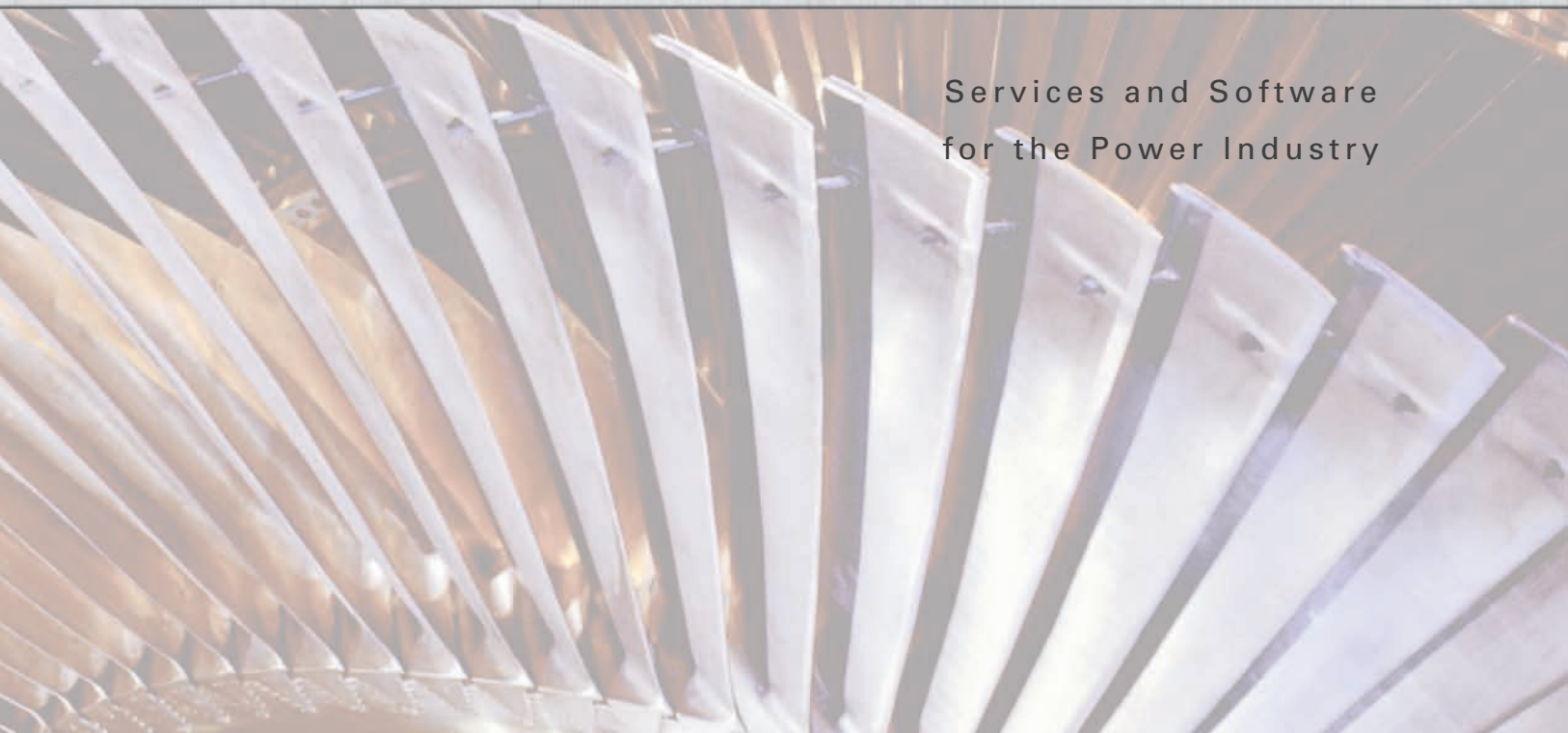




Power Industry



Services and Software
for the Power Industry





Engineering & Consulting

There are many ways to generate electric power from fossil and renewable energy sources.

The optimal conceptual design of a power or cogeneration plant is created by in-depth analysis of its efficiency, flexibility and reliability over the entire projected range of operation. The complexity of this task requires excellence in both, knowledge of equipment and technologies applied, and experience and know-how in the detailed simulation of power plant processes.

VTU Energy provides you with advice about power plant concepts. Detailed simulation of the complete system permits the optimisation of investment costs, efficiency and availability of the plant and allows developing the optimal plant concept in collaboration with the customer and component manufacturers.

