

Procedure of energy efficiency studies in a water company

EWA Symposium „WatE_{nergy}R_{esources}“, Munich
06. May 2014

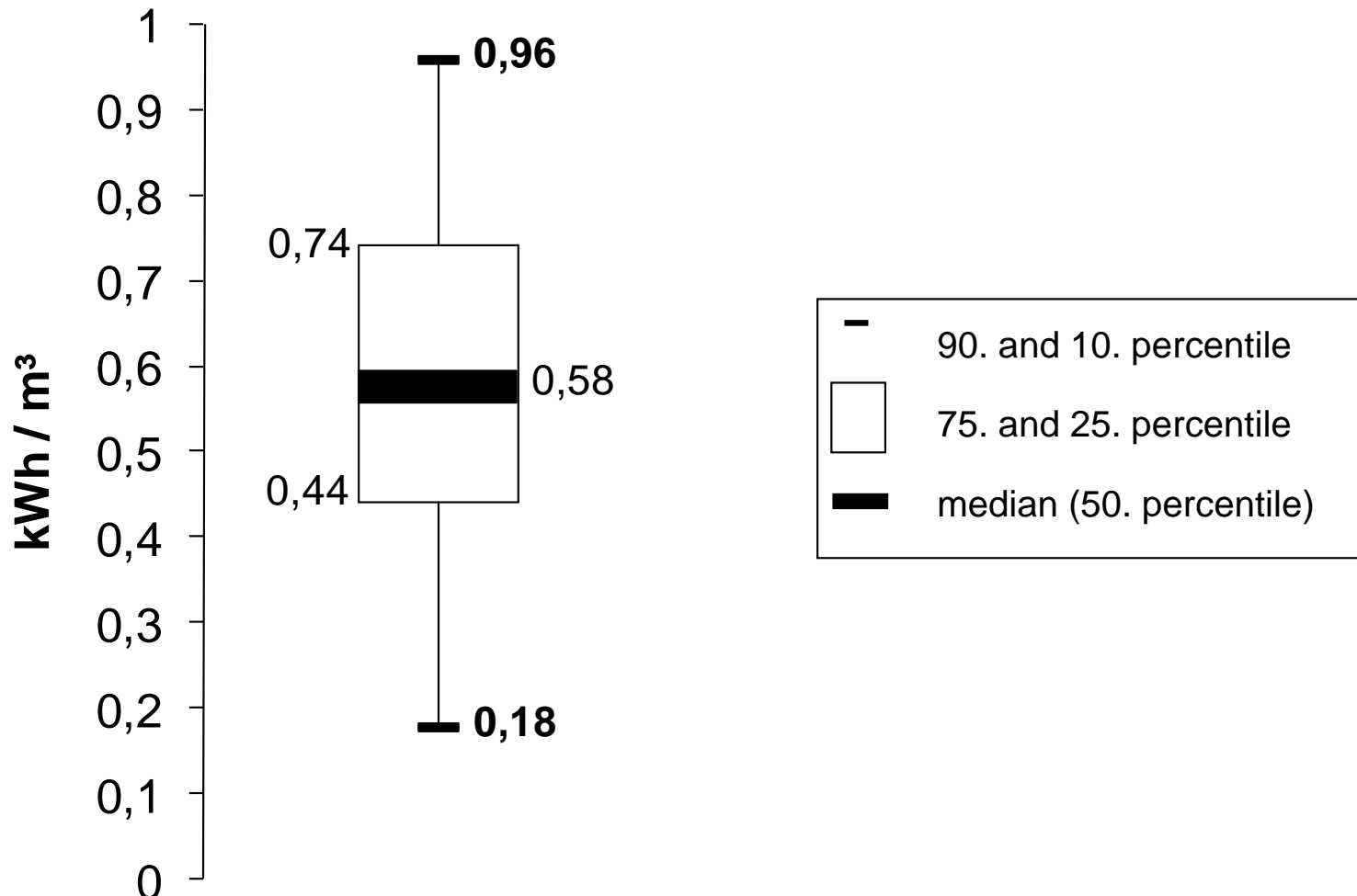
Dr.-Ing. Michael Plath
Rheinisch-Westfälische Wasserwerksgesellschaft mbH



VOR**R**WEG GEHEN

Power consumption (electric energy)

power consumption per m³ (Germany)

