

# Battery Energy Cost Calculator

Calculate annual delivered energy, charging energy, and charging cost per delivered kWh from battery capacity, depth of discharge, round-trip efficiency, cycle count, and electricity rate.

Generated October 10, 2026

<https://www.elecatrix.com/power-energy-cost/battery-energy-cost-calculator/>

## Inputs

| Input                 | Value | Unit   |
|-----------------------|-------|--------|
| Battery capacity      | 10    | kWh    |
| Depth of discharge    | 80    | %      |
| Round-trip efficiency | 90    | %      |
| Cycles per year       | 365   | cycles |
| Electricity rate      | 0.16  | \$/kWh |

## Results

| Result                  | Value     | Unit     |
|-------------------------|-----------|----------|
| Usable energy per cycle | 8         | kWh      |
| Charge energy per cycle | 8.8889    | kWh      |
| Annual delivered energy | 2920      | kWh/year |
| Annual input energy     | 3244.4444 | kWh/year |
| Annual energy cost      | 519.1111  | \$/year  |
| Cost per delivered kWh  | 0.1778    | \$/kWh   |

## Calculation details

| Detail            | Value                                                                                                                                                          | Unit |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Calculation basis | Usable battery energy equals capacity times depth of discharge. Charging energy adds round-trip losses, then annual cost applies the entered rate.             |      |
| Review boundary   | Screening estimate only; no battery chemistry, degradation, standby loss, temperature, tax, maintenance, or code compliance result is made by this calculator. |      |

# Battery Energy Cost Calculator

Calculate annual delivered energy, charging energy, and charging cost per delivered kWh from battery capacity, depth of discharge, round-trip efficiency, cycle count, and electricity rate.

Generated October 10, 2026

<https://www.elecatrix.com/power-energy-cost/battery-energy-cost-calculator/>

---

## Formulas

$$E_{\text{usable}} = E_{\text{capacity}} \times \frac{\text{DOD}_{\%}}{100}$$

$$E_{\text{charge}} = \frac{E_{\text{usable}}}{\eta_{\text{round trip}}/100}$$

$$E_{\text{delivered,annual}} = E_{\text{usable}} \times N_{\text{cycles}}$$

$$C_{\text{annual}} = E_{\text{charge}} \times N_{\text{cycles}} \times r_{\text{energy}}$$

$$C_{\text{delivered}} = \frac{C_{\text{annual}}}{E_{\text{delivered,annual}}}$$

---

## Warnings and limitations

This battery energy-cost estimate uses entered cycling assumptions only. It does not model battery chemistry, degradation, standby losses, temperature effects, tariffs, taxes, maintenance, or code compliance.