Our services comprise:

Conceptual Design

- Basic Concept
- Base Performance Data
- Off-Design Performance
- Green-Field Plant Lay-Out
- HRSG Vendor Qualification
- ST Vendor Qualification

Bid Support

- Guaranteed Performance Data
- Expected Performance Data

Basic Engineering

- HRSG Specification / Vendor Selection
- Steam Turbine Specification / Vendor Selection
- Steam Piping Specification
- Condenser Specification
- BFW Pump Specification
- Bypass Equipment Specification

Acceptance Test

- Test Procedure Development
- Test Supervision
- Test Evaluation

Through the capabilities of its sister companies in VTU Holding, VTU Energy has the particular advantage of adding value to any industrial power and heat project by combining our services with

- Energy Audits, and
- Process Optimization

VTU Energy Benefits



Think of your expectations when looking for professional engineering services and custom software solutions. You need optimal solutions quickly with high competence and without re-work. The qualities of VTU Energy will be the cornerstone of your success.

Optimal Solutions

Know-how is the key ingredient to our success.

VTU Energy combines core competence in power engineering with profound process knowledge and in-depth know-how in both, software development and software application.

Comprehensive Results

Versatility is the ability to apply knowledge across various fields of engineering. Without versatility the best know-how may result in sub-optimal solutions. While focussing on the thermodynamic optimisation of thermal power plants, VTU Energy understands and considers other important aspects such as plant reliability or operability in connection with industrial processes.

Maximum Synergies

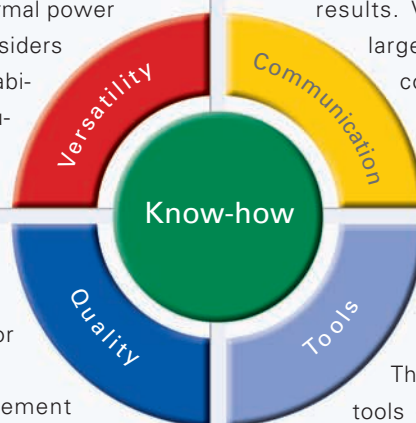
Know-how without the capability to **communicate** with others is at a high risk of failure. Reaching solutions with maximum synergies is fundamental to achieving optimal results. VTU Energy has a proven track record in large international projects with multi-national cooperation, such as IWPP tenders in the Middle East.

Highest Quality

Highest **quality** in engineering can only be maintained by a continuous strive for improving knowledge and processes. VTU Energy operates a quality management system certified according to ISO 9001 : 2000 and lives a culture of permanent development, applying knowledge management and continuous training.

Fast and Precise Analysis

Tools without know-how are useless. Know-how without tools is not efficient. The application of state-of-the-art software tools enables evaluating design ideas faster and more accurately, and precisely predicting complex scenarios of future plant operation allows making better investment decisions.





Software

VTU Energy uses two in-house developments to provide customized software solutions for various applications in the power industry.

DPF Data Processing Framework

Designed as a flexible platform to process large quantities of data, VTU Energy's DPF platform allows analysing plant data with high-end software systems such as thermodynamic models or complex data analysis packages. Based on Microsoft .NET technology and designed with highest quality standards, DPF covers all aspects of data processing:

Data Import and Input Pre-Processing

- Various interfaces and data formats
- Range checking and validation tests
- Statistical analysis and outlier treatment
- Gap detection and steady-state analysis

Data Processing

- Procedural scripting language
- Control structures (loops, comparisons, decisions)
- Embedded calls of simulation software packages

Data Export and Display

- Excel-Interface for data I/O
- Graphical display (trends, x/y plots, heat balance diagrams)

VTU Energy delivers turn-key software systems for customized applications, such as detailed plant simulation models for planning of operations and prediction of production capacities ("What-if Models") or models to validate plant measurements by heat balance calculations ("Data Reconciliation Models").

PASS Plant Accounting and Settlement System

Production capacity and fuel efficiency of power and cogeneration plants are highly dependent on the operating conditions. Thus, commercial contracts for independent power producers typically combine the tariff calculations with complex thermodynamic models of the plant. With its PASS software, VTU Energy offers a multifunctional software system that can be configured to exactly reproduce the regulations and performance guarantees of the contract.

- Archiving of raw and processed data
- Fuel Demand Models
- Tariff calculation for metered production, production capacity, availability and fuel efficiency
- Manual data input and reporting
- Invoice generation
- Access control and logging of system interactions
- Data export and display

VTU Energy delivers turn-key settlement systems for energy supply contracts up to electronic invoice generation including hardware and on-site commissioning. Besides the technical services for system design and implementation, our scope of services also includes support of contract negotiations, authorities engineering and service agreements for technical user support and software maintenance.



