Engine Manufacturers Association

Two North LaSalle Street, Suite 2200
Chicago, IL 60602

P - (312) 827-8700
F - (312) 827-8737
http://www.enginemanufacturers.org

NATURAL GAS ENGINES

The Power of Choice in Distributed Energy

THE TIME IS NOW!

- Reduce regulatory and institutional barriers to DE deployment
- Remove fixed standby charges that unfairly discourage customers from considering DE
- Establish reasonable, simple, and nationwide interconnection standards
- Adopt reasonable and uniform emission standards for DE that are comparable or lower than prevailing regional/state grid emissions
- Avoid establishing environmental standards that prohibit or discourage current DE options
- Provide incentives to encourage the use of DE and CHP in order to improve efficiencies and overall demand response while reducing peak demands on the central grid
- Develop incentives and programs to develop the next generation of cleaner and more efficient DE power sources, including advanced reciprocating engines
- When considering adoption of DE policies or regulations, government officials need to consider all aspects of DE including energy security, energy efficiency, climate change issues, demand response reduction, environmental protection, cost effectiveness, and customer choice

ENGINE POWER – THE SOURCE OF CUSTOMER CHOICE

A reliable and economic source of electricity is vital to the successful operations of many businesses and organizations. Recent disruptions and blackouts caused by power shortages, inadequate transmission capacity, and an aging central grid infrastructure have reduced consumer confidence in the current electrical distribution system. In addition, price spikes, uncontrolled costs and other disruptions in the energy markets are forcing companies to consider power options other than that provided by local utilities.

Engine-powered DE offers consumers a viable method to produce their own electricity and an alternative to dependence on the grid. DE, using engine power, provides a real choice to obtain a reliable and stable electrical supply and a method to take control of energy costs. More importantly, continued expansion of DE and CHP introduces real competition into the marketplace and gives consumers needed leverage in dealing with utilities. A viable DE option gives customers bargaining power and flexibility to meet their power needs.

GOOD PUBLIC POLICY – THE KEY TO DE'S POTENTIAL

The continued development and deployment of Distributed Energy using reciprocating engines will result in numerous advantages to the nation and to individuals including:

- Customer Choice
- Improved Reliability and Stability
- Decreased Demand on Existing Power Grid
- Improved Use of Domestic Natural Resources and Reduced Dependence on Foreign Oil
- Better Air Quality
- Lower Costs
- Improved Energy Security

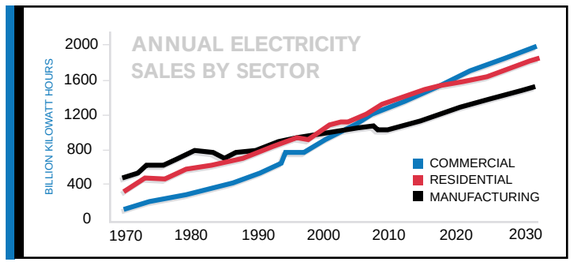
State and federal policymakers, legislators, and regulators should "level the playing field" to allow the development of DE and the continued use of reciprocating engines to produce locally-generated electrical power. Specifically, the actions highlighted in the adjacent text should be taken to enhance national energy security, improve air quality from electric generation sources, and improve electrical supply services.

ENGINES - THE POWER OF CHOICE, NOW AND FOR THE FUTURE!

FOR MORE INFORMATION CONTACT EMA

THE NATION'S DEMAND FOR ELECTRICITY IS EXPECTED TO GROW BY 40% IN THE NEXT TWO DECADES

Innovative strategies and policies are needed to provide reliable power to meet the country's growing energy needs, enhance homeland security, sustain our economic development and improve our standard of living. Power consumers also need reliable, secure, and economic access to electricity, as well as a choice of power supplies in a truly competitive market. At the same time, energy production to meet the growing demand for electricity must ensure that the world's natural resources are used efficiently and effectively and that the environment is protected.



Source: US DOE Annual Energy Outlook 2002

Distributed Energy (DE), the production of electricity in close proximity to its point of use, is a means to provide reliable and efficient electric power in an environmentally responsible manner and introduce real choice into the energy supply market. DE can be used locally to meet the electricity needs of a building, facility, or large integrated site and also can be used as a demand-side management option to reduce peak electric grid demand.

