HydD_mfb30_ideal_dryN-CityBAS_dryNAc1.0x35.659Vice0.4x35.659HP1.0x17.1 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	3579 Fr. in year 1

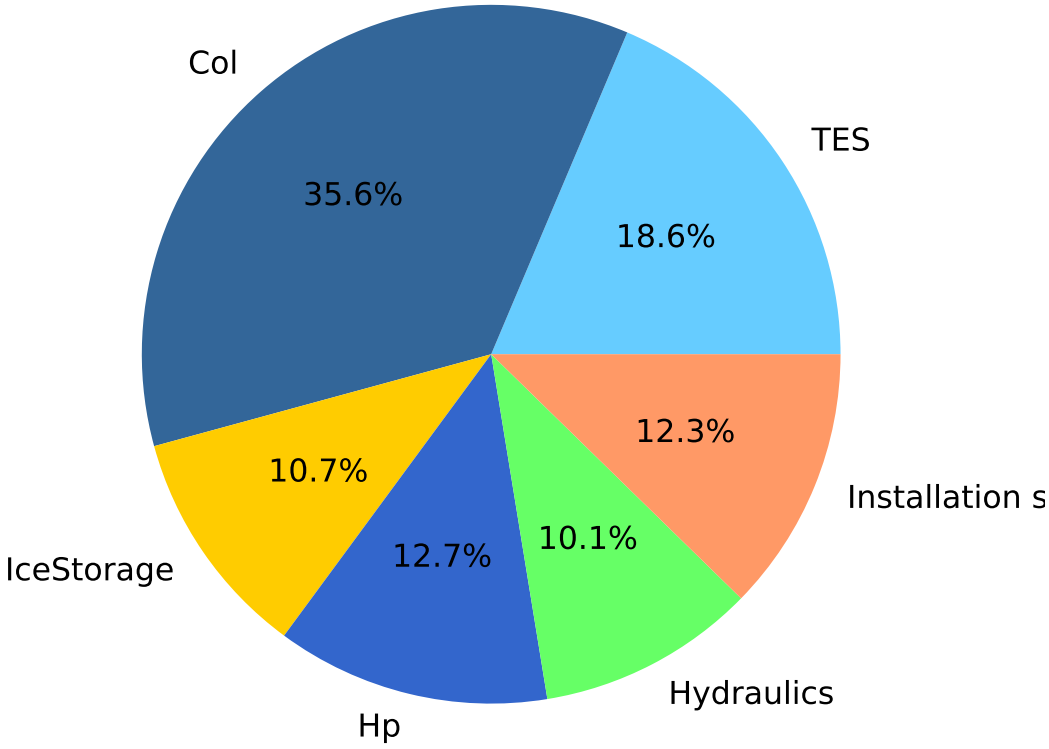

Figure 1: System cost

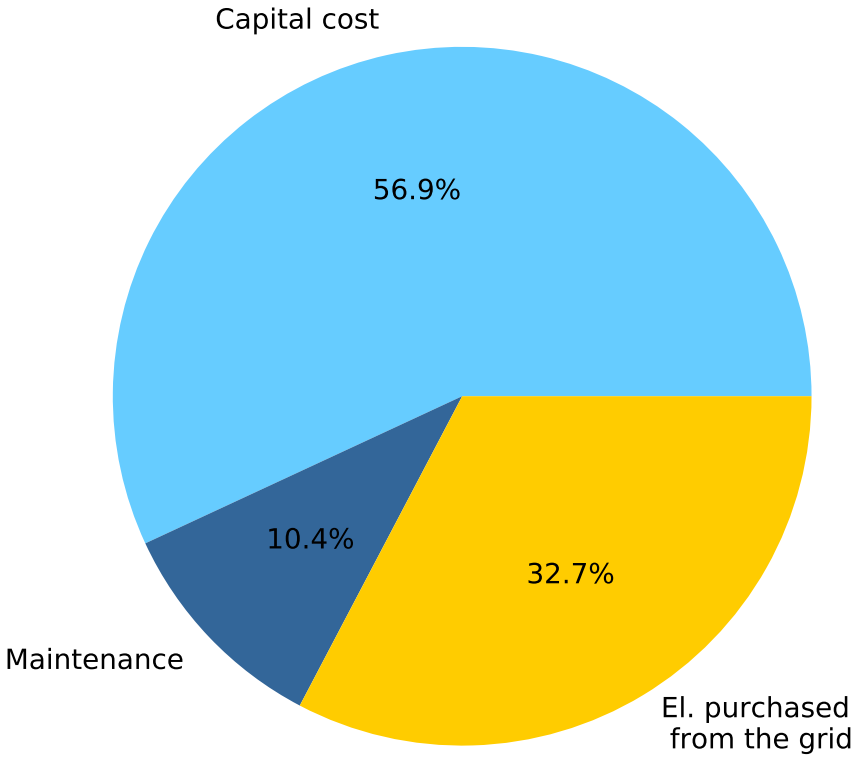

Figure 2: System cost annuity share

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$^{+500.0}_{-200.0}$ (16.1$^{+0.5}_{-0.2}$%)
	Storage (Steel)	666+1214/m^3	1.30 m^3	30	2238.2 (2.0$^{+0.0}_{-0.0}$%)
	electric rod	600+0/m^3	2.00 m^3	30	600.0 (0.5$^{+0.0}_{-0.0}$%)
	Total TES				21183.8$^{+500.0}_{-200.0}$ (18.6$^{+0.5}_{-0.3}$%)
Col	Collector	9282+875/m^2	35.66 m^2	30	40483.6 (35.6$^{+0.1}_{-0.2}$%)
IceStorage	Ice Storage (inc. installation)	0+850/m^3	14.26 m^3	20	12124.1 (10.7$^{+0.0}_{-0.0}$%)
Hp	HeatPump	8194+363/kW	17.11 kW	20	14404.6 (12.7$^{+0.0}_{-0.1}$%)
Hydraulics	Hydraulics	11500+0/kW	17.11 kW	30	11500.0 (10.1$^{+0.0}_{-0.0}$%)
Installation system	Installation System	14000+0/kW	17.11 kW	30	14000.0 (12.3$^{+0.0}_{-0.1}$%)
	Total Investment Cost				**113696.03**$^{+500.00}_{-200.00}$ (100%)
Annuity	Annuity (yearly costs over lifetime)				10946$^{+31}_{-12}$ /a
	Share of Investment				6230$^{+26}_{-10}$ /a (57$^{+0}_{-0}$%)
	Share of Electricity	0+0.20/kWh	17893 kWh		3579 /a (33$^{+0}_{-0}$%)
	Share of Maintenance				1137$^{+5}_{-2}$ /a (10$^{+0}_{-0}$%)
	Share of Residual Value				0 /a (0%)
Present Value	Present Value of all costs				206123.53$^{+598.00}_{-239.20}$ CHF
Energy Generation Costs	Using annuity:			30.76$^{+0.09}_{-0.03}$	Rp./kWh