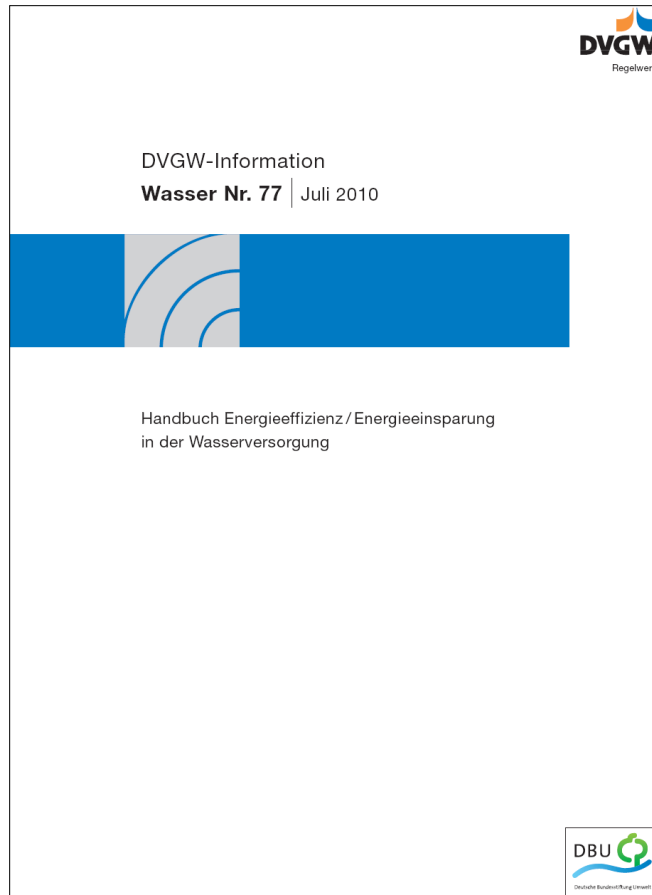


Power consumption (electric energy)

Why does the power consumption spread over a wide range?

- different local topographic conditions
- general structure of the supply area
- different type of water catchment
- different water treatment processes
- different pipe network dimensioning
- etc.

