

Sun Energy Systems Analysis

of Express News Article entitled

"Reactor's price tag may run \$13 Billion"

dated June 30, 2009

What about reducing this headline to \$1.68 billion to run the equivalent load? CPS 40 Percent equivalent is \$670 million for the equivalent load. In fact, the first nuclear draw they plan upon approval (probably October) of \$400 to \$600 million will cover most of the \$670 million, not even allowing for the 30% income tax credit! That is over one million solar PV panels (64 Watt super cloudy weather types) i.e. nearly one panel for each of the 700,000 CPS customers or even more of the amorphous cloudy weather type that are cheaper!

The \$670 million is the price to do solar PV with results of a "distributed DC power unit" but more efficient than the 21 cent/KiloWatt cost on page 6A (see figure 1) chart! This CPS 21 cent cost results from the CPS using inverter power (i.e. have to use grid tie inverter or generator) which then has accompanying transformers and line losses that the grid loses! The solar system is tied straight to the battery and home items with less than 2 percent wire losses!

The "DC distributed" unit really is a home power plant at the home location and the homeowner merely saves the power in a battery to be used by the homeowner according to his needs and belongs only to him; hence, there is no "distributed" power to go in the power lines to lose power (ref. 1, below for actual one panel home). The above \$1.68 billion (CPS 40 percent=670 million) is determined merely by the following examples of DC efficiency *(i.e. real saving in our thousands of systems would be the percent of each used, so it can be different for each individual)

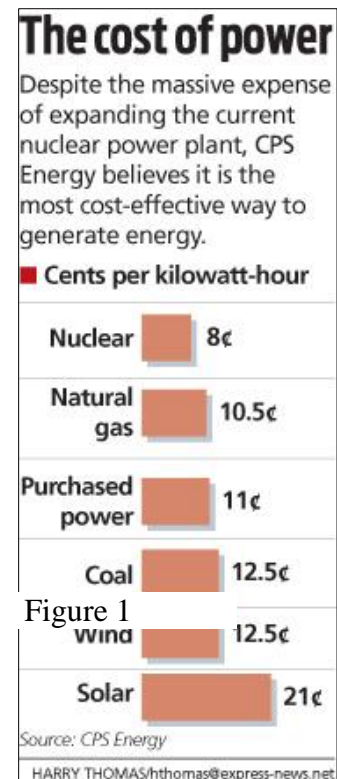


Figure 1

1. DC ceiling fan at 6 Watts(W) versus AC ceiling fans of up to 185W = 27 times
2. DC LED 15W light versus AC florescent at 40W (x's-S2) equal 80W plus (AC ballast) = 5.34 times
3. DC LED versus AC incandescent = 54 times
4. DC refrigerator versus AC refrigerator = 13 times

*Above total average is 25 times more efficient than AC power. Many homes have been done but vary in size and equipment considerably considering size and equipment in each home.

1. Reference the one panel SADA home on our website (SunEnergySystemsSanAntonio.com). Some people are doing a small amount at a time and full instructions come with the kit preferred, the SADA home kit is \$1017 and runs the ceiling fans and lights shown.

2. Another big advantage would be instead of every other year or scheduled 5% electric bill increase; your total bill for the utility of solar would be Zero dollars!

3. We should mention the cost for the solar panel itself would be paid by the \$670 million above and the 30 percent federal credit (the state solar credit bill died in our Texas legislature and should be revived by your request). (The following references the panel in para 1 above) Above is the "super" cloudy weather panel-not the cheaper cloudy weather, one which has an output in heavy clouds, halfway between the "super" one and the crystalline one most people are using since the crystalline has a heavy loss of power as the clouds get thicker!

4. Note the DC solar system in para 1 does not have the inverter losses that they (CPS) has in their distributed system! The DC home system uses the panel power straight to the battery and straight to the load designed for only a 2 percent loss! My 36 year-old system cost only \$18 per year of use to buy but naturally as it gets older, it costs less per year! (for my investment) of course the government income tax credit reduces that cost even more!

