EUROPEAN PUBLIC LOCAL AUTHORITIES' NETWORK FOR DRIVING THE ENERGY TRANSITION

Energy data to uncover Energy Communities' potential – Buildings consumption and energy production possibilities

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PRESENTATION CONTENT

1. PV potential analysis

2. Energy consumption monitoring

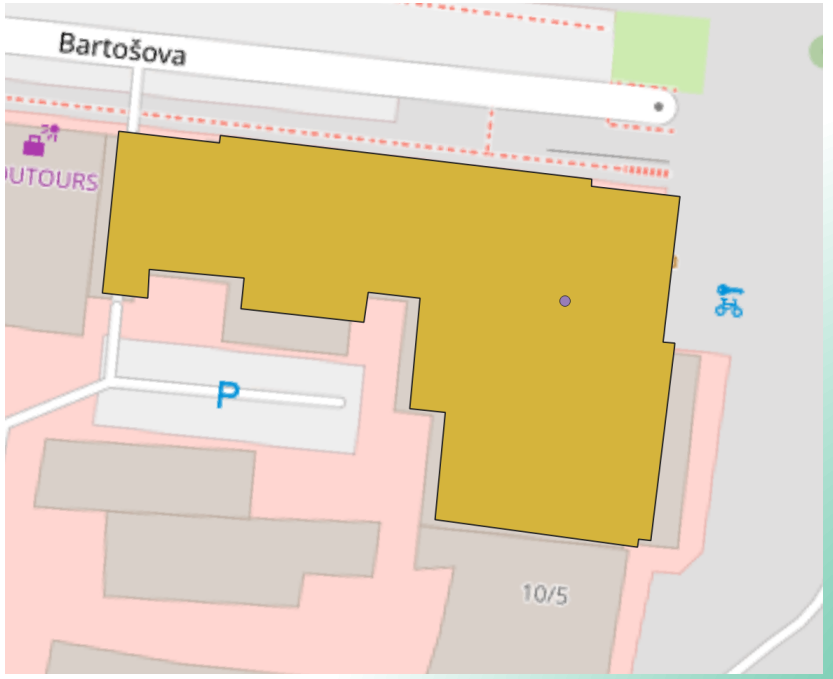
1. PV POTENTIAL ANALYSIS

LiDAR

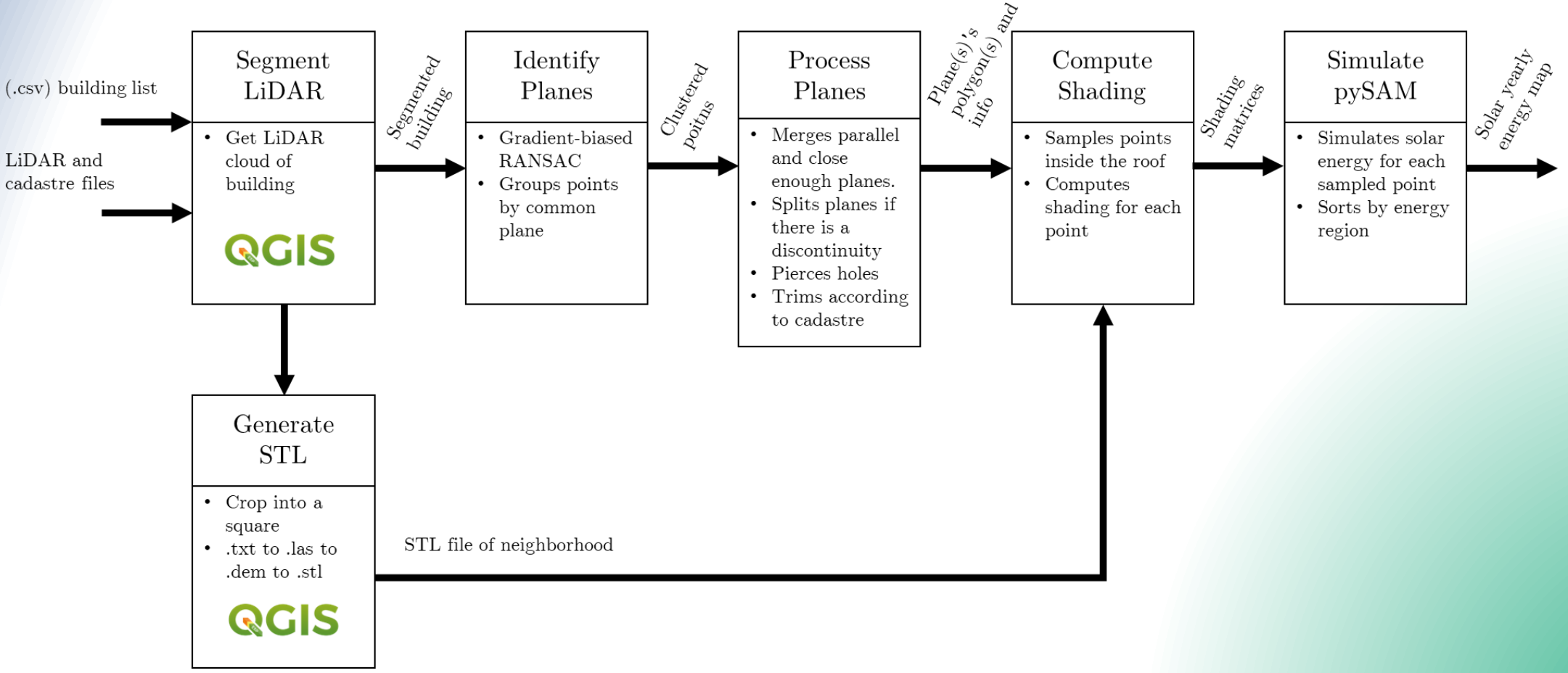
- Georeferenced
- Height

Cadaster (https://eubucco.com)