Handbook energy efficiency/energy saving in water supply



Content handbook

1 Introduction

2 Issue of the energy balance

3 Energy saving potentials

3.1 Comment

3.2 Superordinated saving potentials

3.3 Water catchment

3.4 Water treatment

3.5 Clean water pumping and pressure increase








3.6 Water storage

3.7 Pumping

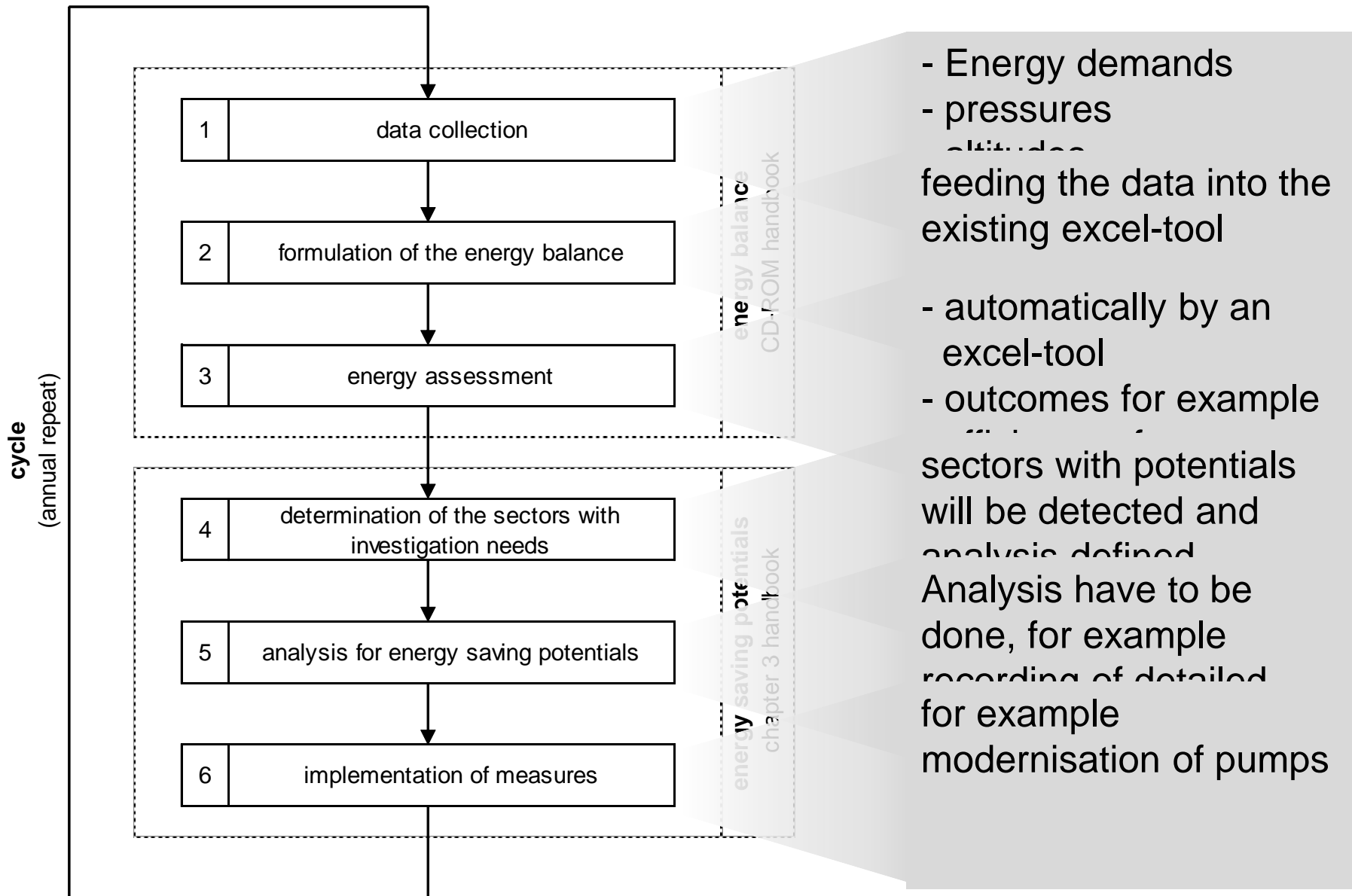
3.8 Operation buildings

4 Energy generation

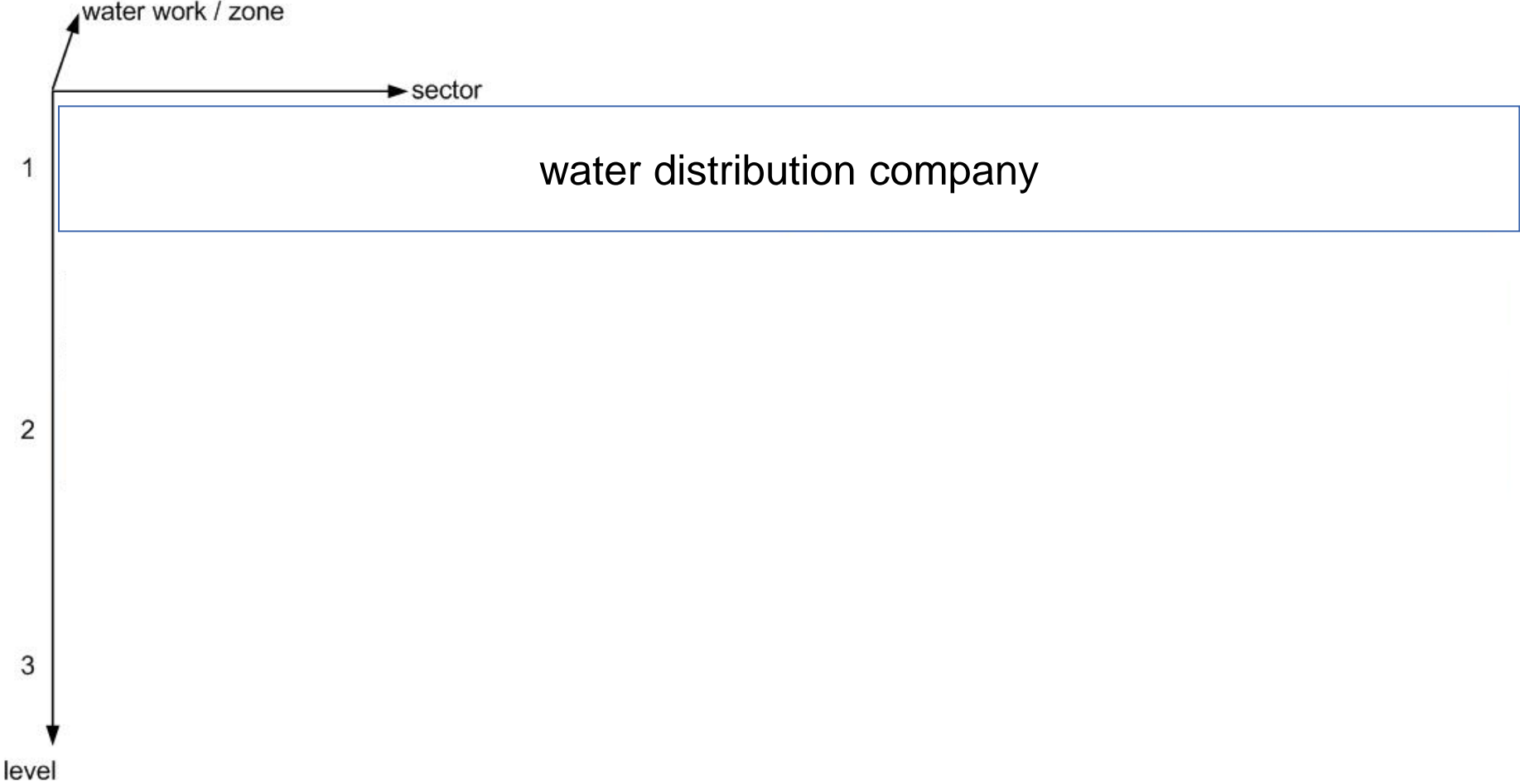
Content CD-Rom handbook

- Energy balance ()
 - 01. Energy balance ()
 - 02. Distribution of the power consumption of pumps ()
 - 03. Evaluation ()
- Energy balance (example) ()
- Calculation generation of electricity ()
- Checklist ()

