ENERGY MANAGEMENT

The way to Energy Efficiency Improvement

Case Study ArcelorMittal Ostrava, Czech Republic

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INSTAR ITS Ostrava

Company introduction

Founded in 1991 in Czech Republic

Very stable team of founders and employees

Permanent growth - application partners in Czech Republic, Germany, Poland, Slovakia, Japan and USA, in 1999 representative office in Germany, in 2008 subsidiary in Japan, in 2011 joint venture company in USA

Strongly focused on energy management – ENERGIS

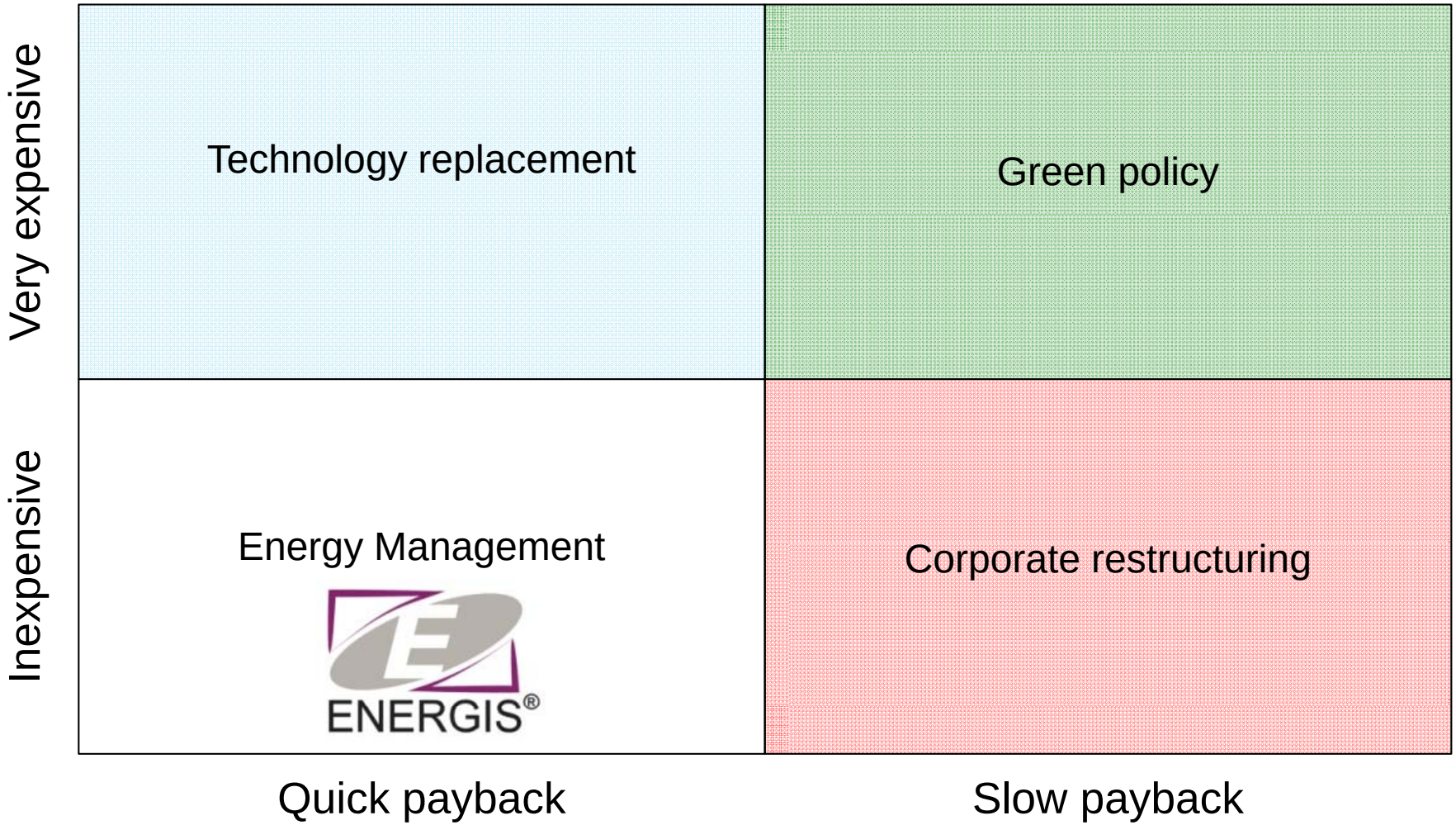
Cooperation with universities

Energy savings from ENERGIS since 1993

- **more than $600 million**
- **52 million tons of CO_2**

Energy Management

Energy Efficiency Measures

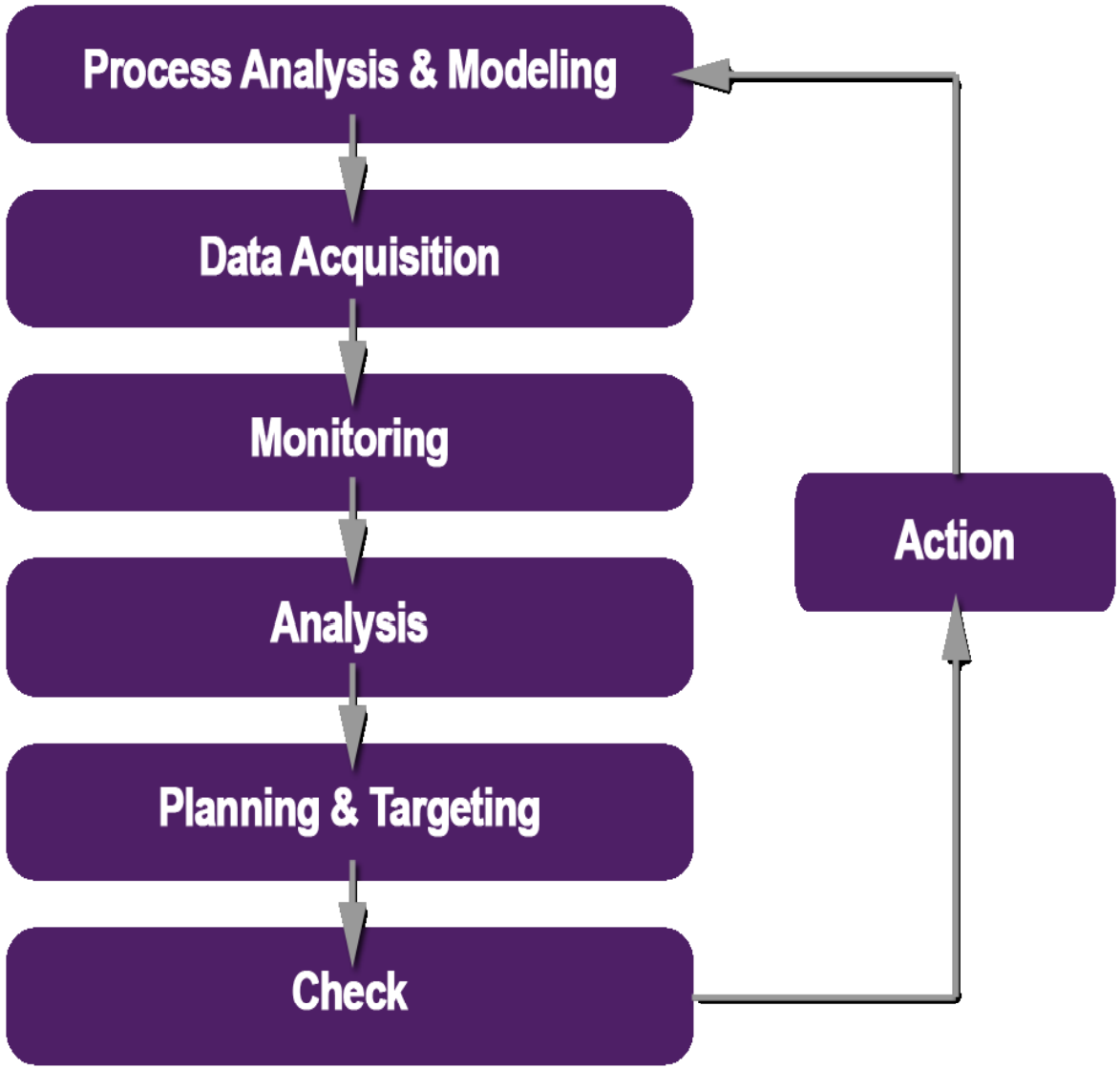


Energy Management

Systematic and periodic management activities focused on energy efficiency improvement and reduction of CO2 emissions.

Low cost measure resulted from energy audit.

Definition by ISO 50 001.



