



INDUSTRY SOLUTION

Utilities Optimization

Designed for trustworthy energy performance

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Summary

Clients can safely and reliably optimize energy costs and increase availability by changing how energy conversion and distribution are managed with existing process automation and supply chain management systems to address operations challenges.

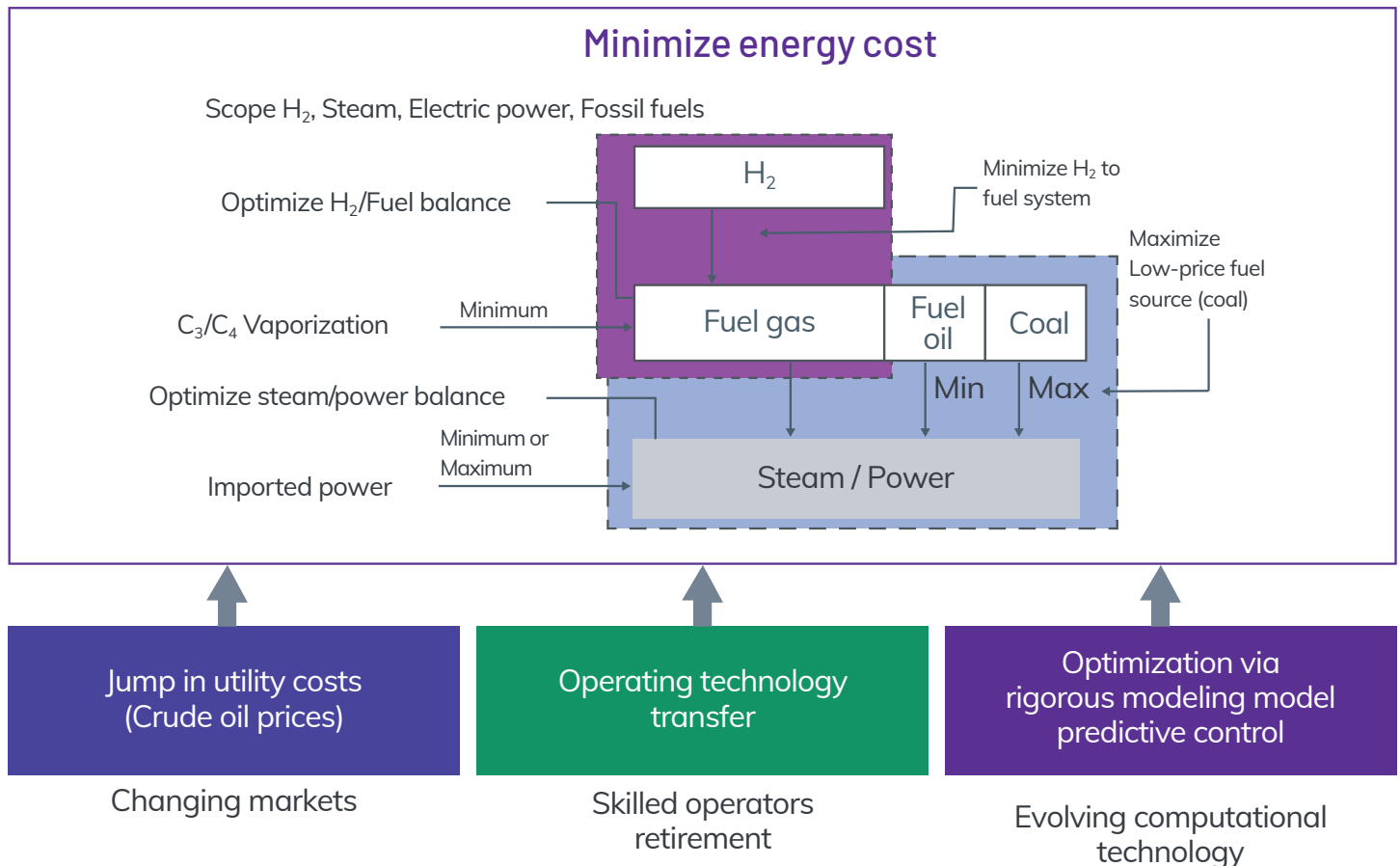
Business value

Clients can increase the reliability of converting and distributing energy, improve energy efficiency and improve utilities costs by changing how utilities are operated and supported with adjacent processes during startups and normal operation.

Overview

Achieving significant improvement

In the heavy process industries, utilities management is complex, because multiple energy systems must be managed simultaneously, while energy costs vary throughout the day. AVEVA addresses these challenges with an integrated solution for operators and technical services personnel. The combination of reliable and configurable optimization platforms, and one of the most experienced teams in the industry make improved utilities performance and improved energy costs a lower risk and trustworthy installation.