- Used to extract the building shape

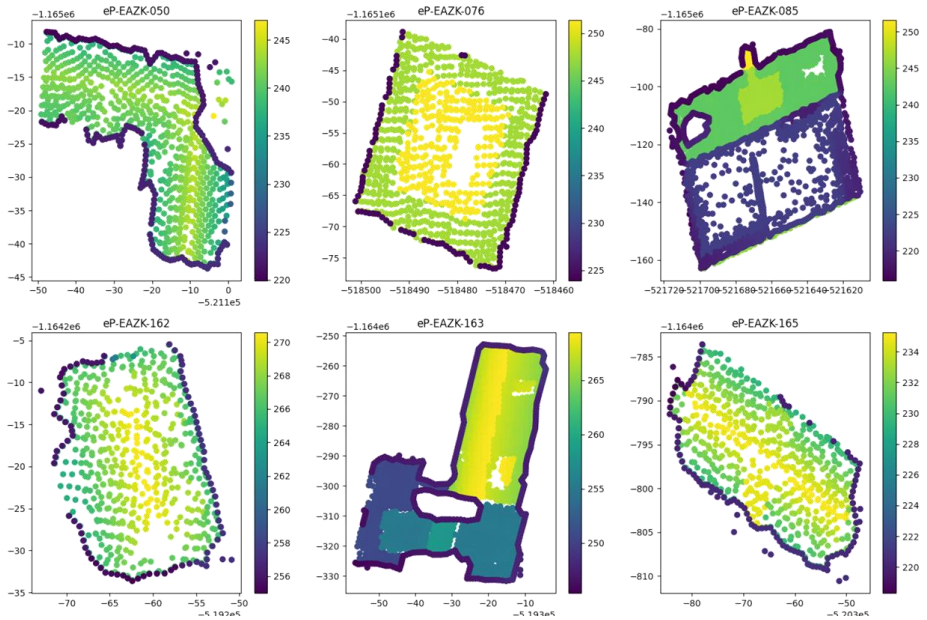


1. PV POTENTIAL ANALYSIS

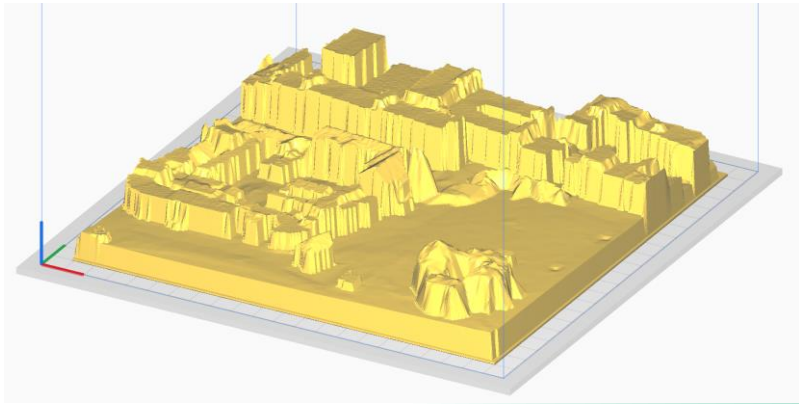


