

# TECOGEN<sup>®</sup>

*Cogeneration Modules*



*We can keep you  
in hot water ...  
and electricity too.*

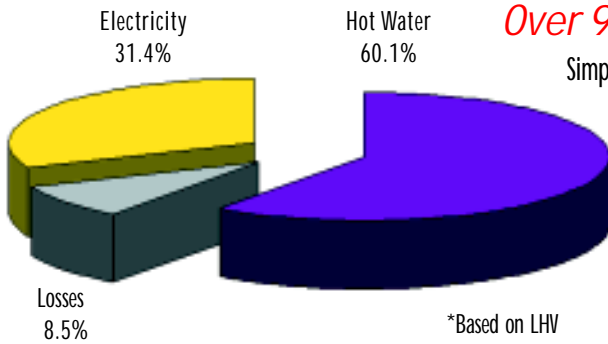


## Cogeneration Applications

Hospitals  
 Schools & Colleges  
 Athletic Club/YMCAs  
 Swimming Pools  
 Hotels and Motels  
 Apartments & Condos  
 Food & Beverage  
 Laundries  
 Nursing Homes

## Distributed Generation is the answer...

Shortages in the electricity supply and soaring prices have revived the concept of Distributed Generation – dispersing the generation of electrical energy to efficient onsite power producers without relying on a central power station. Cogeneration provides the most efficient form of DG by recovering the waste heat. The TECOGEN® cogeneration module uses a natural gas-fired internal combustion engine to generate electricity. Since engines produce waste heat at very high temperatures, capturing this heat for hot water provides end-users the opportunity to lower their energy bills by as much as 40%. In sizes of 60 kW and 75 kW, the TECOGEN® is available to even the smallest scale commercial, industrial, and institutional energy users, with multiple-unit installations providing the most flexibility to meet varying demands. Equipped with an induction generator and switchgear, the TECOGEN® operates in parallel with the utility, simplifying interconnection requirements.

