



ausra™

## Solar / Natural Gas-Fired Hybrid Power Plant



### RENEWABLE, RELIABLE AND DISPATCHABLE ENERGY

Ausra develops and installs large-scale solar thermal energy systems to serve our customers' global energy needs in a dependable, market-competitive and environmentally responsible manner.

Power providers can rely on Ausra's solar/natural gas-fired hybrid power plants to deliver clean, cost-effective electricity with the same reliability and dispatchability as traditional fossil-fired plants—not just when the sun is shining. Our solar hybrid systems are engineered to provide firm power capacity on a year-round basis. Ausra's solar/natural gas-fired hybrids can also serve as a hedge against rising fuel and emissions costs and can provide an added financial benefit in upcoming carbon market scenarios.

### ENGINEERED FOR POWERFUL PERFORMANCE

Ausra's solar collectors boil water with concentrated sunshine. Mirrors track the sun, reflecting solar heat onto boiler tubes to generate steam without the costs and emissions of fossil-fired boilers. The result is a system that produces steam directly from the sun to generate clean, reliable electricity to help meet peak power demand.

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

### SOLAR / NATURAL GAS-FIRED HYBRID POWER PLANT

Nameplate Capacity	50 - 560 MW
Peak Solar Power per Square Mile	200 – 250 MW

### THE AUSRA™ ADVANTAGE

#### SIMPLE, DURABLE DESIGN

- Low wind profile
- Direct steam generation
- Steel-backed mirrors for long life

#### COST-EFFECTIVE, EMISSIONS-FREE ELECTRICITY

- Most land-efficient solar technology
- Helps eliminate fuel and emissions cost risks; helps meet RPS requirements
- On-peak, dispatchable energy delivery

#### RELIABLE AND ROBUST

- Commercially proven technology
- Hybrid systems provide same dispatchability as fossil-fired power plants
- Engineered for toughest environmental conditions (UV, rain, high wind, hail, seismic)

#### RAPID DEPLOYMENT AND INSTALLATION

- High-volume, automated production and standard materials help eliminate supply chain constraints
- Modular, standard or customized design
- Rapid field installation (12-24 months)

#### OPTIMIZED SITING

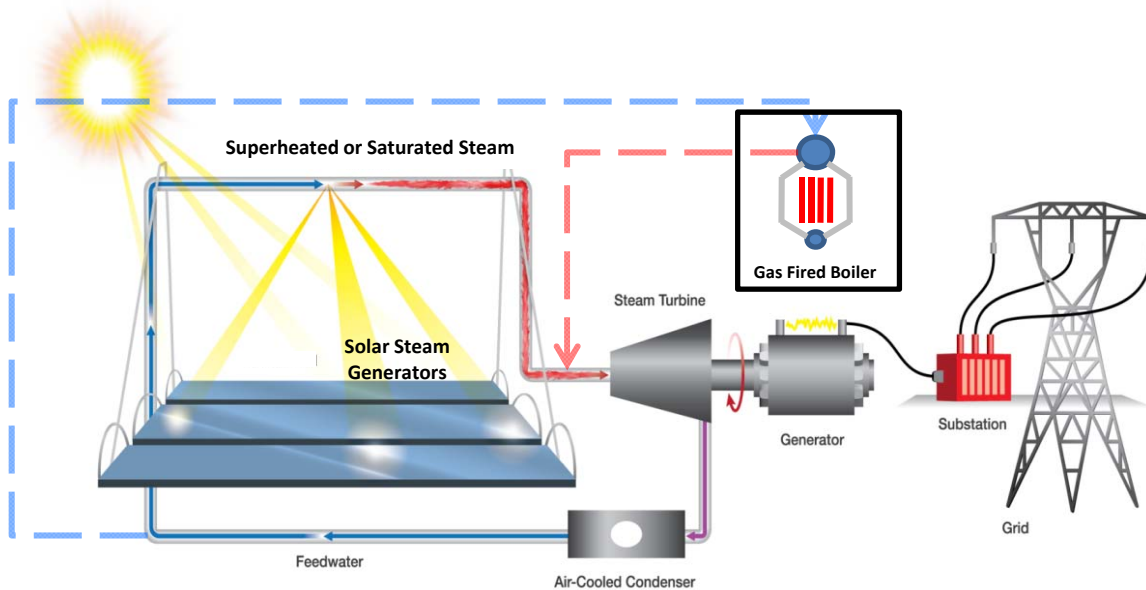
- Ease of permitting
- Dry- or wet-cooled
- Maximum energy per square mile
- Onsite or regional manufacturing

## Typical Average Hourly Net Plant **Solar Only** Output

		Hour											
		8	9	10	11	12	13	14	15	16	17	18	19
Month	1	0	0	0	5	53	76	102	124	103	55	0	0
	2	0	0	6	67	98	112	137	154	139	98	29	0
	3	0	2	63	155	175	191	210	211	195	146	70	0
	4	0	39	180	241	250	262	252	254	251	202	121	25
	5	0	88	200	232	242	255	252	251	236	218	137	44
	6	2	129	229	259	261	263	255	266	248	236	159	67
	7	0	74	196	244	245	249	261	254	258	239	159	66
	8	0	39	181	242	241	246	242	243	232	193	110	31
	9	0	16	154	216	226	241	245	234	218	144	69	0
	10	0	0	50	130	148	166	187	199	160	93	9	0
	11	0	0	5	72	93	112	129	126	91	42	0	0
	12	0	0	0	1	45	66	90	99	74	25	0	0

12 X 12 Average Hourly Net Plant Output in Megawatts of Electricity (MWe)  
2 X 140 MWe, Wet Cooled with Mojave DNI Data

Additional output varies based on operating hours of natural gas boiler



### MEETING OUR CUSTOMERS' ENERGY NEEDS

Ausra's CFLR technology is providing clean, reliable electricity and solar thermal steam for power generation.

Ausra developed and operates the world's first solar thermal power collector system for augmenting steam production. The 9-megawatt thermal (MWT) solar installation is located in Australia adjacent to the company's steam host, Macquarie Generation's coal-fired power station.

The company's Kimberlina facility is the first solar thermal power plant to be built and enter operation in California in nearly two decades. In addition to generating up to 3.5 MWe to help power California's peak power demand, Kimberlina serves as a testing and demonstration facility for Ausra's customers.

#### For More Information:

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### DURABLE SOLAR FIELD

Heat Transfer Fluid	Water/steam; no oil or molten salt
Steam Generator Tubing	Carbon steel; horizontal-mount solid piping; no moving joints
Reflectors	Steel-backed glass mirrors can rotate downward for protection
Tracking	Automatic computer control
Receiver Height	60 feet (18 meters)

**ASME "S" Stamp & National Board of Pressure Vessel Inspectors Certificate of Authorization**



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