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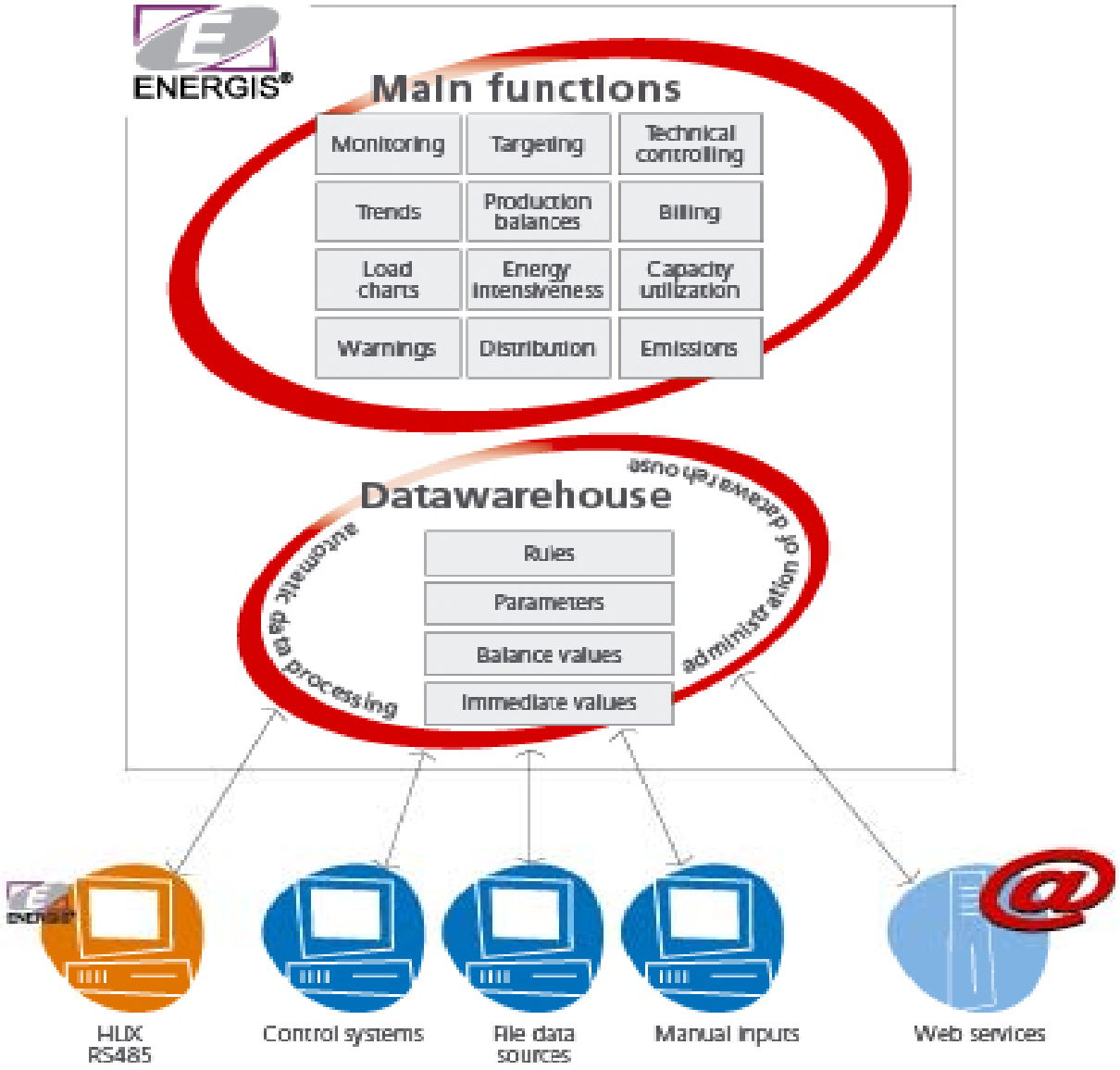
How it works



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Functional Overview

Data Collection (Meters, Control Systems /PI, InTouch, …/, Manual)

Operation Monitoring (Various Time Frames, Plant Modeling, …)

OLTP/Analysis (Predefined, Ad Hoc)

Technical controlling(Company, Facility, Department, Unit)

Customer Billing (Electricity, Steam, Gas, …)

System Integration (ERP, Maintenance, WEB, …)

Production Planning (Plan vs Actual, Profit Calculation, …)

Environmental Management (Government Regulation Compliance)

