HydD_mfb30_real_dryN-CityBAS_dryNAc1.0x58.086Vice0.2x58.086HP1.0x18.4 Year0

Energy generation costs

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Table 1: Assumptions for calculation of heat generation costs

Rate	3.0 % $per\ annum$
Analysis period	30 $years$
Maintenance	1.0 % $of\ Investment\ costs\ per\ year$
Electricity	Fix costs: 0 $Fr.\ per\ year$ Variable costs: 0.20 $Fr.\ per\ kWh$
Increase of electricity costs	0.0 % $per\ year$
Electricity costs year 1	5000 Fr. in year 1

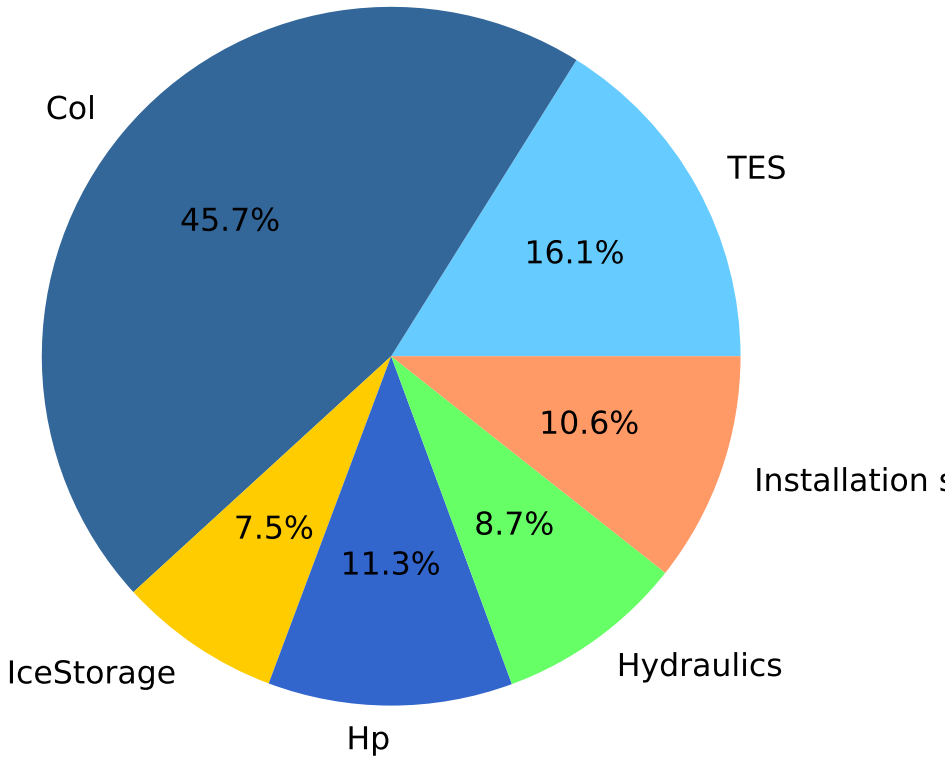

Figure 1: System cost

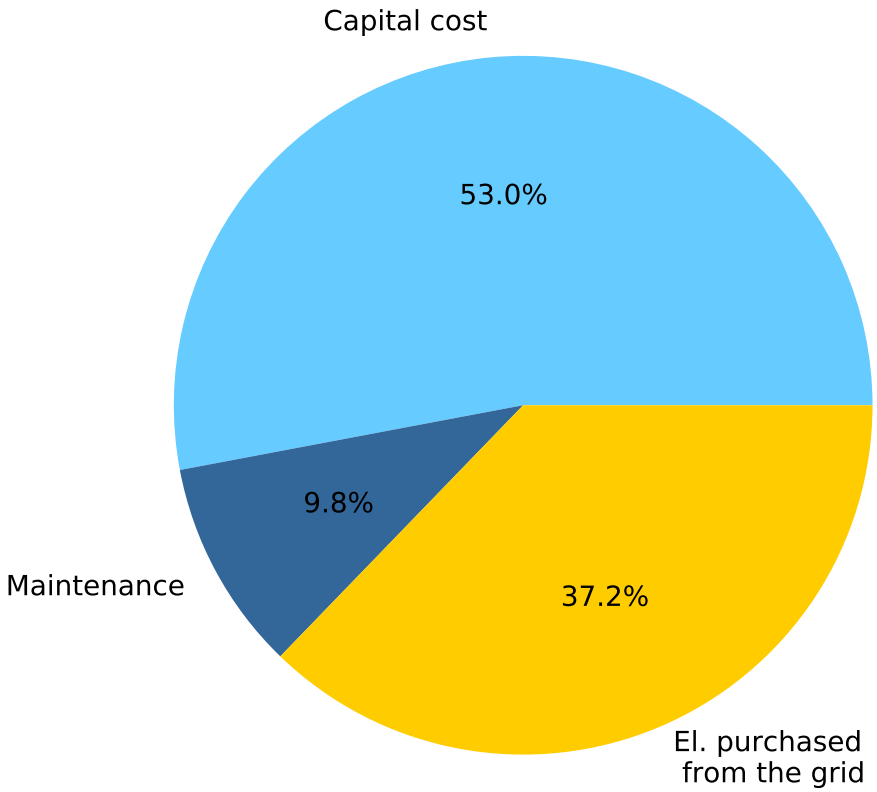

Figure 2: System cost annuity share

Table 2: System and Heat generation costs (all values incl. 8% VAT)

Group	Component	Costs [CHF]	Size	LifeTime Years	Total Costs [CHF]
TES	Storage (Stainless Steel)	-2000+10173$^{+250}_{-100}$/m^3	2.00 m^3	30	18345.6$^{+500.0}_{-200.0}$ (13.9$^{+0.4}_{-0.2}$%)
	Storage (Steel)	666+1214/m^3	1.30 m^3	30	2238.2 (1.7$^{+0.0}_{-0.0}$%)
	electric rod	600+0/m^3	2.00 m^3	30	600.0 (0.5$^{+0.0}_{-0.0}$%)