1. PV POTENTIAL ANALYSIS

Building Segmentation: rooftop identification

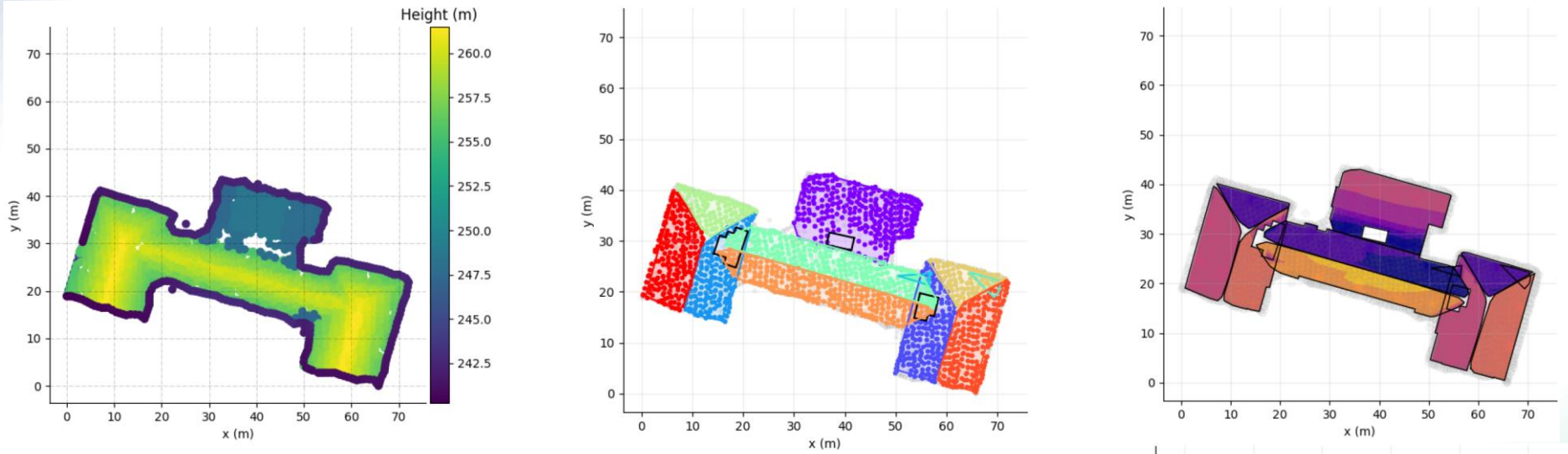


Square segmentation: get STL for shading



1. PV POTENTIAL ANALYSIS

