



Russell Energy Newsletter July 2022-2

1 message

<webmaster@russellenergy.com>
To: pc09102@comcast.net

Wed, Aug 17, 2022 at 3:29 PM



Russell Energy Corporation

Energy Security Through Innovation
An American Company

www.russellenergy.com

(800) 767-0803

Russell Energy Newsletter July 2022-2

Development Goals & Efficiency Comparisons

As stated in our [introduction newsletter](#), the **Eng/Gen** + **Boost** will provide tremendous advantages in efficiency, reduced heat emissions, and the elimination of poisonous **NO_x** emissions. It will also reduce or eliminate **CO₂** emissions, depending on which fuels are used. In this edition, we will focus our attention on efficiency.

What is efficiency, and how does it affect us? In the case of electric-power generation, efficiency is the amount of the energy used in the production process, compared to the electricity produced. As noted in the 2020 Lawrence Livermore National Laboratory report, electric-power generation in the United States used 35.6 quadrillion **BTUs** of fuel energy, but only produced 12.4 quadrillion BTUs of electricity (one quadrillion BTUs equals, 293,071,000,000 kilowatts-hours of electricity). Therefore, the electricity generation process was only **35%** efficient, and **65%** of the fuel energy used was wasted heat energy expended into the atmosphere. The wasted energy can be attributed to many things including: required ancillary systems such as pumps and fans used in cooling and fuel systems etc., friction and heat losses throughout all parts of the systems, and process losses inherent in the design. We will be focusing on the process losses in much

greater detail as we proceed, but for now, we will turn our attention to how improving efficiency will affect all of us, future generations and our planet.

All production processes are not the same, some are more efficient than others. In the above **35%** example, low production efficiency means we all pay the price. The consumer will:

A. pay more for the electricity they need, while the utility company uses more fuel energy than necessary.

B. continue to fund wasteful practices, further driving up the cost and demand for energy in the future.

C. reduce the fuel energy reserves for future generations, adversely affecting basic quality of life needs.

D. contribute to higher levels of **CO₂**, **NO_x** and heat emissions for today's people, and future generations.

In the transportation sector (cars, busses, trucks, trains, planes, ships, etc.), the numbers are even worse. The average in 2021 was only **21%** efficiency, and **79%** waste. This means that **\$0.79** of every dollar you spent on gasoline, was wasted or rejected heat energy.

Although **electricity is the cleanest and most efficient form of energy humanity has ever known**, the current methods of producing it, are not!

The latest **2020** numbers regarding **power plant efficiency**, which are provided by the **Energy Information Administration** (<https://www.eia.gov/tools/faqs/faq.php?id=107&t=3>), clearly tell the story.

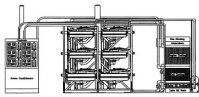
The most common methods for producing the electricity that flows to us through the grid include:

1. **Steam Generators:** fueled by **Coal** are **34.1%** efficient --- fueled by **Petroleum** are **33%** efficient --- fueled by **Natural Gas** are **32.9%** efficient --- and fueled by **Nuclear Power** are **32.6%** efficient.

2. **Gas Turbine Generators** (Jet Engines): fueled by **Natural Gas** are **30.8%** efficient --- fueled by **Petroleum** are **25.8%** efficient.
3. **Internal Combustion Generators**: fueled by **Natural Gas** are **38.6%** efficient --- fueled by **Petroleum** are **33%** efficient.
4. **Combined Cycle Generators** (Jet engines + Steam Generators): fueled by **Natural Gas** are **44.8%** efficient --- fueled by **Petroleum** are **37%** efficient.

Using **Renewable Natural Gas**, the **Eng/Gen + Boost** is expected to provide, **NOx free** electric-power with **no new CO₂ emissions**, substantially **lower heat-emissions**, and **efficiencies greater than 60%**.

The patented **Eng/Gen + Boost** is the first and only, one-piece combination of a high-energy and high-efficiency, combined-cycle, clean engine design, conjoined with an integrated electric-generator. Its sole function is to dependably and efficiently convert the energy contained within the fuel used, directly into usable electricity, with minimal waste.



The modular, plug-and-play feature of the Engine/Generator family of units will allow system expandability that is limited only by available space. The development of this technology will be a huge step forward for the people of today and tomorrow.

[PODCAST 2200-2](#)

Thank You for Your Time and Interest,

Robert L Russell, President
Russell Energy Corporation

In our next REC Newsletter: The 2020 Lawrence Livermore National Laboratory & EIA report

-- If you do not want to receive any more newsletters, [Unsubscribe](#) To update your preferences and to unsubscribe visit [this link](#) Thank you!

no-reply@russellenergy.com
Russell Energy Corporation
Email: comments@russellenergy.com

Website: www.russellenergy.com

Administrator: webmaster@russellenergy.com If you do not want to receive any more newsletters, [Unsubscribe](#)

Privacy Policy: The Russell Energy Corporation is committed to protecting your privacy. Any information provided by you is used solely for distributing information about the Russell Energy Corporation. Your information will not be shared or sold to anyone. Once you have unsubscribed, all of your information will be deleted from our files.



 **powerphplist.png**
3 KB