

## Surface Mined Coal is the Core of U.S. Electricity Supply

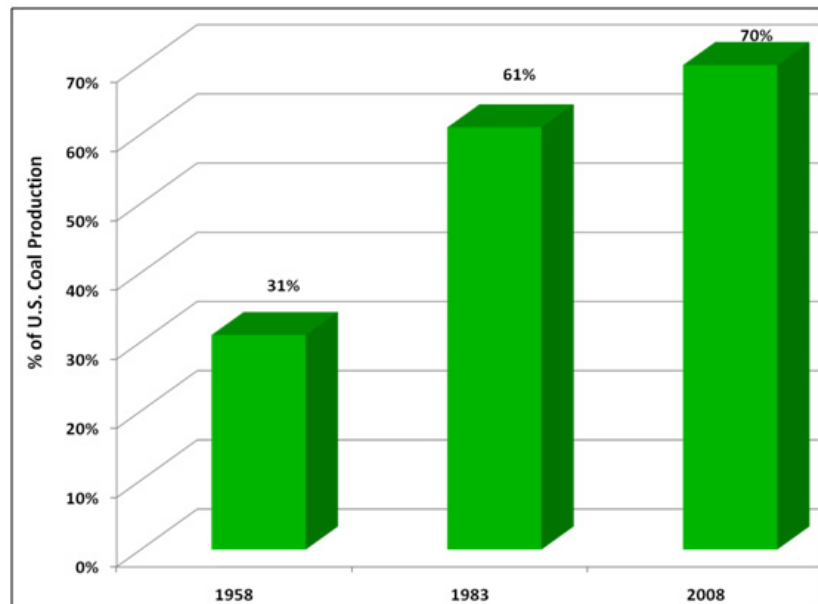
Surface mined coal provides about 32 percent of the fuel for Americans to consume over 4,100 billion kWh of electricity at prices that have declined in the past 30 years in real terms.

Of the 1,171 million tons of coal produced in the United States in 2008, over 813 million tons came from surface operations. This coal produced upwards of 1,300 billion kWh of electricity.

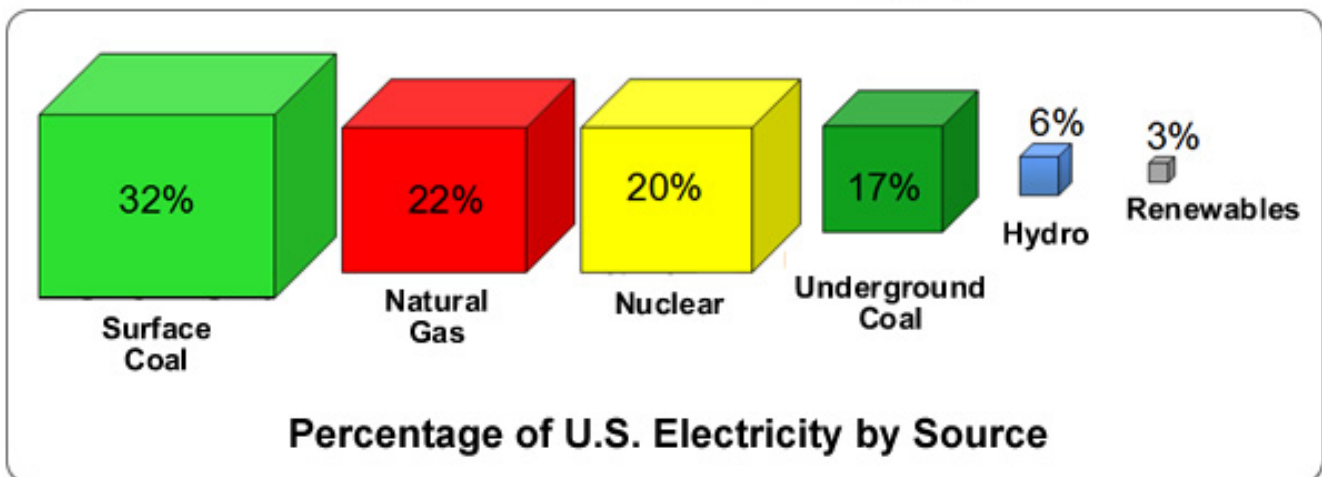
During the 1980's and 90's lower electricity prices stimulated productivity by facilitating electrification of the economy. As the use of natural gas in power generation increased over the past decade, however, real electricity rates in the U.S. stopped falling and began to rise significantly. Not even

*(Continued on reverse)*

### The Steadily Increasing Importance of Surface Mined Coal



### The Scale of Surface Coal's Contribution to our Electricity Supply



(Continued from front)

low and stable coal prices could offset the adverse socioeconomic impacts of escalating natural gas prices.

