Solar Panel Baseload Generation Fact Sheet

Solar Investment Tax Credit – the amount of federal subsidizes that solar power generation receive distort the levelized cost of energy prices. The solar investment tax credit (ITC) current schedule is provided in Table 1 [1].

Table 1. Solar Investment Tax Credit

(ITC)	
Year	**Percent**
2021	**26%**
2022	**26%**
2023	**24%**
2024	**10%**

To put these numbers into perspective, a commercial 2 MWh solar array may have a total installed cost of $2.8 million dollars. The tax credit that would be received for this investment would be roughly $728 000, i.e., 26% of the total investment. These tax credits result in artificially low solar power costs as compared to other options that are not government funded*. The tax payers cover these Investment Tax Credits.*

Solar Capacity Factors – HIGH 20.4% (Phoenix) / MEDIUM 16.4% (Kansas City)/ LOW 15.3% (New York City)[2] - these Capacity Factors are important as it reflects the "net" average generation capacity of a base-load solar power plant. As we all know – the sun doesn't shine 24/7, cloud cover, snow, etc.. effects the solar generation output.

> ***To put these numbers into perspective, a commercial 1000 MW solar installation in Phoenix, with a capacity factor of 20.4% could only be relied on to produce 204 MW .***

The hidden costs that are not discussed – All published LCOE (levelized Cost of Energy) [3] do NOT include the capacity factor of solar being accounted for. To make things simple, if we were to assume a 25% Capacity Factor, one would need to install 4 TIMES the amount of panels to produce the "nameplate" capacity of the solar power plant. T**he ultimate result is price increase across the board for consumers.** In addition:

- Changing the role of the grid's existing coal fired power plants, or gas turbine combined cycle plants with very high availability when operating on full load from primary to backup for wind/solar have other costs that emerge due to physical realities.
- Coal power gen or GTCC (Gas Turbine Combined Cycle) plants cannot quickly be turned off and on, so capital costs increase and efficiency decreases. In addition, cycling the plants increases wear and tear as well as maintenance costs.
- ***Locations with a large portion of the local power supply generated from renewable energy will require flexible power generation to provide for demand when there is inadequate electricity being supplied from the renewable sources. Peak shaving gas engine generators are NOT included in the LCOE analysis.***

1) Other "problems" with solar

- **Require massive footprint. The Aktina Solar Plant in TX, 500 MW plant, 1.4 MILLION panels, requires 4000 acres of land [4].**
- **The panels are NOT recyclable. By 2050 IREA projects up to 78 MILLION metric tonnes of solar panesl will have reached their end of life. By then the world will be generating 6 MILLION metric tonnes annually. Hazardous metals (cadmium, lead) are included and can be leached into the ground if disposed of improperly [5].**
- **45% of the worlds' solar panels are sourced from China likely produced in Uyghur forced labor camps [6]. The solar industry is not being held to the same Environmental, Social or Governance standards as other industries.**

References:

1. https://quickelectricity.com/federal-solar-power-tax-credit-2021/
2. Feldman, Ramasamy, Fu, Ramdas, Desai, & Margolis, *U.S. Solar Photovoltaic System and Energy Storage Cost Benchmark: Q1 2020. NREL. Jan 2021*.
3. *Lazard's Levelized Cost of Energy Analysis – Version 14.0, October 2020.*
4. https://www.renewableenergyworld.com/solar/construction-begins-on-500-mw-aktina-plant-the-largest-solar-facility-in-the-state-of-texas/#gref
5. *Prendergast, C., Solar Panel Waste: The Dark Side of Clean Energy, Discover Magazine, Dec 14, 2020.*
6. https://www.bbc.com/news/world-asia-china-57124636 - BBC News, 14 May 2021.