Levelised Cost of Energy (LCOE) or of Steam

Levelised cost of electricity, steam or heat from capital cost, interest, life, yearly operating and fuel costs and yearly output, by the capital recovery factor.

Method: Capital recovery factor method

Input parameters

Unit system: SI

Parameter	Value	Unit
Capital cost (your currency)	5.0000e+07	
Operation and maintenance per year	2,000,000	
Fuel cost per year	1.5000e+07	
Output per year (kWh of power or heat, or tonnes of steam)	8,000,000	
Interest (discount) rate	10.000	%
Life, years	15.000	

Calculated results

Parameter	Value	Unit
Capital recovery factor (per year)	0.13147	
Capital cost per year	6,573,689	
Total cost per year	2.3574e+07	
Levelised cost per unit of output	2.9467	

Notes for this case

- Constant yearly costs and output in today's money; escalating fuel prices or falling output need a year-by-year cash flow.

Formula and method

$$CRF = \frac{i(1+i)^n}{(1+i)^n - 1}$$

$$C_y = C_0\,CRF + C_{OM} + C_F$$

$$LCOE = C_y / E_y$$

Variables

C_0	capital cost	currency
C_{OM}	O&M per year	currency
C_F	fuel per year	currency
E_y	output per year	unit
i	interest rate	-
n	life	years
CRF	capital recovery factor	1/year
$C_0 CRF$	capital cost per year	currency
C_y	total cost per year	currency
$LCOE$	levelised cost	currency/unit

Method and standards

The capital is turned into an equal yearly payment by the capital recovery factor; adding yearly operating and fuel costs and dividing by yearly output gives the levelised cost.

Assumptions and limits

- Constant yearly costs and output.

References

- Capital recovery factor method

Report details

Report reference	FCC-XMQ0-9311 (the same inputs always give the same reference)
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Release checks	3 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/general/economics/levelised-cost-of-energy

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.