The increasing availability of surface coal has been the prime mover in allowing electricity consumption in the United States to grow from 1,535 billion kWh in 1970 to over 4,100 billion kWh in 2008.

### Natural gas cannot replace surface coal at scale.

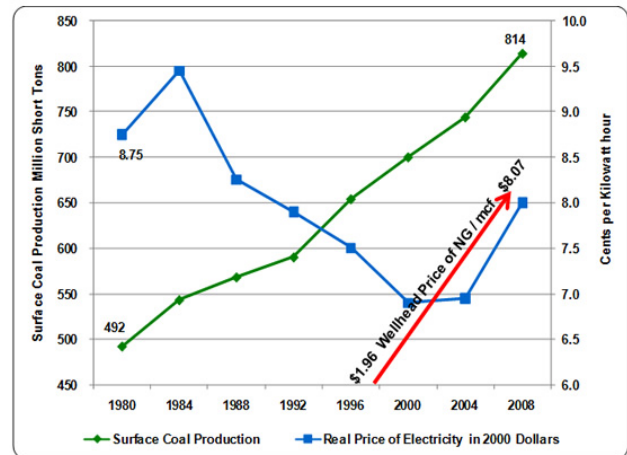
It would take over 10 trillion cubic feet of gas to replace surface coal generation. Utilities in the United States have "an obligation to meet the load." In that context, if surface coal were not available, system planners would turn to natural gas as a baseload fuel to meet as much demand as possible.

But the latest forecast from the Energy Information Administration indicates our natural gas supply situation will deteriorate over the next decade. Far from being able to replace coal, natural gas supply won't even be able to meet existing demand for that fuel.

Given the central role of surface coal in our electricity system, every electricity customer in America should keep a close eye on S. 696, "The Appalachian Restoration Act," co-sponsored by Senators Benjamin Cardin (D-MD) and Lamar Alexander (R-TN). While the bill's stated intent is to limit mountaintop removal mining, its ultimate impact is broad enough to shut down virtually all surface mining and reclamation activity in the United States, representing over 70 percent of US coal production. Even if a state does not use a significant amount of coal to produce electricity for its families and businesses, that state will still suffer negative effects from the resulting rise in the cost of natural gas.

Sources: Data drawn from EIA, <http://www.eia.doe.gov/>

### Surface Coal Production, Real Electricity Prices and the cost of Natural Gas (1980-2008)



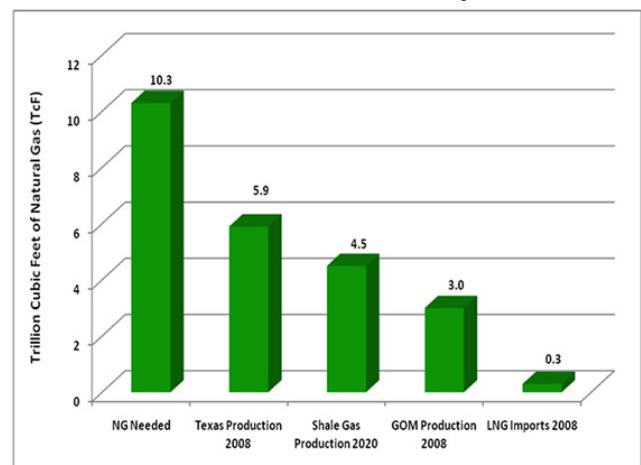
### To Replace Surface Coal In The United States

Surface Coal Currently Produces 1,300 Billion kWh of Electricity

#### To Replace Surface Coal

- 170 nuclear stations at 1,000 MW each
- 324 Hoover Dams
- 360,000 wind turbines 450 feet high
- 900 million cords of wood--denuding all forests in 2 years

### Putting the 10.3 TCF Needed to Replace Surface Mined Coal in Perspective



### About Frank Clemente, Ph.D.

Dr. Clemente is a Professor at Penn State University where he specializes in research on the socioeconomic aspects of energy policy. His work has appeared in *World Oil*, *Public Utilities Fortnightly*, *Oil and Gas Journal* and a variety of other energy related media. *The materials presented here are solely the responsibility of the author and do not represent Pennsylvania State University in any manner.*