	Total TES				21183.8$^{+500.0}_{-200.0}$ (16.1$^{+0.4}_{-0.2}$%)
Col	Collector	9282+875/m^2	58.09 m^2	30	60107.2 (45.7$^{+0.1}_{-0.2}$%)
IceStorage	Ice Storage (inc. installation)	0+850/m^3	11.62 m^3	20	9874.6 (7.5$^{+0.0}_{-0.0}$%)
Hp	HeatPump	8194+363/kW	18.44 kW	20	14888.4 (11.3$^{+0.0}_{-0.0}$%)
Hydraulics	Hydraulics	11500+0/kW	18.44 kW	30	11500.0 (8.7$^{+0.0}_{-0.0}$%)
Installation system	Installation System	14000+0/kW	18.44 kW	30	14000.0 (10.6$^{+0.0}_{-0.0}$%)
	Total Investment Cost				**131554.09**$^{+500.00}_{-200.00}$ (100%)
Annuity	Annuity (yearly costs over lifetime)				13428$^{+31}_{-12}$ /a
	Share of Investment				7113$^{+26}_{-10}$ /a (53$^{+0}_{-0}$%)
	Share of Electricity	0+0.20/kWh	24999 kWh		5000 /a (37$^{+0}_{-0}$%)
	Share of Maintenance				1316$^{+5}_{-2}$ /a (10$^{+0}_{-0}$%)
	Share of Residual Value				0 /a (0%)
Present Value	Present Value of all costs				255338.67$^{+598.00}_{-239.20}$ CHF
Energy Generation Costs	Using annuity:			23.17$^{+0.05}_{-0.02}$	Rp./kWh