

Reactive Energy Calculator

Estimate kvarh, kVAh, and phase angle from entered real energy and power factor for preliminary power-factor review.

Generated October 10, 2026

<https://www.elecatrrix.com/power-energy-cost/reactive-energy-calculator/>

Inputs

Input	Value	Unit
Real energy	12000	kWh
Power factor	0.82	x

Results

Result	Value	Unit
Reactive energy	8376.0515	kvarh
Apparent energy	14634.1463	kVAh
Reactive-to-real ratio	0.698	x
Phase angle	34.9152	deg

Calculation details

Detail	Value	Unit
Calculation basis	Reactive energy equals real energy multiplied by the tangent of the phase angle derived from the entered power factor.	
Boundary	Screening estimate only; no waveform distortion, harmonic, time-varying load, meter rule, or utility approval result is made by this calculator.	

Formulas

$$\theta = \cos^{-1}(\text{PF})$$

$$E_{\text{kvarh}} = E_{\text{kWh}} \times \tan(\theta)$$

$$E_{\text{kVAh}} = \frac{E_{\text{kWh}}}{\text{PF}}$$

Warnings and limitations

This reactive-energy calculation uses entered real energy and power factor only. It does not model waveform distortion, harmonics, time-varying load, meter rules, or utility approval.