eP-EAZK-248



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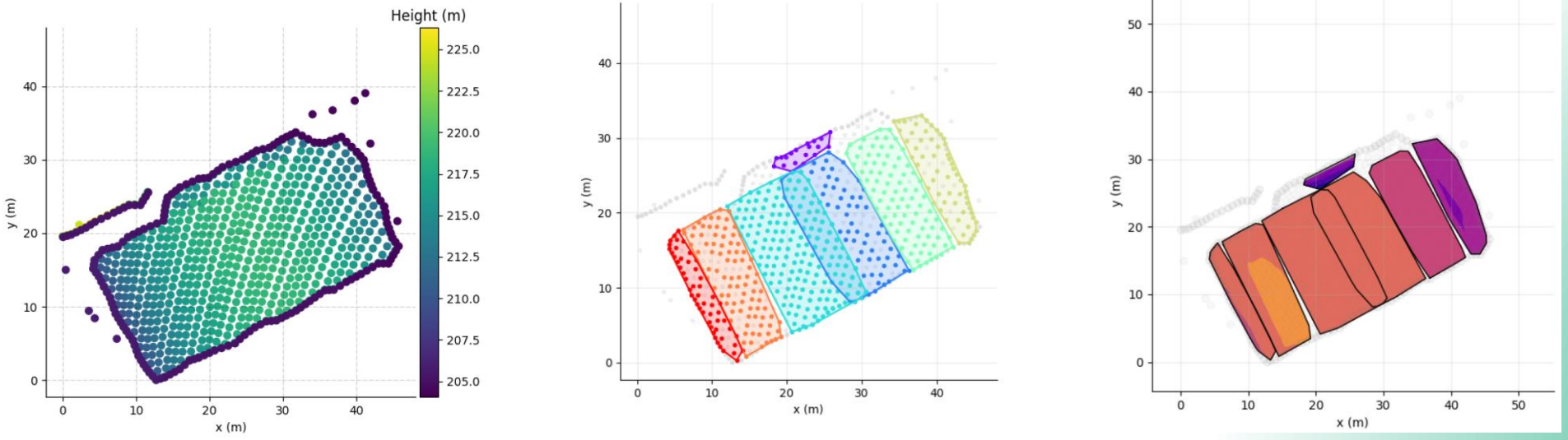
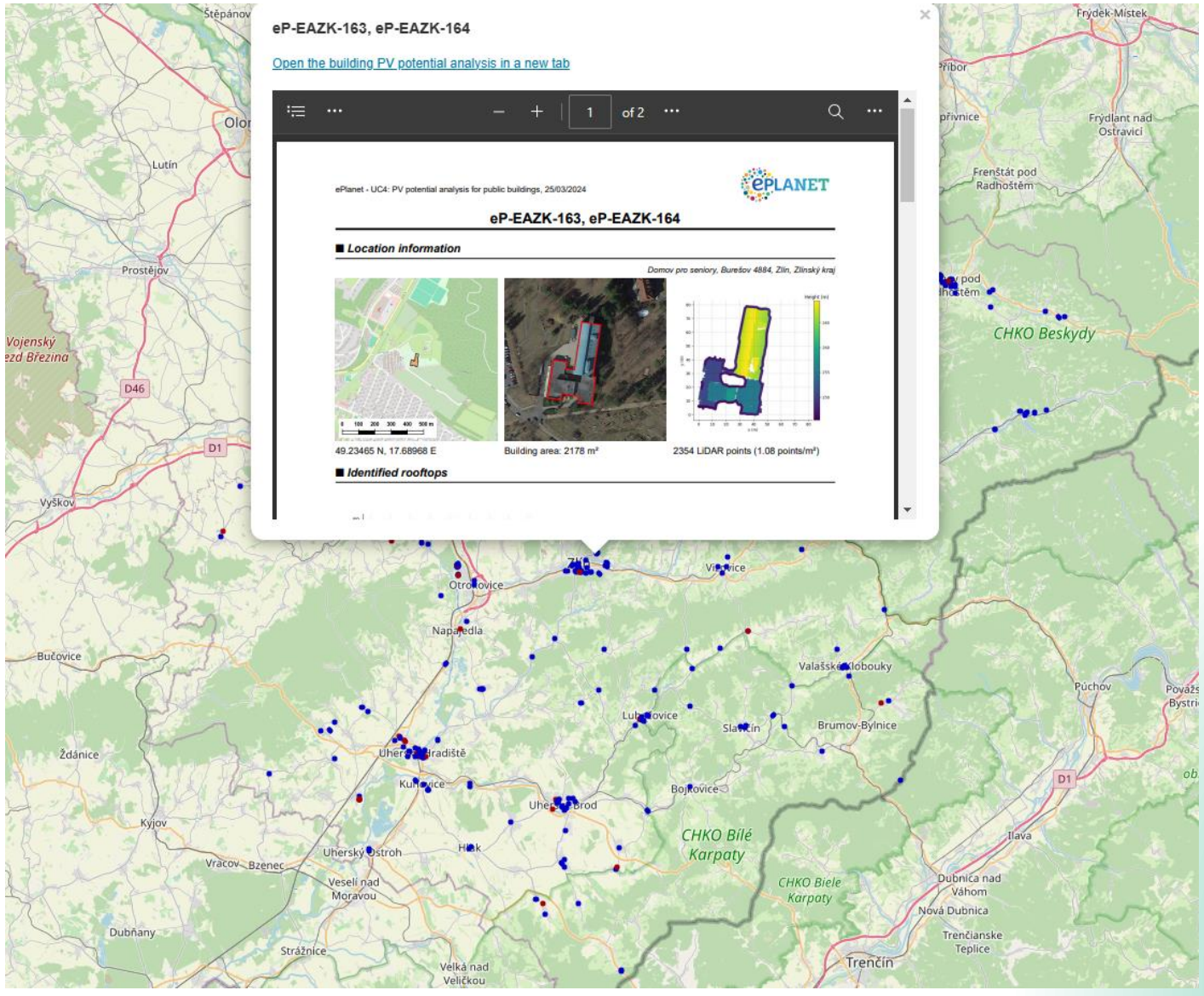