Reporting and benchmarking

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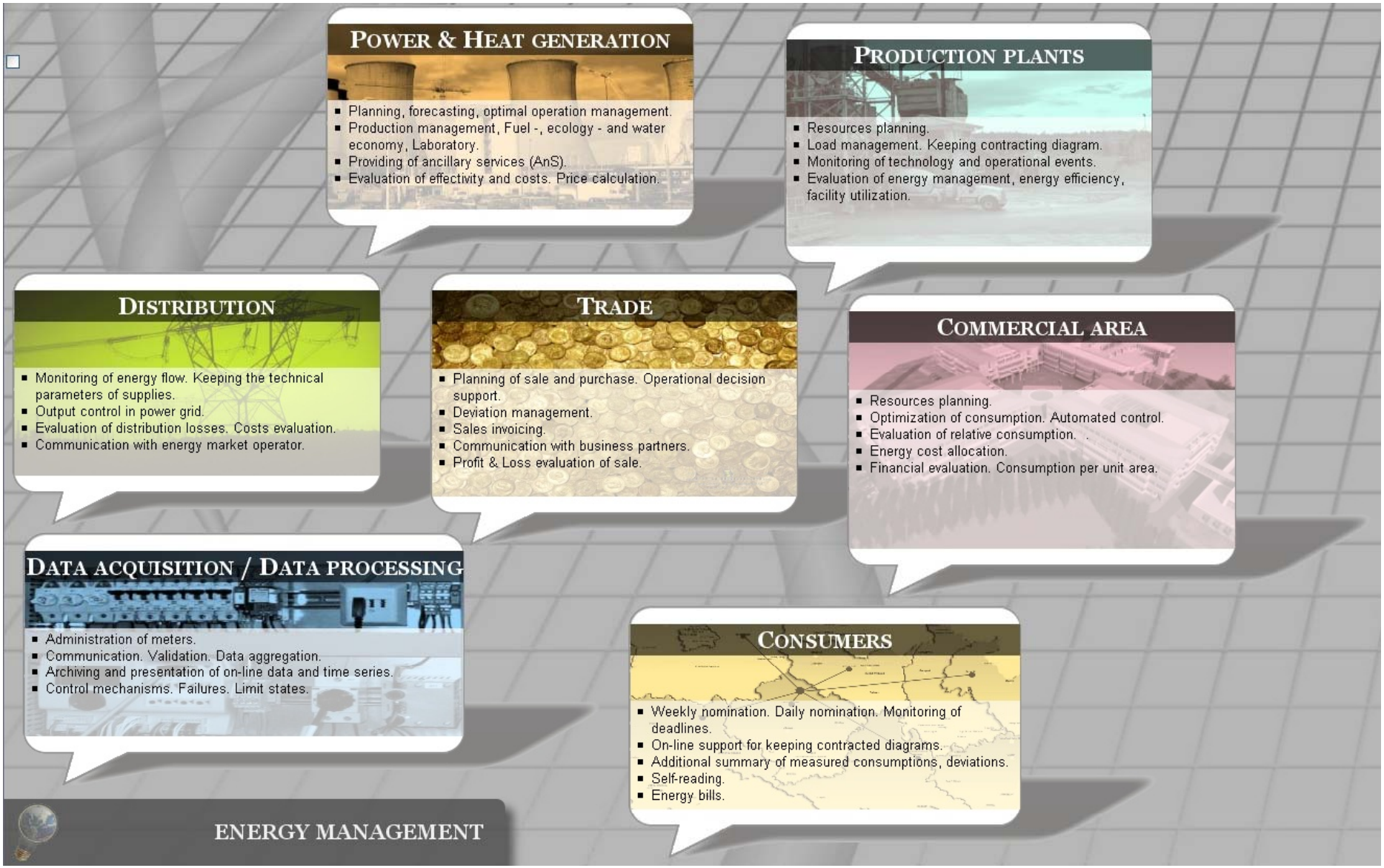
Sectors



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Features

Mature Product (3-4 Scheduled Upgrades/Year, Backward Compatibility, solves customer needs immediately, long term value)

Self Sufficient Design (Parameters, User customization, Standard Reports)

Multi - Language (English, Czech, Japanese, German, French, Polish, …)

Open Architecture (Data Sources, Unlimited nodes, Internet, Clouds)

Fast implementation – mostly up to 6 month

Scalability (system leverage grows with customer’s knowledge)

SaaS (reduction of investment budget, first testing – later on buying)

Expandable (New Data Sources, Organization Changes, …)

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Motto: Act locally think globally.

Services provided:

Business process analysis, Design of energy management improvement

Installation of HW and SW

Integration of Data Sources

Adjustment of Data Model, User Portals, User Rights

Training of application users and administrators

Multi-Level-Support

- SW maintenance
- Hot-line
- Technical Consultancy
- Energy Management Consultancy
- Outsourcing
- Outhosting

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References

Customer	Owner	Sector
ArcelorMittal Ostrava	ArcelorMittal, GB	Metallurgy
SKODA Auto	Volkswagen, Germany	Automotive
VW Emden	Automotive, Germany	Automotive
PG Silesia	EP Holding, CZ	Mining
Panasonic AVC Networks	Panasonic, Japan	Electronics
Showa Aluminium Czech	Showa Denko, Japan	Metallurgy
DICZ	Daikin, Japan	Machinery
AGC	AGC Japan	Automotive
Power Plant Vitkovice	CEZ, CZ	Power Generation
CEZ Energy Services	CEZ, CZ	Utility
Globus	Globus, Germany	Supermarket Chain
Prague Airport	Czech Government	Infrastructure

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Case study

AMO is a dynamically developing company focused on production of hot metal and steel and rolled products.

