Diesel Generator vs Grid Electricity Cost

Cost per kWh of diesel generation from specific fuel consumption, diesel price and running costs, against the grid tariff, with the annual difference.

Method: Cost per kWh = SFC × diesel price + O&M

Input parameters

Unit system: SI

Parameter	Value	Unit
Specific fuel consumption (litres per kWh) From the set's log at its usual load; rises sharply at light load.	0.28000	
Diesel price per litre	90.000	
Lubricants and maintenance per kWh	2.0000	
Grid tariff per kWh	8.0000	
Energy per year from the set (kWh)	200,000	
CO_2 emission factor of diesel (kg per litre) 2.68 kg/L corresponds to the IPCC 2006 default of 74.1 kg CO_2/GJ at about 36 MJ/L; use your inventory factor if it differs.	2.6800	

Calculated results

Parameter	Value	Unit
Diesel cost per kWh	27.200	
Extra cost per kWh over the grid	19.200	
Extra cost per year	3,840,000	
CO_2 from the set	150.08	t

Notes for this case

- The CO_2 factor defaults to 2.68 kg per litre (IPCC 2006 default for diesel); use your inventory factor if it differs.

Formula and method

$$c_{DG} = SFC \cdot p_d + c_{om}, \quad \Delta C = (c_{DG} - c_g)E, \quad m_{CO_2} = SFC \cdot E \cdot EF$$

Variables

SFC	Specific fuel consumption (litres per kWh)	-
p_d	Diesel price per litre	-
c_{om}	Lubricants and maintenance per kWh	-
c_g	Grid tariff per kWh	-
E	Energy per year from the set (kWh)	-
EF	CO_2 emission factor of diesel (kg per litre)	-
c_{DG}	Diesel cost per kWh	-
Δc	Extra cost per kWh over the grid	-
ΔC	Extra cost per year	-
m_{CO_2}	CO_2 from the set	kg

Method and standards

Unit cost.

Assumptions and limits

- Average load.
- CO_2 factor EF defaults to 2.68 kg/L (IPCC 2006 default 74.1 kg CO_2/GJ at about 36 MJ/L).

References

- Cost per kWh = SFC × diesel price + O&M

Report details

Report reference	FCC-1HSD-YBGV (the same inputs always give the same reference)
Generated	17 November 2026, 19:50 UTC
Calculator	Diesel Generator vs Grid Electricity Cost
Method last reviewed	12 November 2026
Software release	FireCAD Calc, release of 17 November 2026
Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/environmental/carbon-energy/diesel-vs-grid-cost

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.