Utilities Cost Calculator — Report

DOCUMENT

Plant / project	**Example Plant**
Equipment tag / system	**Utilities**
Calculation / document no.	**CALC-UT-001**
Revision	**0**
Prepared by	**Your name**
Checked by	**—**
Date	**07-Nov-2026**

Calculation basis

Steam properties: IAPWS-IF97 · gas heating values from composition (ATcT formation enthalpies, ideal gas, 25 °C) · make-up to deaerator: Demin water · HRSG and waste-heat steam: reference boiler on Natural gas at 91.0 % (LHV) · turbine and letdown steam: cost per unit of heat above deaerator water kept · blowdown: TDS balance (ABMA limits) · cooling-water evaporation 0.180 %/°C · 8,000 h/yr · currency: USD

Status

✓ Inputs OK · ℹ️ 22 default value(s) in use: bfw pump efficiency, hhv / lhv ratio (Fuel 3), cation resin operating capacity, anion resin operating capacity, acid regeneration level, caustic regeneration level, acid strength as delivered, caustic strength as delivered, cation backwash water, anion backwash water, cation rinse water, anion rinse water, acid regenerant concentration, caustic regenerant concentration, boiler-water tds limit (Boiler 1), boiler-water tds limit (Boiler 2), boiler-water tds limit (Boiler 3), reference efficiency, reference blowdown, reference auxiliary power, evaporation factor, drift loss

STEAM HEADERS

Header	
Header 1	
Header 2	
Header 3	
Header 4	

Name	Pressure (bar g)	Temperature (°C)	BFW pump (bar g)	Saturation (°C)	Superheat (K)	Enthalpy (kJ/kg)
VHP steam	100.00	500.0		311.7	188.3	3,373.8
HP steam	40.00	400.0		251.8	148.2	3,212.6
MP steam	15.00	280.0		201.4	78.6	2,990.2
LP steam	4.00	180.0		151.9	28.1	2,812.4

UNIT COST OF EACH UTILITY

Utility	Unit	Unit cost	Fuel	Power	Water & steam	Chem. & consum.	Fixed, O&M, bought-in	HR credit
Raw water (blend of sources)	per m³	0.0479	0.0000	0.0250	0.0086	0.0000	0.0143	0.0000
Clarifier — product water	per m³	0.0797	0.0000	0.0051	0.0494	0.0138	0.0115	0.0000
Media filter — product water	per m³	0.0991	0.0000	0.0073	0.0830	0.0004	0.0083	0.0000
Cation–anion — product water	per m³	0.3962	0.0000	0.0152	0.1084	0.2308	0.0417	0.0000
Polisher (MB / EDI) — product water	per m³	0.4458	0.0000	0.0062	0.4042	0.0194	0.0159	0.0000
Condensate polisher — product water	per m³	0.4768	0.0000	0.0073	0.4480	0.0090	0.0125	0.0000
Demin water (end of the demin train)	per m³	0.4458						
Boiler feed water (deaerated)	per t	3.0878	0.0000	0.0000	3.0790	0.0088	0.0000	0.0000
VHP steam (steam header 1)	per t	30.54	26.15	0.85	3.12	0.00	0.42	0.00
HP steam (steam header 2)	per t	34.22	27.45	0.56	5.98	0.00	0.23	0.00
MP steam (steam header 3)	per t	27.28	8.08	0.14	18.89	0.00	0.17	0.00
LP steam (steam header 4)	per t	24.97	0.00	0.00	24.97	0.00	0.00	0.00
Electric power — plant average	per MWh	73.00	47.41	0.12	30.40	0.00	15.89	-20.82
Gas turbine 1	per MWh	62.69	95.91	0.27	5.07	0.00	7.61	-46.17
Engine / genset 1	per MWh	91.32	77.92	0.00	0.00	0.00	13.40	0.00
Steam turbine 1	per MWh	39.25	0.00	0.00	36.45	0.00	2.80	0.00
Steam turbine 2	per MWh	160.04	0.00	0.00	157.23	0.00	2.82	0.00
Grid import	per MWh	101.00	0.00	0.00	0.00	0.00	101.00	0.00
Renewable 1 (Solar PV)	per MWh	39.95	0.00	0.00	0.00	0.00	39.95	0.00
Cooling water (per m³ circulated)	per m³	0.02141	0.00000	0.01424	0.00179	0.00261	0.00277	0.00000
Plant air	per Nm³	0.00928	0.00000	0.00730	0.00011	0.00000	0.00188	0.00000
Instrument air	per Nm³	0.01107	0.00000	0.00015	0.01092	0.00000	0.00000	0.00000
Nitrogen	per Nm³	0.03681	0.00000	0.00146	0.02785	0.00000	0.00750	0.00000

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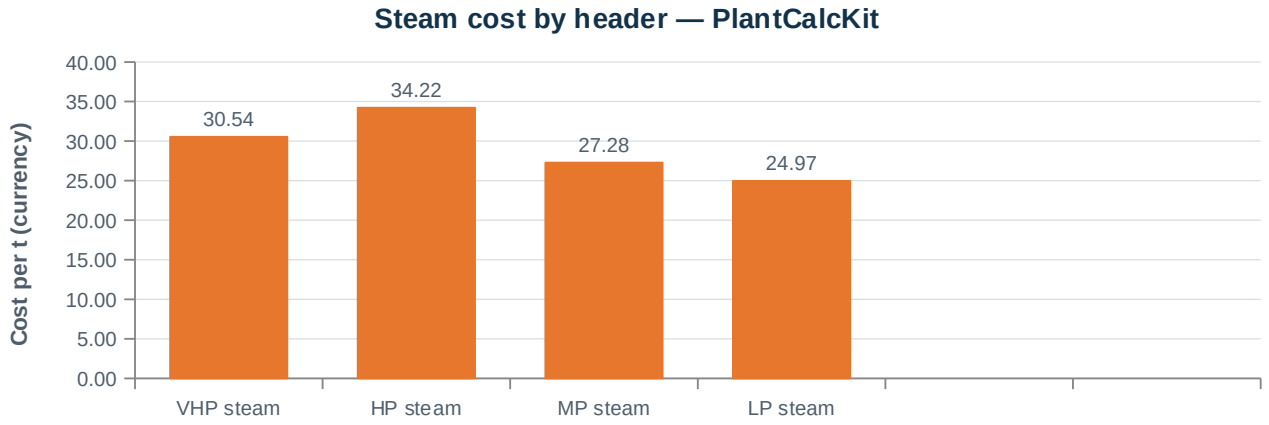
COST BALANCE — joint producers (per hour)