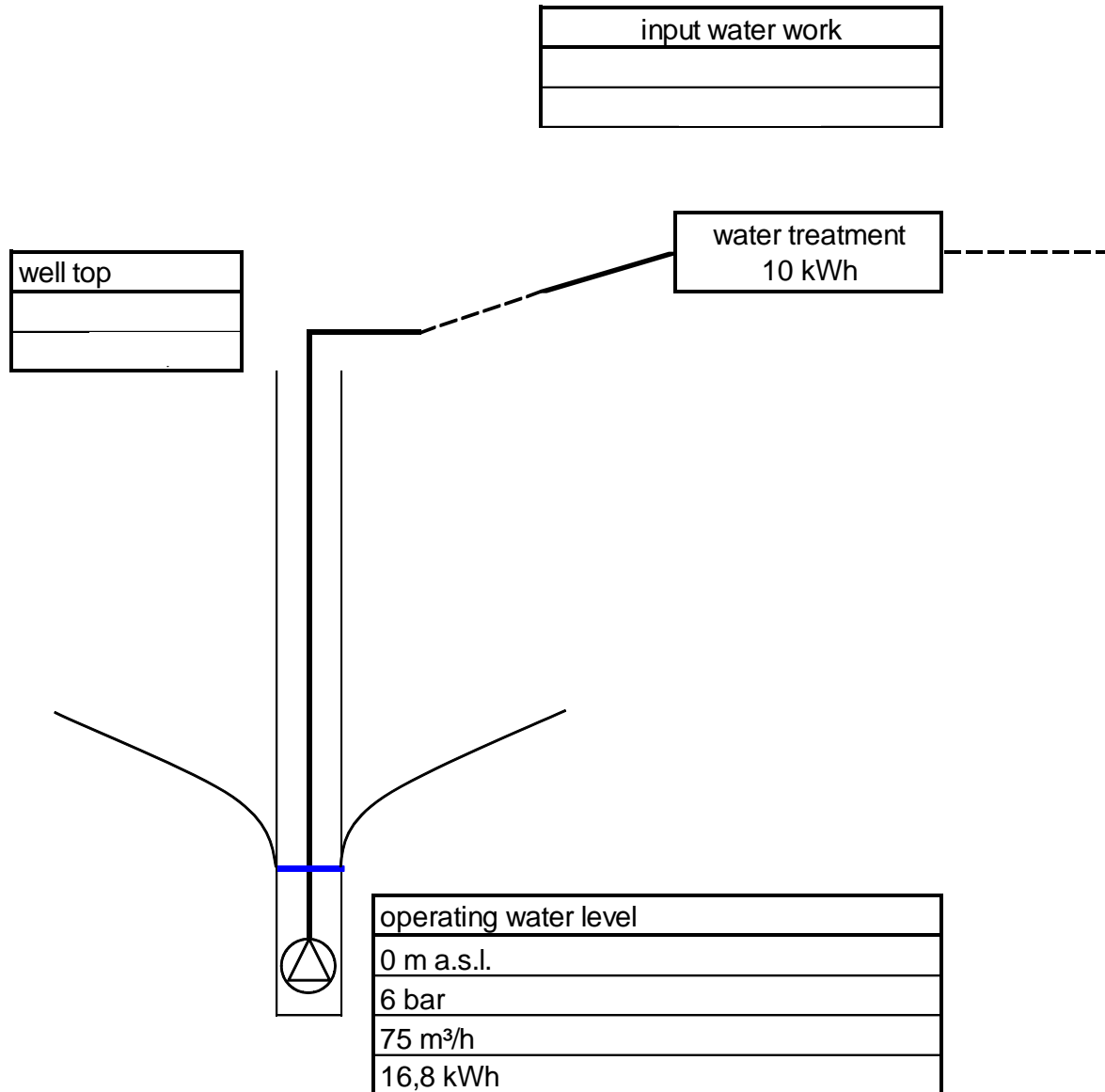
Application handbook



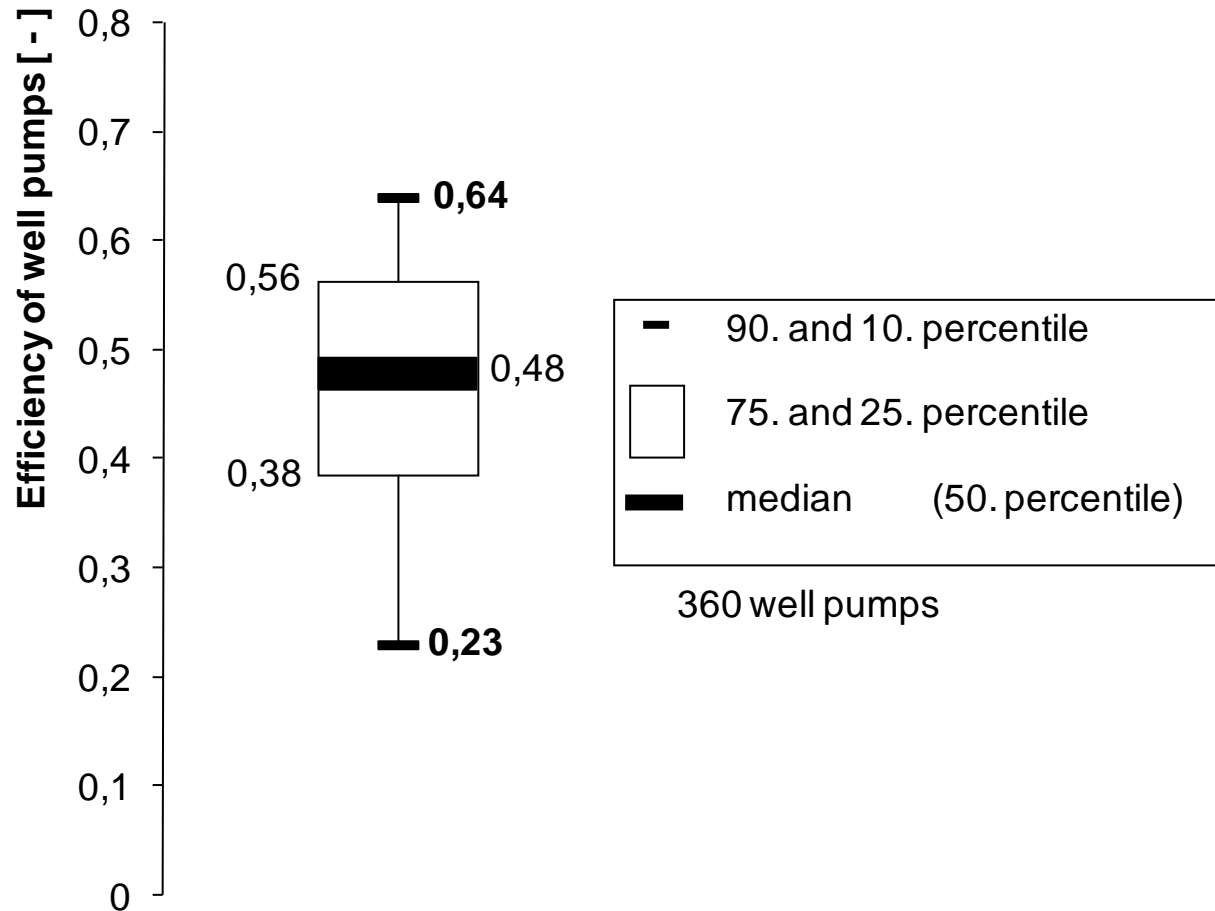
Chain of authority (energy balance)