5. The dominant difference of solar is its power will be available now, where the nuclear plant power will not be available for at least 10 years! (if it is built on time). However, we would expect the CPS money, if available, would be a Grant since it cannot be metered out by your power meter as the present 50 percent (at \$6/Watt) panel cost rebate can be done if the PV system is a 1 KW or larger (we recommend this grant (if CPS does it) be for any size PV as every single watt of PV power will take the place of the nuclear power plant! However the CPS grant should be expanded to cover solar thermal (hot water, etc...) as BTU to KW conversion is easy so all solar may be covered-not just PV! Also all CPS customers should be covered, not just city limits to get all nuclear power replaced with solar power before the nuclear plant could ever be finished thereby saving us from the present kind of emergencies like the Calaveras coal plant and the Brauning gas power plant failures (p B1 6/27 Express) (1 back on so only 1 is down now per late 7/13 so maybe the present 10% price rise will be lowered) The SADA home (reference para 1) that has both the "super" PV and the "super" hot water panel

was done in 1999 (Sada open house May 2000) are \$8 .00/watt panels but cheaper PV is near \$6 .00/watt for cloudy weather also, but we don't recommend the crystalline panels as their losses are rather large as the clouds get heavy, but nevertheless are a good investment as they put out "free power."

6. Obviously the SADA home battery reserves the PV power for any time of day or night use as desired, but it also is interesting to note the power is still being generated by solar at the CPS 3-7 PM power peaks that CPS need to charge extra for because CPS gets really concerned that they meet the load demand the citizens require. So obviously this PV power fits the CPS problem of less peak power demand but also fits customer needs!

7. Since solar PV power naturally meets peak power demand for CPS, there is no problem (or a reduced problem) of the "smart grid" effort CPS presently is trying to implement to cut people's air-conditioning run time during the 3-7 PM time area and cutting off washers and dryers till night time only!

8. Since solar can have no Three-Mile Island or Chernobyl accident, it obviously is super safe.

9. Since terrorists cannot use solar to hurt people with radiation danger it will never have to be guarded as the nuclear plant and the spent radiation sites for the radiation danger to the public and possible if any radiation item were exploded in a population concentration area.

10. We will not be concerned with finding a place (and the expense) to store the panels should they ever be unusable like the radioactive nuclear waste.

11. The solar PV or hot water will not use up the Colorado River water and force the extra expense of RO or distillation of sea water (presently unplanned cost) for nuclear plant cooling (even nuclear powered ships and nuclear submarines use RO or distilled water), solar will open up the possibility of Saw's getting water from the Colorado River rather than the present LCRA refusal (ref. 6/21 p1 Express).

12. CPS now has the chance to show Texas utilities how to have viable power without extra water demand like the rest of Texas and the nation is doing (ref. 6/21 p1. Express)!

13. CPS now has the chance to show Texas and the rest of the nation how to cut power plant costs over 10 times and lighten the load and peak power on their distribution system at the same time!

14. CPS now has the chance to put the investment into San Antonio instead of Houston and cut the cost of San Antonio power to its citizens at the same time plus accelerate the power availability at the time of solar installation (i.e. not in 10 years more).

15. CPS now has the chance of cutting into its coal and gas plant "cap and trade" tax President Obama and the Democrats are working up, which is said to be \$3000 per family per year now, but up to \$20,000 per family later per Fox news-others reporting \$150-\$350 per year, but does not even mention the law escalation of prices i.e. obviously not reliable reports!

16. Since the nuclear cost is not covered completely (see 8, 9, 10, 11, 15, 16 and 19) extra grant money should be allotted in excess of just the panel cost to cover other items (i.e. battery plus regulator) besides just the panel to complete the kit! Plus the obvious cost increases inflation won't affect solar as it can produce power immediately, not in 10 years or more like the nuclear plant.

17. Item 11 is especially critical (water shortage) in that even though CPS states it has water allotted--water allotment does not guarantee water available! The power plants will likely be throttled back (ref 6/21 headline-Express news), making them, as water shortage forces their production down, to the water available at the shortage as solar will not be affected; in fact, it will probably produce more due to less clouds; however, obviously, we like to use the "super" cloudy weather panels as they put out over 400% more power than the regular common panels put out, but it is free power so obviously any solar panel is better than nuclear power!

18. Per our economy slowdown or recession, the nuclear plant should not be committed to per the page 1A, 7/28/09 Express article about a shortage of money and cutting CPS workers pay - of course the executive pay raise was cut 20% and other executives cut 15%!

19. Per page 1A 7/29 Express, the nuclear plant is likely to run much lower power due to water shortage from this drought and droughts will be getting worse as years go on causing large power plant curtailments but solar power will likely put out more power due to less clouds!