AMO is the largest steel producer in the Czech Republic

Turnover $2 billion in 2010

Energy spent approximately $200 million

AMO is a part of world’s largest steel enterprise

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History

Company has been established in 1951

Full production cycle

- Coke Oven Plant
- Blast Furnaces Plant
- Steel Plant
- Rolling Mills
- ArcelorMittal Energy
- The Maintenance Plant
- Transport Plant
- ArcelorMittal Engineering

Privatized by Lakshmi Mittal in 2003

Green policy since 2003

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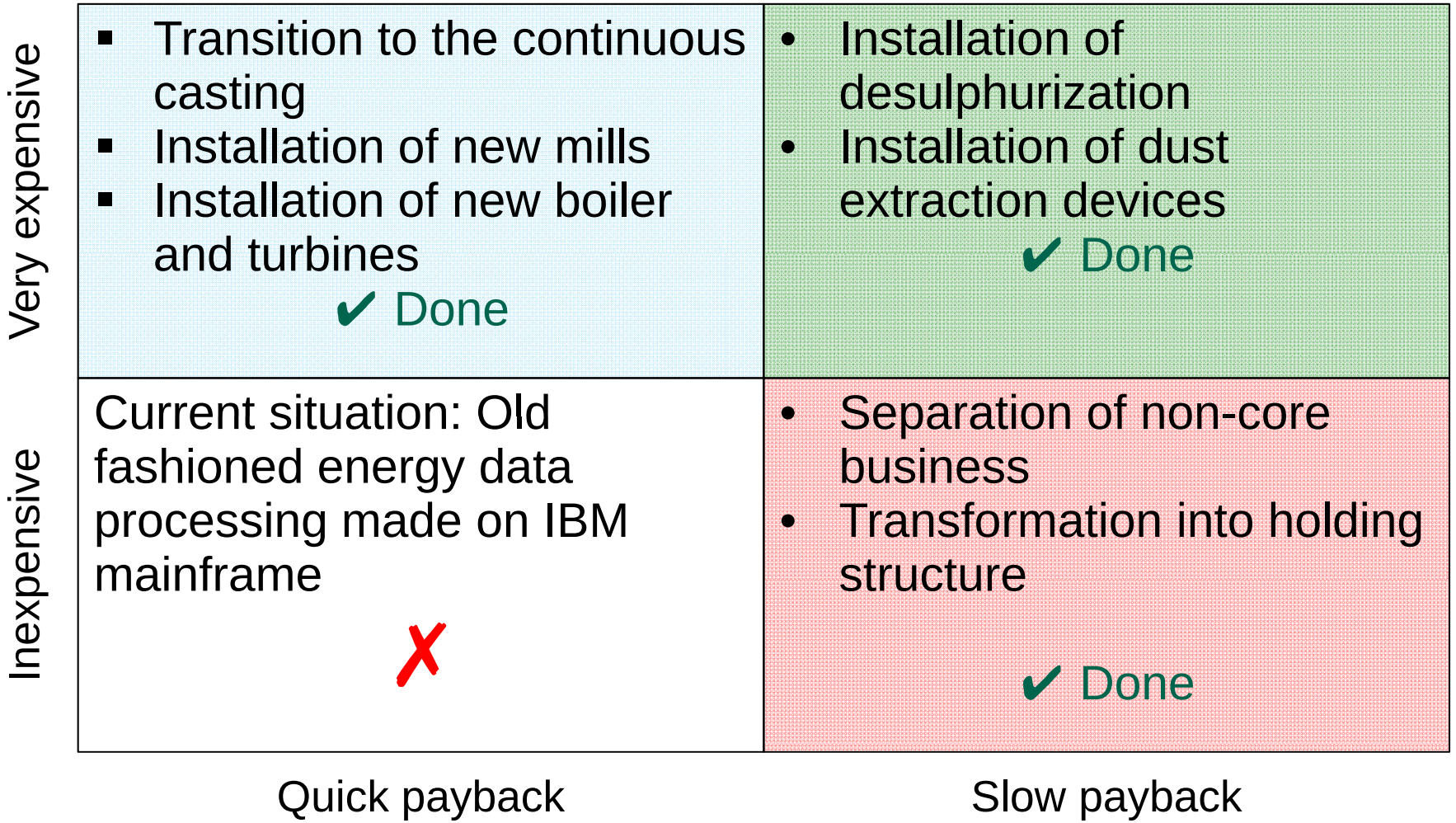
Energy Efficiency Measures at AMO pre-2006