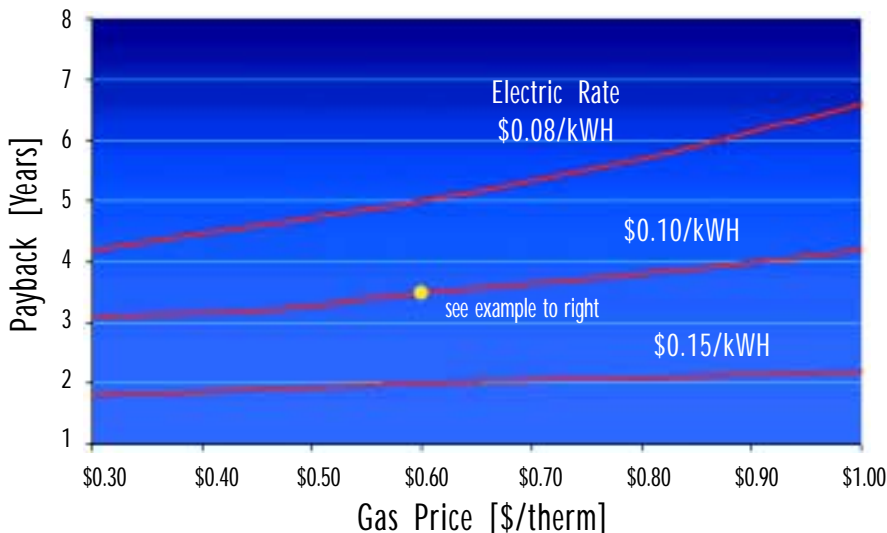


## Over 90% of the fuel is converted to useful energy\*...

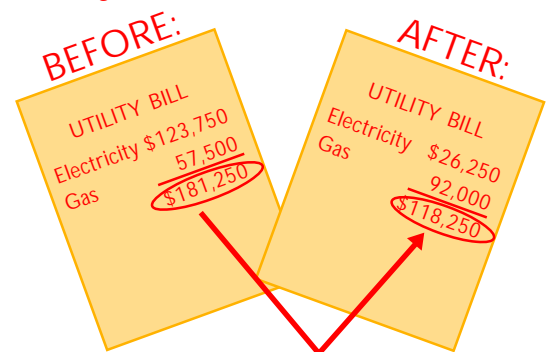
Simply defined, cogeneration is the process whereby a single fuel source, such as natural gas, is used to produce both electrical and thermal energy. By design, a cogeneration system is inherently more efficient than a central utility power station, since it captures "lost" thermal energy and produces both electrical and thermal energy with less fuel consumption than if they were produced separately. A conventional central utility plant is only about 35% efficient as compared to the 91% efficiency\* of the TECOGEN®.

## TECOGEN® provides a safeguard against rising energy prices...

Producing electricity onsite with a TECOGEN® not only shields an owner against soaring electric rates, but also provides a defense against rising gas prices. This is because the recovered hot water is essentially free since it displaces fuel that would otherwise be burned in a conventional boiler. In effect, an owner is only paying 30% of the cogeneration system's fuel bill. Referring to the graph below, at an electric rate of \$0.10/kWH, payback is relatively flat at 3 to 4 years even with gas prices spanning \$0.30/therm to \$1.00/therm. Conversely, electric rate hikes dramatically improve the TECOGEN® payback, far outweighing even substantial increases in gas prices.

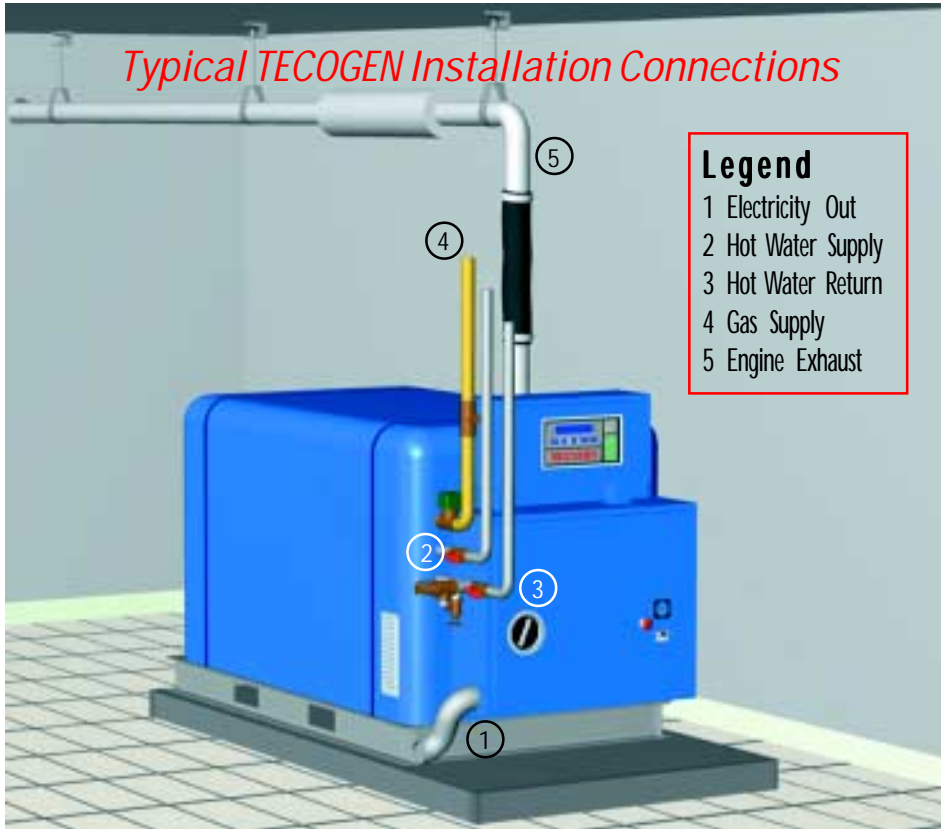


## Significantly reduce your utility bills...



**\$63,000 Savings = 35%!**

## Typical TECOGEN Installation Connections



### Legend

- 1 Electricity Out
- 2 Hot Water Supply
- 3 Hot Water Return
- 4 Gas Supply
- 5 Engine Exhaust