1. PV POTENTIAL ANALYSIS

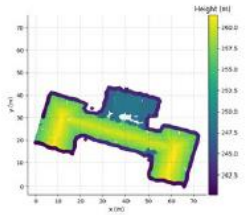


1. PV POTENTIAL ANALYSIS

eP-EAZK-248

■ Location information

Zlínský, Uherský Brod, Svatopluka Čecha 1110

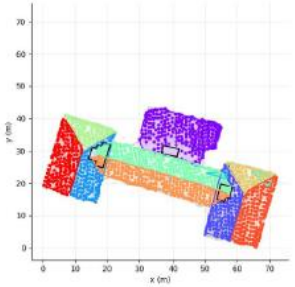


49.02678 N, 17.63954 E

Building area: 1410 m²

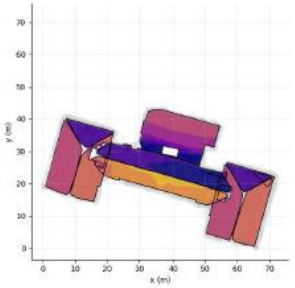
2614 LiDAR points (1.85 points/m²)

■ Identified rooftops



Plane	Area (m²)	Avg. height (m)	Tilt(°)	Azimuth(°)
0	264.6	248.0	1.0	149.3
1	169.7	258.6	35.4	285.5
2	141.4	258.5	35.0	105.6
3	6.8	256.8	9.0	14.7
4	12.2	256.4	9.5	18.8
5	285.3	258.0	40.2	15.7
6	74.1	257.3	34.5	16.2
7	71.8	257.3	35.4	15.3
8	261.4	257.8	40.1	195.7
9	169.2	258.1	34.8	105.5
10	178.2	258.4	35.0	285.6

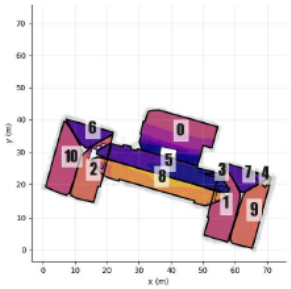
■ Energy prediction - Summary



Energy Level (kWh/m²/year)	Area (m²)	Total Energy (MWh/year)
< 100	184.5	15.787
120 - 100	312.9	33.527
140 - 120	44.3	5.897
160 - 140	68.8	10.488
180 - 160	495.6	81.416
200 - 180	315.7	60.499
220 - 200	64.7	13.774
240 - 220	148.2	33.159
> 240	0.0	0.000
Total	1634.7	254.548

ePlanet - UC4: PV potential analysis for public buildings, 17/01/2024

■ Energy prediction - Detail



Plane	Energy Level (kWh/m²/year)	Area (m²)	Total Energy (MWh/year)
0	180 - 160	133.7	22.909
	160 - 140	42.7	6.477
	140 - 120	34.1	4.555
	120 - 100	25.6	2.704
	< 100	28.5	2.545
	Total	**264.6**	**39.190**
1	180 - 160	157.0	25.229
	160 - 140	6.4	0.980
	120 - 100	6.4	0.698
	Total	**169.7**	**26.907**
2	200 - 180	125.0	24.049
	180 - 160	10.2	1.745
	160 - 140	2.0	0.308
	120 - 100	4.1	0.469
	Total	**141.4**	**26.571**
3	160 - 140	0.5	0.074
	140 - 120	4.7	0.606
	120 - 100	1.1	0.118
	< 100	0.5	0.043
	Total	**6.8**	**0.840**
4	180 - 160	5.4	0.886
	160 - 140	4.1	0.618
	140 - 120	2.7	0.361
	Total	**12.2**	**1.864**