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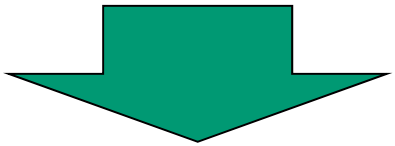
Target of energy efficiency improvement

- Focus on inexpensive measure with savings potential >5%
- Payback shorter than 2 years
- Investment limit $1 million



Project: Optimization of power consumption at AMO
Start: June 2006
Finish: December 2006
Target: 3% saving of power consumption

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Decision factors

Requested solution has to be:

- Ready to use SW
- Open architecture
- Fault tolerant
- Expandable

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Technical solution

Data acquisition from current data sources (13,000 values)

- Powerplant direct control system
- Control system of power distribution grid
- SCADA of electric furnaces at steel plant
- Meters at of off-site facilities of AMO

Data transmission through Intranet and Internet

Local ENERGIS server

100 users

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Improvements

Load control of each department - Improved the specific power consumption at the production plants.

Minimization of losses – Improved production planning, utilization of equipment,.

Improved efficiency of power generation - forecasting of power demand, optimal operation of various boilers (pit-coal, natural gas, coke oven gas, blast-furnace gas), optimal operation of the electric generators and turbo blowers, preferable sales/purchase contracts for power.

Implementation of energy management portal – more than 100 users, energy costs assigned to each cost center, benchmarking and publishing of the results.

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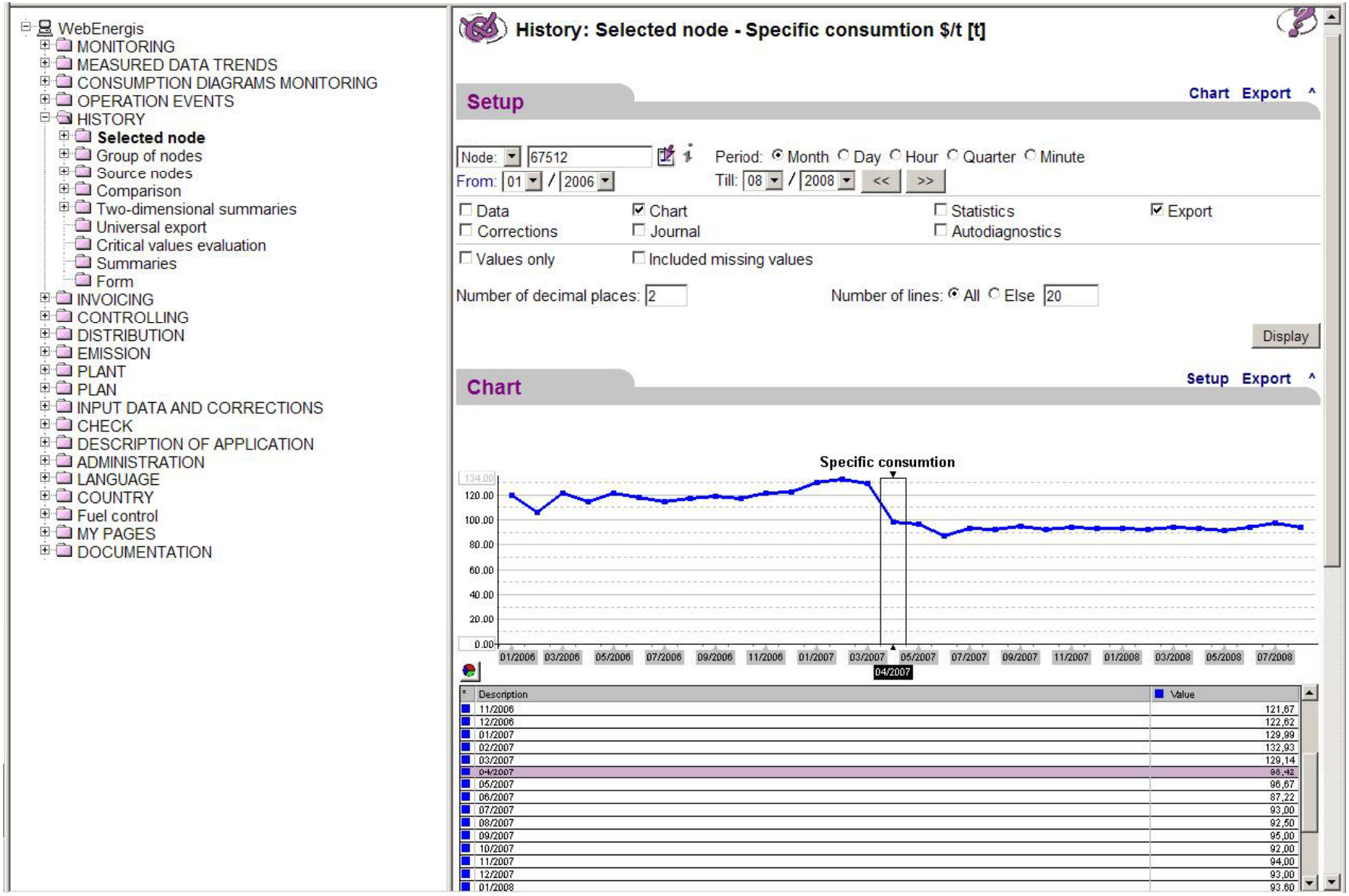
Customer benefits

