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**Green****A Blog About Energy and the Environment**

July 8, 2010, 10:02 am

## Hurdles for a Natural Gas Transition

By [MATTHEW L. WALD](#)

Natural gas [might emerge](#) as a “bridge” fuel in controlling carbon dioxide emissions, but switching over from coal would cost hundreds of billions of dollars — not even counting the cost of the gas, according to a [study](#) sponsored by the [American Public Power Association](#).



Bloomberg News Natural gas flaring from a well last month in Karnes County, Tex.

With the Environmental Protection Agency having just issued an updated air pollution [rule](#) for power plants and with other rules already scheduled to take effect, some utilities already seem to be replacing their oldest, dirtiest and least efficient coal-fired operations with natural gas. And others may begin phasing out slightly younger plants.

All of this is a response to new or impending rules on emissions of sulfur dioxide, nitrogen oxides and particulates and on the disposal of coal ash but ahead of any agreement on carbon dioxide limits.

“Carbon may push them over the edge, but the other regulations will get them very close,” said Catherine Elder, a natural gas expert at the Aspen Environmental Group, a consulting firm that prepared the report.

But coal provides roughly half the supply of electricity, and getting that much out of natural gas would be difficult, she cautioned.

Her calculation runs like this: coal-fired capacity comes to 335,000 megawatts today, and it produces an average of 72 percent of the electricity that would result from around-the-clock full-power operation. Doing that with modern, efficient natural gas plants would consume 39 billion cubic feet of gas a day, or 14.1 trillion cubic feet a year.

That is a rather large number given that today, national consumption of natural gas for all purposes is only a little over 20 trillion cubic feet a year.

These are merely projections; the precise numbers are not known. Most states now have renewable portfolio standards that will require construction of wind farms and will displace some coal and gas; the nuclear industry has plans – but at this point, mostly just plans – to expand its production with new reactors. The pace of future demand growth is unknown. (Lately, demand has been shrinking.)

And most analyses of a large-scale switch to gas from coal have focused on how this would affect the price of natural gas. It is now a little over \$4 per million BTU, the standard unit of measurement, but two years ago it was over \$10.

Ms. Elder, however, focused on the cost of pipelines and storage capacity, which together would come to \$360 billion, she calculated, plus \$40 billion for new pipelines that would gather gas from new sources, including gas drilled from shale underground. How much gas from shale formations will be available is not clear, and some environmentalists predict that severe damage to drinking water could result from such drilling.

On top of that is \$335 billion for new generating equipment, although not all of that expense is new; even if the country stuck with coal, new capital expenses would be incurred. Two-thirds of the coal plants are more than 30 years old, she noted.

Not everybody would be unhappy to see vast sums spent on new generating stations and pipelines. The public power agencies are acutely price-sensitive. (The American Public Power Association represents over 2,000 utilities serving 45 million people.)

Exactly how much pipeline capacity would be needed would also depend on the state of the transmission grid; if it is rebuilt to accommodate vast amounts of wind energy, then natural gas-fired power plants might be built where the gas is found and the energy shipped over power lines instead of through pipelines to a spot near the demand.

But it is notoriously difficult to get permission to build new power lines, which are under local and state jurisdiction; adding pipelines, under federal jurisdiction, is easier.

“If this study gets Congress and policymakers more behind electric transmission, great,” said Mark Crisson, president and chief executive of the public power group.

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[1.](#)

samdon

n.j.

July 8th, 2010

8:11 am

Coal provides 50% of our electric ,, so what ! We get 16% of our electric from hydro generation using only .05% of our potential. Non-polluting , renewable and inexpensive. If we were to include tidal and wave potential our energy problem would have a solution.

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30-year commuter

Baldwin

July 8th, 2010

8:12 am

Lets not even consider a transition to natural gas until a safer mining method is used. See HBO's GasLand that investigates controversial fracking drilling technique which seriously contaminates drinking water with dangerous chemicals.

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Lou Grinzo

Rochester, NY

July 9th, 2010

4:36 pm

One overarching question no one seems to want to answer is: Does it make sense to convert coal-fired generation with NG given the sizable transition time and the rate at which we need to reduce CO2 emissions?

How long would it take to convert all that coal capacity to NG? Ten years? Twenty? NG generation produces about half the CO2 per kWh generated, compared to coal, but if the US needs to reduce emissions 80% by 2050 (which is the most commonly quoted requirement), then we'd be locking into a huge amount of NG capacity that leaves us "above the line". We'd have to turn around and start replacing those NG plants with something else very quickly, unless someone finds a way to make the CCS genie work and do so cheaply enough to make retrofits on all those plants feasible.

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BK

Decatur, Ga.

July 15th, 2010

10:37 am

Wouldn't it make more sense to commit to wind, solar and geothermal as long-term solutions to our energy requirements? It seems too short-sighted to commit vast sums of money to NG when peak NG will be upon us so soon (less than 50 years by some estimates). And that doesn't even mention the environmental damage done by fracking (seems fracking is a close cousin to mountaintop removal coal mining).

Joseph Romm states, and I agree, that in terms of renewable energy production we should "deploy, deploy, deploy" as soon as possible...which means NOW.

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5.

martin braun

new york city

July 20th, 2010

9:45 am

The benefits(sic) of switching to gas fired generation are negligible in the long term. All the money and political power would be much better spent in reconstructing the American nuclear generating potential which we have abandoned out of funk and as a result of continuous big oil propaganda concerning it's safety.

We created the first nuclear power plants which , while they may never produce electricity "too cheap to meter", never release CO2 or gases of any kind due to combustion and can be made to conserve fresh water supplies while , at the same time, producing even more fresh water .

Combustion energy, using carboniferous fuels, a 18th century technology, will forever be dirty, dangerous and productive not only of CO2 but also of various acids and heavy metals discharged into the air, our water and onto our land.

Geothermal energy is nuclear energy. The energy at the mid ocean ridges and at volcanoes is nuclear energy.

Both solar energy and wind energy are derived from the largest thermo-nuclear generator in the area: the Sun, a small local, uncontrolled fusion reactor, also responsible for numerous cases of skin cancer among those prone to burning .

Current technology is more than sufficient to ensure than nuclear energy can be produced safely, that it's wastes can be disposed of and in newer plants, consumed by the reactor.

Switching to an all electric and all nuclear economy will put the US out in front of the rest of the planet, technologically and, if history is a guide, the rest of the planet will follow our lead by switching to safe and non explosive, non polluting nuclear generation.

It is the only way our current industrial civilization can even hope to continue. Four more mile deep oil blowouts would also make the point but in a manner perhaps too violent and toxic for the bulk of humanity, which prefers it's fish either raw or cooked in vegetable oils instead of rock oil,(petroleum).

There is no doubt it would be expensive but as we are in a serious recession which is going to get worse before it gets better ten years down the line, building new nuclear power generation is a better investment than just looking for and burning more of the same old carbon based poison.

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