

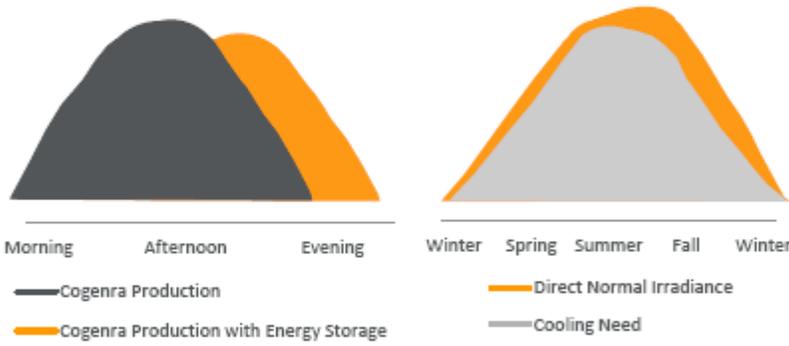
COGENRA COOLING PRODUCT OVERVIEW

Cogenra’s unique solar cogeneration technology simultaneously produces heating and cooling for your building. When cooling demand is highest, the integrated solar cooling system is operating at maximum efficiency. Costly electric and demand charges are displaced by free energy from the sun.

TECHNOLOGY

Cogenra’s proprietary SunDeck modules[®] combine the scalability and proven performance of silicon photovoltaics (PV) with concentrating optics, single-axis tracking and an innovative thermal transfer system. The Cogenra cooling system integrates Cogenra SunDeck[®] modules with proven absorption chiller technology to provide a complete solar cooling solution and PV electricity.

The Cogenra cooling system seamlessly integrates in parallel with your existing building system to ensure 100% of your load is met with the greatest efficiency, lowest emissions and lowest cost.



Extend your solar day with flexible stored energy

Leverage the relationship between temperature and solar energy

BENEFITS

- Offset building electricity and cooling demand in one system
- Flexible platform for air conditioning, hot water and electricity
- Integrated Balance of System unit for minimal field engineering
- Remote monitoring, temperature control and diagnostics



SUNDECK® MODULE SPECIFICATIONS: Cooling Applications

HEAT	Heat Nameplate Power (kW) ² Max water temperature out Annual heat generation (therms) ² $T_{in}=80C (176F), T_{out}=95C (205F)$	2.0 94° C / 200° F 109
ELECTRICAL	Electrical Nameplate Power (Wp) ² Voc (V) Isc (A) Vmp (V) Imp (A) Voc temperature coefficient Annual electrical generation (kWh) ² $T_{in}=80C (176F), T_{out}=95C (205F)$	417 65.3 9.4 50.2 8.3 -0.35% / C 550
MECHANICAL	Collector area, net aperture (ft ²) Module area, gross (ft ²)	38 54
MATERIALS	PV-Thermal (PVT) panel Heat transfer fluid Reflectors Module Structure	Aluminum extrusion Propylene glycol/water solution Solar glass mirror G90 galvanized steel
WARRANTY	10-year limited warranty (90% of minimum peak power) 25-year limited warranty (80% of minimum peak power)	
CERTIFICATIONS	SRCC (OG-100, Standard 600 for concentrating collectors) IEC 62108 & 62688, Keymark, GlobalMark AZ/NZS 2712	

PVT + ABSORPTION CHILLER

Cooling Delivered		30 tons	50 tons	100 tons	200 tons	300 tons
Area Cooled ¹	ft ²	8,400	14,000	28,000	56,000	84,000
Electrical Output ²	Electric Nameplate Power (kW) (+/-5%) ⁴	50	83	167	334	500
	Annual Electricity Generation (kWh AC) ³	66,000	110,000	220,000	440,000	660,000
Heat Generated ²	Heat Nameplate Power (kW)	240	400	800	1,600	2,400
	Annual heat generation (therms)	13,080	21,800	43,600	87,200	130,800
Cogenra Modules	Units	120	200	400	800	1200
Module Space Required ³	ft ²	8,520	14,200	28,400	56,800	85,200
Weight ⁴	lb	47,140	78,567	157,133	314,267	471,400

Product specifications are only valid when using the product in accordance with Cogenra's design and installation guidelines using Cogenra supplied components. Product specifications are subject to change without notice.

- 1 Based on typical office cooling load
- 2 Based on 900 W/m² DNI and annual generation in Phoenix, AZ, USA
- 3 Includes row spacing
- 4 Excludes racking; includes IBOS™