AMO has announced reduction of power consumption by 10% in 2007.



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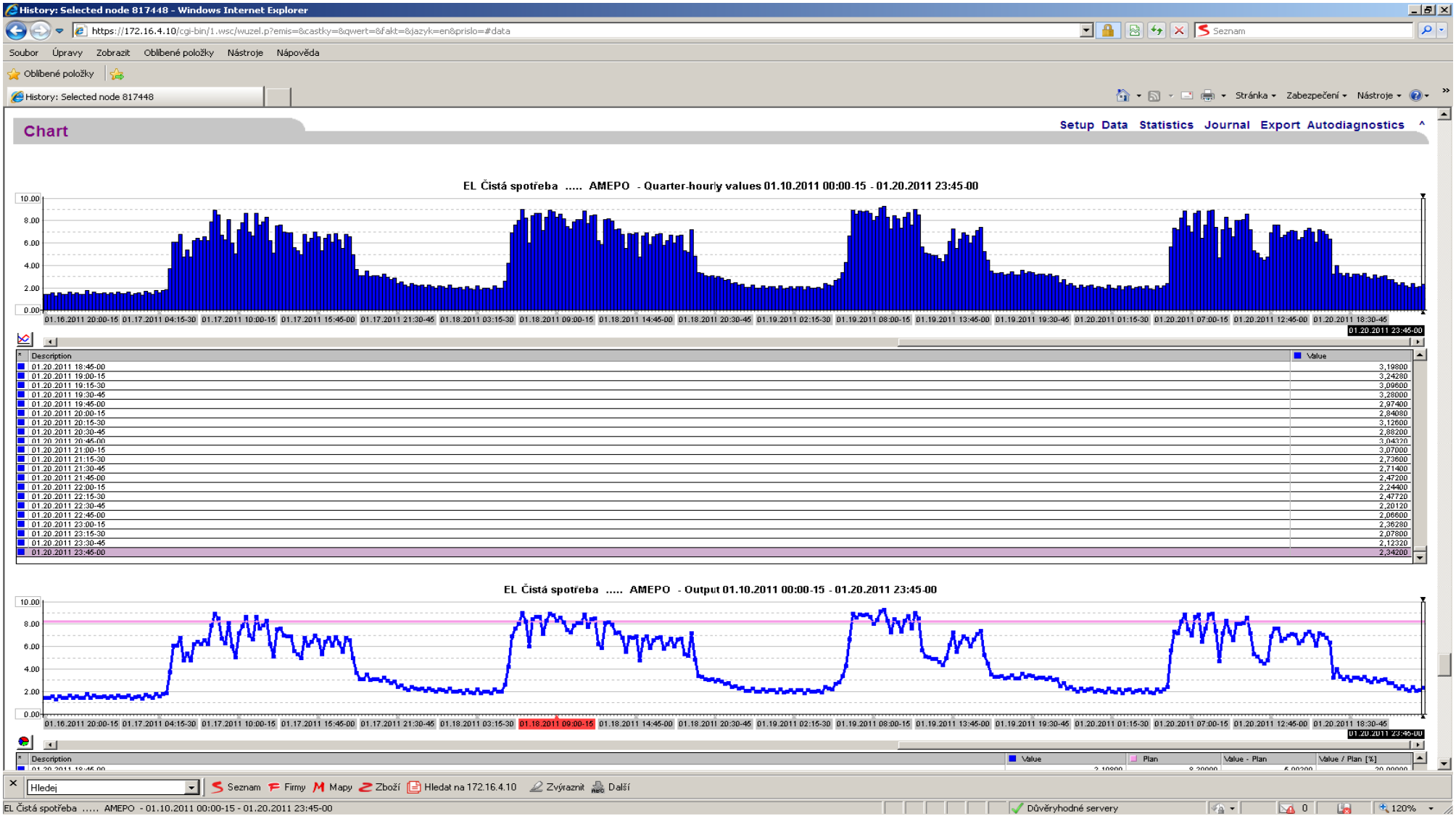

