Subject: : Conservation
Topic: : We won't see profits from Shale Gas.
Re: We won't see profits from Shale Gas.
Author: : pcray1231
Date: : 2013/10/29 8:49:16
URL:

geebee,

It's not a situation of being unable to build more. It's not durability, etc. It's not even cost (though that is a factor).

It's stability.

I'm talking specifically of wind and solar here. Geothermal, hydro, biomass, etc. are renewables that can be much more stable, and thus are mostly immune to this issue.

Since the wind isn't always blowing, and the sun ain't always shining, you need to have enough capacity to cover their share anyway. Now, if you build enough of them over a large enough area, you may not have to cover their share entirely. Statistical treatment of their outputs over time can give you their LOWEST expected output. That lowest output is all you can "count" on. You must have capacity to cover the rest. You don't always have to USE that excess capacity. i.e. when the wind is blowing and the sun is shining you can shut down a coal plant or two as needed. But nor can you let ANY plant sit unused for long periods and start it up on demand.

Also, the transmission grid has to be able to handle the peaks and valleys. If you need X amount of electricity in PA, that's all fine and good. But there's a big difference in the way the grid operates between bringing it from sources in the NE vs., say, solar sourced in the SW. Making that switch on the fly isn't an easy matter.

Based on our grid, most estimates say solar + wind can max out at about 10% of capacity. That's a VAST improvement over today. Add that to the roughly 20% of hydro we already have, and 30% of capacity for renewables ain't too shabby at all. Further, that's not considering geothermal and bio, which both have plenty of room to grow.

Germany's weather and grid may be different, and their max may be different, but they likewise have a max for solar+wind.

Energy storage could also improve our situation. However, batteries are a long ways from being able to handle this amount of power output. That said, there are other methods of energy storage. For instance, you could build a dam. Let wind+solar pump water up into it at their own pace. Then you can release it through a hydro turbine on demand. Or, you could let wind + solar generate electricity separate from the grid, and use it for hydrolysis of water. i.e. make hydrogen. That hydrogen can then be used on demand as a fuel for transportation or electricity generation, as needed. There are many other such examples of energy storage.