Water Saving Solutions
Solutions for your power plant optimization

This PDF offers an advanced interactive experience. For the best viewing experience, please use Acrobat Reader X or higher.
Optimize your plant with Water Saving Solutions

As one of the leading suppliers of combined cycle power plants, Siemens has comprehensive expertise to engineer, construct and commission world-class combined cycle power plant solutions that reach highest efficiency levels together with a high level of flexibility and environmental compatibility.

Water recycling and reuse is becoming a more and more important topic for power plant operators worldwide to cope with resource scarcity and comply with strict environmental obligations.

The Siemens Water Saving Solutions for combined cycle power plants is targeted to reuse process waste-water and to avoid its disposal to the largest possible extent. Our innovative Water-Minimizer helps to reduce the environmental impact of the power plant since less fresh water has to be resupplied and less waste-water will load the receiving water body. We are proud to offer an economic, safe and environmentally friendly concept for advanced resource management in modern combined cycle power plants.

The energy landscape is impacted by significant changes in many regions of the world since several years.

As a result, the market conditions for combined cycle power plants are changing. They have to compete against coal or nuclear power plants with much lower fuel costs or accumulate less operation hours due to must feed-in rules for renewable energies. At the same time, the downward trend for electricity prices reduces income cash flows for plant operators. Thus a profitable operation of combined cycle power plants is becoming a real challenge in numerous power markets.

The merit order dispatch regime ranks power plants by their variable production costs. This increases the risk for combined cycle power of being pushed out of the market and not being dispatched anymore. The situation is further aggravated in markets with high gas prices, for example markets in which most of the gas consumption is imported as liquefied natural gas, as fuel costs are in most cases the largest cost drivers for gas-fired power plants.

Therefore the biggest lever for plant operators to reduce their variable production costs and secure the profitability of their plant is to invest in highly efficient combined cycle power plants, because the efficiency of a gas-fired power plant is reflected directly in their profitability.

But efficiency alone is not enough for today’s complex and challenging power markets. Today, combined cycle power plants must also be able to balance power supply and demand and have to be eco-friendly to remain competitive. Thus high plant efficiency must not come at the cost of flexibility or environmental compatibility.
Water Saving Solutions

**Conventional Solutions**

The conventional drainage system has several typical sources of process effluents which steadily lead to water losses.

**New innovative drainage System**

The Siemens Water Saving Solutions for combined cycle power plants is targeted to reuse process wastewater and to avoid its disposal to the largest possible extent.

**Water-Minimizer**

The innovative Water-Minimizer enables you to reuse and thereby save more than 90% of the makeup water. In addition, only 10% of a standard plant’s waste-water amount has to be taken care of.

**Water-Minimizer**

Our Water-Minimizer collects and recycles water and steam throughout the power plant, which would normally be discharged and lost in a standard plant.

**Challenge** | **Solution** | **Benefits** | **Payback period** | **Water reuse** | **< 5 years** | **90%**
--- | --- | --- | --- | --- | --- | ---
- Power plant operation in areas with limited water supply | - Improve the ecological footprint of your plant | - Meet stringent water permits | - Fulfill limitations for waste-water discharge | - Reduce water consumption and waste-water discharge | - Improve plant operating cost |
Operational and environmental benefits

Our Water-Minimizer solution offers many ecological and economic benefits. The ecological benefits include a demineralized water consumption and production reduced to the minimum and thus a minimal waste-water discharge.

Due to decreased water consumption and waste-water production, the expenditures for raw and demineralized water as well as for waste-water fees can be reduced.

Thanks to the water savings the power plant can increase its overall efficiency and there is no visible steam plume. In turn the increased plant efficiency results in reduced fuel costs for the operation of the power plant.

At Siemens, we aim with our products to minimize the environmental impact of resource extraction over the entire product life cycle.

For information only. Not guaranteed. Actual results are dependent on site specifics. Subject to changes and provided on an "as is" basis without any express or implied representation or warranty of any kind and without any verification as to accuracy, suitability or completeness; terms subject to a final contract between the parties. Actual benefits and results are dependent on a variety of factors such as plant specification, site specifics, operational profile and local market conditions.
For more information, please contact our Customer Support Center.
Phone: +49 180 524 70 00
Fax: +49 180 524 24 71
(Charges depending on provider)
E-mail: sales.generator.energy@siemens.com
siemens.com/powerplants
Article No. PGES-B10029-00-7600
Dispo 05400 BR 05170.0

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.
Appendix

Overview page for print

Water Saving Solutions on one page
Water Saving Solutions

Water-Minimizer

Our Water-Minimizer collects and recycles water and steam throughout the power plant, which would normally be discharged and lost in a standard plant.

Benefits

- Reduced fresh and demin water consumption
- Minimized waste-water discharge: only 15% compared to standard plants
- Smaller demin plant possible
- Reduced water make-up cost
- Reduced ecological impact
- Improved plant output and efficiency
- No visible steam plume
- Enables Zero Liquid Discharge (option)

Challenge

- Power plant operation in areas with limited water supply
- Improve the ecological footprint of your plant
- Meet stringent water permits
- Fulfill limitations for waste-water discharge
- Reduce water consumption and waste-water discharge
- Improve plant operating cost

Solution

- Additional system with drain water and leak steam collection, storage and recycling
- Maximum steam energy is kept within the cycle
- Can be further optimized with Zero Liquid Discharge (option)

Water-Minimizer reduces water consumption

Payback period: <5 years

Water reuse: 90%