Company

VTU Energy is part of VTU Holding, an Austrian enterprise that combines several technology and engineering companies in the chemical, process, and power industry.

VTU Energy offers highest competence for all areas of thermal energy conversion.

The company is specialized on conceptual, feasibility and design optimization studies for new power plants and plant modifications. In addition VTU Energy possesses comprehensive know-how in technically-based accounting models for the coupled production of power, heat and/or water and long-term power purchase agreements.

VTU Energy leadership team

From left to right:

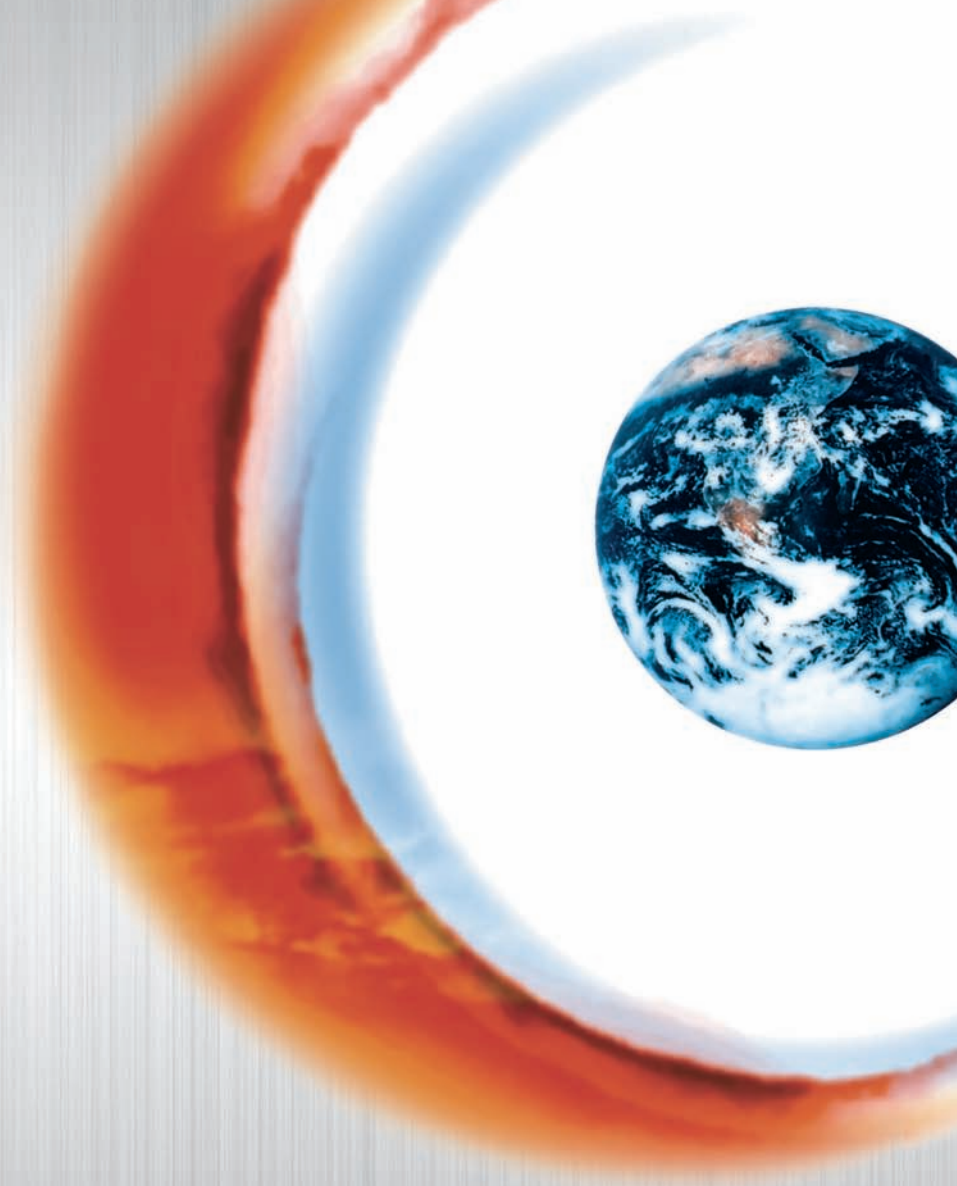
Dr. Peter Pechtl (Managing Director)

Dr. Peter Hartner (Engineering)

Dr. Josef Petek (Consulting)

Dr. Martin Posch (R&D)

Dr. Robert Wutti (Commercial Director)



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