Unit		Cost in	To power	To steam	Credited	Difference	Check
Gas turbine 1		2,680.66	1,543.70	1,136.95	0.00	0.00	✓ balanced
Engine / genset 1		265.74	265.74	0.00	0.00	0.00	✓ balanced
Steam turbine 1		3,091.04	526.37	2,564.67	0.00	0.00	✓ balanced
Steam turbine 2		1,078.60	1,065.22	0.00	13.37	0.00	✓ balanced
Waste-heat boiler 1		98.49	0.00	852.71	-754.22	0.00	✓ balanced

Credited: heat value given to the process unit (waste-heat boilers, shown negative) or returned condensate (condensing turbines).

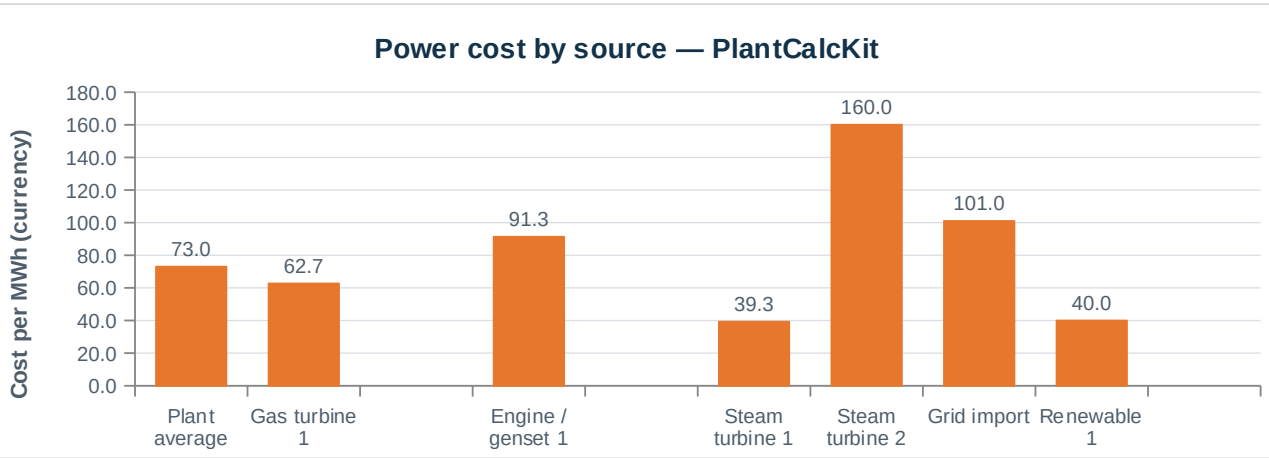
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CHARTS



Observations — steam costs

[Write your observations here]

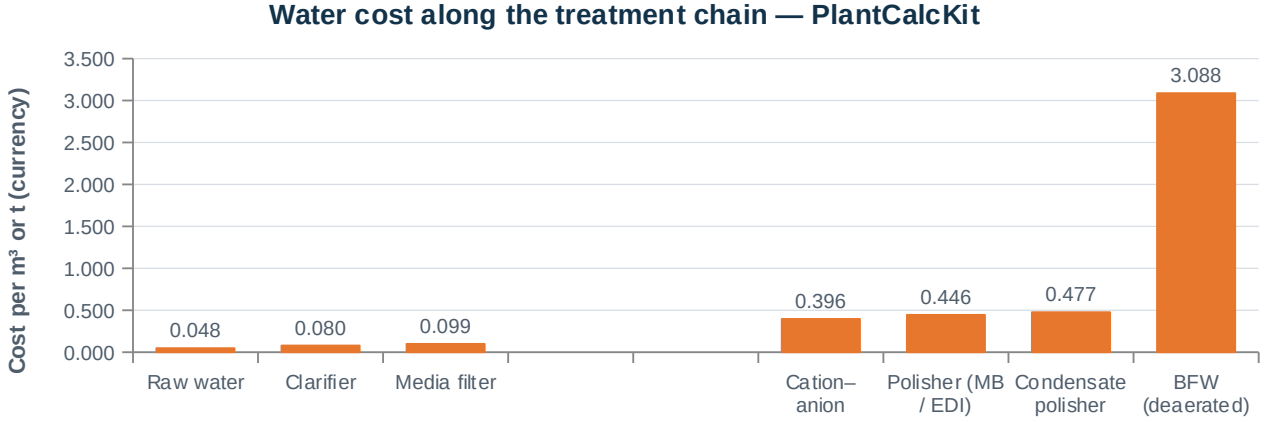


Observations — power costs

[Write your observations here]

Utilities Cost Calculator — Report

Calculation summary | PlantCalcKit v1.0



Observations — water costs

[Write your observations here]

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