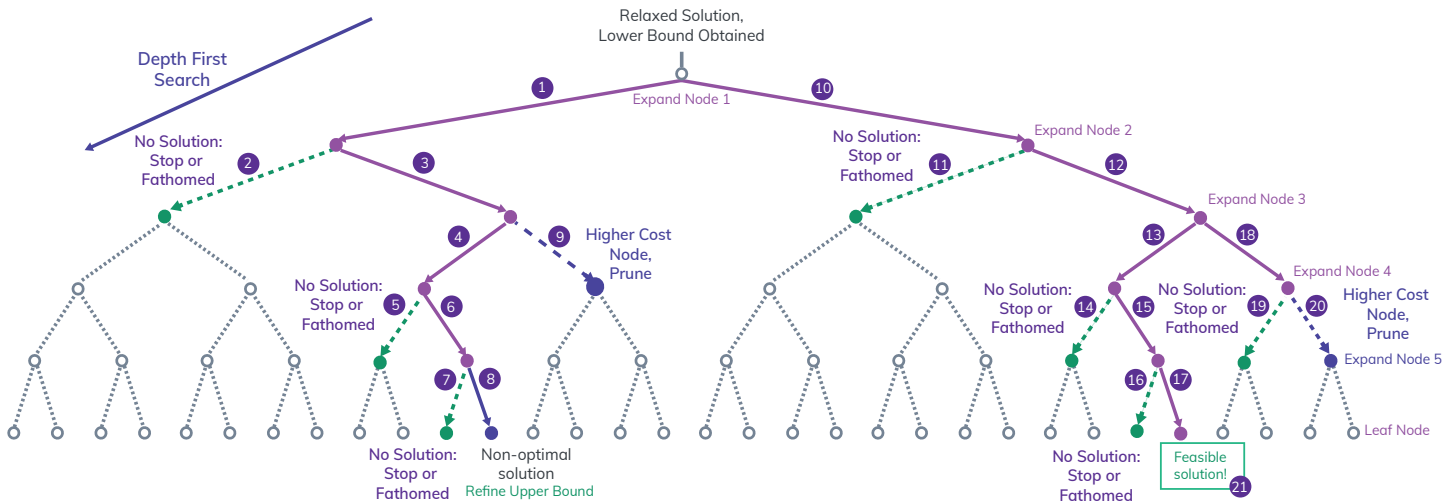
The Utilities Optimization challenge

Utilities must achieve a changing set of targets with a complex set of changing constraints, such as shown in the diagram above.

One factor which can greatly affect the net costs is the correct import and export of electricity (and for some, steam) while addressing the facility's production requirements. AVEVA's experience has shown that this operations challenge cannot be achieved by conventional automation and information methods.

Different energy sources for changing market conditions

Today energy optimization also involves switching in and switching out different energy sources depending on market conditions. However, doing so changes the fundamental process equilibrium of the simulation, which causes problems for traditional nonlinear programming (NLP) solvers. A mixed integer nonlinear programming (MINLP) solver expands the NLP problem to include a set of integer variables representing the on or off state for which different energy sources must be accounted. In using the powerful and reliable NLP solver in AVEVA™ Process Optimization, the MINLP solver solves a series of NLP problems, each with a unique configuration of energy sources. It uses the branch-and-bound algorithm to prune out infeasible or non-optimal solutions to arrive at the most optimal configuration of energy sources.



The integrated advantage

AVEVA strongly believes in the integrated optimization approach, and offers integrated real-time and right-time optimization functions for operators and the technical services personnel who support them. With the integrated approach, we combine the functions of operator advice, energy balance, and analysis of energy performance patterns in a single, configurable integrated solution.

We want to help you maximize the trust and impact of your energy solution to reduce your capital, maintenance, and training costs and maximise the return on your investment.



The AVEVA enablers – AVEVA Process Optimization and intelligence

AVEVA Process Optimization is the market leading closed-loop real-time optimization platform, which has reduced the skills required to implement and maintain optimization methods, and has proven itself in many of the world's refineries for superior on-stream performance.

The MINLP solver in AVEVA Process Optimization provides three types of utility energy optimization

1. Through the configuration of utility units
2. Via the fuel sources used in combustion heating
3. By parallel process streams in the plant.

Any single AVEVA Process Optimization model application can include all three types.

Intelligence is a real-time optimization component which makes strong use of object management with hierarchies of templates and highly configurable visualization and analysis. The AVEVA solution for utilities optimization uses these as a platform for solution templates.

Solution consulting and services from AVEVA

Take advantage of the proven optimization method and the proven technologies to adapt your existing utilities processes to support the desired behavior changes. AVEVA combines decades of consulting experience for real-time and right-time optimization with a leading share of refinery automation experience to help clients assess, justify, design and manage effective solutions.

For more information about AVEVA,
please visit: [aveva.com](https://www.aveva.com)