



*Greening Energy
Market and Finance*

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Creating Renewable Energy Community



With the support of the
Erasmus+ Programme
of the European Union



Motivations



Consumers: cheaper energy, lower carbon footprint



Prosumer: cheaper energy, lower carbon footprint, sale of the energy surplus

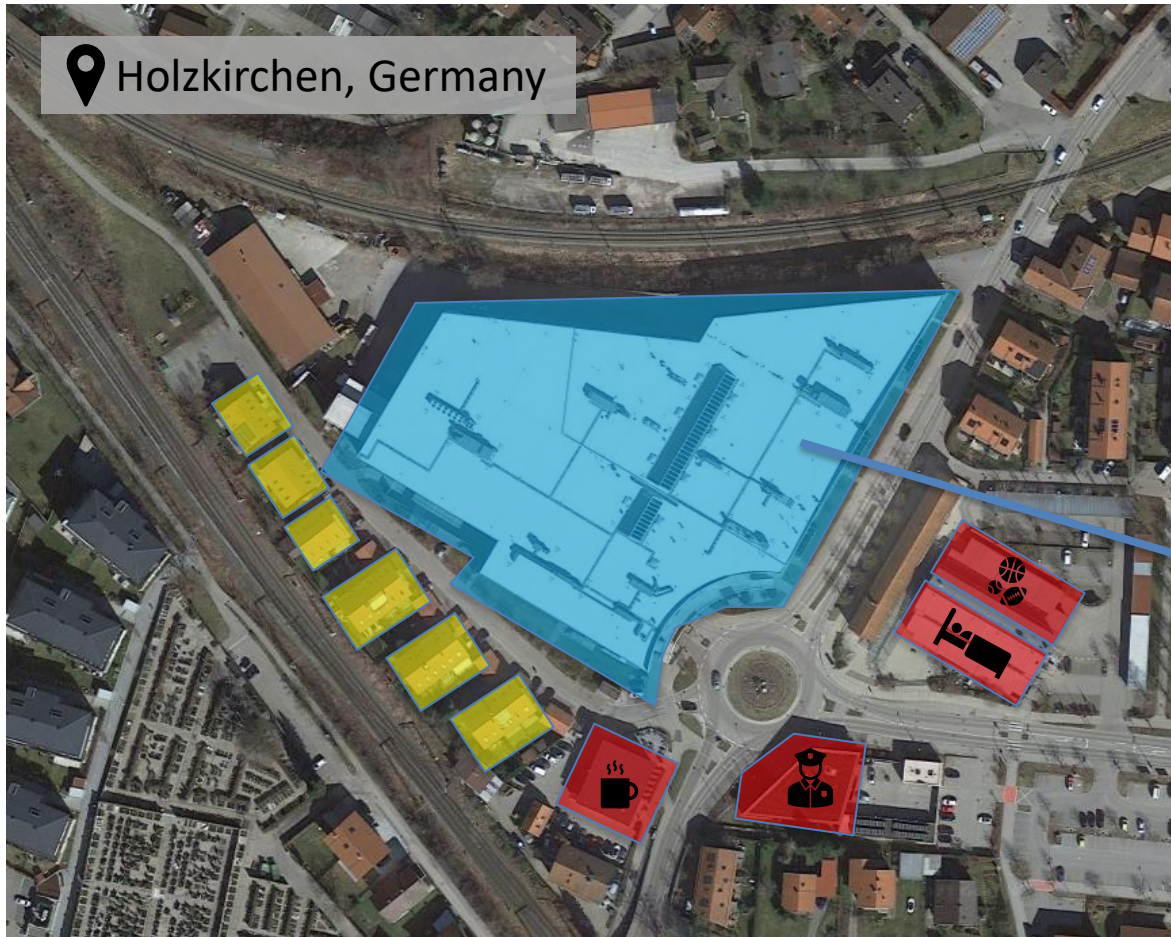


Private Equity investors: ROI, reputation





