

10. Correct. The answer is false. 100 megawatts capacity = $100 \times 1000 = 100,000$ kilowatts of capacity. Plant cost is $100,000 \times 600 = \$60,000,000$. Generation in kilowatt hours $Q = 100 \times 1000 \times 24 \times 365 \times 20 \times 0.20 = 3,504,000,000$. Remember a mill is one tenth of a cent. Total cost is $TC = FC + VC = 60,000,000 + 0.004 \times 3,504,000,000 = 74,016,000$. Cost per kilowatt hour is $TC/Q = 74,016,000/3,504,000,000 = \0.021 .

A more accurate way to distribute your fixed cost over generation, called a levelized cost, incorporates a discount interest rate or a required rate of return (r). The levelized capital cost is the rate you would pay over time on each kilowatt hour that would just cover your capital cost at the existing discount rate. If you pay for the unit now, it begins producing in 1 year, and you pay for all your power at the beginning of each year of production, the levelized cost per kilowatt hour, γ , is computed by solving the following equation.

$$60,000,000 = \sum_{i=1}^{20} (0.20 \times 24 \times 365 \gamma) / (1+r)^i$$