



ausra™

Solar Steam Generators For Industrial Processes



RELIABLE, COST-COMPETITIVE STEAM

Ausra's solar thermal technology can deploy quickly to provide process steam to your operations reliably and cost effectively. Ausra's space-efficient, reliable, direct solar steam generators integrate simply with conventional steam systems in retrofit and new plant designs. Our technology is a hedge against rising fuel and emissions costs and can provide an added financial benefit in upcoming carbon market scenarios. It's part of an integrated sustainability strategy for fuel and carbon market risk reduction, at competitive prices.

SOLAR STEAM GENERATOR

Temperature	300F to 750F (150C to 400C)
Pressure	100 to 1,740 psia (7 to 120 bara)
Annual Energy per 5 Hectares (12 acres)	88,500 MMBtu (25,950 MWh)

DURABLE STRUCTURE

Steam Generator Tubing	Carbon steel pipe, horizontal mount solid piping, no moving joints
Steam Generator Flow	Once-through or recirculating
Reflectors	Steel backed; mirrors can rotate downward for protection
Tracking	Automatic computer control
Receiver Height	60 feet (18 meters)

THE AUSRA™ ADVANTAGE

COST-EFFECTIVE STEAM

- Most land-efficient solar thermal technology
- Reduces fuel and maintenance costs
- Emissions-free steam generation

RELIABLE AND ROBUST

- Proven technology
- Mirrors fully backed by steel for weather protection (UV, rain, wind, hail, seismicity)
- Suitable for demineralized or produced water operation

RAPID DEPLOYMENT AND INSTALLATION

- High-volume automated production and standard materials help eliminate supply chain constraints
- Direct steam generation
- Rapid installation, simple integration with existing steam systems

APPLICATION AREAS

- Petrochemical refining and processing
- Enhanced oil recovery
- Desalination
- Natural gas displacement
- Food and chemical processing
- Pulp and paper manufacturing



<http://www.ausra.com/technology/>

AUSRA YOUR LOW-COST ENERGY SOLUTION

Ausra develops and installs utility-scale solar technologies to serve global energy needs in a dependable, market-competitive and environmentally responsible manner. Ausra designs, manufactures and builds large-scale solar electric and solar steam power plants.

Ausra's experienced management team, leading scientists, superior technology, and volume production capacity are ready to meet your process steam needs.

Ausra is the first solar steam power boiler manufacturer to receive the American Society of Mechanical Engineers' (ASME) "S" Stamp Certificate of Authorization. Ausra has also received the National Board Certificate of Authorization "NB" to register its solar boilers.



Steam production underway at installation in NSW, Australia

For More Information:

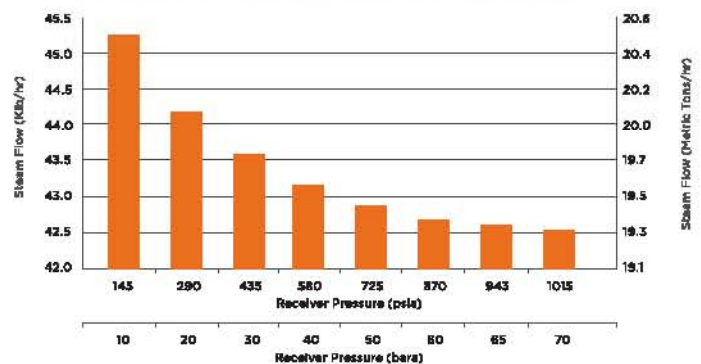
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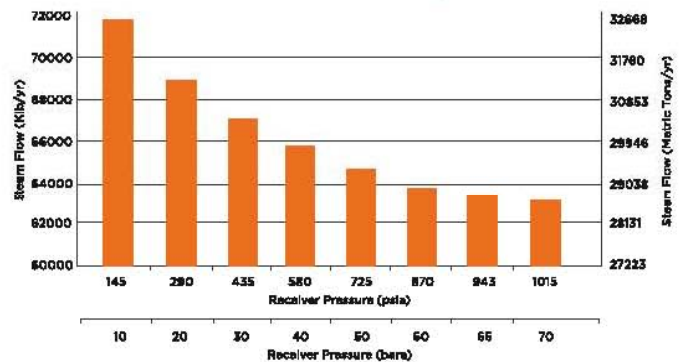
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Steam flows and annual energy are based on typical annual sunshine in Phoenix, AZ (NREL TMY2 data), 120F/50C feedwater.

PEAK STEAM FLOW Vs. RECEIVER PRESSURE FOR 4 HECTARES / 10 ACRES



YEARLY STEAM FLOW Vs. RECEIVER PRESSURE FOR 4 HECTARES / 10 ACRES



HOURLY ENERGY Vs. TIME OF DAY (JUNE 21) FOR 4 HECTARES / 10 ACRES

