



Project proposal: Workshops on R&M and operational practices for the SA thermal power sector : Dr Herbert Urban, VGB PowerTech



# Chemistry in Power Plants

The “**Watersteam cycle**” **WS** can deal with:

- Contamination, sampling and monitoring as well as Round Robin Tests
- Conditioning of water in steam cycles and cooling water cycles,



The “**Water treatment**” **WS** can deal with:

- Methods of water preparation and waste water treatment
- Aspects of efficient lime usage and treatment of river water
- Use of membranes and ion exchangers



The **WS** can further deal with:

- Chemical aspects of co-firing secondary fuels,
- Chemical aspects of flue gas cleaning methods and
- CO<sub>2</sub> separation, analytic and quality assurance

Duration:	1- 2 days
Involved personnel:	2 VGB + 2-3 others

# Flue Gas Cleaning

The **WS** can deal with:

- The current developments in the classical fields of removing dust, sulphur oxide and nitrogen oxides from flue gases.
- Possibilities of increasing flexibility for dust removal with ESP will be presented. Beside the operating experiences from LCP, the CFD modelling will be presented for the desulphurization process.
- For mercury removal the possibilities for improvement will be identified within the scrubber system and on the factors which are influencing the emissions will be shown as well.
- For the NO<sub>x</sub> reduction primary and secondary measures will be shown and practical experiences in optimization and control will also be presented.
- Commissioning experience reports focus on recent installations with new developed features like a zero liquid discharge FGD.

Duration:	1- 2 days
Involved personnel:	2 VGB + 2-3 others

# KISSY\*-Workshop

Power Plant Information System KISSY – for Performance Indicators of Thermal Power Plants For over 30 years VGB collects data, which describe the power plant availability. Anonymous results of the statistical data evaluation will be individual generated on request.

The workshop guides users through the application, shows benefits and functions of the powerful IT-tool. In detail:

Users are able to enter the data directly and receive the results via internet. Many helpful tools like: online-support and automatically generated error list via e-mail to data supplier and a plausibility check to guard data quality, as well as a good performance are present. The use of a mass import facility for data uploading of an entire company with several different power stations by Excel facilitates are handling of these large amounts of data.

The advantages for all data supplier and database user are:

- Prompt Information
- Improved data set
- Good statistical results
- New market relevant performance indicators included.

\*The name of the new data base KISSY is an abbreviation of the German “Kraftwerksinformations System” or “power plants information system”.

Duration:	1- 2 days
Involved personnel:	2 VGB + 2-3 others

# Steam Turbines and Operation of Steam Turbines

Changes of the market and the reactions on the manufacturer and operator side as well as in the complete service sector make this experience exchange still more necessary. The WS is for planners, operators, insurers and experts interested in technology and its environment.

The main issues are:

- Major Overhaul
- Damages on LP turbines
- Damages on steam turbines by salt deposition
- Modernization of old steam turbines
- Requirements on the cold-start capability on steam turbines
- New developments in the field of the condenser pipes
- Experiences during commissioning of new Turbo Sets
- Efficiency increase at the cold end
  - Cleaning
  - design of pipe materials
  - modernizing old steam turbines

Duration:	1- 2 days
Involved personnel:	2 VGB + 2-3 others

# Maintenance in Power Plants

The main aim of this event is to reflect the ongoing technological development in maintenance, to bring up the topical issues for discussion and to cultivate intensive exchange of experience between power plant maintenance personal.

The WS will deal with:

- Quality assurance of design, manufacturing and erection of components/material.
- Retrofitting and increasing efficiency and availability of existing plants.
- the current framework conditions for maintenance such as insurance and tender aspects.
- Technology, experience and damages such as lifetime extension of components, new materials, first operation and inspections and new maintenance techniques.

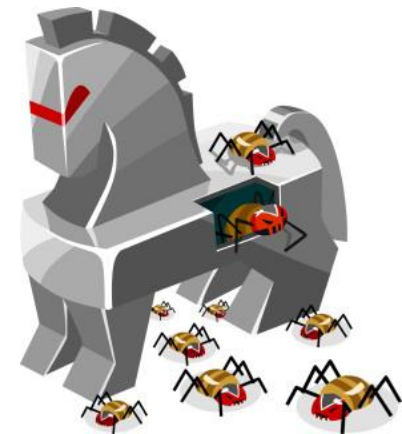


Duration:	1- 2 days
Involved personnel:	2 VGB + 3-4 others

# Workshop IT-Security in Power Plants

Hackers seizing control of pumps in waterworks, cyber attacks using malware such as Stuxnet, Flame etc., and hacker groups à la anonymous shutting down websites: media reports on the threats of the internet show how serious the situation is. And the problem really is growing! Ninety percent of attacks are successfully repelled by sensibly maintained IT systems. While responsibility for this lies on the one hand with the company and service providers, the users must also play their part. New fields of business such as intelligent power supply networks can only function if the providers and customers are able to rely on secure solutions.

The provision of security using firewalls is at most a basic level of protection. Over and above this, companies need to understand how IT attacks work. One thing is clear: we are dealing with organised crime, professional economic espionage, and well coordinated hacktivists. In order to guarantee the most comprehensive protection possible, we require better networking between business interests and public authorities. Open dialogue is decisive in providing the most comprehensive analysis possible of the threat level and in ensuring appropriate protection. The VGB workshop on “IT Security in Power Plants” will analyze the situation and introduce the various precautions.



Duration:	1 day
Involved personnel:	2 VGB + 1 other