DE

DISTRIBUTED ENERGY

A POWERFUL SOLUTION FOR TODAY AND THE FUTURE

DE provides solutions to help meet the energy needs of today and the future. DE provides solutions that address national concerns as well as individual customer needs. Specifically, DE:

LOWERS PEAK GRID DEMAND

IMPROVES TRANSMISSION AND DISTRIBUTION UTILIZATION

REDUCES DEPENDENCE ON FOREIGN OIL THROUGH FUEL DIVERSIFICATION

CONTRIBUTES TO ENERGY AND HOMELAND SECURITY THROUGH DECENTRALIZED POWER PRODUCTION

PROVIDES IMPROVED POWER RELIABILITY AND QUALITY

CONSERVES NATURAL RESOURCES THROUGH INCREASED EFFICIENCY

IMPROVES AIR QUALITY BY DISPLACING OLDER, DIRTIER GENERATING SOURCES

OFFERS TRUE CUSTOMER CHOICE AND FLEXIBILITY

RECIPROCATING ENGINES

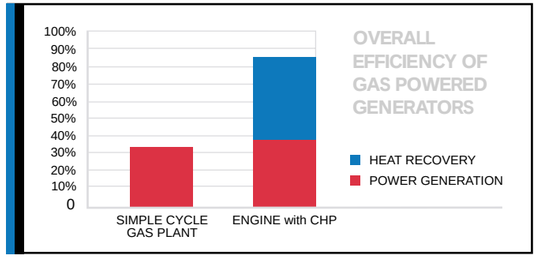
THE SOURCE OF DE'S POWER FOR CHANGE

A reliable, energy-efficient and cost-effective technology is available today to drive DE into the future - the reciprocating, low-emitting, gaseous-fueled engine. Compact and flexible, generator sets powered by gaseous-fueled engines convert fuel into electricity and can be sized to meet customer specifications and needs. Today's highly developed engine technology provides unsurpassed reliability, a secure and stable source of high quality electricity, and a cost-effective source of needed power for DE applications. Because of their many advantages, gaseous-fueled engines are the first choice for DE under 7.5 megawatts (MW).

Gaseous-fueled engines have many ideal characteristics that make them the leading choice for DE today and in the future.

HIGH ENERGY EFFICIENCY

Reciprocating engines are one of the most efficient ways to convert fuel into electricity. Typically, engines are 34-42% efficient, which is higher than most other forms of energy conversion (see chart). In addition, engines retain their high efficiency better than other options when partial loads are needed. Energy efficiencies greater than 85% can be achieved when used in combined heat and power applications (CHP) where thermal energy from the combustion process is used as steam power or to heat/cool buildings. The operational flexibility that engines provide to meet power demands and their high efficiencies result in fuel savings and the conservation of natural resources that benefit everyone.



Source: Gas Technology Institute

EMISSION RATES	BASELOAD NO_x EMISSION RATE (lb/MWh)	ON-PEAK NO_x EMISSION RATE (lb/MWh)
UNITED STATES AVERAGE	**3.50**	**3.40**
CONNECTICUT	2.67	1.94
TEXAS	2.61	2.94
NEW YORK	1.34	2.10
MASSACHUSETTS	1.91	3.74
ILLINOIS	3.20	8.60
GASEOUS-FUELED ENGINE WITH AFTERTREATMENT	0.3 - 0.6	

Source: Gas Technology Institute

GOOD ENVIRONMENTAL PERFORMANCE

Gaseous-fueled engines are a clean source of energy. Engine manufacturers have made great advances to reduce engine emissions over the last decade, reducing most engine emissions by approximately 95%. On a comparable energy output basis, emissions from gaseous-fueled engines are generally much lower than average central grid emissions generated from other power sources. As a result, the introduction of DE can actually create a net improvement in air quality in most states.

Regarding emissions, two facts are important. First, all sources generating electricity through combustion create emissions. Thus, it is important to consider the facts and compare energy efficiency and environmental emissions data when making decisions about DE. Second, natural gas engines emit inherently low levels of particulate matter (PM), carbon monoxide (CO), and sulfur oxides (SOx) emissions. Their greater efficiencies also mean that engines emit less carbon dioxide (CO_2) emissions, which make engines in DE applications the right choice to address climate change concerns. And, with nitrogen oxides (NOx) emission levels as low as 0.3 to 0.6 lbs/MWh (pounds per megawatt hour), clean-burning natural gas engines equipped with modern aftertreatment technologies emit less NOx than the average emissions from other generating technologies used to power the electrical grid (see table). The bottom line: using gaseous-fueled engines in DE applications to produce electricity can actually improve air quality in most regions of the country and should be encouraged.

LOW COST

Using gaseous-fueled engines to generate electricity is also highly cost-efficient. Natural gas engines and fuels are widely available, and they comprise a well-established and proven technology. In addition, engines' inherent energy efficiency and flexibility provide cost efficiencies to consumers not available with other technologies, particularly new and emerging technologies such as fuel cells and microturbines. These benefits are multiplied when CHP applications are considered.

DOCUMENTED RELIABILITY, DURABILITY, AND AVAILABILITY

Engines are a staple of our power infrastructure. They represent an established technology with decades of experience in the field and a history of continuing improvements. They are renown for their reliability and durability. In an application such as power generation where these characteristics are necessary to assure continued operations and avoid economic losses, engines provide the best available solution.