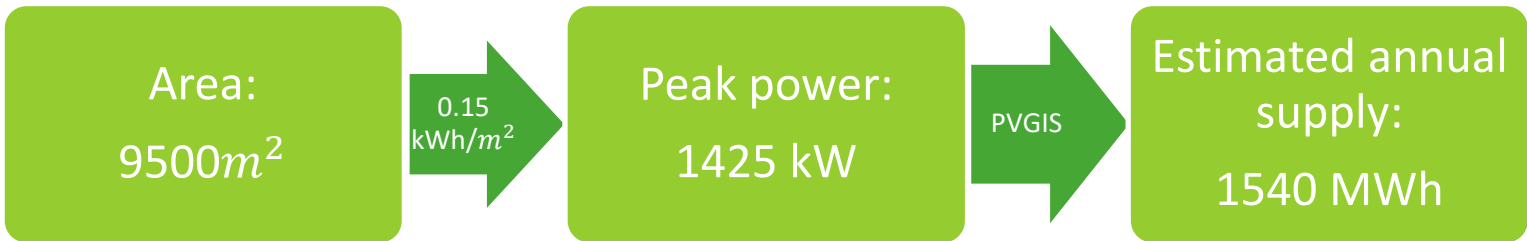
Location



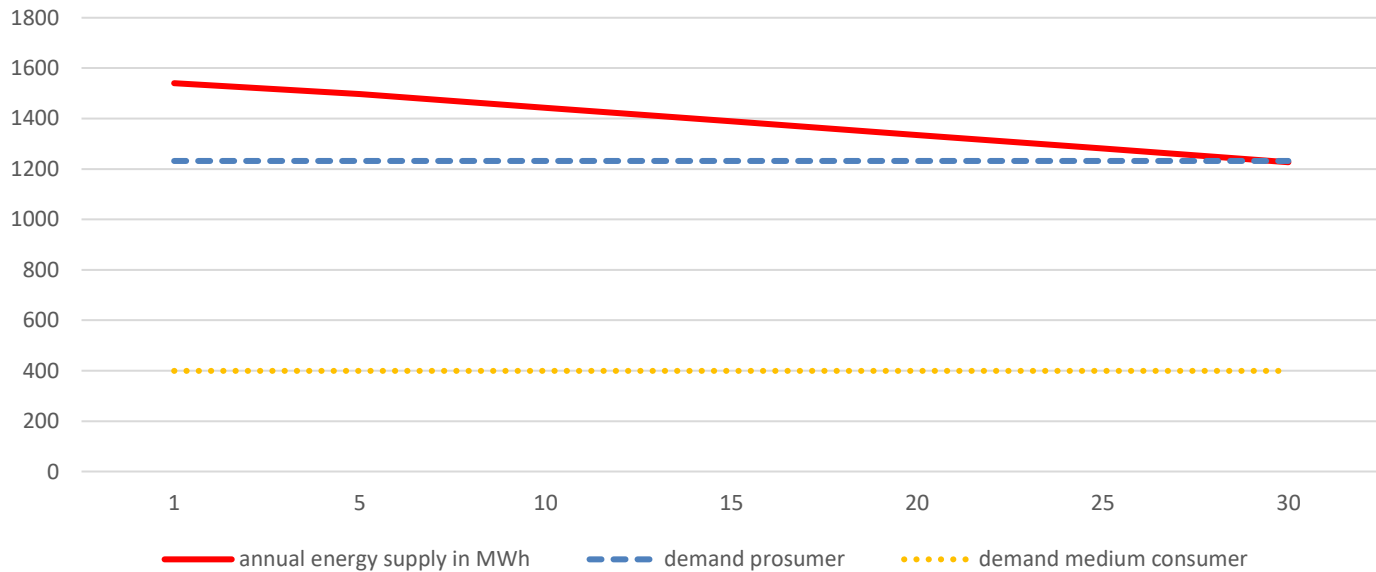
- Prosumer:
Shopping mall
- 4 medium consumers
- Many small consumers
- Roof area: 9500 m^2
- Azimuth: 6°
- Slope: 35°



Estimation of plant's power potential



Projected annual energy supply and demand in MWh





Financial model



Yield: 4%

Initial investment:
926.250 €

Fixed costs:
48 000 € p.a.

Variable costs:
40 €/MWh p.a.