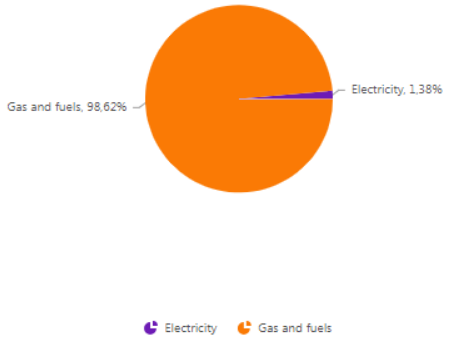
Plane	Energy Level (kWh/m²/year)	Area (m²)	Total Energy (MWh/year)
5	120 - 100	136.9	13.977
	< 100	148.5	12.513
	Total	**285.3**	**26.490**
6	120 - 100	74.1	8.511
	Total	**74.1**	**8.511**
7	120 - 100	64.8	7.052
	< 100	7.1	0.687
	Total	**71.8**	**7.739**
8	240 - 220	148.2	33.159
	220 - 200	64.7	13.774
	200 - 180	21.6	4.101
	180 - 160	13.5	2.337
	160 - 140	10.8	1.654
	140 - 120	2.7	0.375
	Total	**261.4**	**55.400**
9	200 - 180	169.2	32.350
	Total	**169.2**	**32.350**
10	180 - 160	175.8	28.310
	160 - 140	2.4	0.377
	Total	**178.2**	**28.687**

2. ENERGY CONSUMPTION MONITORING

One building

Year 2021 Data source Monitoring Unit of measurement Consumption [kWh] Emissions [tCO_2] Update

