Water Leak and Wastage: Volume and Cost per Year

Water lost per year from a leak or continuous waste flow, its cost and the pumping energy, from the flow (or a bucket test) and the water and power prices.

Method: Volume = flow × time; cost = volume × (water price + pumping energy × tariff)

Input parameters

Unit system: SI

Parameter	Value	Unit
Leak or waste flow	0.20000	L/s
Hours per year	8,760.0	h
Water cost per m³ (supply and treatment) Always per cubic metre, in any unit system: a price per 1,000 US gal divides by 3.785 to give the price per m³.	60.000	
Pumping energy per m³ (kWh) kWh per cubic metre in any unit system (kWh per 1,000 US gal ÷ 3.785).	0.40000	
Electricity price per kWh	8.0000	

Calculated results

Parameter	Value	Unit
Water lost per year	6,307.2	m³
Water cost per year	378,432	
Pumping cost per year	20,183	
Total per year	398,615	

Formula and method

$$V = \dot{V}t, \quad C = V(c_w + e_p c_e)$$

Variables

$\dot{V}$	Leak or waste flow	m³/s
t	Hours per year	s
c_w	Water cost per m³ (supply and treatment)	-
e_p	Pumping energy per m³ (kWh)	-
c_e	Electricity price per kWh	-
V	Water lost per year	m³
C_w	Water cost per year	-
C_e	Pumping cost per year	-
C	Total per year	-

Method and standards

Volume and cost.

Assumptions and limits

- The water price and pumping energy are always per cubic metre, whatever unit system is chosen for the flow and volume; convert prices per 1,000 US gallons (÷ 3.785) before entering them.
- Constant flow.

References

• Volume = flow × time; cost = volume × (water price + pumping energy × tariff)

Report details

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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/water-leak-saving

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.