IRR after 20
years:
15 %

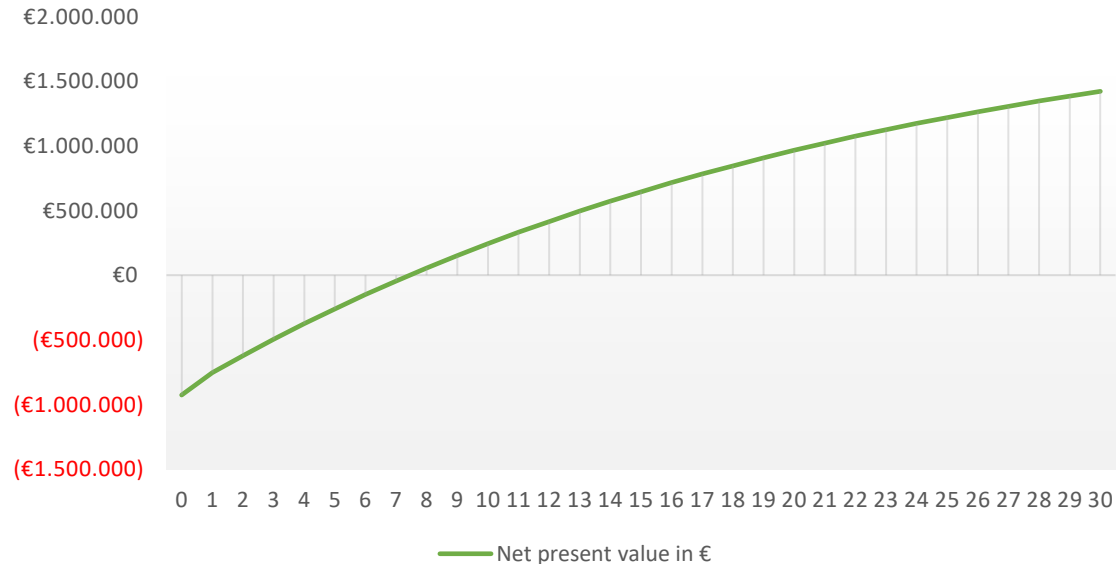


Prosumer: 150
€/MWh
Med. consumer:
130 €/MWh

Safe 10
€/MWh

Prosumer: 140
€/MWh
Med. consumer:
120 €/MWh

Net present value in €





Impacts



Savings in the 1st year

Main prosumer: 12.321 €

Medium consumer: 770 €

GHG emissions: 527 t CO₂

CO₂-Emissionen im Strommix [g CO₂ je kWh] Quelle: EUPD Research 2021

	Jan	Feb	Mrz	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
00:00	349	227	297	294	314	362	408	413	450	368	433	396
01:00	346	222	293	287	305	348	399	401	443	362	429	390
02:00	342	217	293	284	301	341	390	393	438	352	425	387
03:00	341	216	290	284	302	340	385	393	437	359	426	385
04:00	343	220	297	290	306	344	386	399	442	368	430	388
05:00	355	232	310	301	319	357	393	414	455	389	441	400
06:00	367	247	322	304	318	360	389	421	464	407	451	414
07:00	373	253	311	288	295	342	360	403	449	407	450	418
08:00	374	253	290	263	268	318	327	373	419	400	440	419
09:00	367	247	273	235	242	294	296	346	393	386	430	416
10:00	359	239	253	203	216	274	273	322	366	372	420	410
11:00	354	232	240	183	200	259	257	302	341	361	412	407
12:00	350	229	235	172	192	250	247	291	324	351	412	409
13:00	353	228	238	167	189	245	242	288	315	349	424	419
14:00	364	233	246	168	189	245	242	292	320	356	444	431
15:00	380	244	263	176	197	251	250	306	340	374	469	437
16:00	389	258	292	198	210	265	269	328	377	398	476	429
17:00	379	264	323	239	240	288	300	360	420	413	460	417
18:00	373	260	335	279	276	320	333	390	454	411	454	418
19:00	372	259	333	301	305	352	364	414	462	404	456	421
20:00	368	254	330	306	324	376	393	427	462	400	460	422
21:00	363	246	326	307	332	388	409	431	468	394	456	418
22:00	359	243	323	305	333	386	413	432	468	386	454	416
23:00	351	235	316	296	326	383	417	432	457	373	448	409

Average: 342 g/kWh



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Project website: <http://grenfin.eu>



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