## Specifications:

Electrical Output (kW)	60	75
Thermal Output	440,000 Btu/hr	490,000 Btu/hr
Gas Input	760 scfh	900 scfh
Efficiency		
@ LHV of 905 BTU/scf	93.7%	91.6%
@ HHV of 1020 BTU/scf	83.1%	81.3%
Required Gas Pressure	4-14"wc	
Hot Water Flow	22 gpm	
Maximum Water Temperature	230°F	
Electrical Service	208V or 460V, 3PH, 3-wire	
Emissions Option	<i>Can meet air quality standards as stringent as Southern California's</i>	
Acoustic Level	70 dBa @ 20'	
Dimensions	6'10"L x 3'8"W x 3'10"H	
Weight	3,000 lbs	

Note:

*Above performance data is valid up to 100°F ambient temperature.*

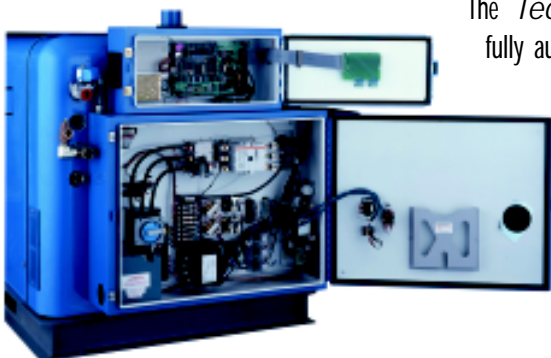
## TecoDrive 7400 ... the proven prime mover

The TecoDrive 7400 is a proven eight-cylinder, 454 cubic inch displacement, naturally aspirated, four-stroke, spark-ignited engine, specially developed by Tecogen and the gas industry for efficient natural gas operation. Since first introduced in 1984, more than 1100 natural gas engine-powered cogeneration, chiller, and refrigeration units have amassed more than 15 million hours of dependable service at approximately 650 customer sites across the U.S. and abroad. Individual TecoDrive engines normally operate for about 20,000 hours between overhauls ... the equivalent of one million miles, or 40 times around the earth in vehicle service. The exceptional engine life is due to the inherently clean combustion of natural gas fuel, the de-rating of output to 1800 rpm for cogeneration, as well as a number of customized durability enhancements, including positive valve rotators, improved coolant distribution, and increased oil flow to bearings, camshaft, and cylinder walls.



## TecoNet™ ... a state-of-the-art, microprocessor-based system

The TecoNet™ control system has been specially developed for engine control, providing fully automatic operation of the cogeneration module. It monitors the utility, engine, generator, system variables, and faults, allowing for unattended operation. TecoNet™ is fully packaged with all of the typically required switchgear, providing the end user with a simple, 3-wire (w/neutral), parallel connection to the utility.



TecoNet™ has Modbus networking capability for "open protocol" communication with building management systems, programmable controllers, or between multiple TECOGEN® units. It is also equipped with a remote telecommunications system that only requires a customer phone line.

## Tecogen ... the industry leader

Tecogen is a national leader in the industry of natural gas engine-driven equipment, bringing over 18 years experience in packaged cogeneration, chillers, and refrigeration systems. With more than 1,100 operating units in the field, we offer a well-established engineering, sales, and service support network. Our equipment features the microprocessor-based *TecoNet*™ control system, customized for engines, with remote monitoring capabilities. We offer compact designs, energy-saving heat recovery, and emission control systems to meet standards in all areas of the country.

### TECOGEN Service Centers



## Service...it's our business

Tecogen's extensive network, staffed by our own factory-trained technicians, offers local service for many regions in the United States. Service contracts are based upon a guaranteed price per run hour that covers both scheduled and unscheduled maintenance. With TECOGEN®'s proven reliability, comprehensive service contracts, and sole-source responsibility, module downtime is kept to a minimum.

Made in the USA



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