Cost and performance characteristics of new central station electricity generating technologies: Notes

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| Notes |
| 1 ‐ Represents the first year that a new unit could become operational. |
| 2 –AACE International, the Association for the Advancement of Cost Engineering, has defined contingency as “An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs.” |
| 3 ‐ The technological optimism factor is applied to the first four units of a new, unproven design and reflects the demonstrated tendency to underestimate actual costs for a first‐of‐a‐kind unit. |
| 4 ‐ Overnight capital cost including contingency factors, excluding regional multipliers (except as noted for wind and solar PV) and learning effects. Interest charges are also excluded. These represent current costs for plants that would come online in 2018. |
| 5 ‐ O&M = Operations and maintenance. Fuel Costs are a significant part of the variable O&M. |
| 6 ‐ For hydropower, wind, solar and geothermal technologies, the heat rate shown represents the average heat rate for conventional thermal generation as of 2016. This heat rate is used for purposes of calculating primary energy consumption displaced for these resources, and does not imply an estimate of their actual energy conversion efficiency. The nuclear average heat rate is the weighted average tested heat rate for nuclear units as reported on the Form EIA‐860, "Annual Electric Generator Report." No heat rate is reported for battery storage because it is not a primary conversion technology; conversion losses are accounted for when the electricity is first generated; electricity‐to‐storage losses are accounted for through the additional demand for electricity required to meet load. |
| 7 – Conventional combustion turbine units can be built by the model prior to 2018 if necessary, to meet a given region's reserve margin. |
| 8 ‐ Capital costs are shown before investment tax credits are applied. |
| 9 ‐ Because geothermal and hydropower cost and performance characteristics are specific for each site, the table entries represent the cost of the least expensive plant that could be built in the Northwest Power Pool region, where most of the proposed sites are located. |
| 10 ‐ Wind and both solar PV technologies' total overnight cost shown in the table represents the average input value across all 22 electricity market regions, as weighted by the respective capacity of that type installed during 2016 in each region to account for the substantial regional variation in wind and solar costs (as shown in Table 8.3). The input value used for wind in AEO2018 was $1,887 per kilowatt (kW), for solar PV with tracking was $2,207/kW, and for solar PV fixed tilt was $2,068, representing the cost of building a plant excluding regional factors. Region‐specific factors contributing to the substantial regional variation in cost include differences in typical project size across regions, accessibility of resources, and variation in labor and other construction costs through the country. |
| 11 ‐ Costs and capacities are expressed in terms of net AC power available to the grid for the installed capacity. |

Additional:

Nth-of-akind heat rate is the thermal efficiency of that type of power plant.

<https://www.eia.gov/tools/glossary/index.php?id=T#therm_eff>

<https://www.eia.gov/outlooks/capitalcost/>

Starting year appears to be 2017. 1s year available is current year (2017) + lead time.