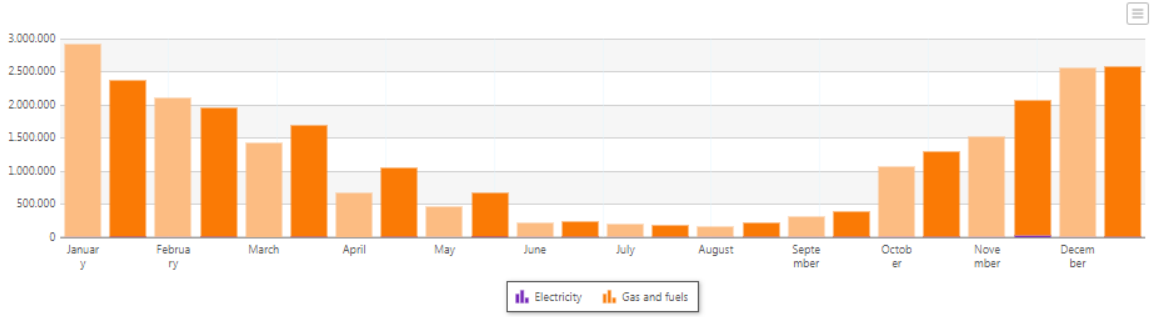
Sources



Monthly detail. Export data to Excel

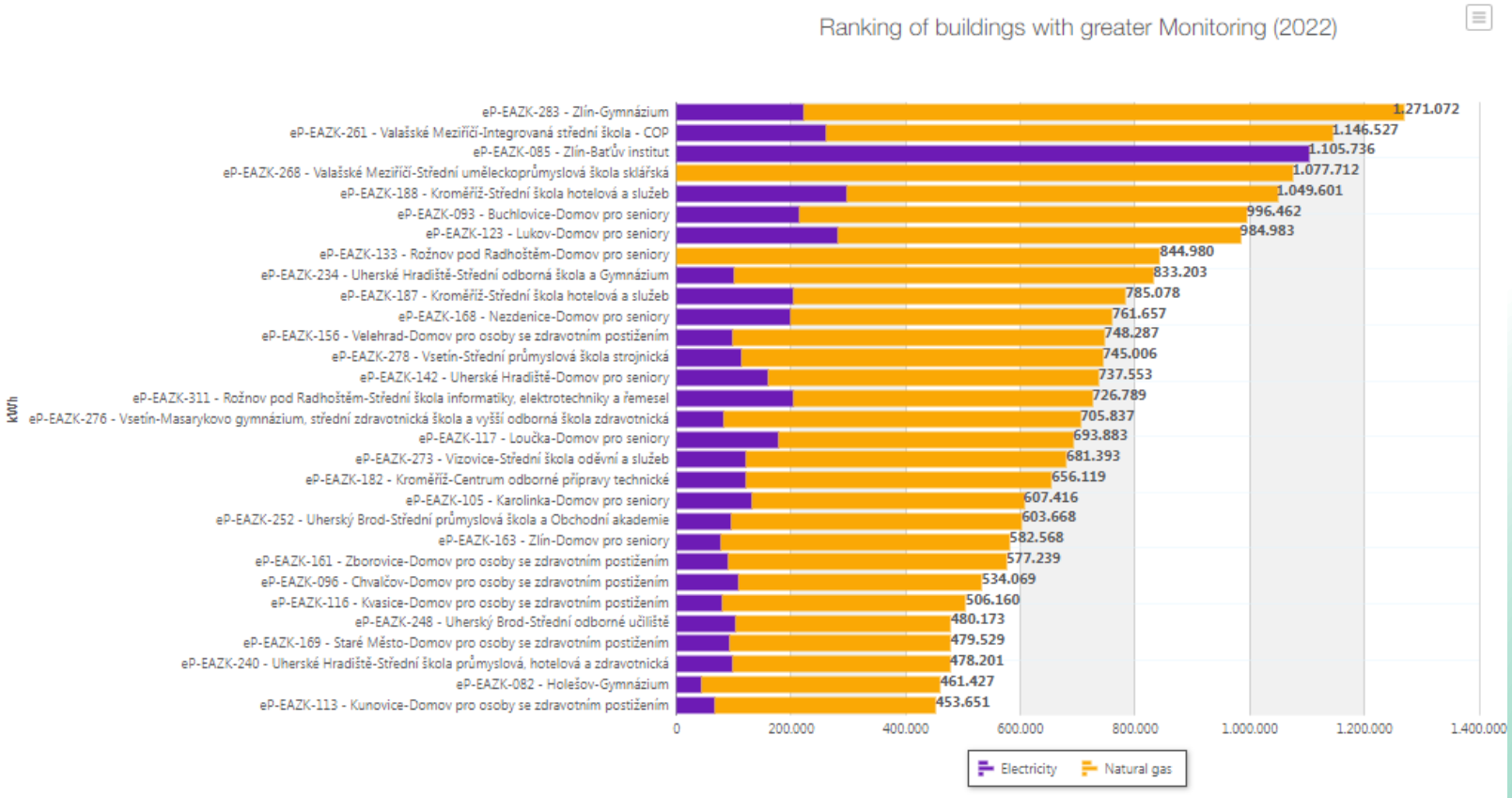
	2020			2021		
Month	Electricity	Gas and fuels	Total	Electricity	Gas and fuels	Total
January	10.856	2.911.067	2.921.923	14.739	2.371.452	2.386.191
February	10.421	2.104.100	2.114.521	12.879	1.943.066	1.955.945
March	5.763	1.422.488	1.428.251	13.125	1.680.502	1.693.627
April	4.984	665.568	670.552	12.140	1.049.536	1.061.676
May	8.284	460.474	468.758	16.870	660.060	676.930
June	12.076	209.883	221.959	19.095	215.750	234.845
July	10.270	191.804	202.074	9.489	179.233	188.722
August	11.411	165.344	176.755	9.566	214.912	224.478
September	21.316	291.418	312.734	21.662	364.572	386.234
October	15.847	1.052.170	1.068.017	24.279	1.283.963	1.308.242
November	13.049	1.523.060	1.536.109	27.031	2.057.166	2.084.197
December	19.561	2.550.805	2.570.366	24.037	2.571.757	2.595.794
Totals	143.838	13.548.181	13.692.019	204.912	14.591.969	14.796.881

