






# **POWER GENERATION** **MODULAR SOLUTIONS**

**Solar Turbines**

*A Caterpillar Company*

## MODULAR SOLUTIONS

MODULAR POWER PLANTS	MOBILE POWER PLANTS	STANDARD COMBINED CYCLE PLANT
		
<p><b>FUEL OPTIONS</b> Natural, Bio, Associated Gas / Diesel / LPG</p>	<p><b>FUEL OPTIONS</b> Natural, Bio, Associated Gas / Diesel / LPG</p>	<p><b>FUEL OPTIONS</b> Natural, Bio, Associated Gas / Diesel / LPG</p>
<p><b>ENVIRONMENTS</b> Desert / Tropical / Siberian Configurations</p>	<p><b>ENVIRONMENTS</b> Desert / Tropical / Siberian Configurations</p>	<p><b>ENVIRONMENTS</b> Desert / Tropical / Siberian Configurations</p>
<p><b>SUPPORTING STRUCTURE</b> Concrete Slab</p>	<p><b>SUPPORTING STRUCTURE</b> Compacted Earth</p>	<p><b>SUPPORTING STRUCTURE</b> Concrete Building</p>

## STANDARDISED FOR QUICK COMMERCIAL OPERATION

Solar's standardised concept of gas turbine-based modular plants minimizes on-site civil works, resulting in shorter installation times. Following a plug-and-play approach, plant connections are limited to fuel lines and medium voltage switchgear.

Our mobile and relocatable power plants solutions, whether trailer-mounted or in single-lift containers, are easily relocated at any time with optimum power dispatch time.

Solar's extensive experience in plant engineering made possible the standardisation of complete combined cycle power plants, using reputable international suppliers, capable of delivering plants anywhere around the globe.





Providing Peaking Power during summer peaking periods

## WE HAVE THE SOLUTION

Starting on the Right Foot:

### **BLACK START POWER UNITS FOR LARGE POWER PLANTS**

Solving Power Shortages:

### **EMERGENCY SOLUTIONS FOR URBAN AREAS**

Securing Power Supply:

### **ROBUST GENERATION PLANTS FOR INDUSTRIAL OPERATIONS**

African countries are in the process of diversifying their industrial base from natural resource-led economies to a stronger manufacturing sector. As international food and beverages, cement and metals companies construct new facilities, they require quickly deployable, reliable, power generation equipment.

Solar has been chosen to support growing business activities in Africa.

#### **TYPICAL INSTALLATIONS**

- Residential Areas
- Urban Areas
- Industrial Areas
- Utilities (Base Load, Peaking and Black Start)
- Observatories
- Military Bases

**QUICK POWER GENERATION SOLUTIONS**

# MODULAR SOLUTIONS

## PURE POWER GENERATION



APPLICATION	Continuous Power Generation	Mid-Merit Peaking
PURPOSE	Decentralized Generation Rural Electrification	Renewable Energy Introduction Grid Support
BENEFITS	Reliability Availability Low Operational Cost	Quick Start up And Loading Availability Low Emissions Low Operational Cost

## FLEXIBLE HEAT AND POWER GENERATION



APPLICATION	District Heating / Cooling	Industrial
PURPOSE	Commercial / Residential Buildings Municipalities	Heat Intensive Industries Industrial Parks
BENEFITS	Availability Flexibility Low Operational Cost	Availability Flexibility Low Operational Cost

## COMBINED CYCLE CONCEPT: EFFICIENCY AND FLEXIBILITY

In a combined cycle power plant, the gas turbine's exhaust gases are used to produce high pressure steam, which in turn generates additional power through a steam turbine. If required, low pressure steam can be extracted from the steam turbine to feed a thermal load. Solar's solution, using absorption chillers to cool down the combustion air, keeps the gas turbines running at optimum output and efficiency, regardless of ambient conditions.

Flexibility is achieved thanks to a multiple gas turbine plant concept, allowing the combined cycle plant to follow electrical load fluctuations with minimum impact on overall efficiency.

### TYPICAL INSTALLATIONS

- Airports
- Industrial Zones
- Factories
- Municipalities





## WE HAVE THE SOLUTION

Developing Independent Power Projects:  
**RELIABLE & AFFORDABLE ENERGY FOR INDUSTRIAL PARKS**

Supporting the Introduction of Renewables:  
**LOW EMISSIONS BACKUP SOLUTIONS FOR GRID STABILITY**

Balancing Thermal Load Fluctuations:  
**FLEXIBLE PLANTS FOR MAXIMUM FUEL UTILIZATION**

The European energy sector is undergoing dramatic change. With deregulated energy prices and wind power farm construction; electricity consumers and producers are facing the challenges of variations in electricity prices and grid congestion. Add the need to meet 2020 energy and environmental goals, and new as well as existing plants will require flexibility while maintaining high efficiency and low emissions levels.

Solar Turbines has been chosen to provide flexible, decentralised generation plants to key European industries.

**EFFICIENT POWER GENERATION SOLUTIONS**



## **SOLAR'S CORE VALUE: SOLUTION PROVIDER**

### **YOUR ONE-SOURCE SOLUTION PROVIDER**

Leveraging our staff's vast experience and plant engineering competence, Solar provides you with complete and customized solutions to power your business. Our technical team designs, supplies, constructs and commissions energy efficient plants globally, matching the customer's needs with high quality products.

With in-depth expertise and strong relationships with reliable suppliers, Turbomach's capabilities enable us to be your single point of contact for power generation plants supply.

### **PLANT SERVICE SOLUTIONS**

Solar's service structure is located worldwide, with offices and dedicated field service representatives able to reach any plant on short notice for quick support. Through our advanced remote monitoring system Solar can deliver best-in-class maintenance solutions to minimise operating costs, while achieving highest equipment availability.

With proven international experience, Solar Turbines is uniquely positioned to provide any level of service – from routine maintenance to full plant operation – through a full range of service agreements customized to match your risk profile and business needs.



## WE HAVE THE SOLUTION

Acting as the Customer's Single Point of Contact:

### **ENGINEERING COMPETENCE FOR COMPLETE POWER PLANT SOLUTIONS**

### **TAILOR MADE SERVICE OPTIONS FOR OPTIMUM PLANT AVAILABILITY**

Wherever the location, whatever the application, customers require complete, integrated plants to power their core activities. Solar's extensive experience in plant engineering and support services through a wide range of applications allows us to be customer's preferred single point of contact from project definition to plant operation.

**COMPLETE POWER GENERATION SOLUTIONS**

**FOR FURTHER INFORMATION,  
PLEASE VISIT  
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# **Solar<sup>®</sup> Turbines**

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