/2009
  - Performance Assurance: 1.5.2009 – 30.4.2012 (3 years)
  - Investment: EUR 1,76 million



## EMC + AOC

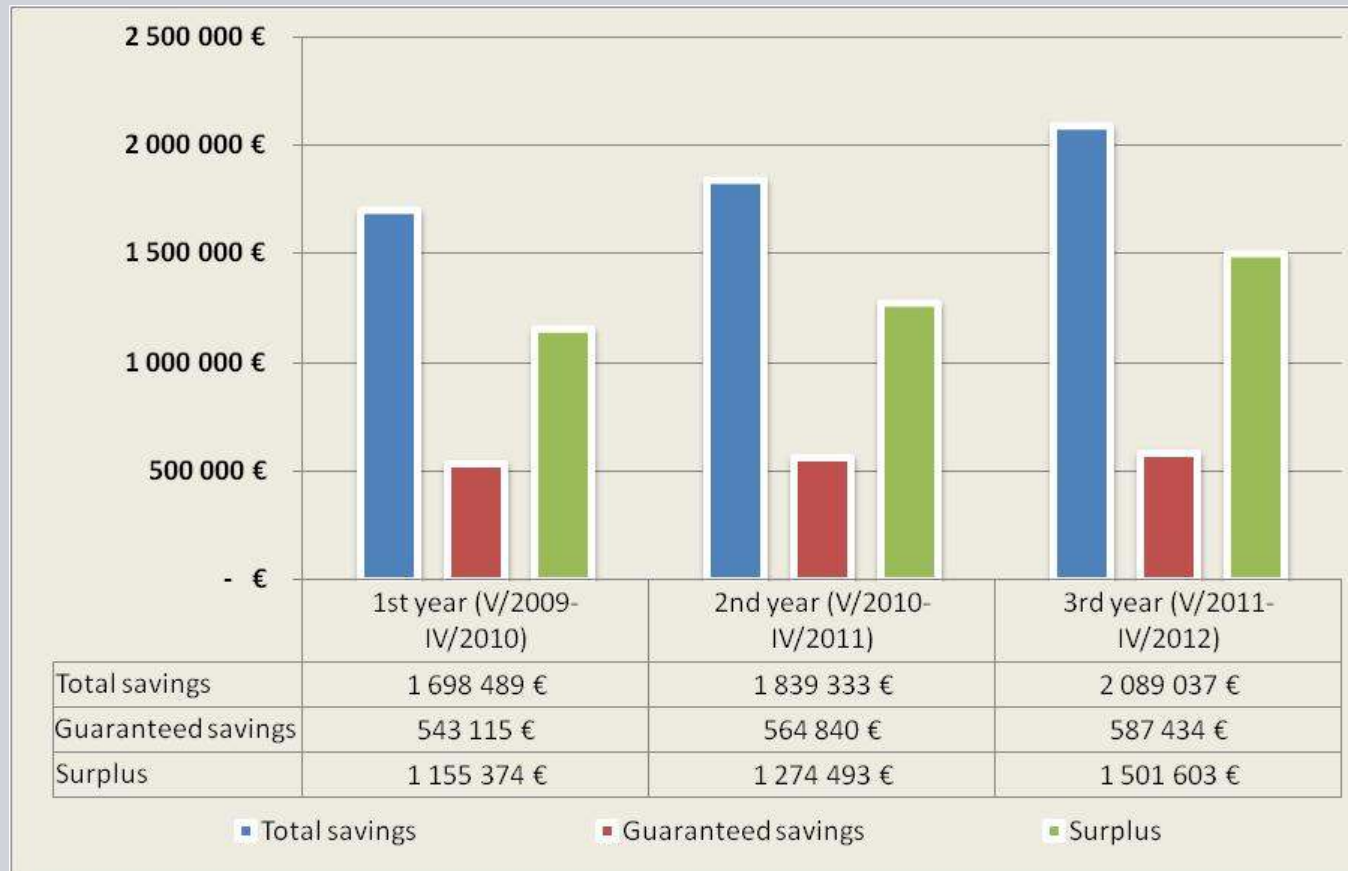








# Project Results



## Project Results

- All work completed according to agreed plan
- 100% functionality of the new equipment
- Savings achieved
- European Energy Service Award 2009  
for the Best European Energy Service Project in Commercial Sector



