

# Ten biggest U.S. power plants are mostly nuclear

BY JIM CONCA

Everyone measuring the size of power plants has been wrong.

The usual measure of what's bigger is the so-called Nameplate installed capacity, which is the maximum power a plant can produce when everything is running perfectly. The Grand Coulee Dam in Washington State has a Nameplate capacity of 6,809 MW (megaWatts), the biggest in America.

But the real measure is what the power plant actually produces over the year. The difference between these two measures is what's known as the capacity factor (cf). The cf is equal to what the plant, solar array or windfarm produces in kilowatt hours (kWhs) per year divided by what it could produce if it ran at capacity, 24 hours a day, every day for the entire year.

No power plant runs all the time. There are outages for refueling, maintenance, and accidents. Often the sun isn't shining or the wind isn't blowing. Hydroelectric dams compete for water with irrigation, navigation and recreation.

Thus, the Grand Coulee Dam, with a Nameplate installed capacity of 6,809 MW, should be able to generate: 6,809 MW x 1,000 MW/kW x 8,766 hours/yr = 59,687,694,000 kWhs/yr. Instead, last year Grand Coulee only produced a



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## Palo Verde, the biggest power producer in the country.

little over 20,000,000,000 kWhs, giving it a cf of 34 percent.

Compare that with the Palo Verde nuclear plant in Arizona, which has a Nameplate installed capacity of only 3,937 MW. If Palo Verde ran 24-7, it should be able to produce: 3,937 MW x 1,000 MW/kW x 8,766 hours/yr = 32,846,202,000 kWhs/yr.

Last year, Palo Verde produced over 32,441,000,000 kWhs, 60 percent more than Grand Coulee, and more than any other power

plant in America. Why? Because Palo Verde had a cf of 98 percent.

For cfs, nuclear averages 90 percent, coal 65 percent, natural gas 50 percent, wind 30 percent, solar PV 20 percent, solar thermal 25 percent, hydro 40 percent and geothermal 70 percent. So it is no surprise that seven of the top ten most productive power plants in America are nuclear, along with only one hydro, one gas and one coal plant:

Palo Verde Nuclear Station 32,441,000,000

kWhs; Browns Ferry Nuclear Station 27,855,000,000 kWhs; Oconee Nuclear Generating Station 21,799,000,000 kWhs; South Texas Project Nuclear Station 21,612,000,000 kWhs; Grand Coulee Hydroelectric Station 20,240,000,000 kWhs; Braidwood Nuclear Station 19,985,000,000 kWhs; West County Energy Center (natural gas) 19,764,922,000 kWhs; Byron Nuclear Generating Station 19,153,000,000 kWhs; Scherer Coal-fired Power Plant 18,884,000,000 kWhs; Limerick Nuclear Generating Station 18,598,000,000 kWhs.

Notice that Grand Coulee drops to fifth place. And most of the next top 10 plants are nuclear as well.

These large power plants, and the next few dozen, are critical to the lives and livelihoods of 100 million Americans. Out of almost 5,000 power plants in this country, these few large ones provide an overwhelming amount of power to America and are located in critical areas that support the biggest population centers in the country.

It's nice that most Americans don't have to worry about electricity reliability. Whether their lights will turn on when they flip the switch, or their cell phones will charge without having to do anything more than remembering to plug them in, they have nuclear power to thank the most.

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