Annual evaluation



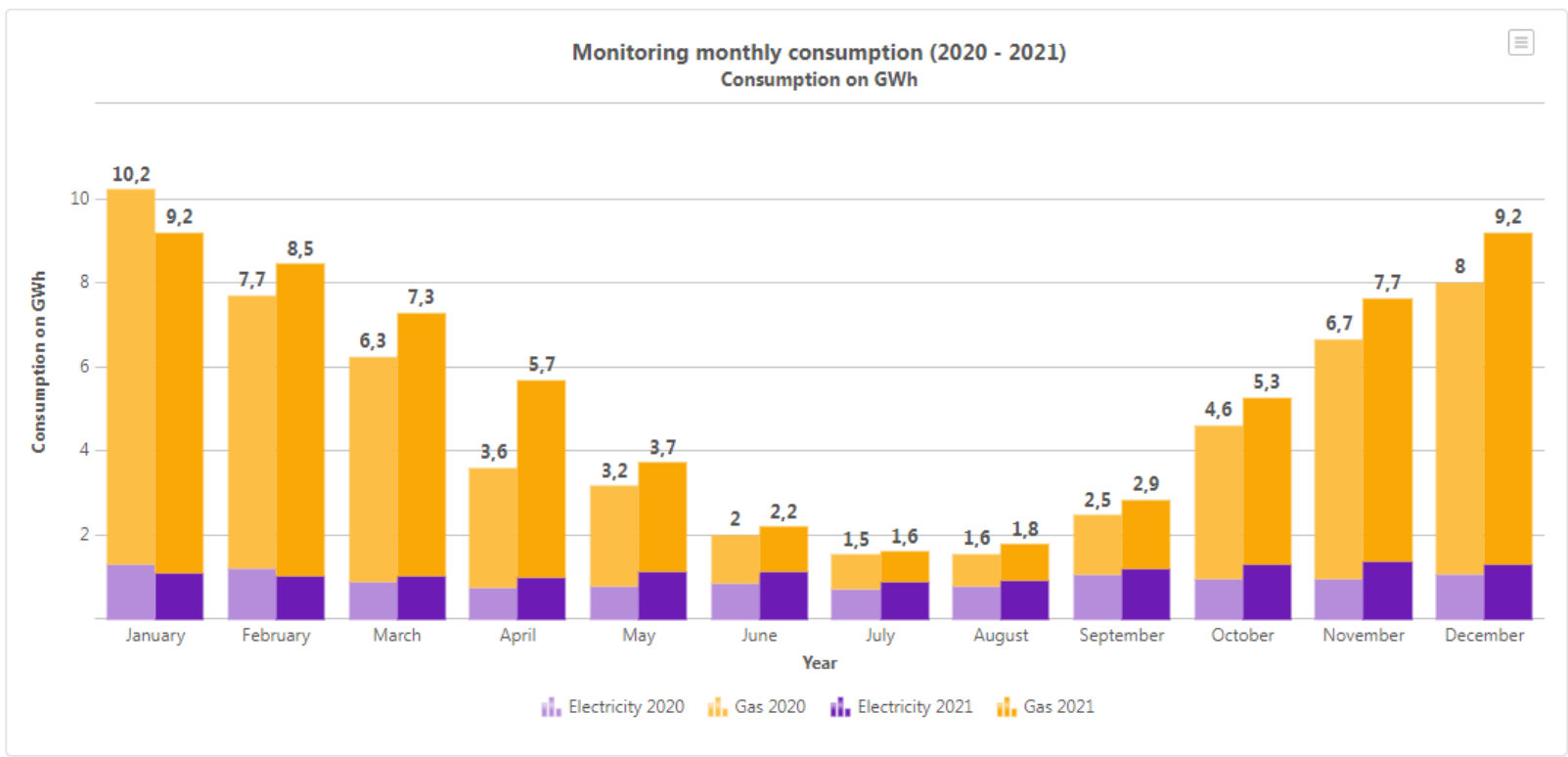
2. ENERGY CONSUMPTION MONITORING

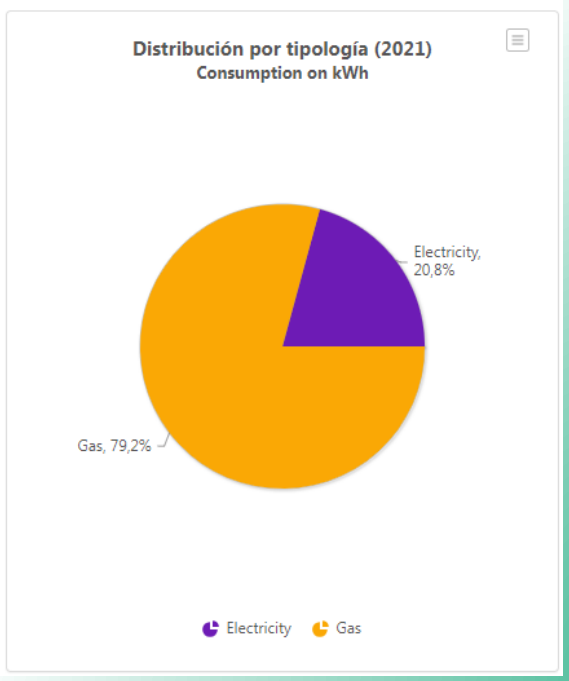
Buildings comparison



2. ENERGY CONSUMPTION MONITORING

Multiple buildings





ePLANET

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