## Key Success Factors

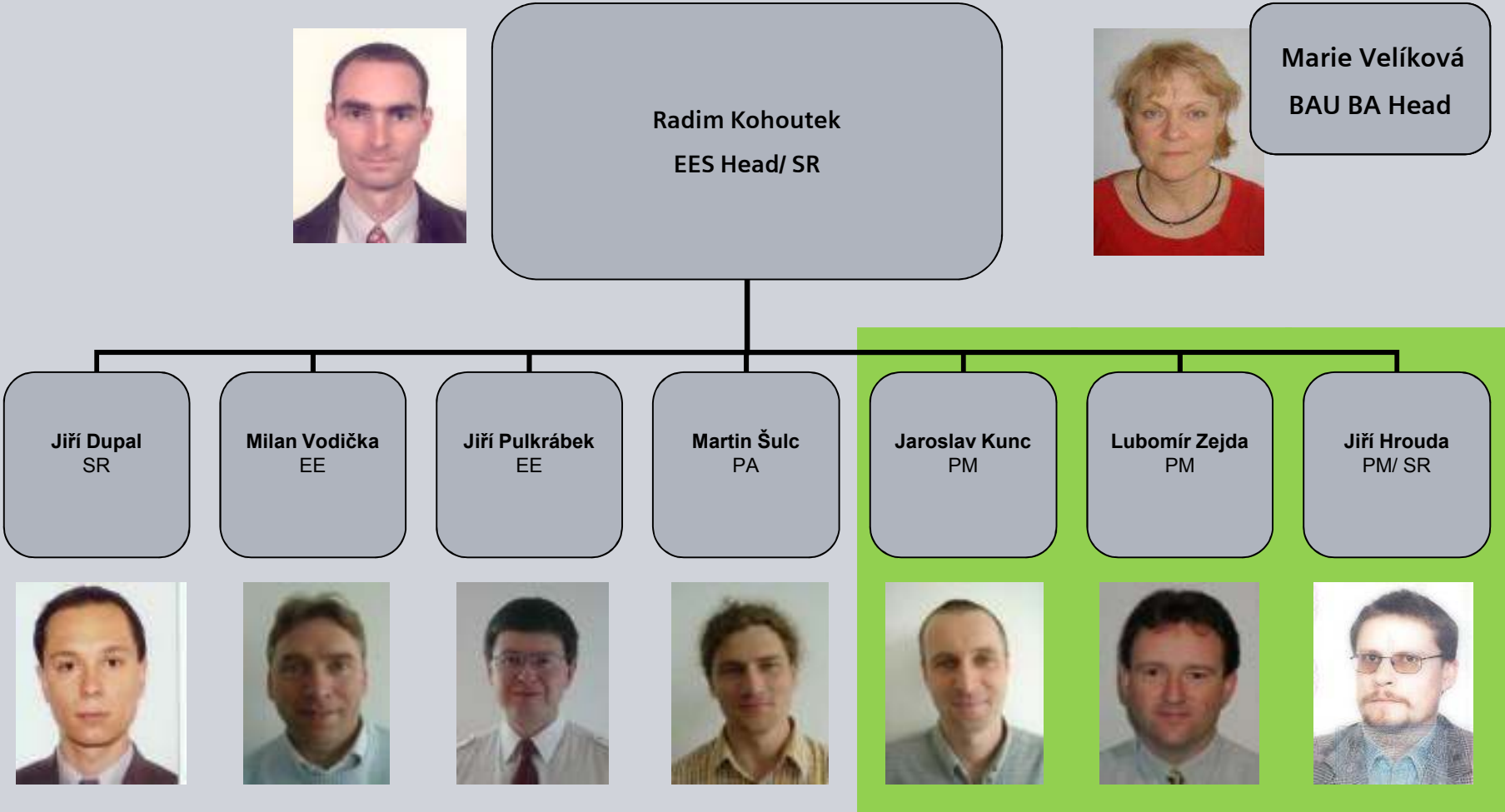
- Consolidated and motivated project team
- Support from local Siemens Management and HQ
- Trust in proposed and implemented solution
- VERY cooperative and cool - headed partner on the customer's side



And his Energy Effective Vehicle



# Our Team from 2008 to 2011





## What Could Have Been Done Even Better

- More clear rules for PFC between Siemens Companies
- More time for planning and project development
- Separate project team incl. 3 PMs since the very beginning

**...NO PAIN NO GAIN**

## What Next in Mohelnice?

- Lighting retrofit ...*partly done*
- electrical energy consumption optimization ...*continues*
- AOC connection ...*done*
- Green Building Monitor ...*to be prepared*
- Cooperation on ME! ...*continues*
- ...
- Green Building (Plant) Certificate?





**SIEMENS**

**Thank You for Your Attention**

**Radim Kohoutek, EES Manager**  
**SIEMENS, s.r.o.**  
**Building Technologies Division**  
Siemensova 1, 155 00 Praha 13  
E-mail: [radim.kohoutek@siemens.com](mailto:radim.kohoutek@siemens.com)