

No Energy is Free

While it is true that sunshine and wind are abundant and readily available fuel sources, there is a cost to turn that fuel into energy.

Electricity generation requires money to manufacture, install, operate and maintain generation equipment. Even electricity generated with renewable fuels has these costs. Thus, all capital and operating costs must be considered when evaluating any energy source.

Although the cost of natural gas itself is relatively high, electricity produced from natural gas has the lowest overall cost because of its higher efficiency, productivity and lower capital costs. As shown below, building and operating natural gas-fired generation is currently and consistently the most cost effective solution to produce electricity.

To illustrate the cost to generate electricity using different types of fuel, the chart compares the total operating and annualized capital costs to generate electricity to serve 1,000 households across different fuel types but conservatively does not consider different run-times for different fuels. For each fuel, annualized capital costs are the largest component of the total.

Natural gas fired electric generation is even more economical when run-times, otherwise known as

capacity factors, are considered because natural gas is an “on-demand” (ready on short-notice) fuel source, instead of an intermittent one (subject to weather).

When average run-times are considered, the capital and operating cost to generate the same amount of electricity using wind or solar is two to five times higher. Simply put, lower capacity factors, which are an unavoidable reality with intermittent renewable resources, magnify the cost differences among fuel types.

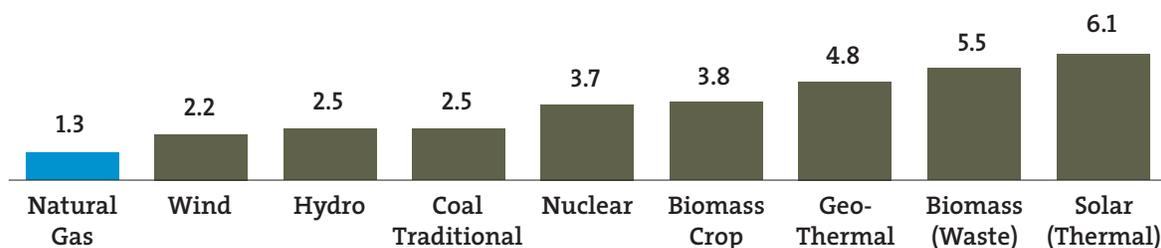
For natural gas, the lowest capital cost and higher run time flexibility combine to make it the most cost effective fuel for generating electricity no matter how you slice it. With statistics like these, it is easy to understand why natural gas fired generation capacity has nearly doubled over the last ten years and why natural gas is a perfect complement to renewables.

While the economic case for natural gas-fired generation is clear, we need all types of fuels—coal, wind, nuclear, solar, hydro and more—to meet both our environmental and energy needs.

Allowing market forces to determine fuel choice will ensure that an adequate amount of electric power is provided to American consumers in the most affordable manner.

Price of energy

Annualized electricity generation costs (in \$ millions) per 1,000 households (2007)



About the “Price of Energy” chart

The numbers for the chart above were calculated in 2008 by R.W. Beck, a highly respected national firm with more than 50 years of experience in engineering analysis in the energy industry.

Capital costs were the largest part of the total annualized cost, and although they will vary based on the type of fuel a facility uses to generate electricity, the capital cost assumptions used were applied to all types of generation.

The capital assumptions used to develop the annualized capital cost component were—cost of debt = 8.5%, cost of equity = 14%, and 50-50 debt to equity ratio. The capital assumption that was varied was the term of debt.

The costs for coal, natural gas and other fuel components of the operating cost were based on average 2007 costs.

For more information on this and other natural gas topics, visit www.naturalgas.org. ■