Distribution of the energy use of pumps



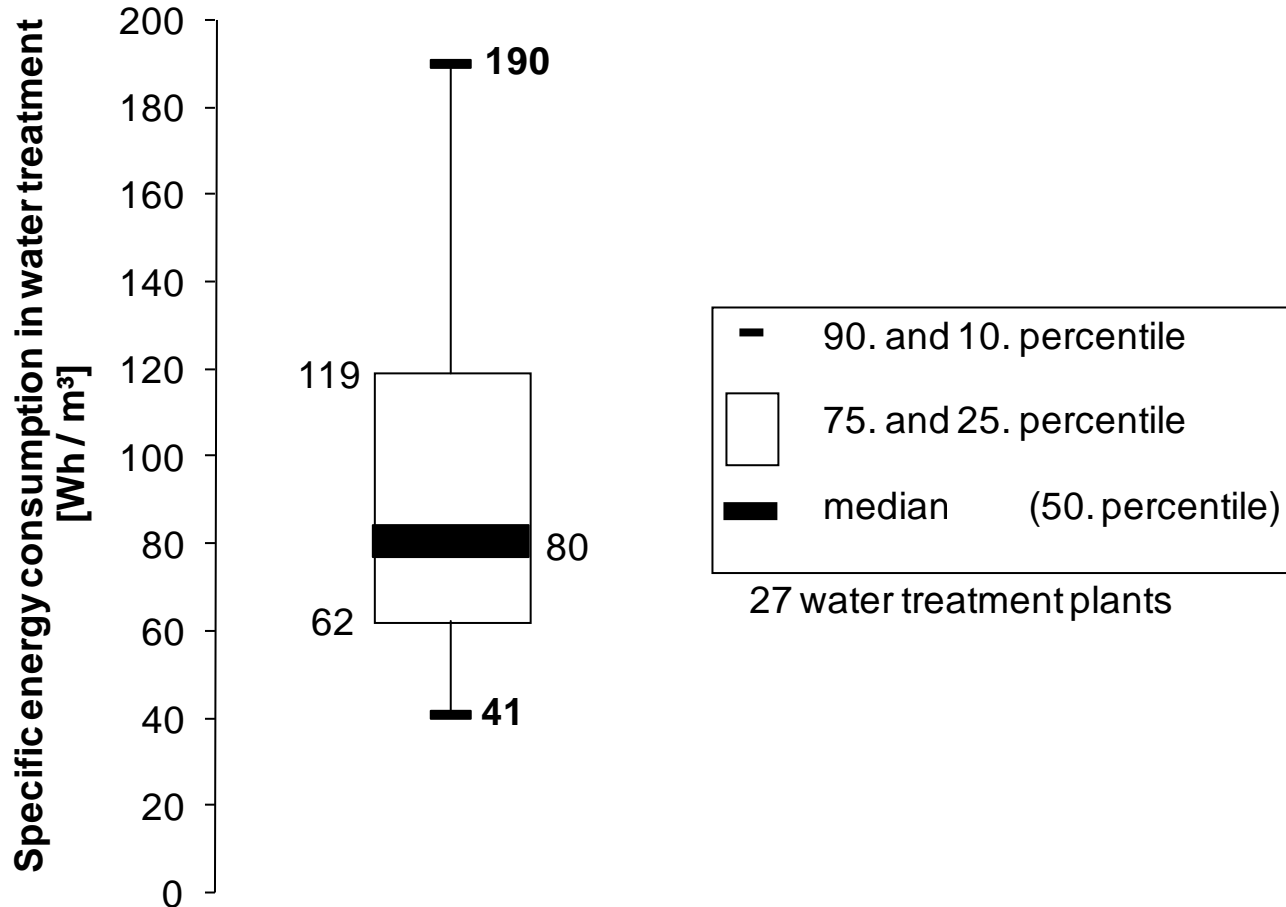
Efficiency of well pumps



Quelle:

ENERGIE WASSER-PRAXIS, 1/2011

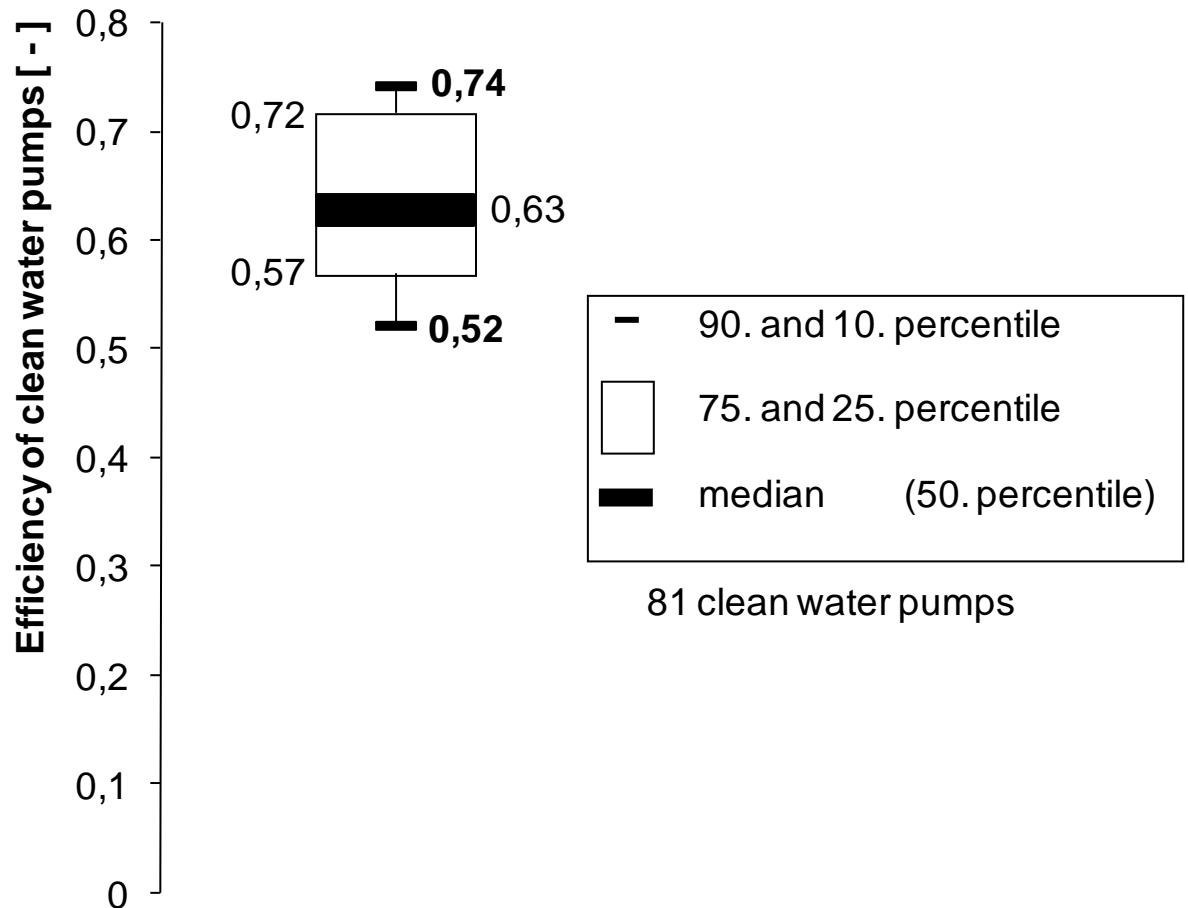
Energy consumption in water treatment



Quelle:

ENERGIE WASSER-PRAXIS, 1/2011

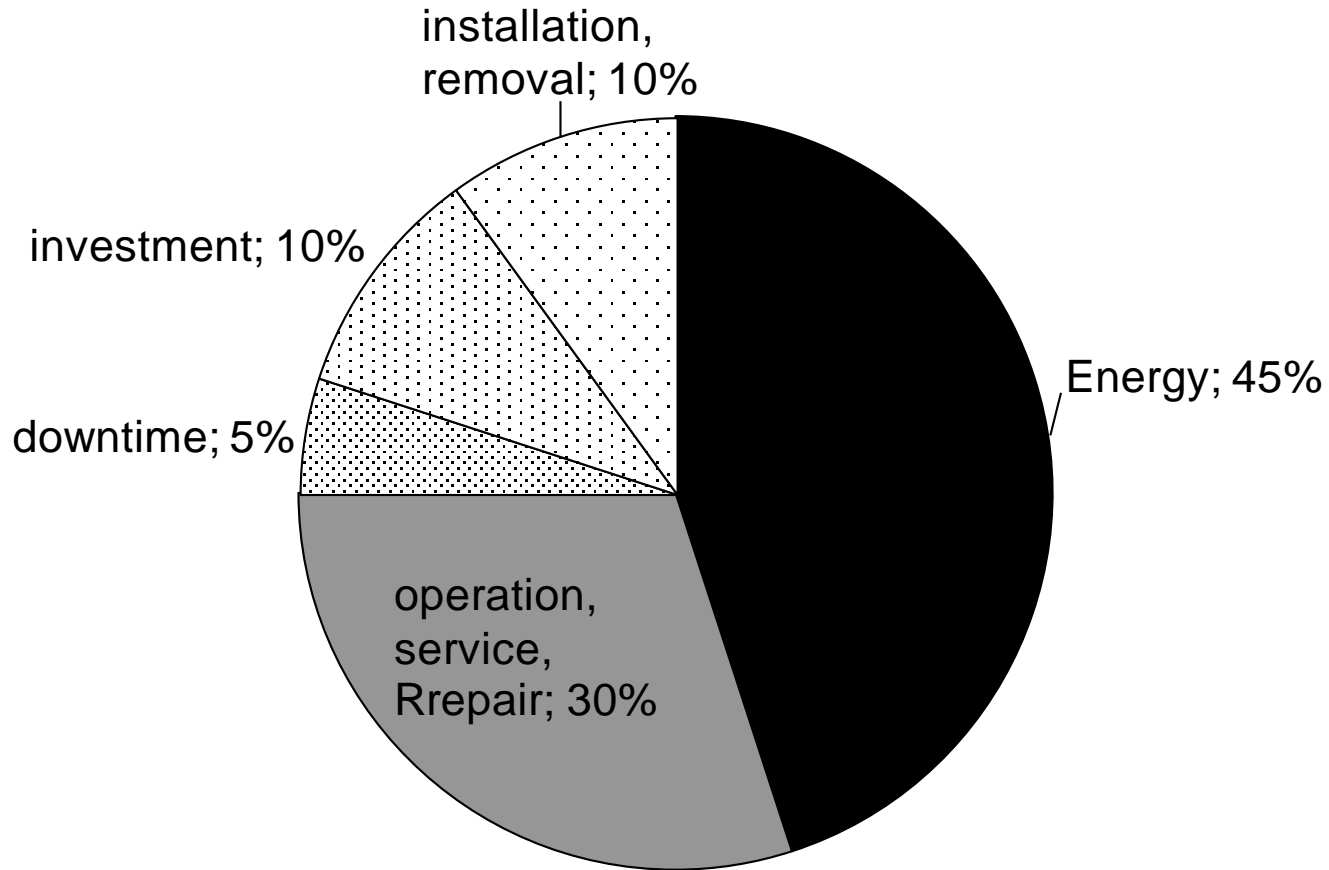
Efficiency of clean water pumps



Quelle:

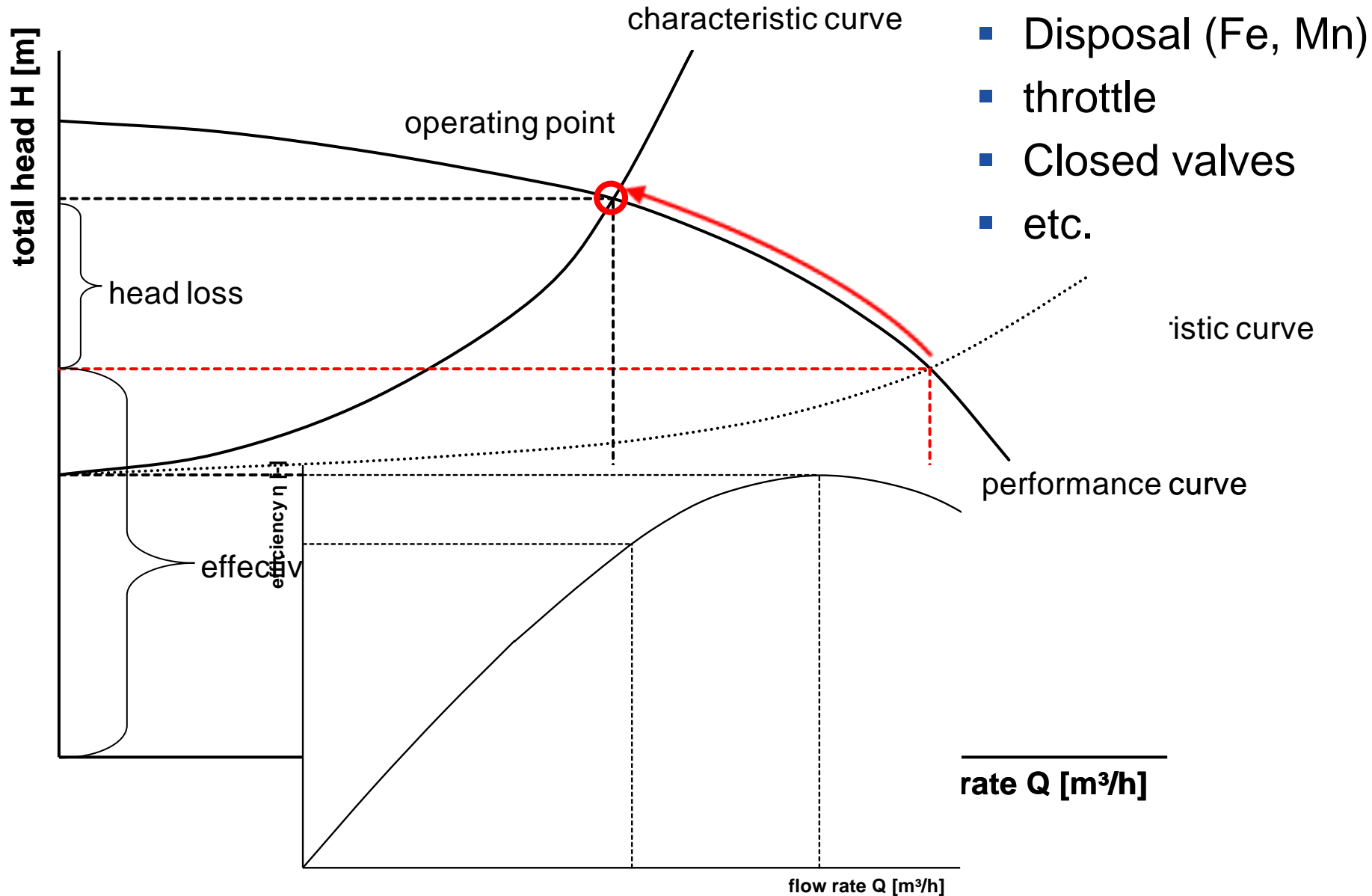
ENERGIE WASSER-PRAXIS, 1/2011

LCC



Life cycle costs of a pump [KSB, 2006]

Characteristic and performance curve



Example clean water pumps I

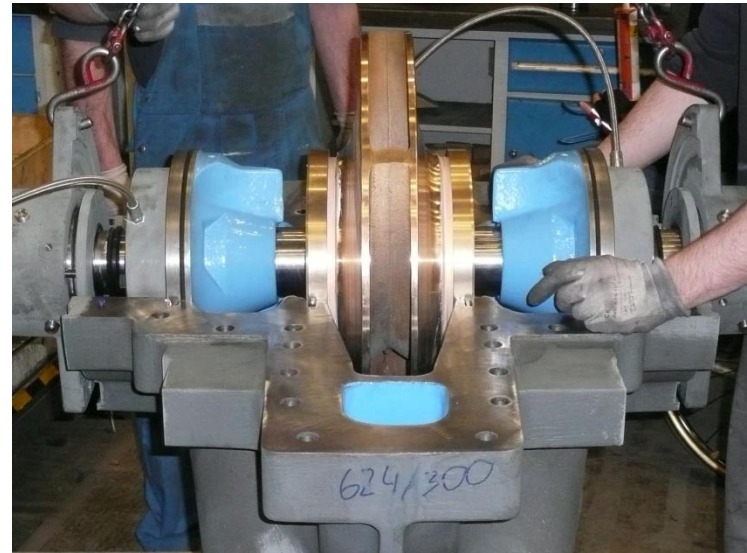


Quelle: ZVZWW DER RECKENBERG-GRUPPE

To polish the blade wheel raises up the pump efficiency around ca. 2 to 3 %

Example clean water pumps II

Coating the parts of the pump housing were the water flows through raises up the pump efficiency around ca. 2 to 3 %



Quelle: ZVZVV DER RECKENBERG-GRUPPE

THANK YOU FOR YOUR INTEREST

Dr.-Ing. Michael Plath

**RWW Rheinisch-Westfälische
Wasserwerksgesellschaft mbH**
- Ressourcenmanagement -

Am Schloß Broich 1 - 3,
45479 Mülheim an der Ruhr
T +49 208 44 33 629
michael.plath@rwe.com



WIR BEWEGEN WASSER

VORWEG GEHEN