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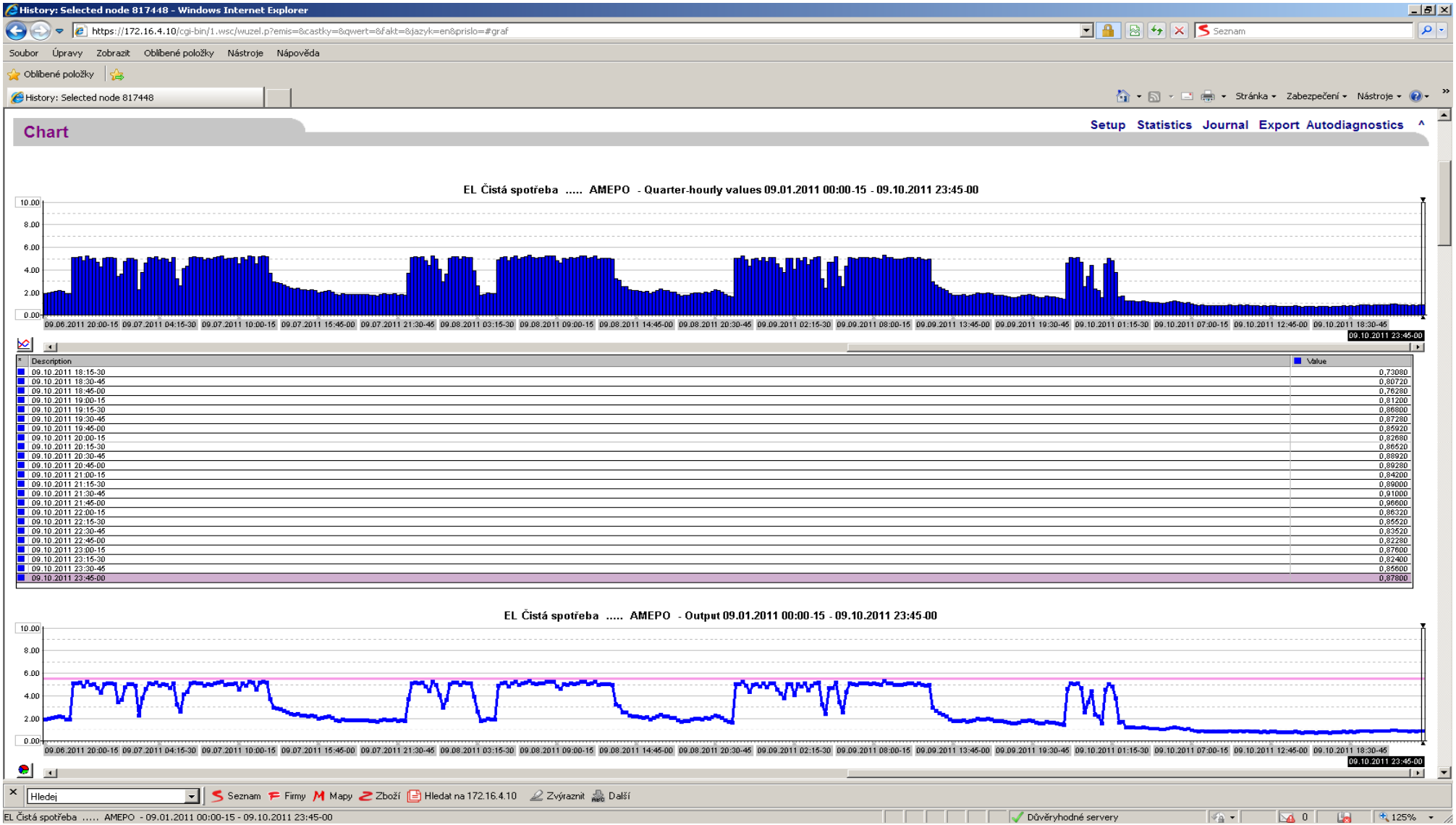

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Conclusion

Energy Management has huge potential for energy efficiency improvement.

Very limited investment risk in comparison with potential benefits

Very fast payback

Immediate and verifiable efficiency gains

Thank you

Questions?

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