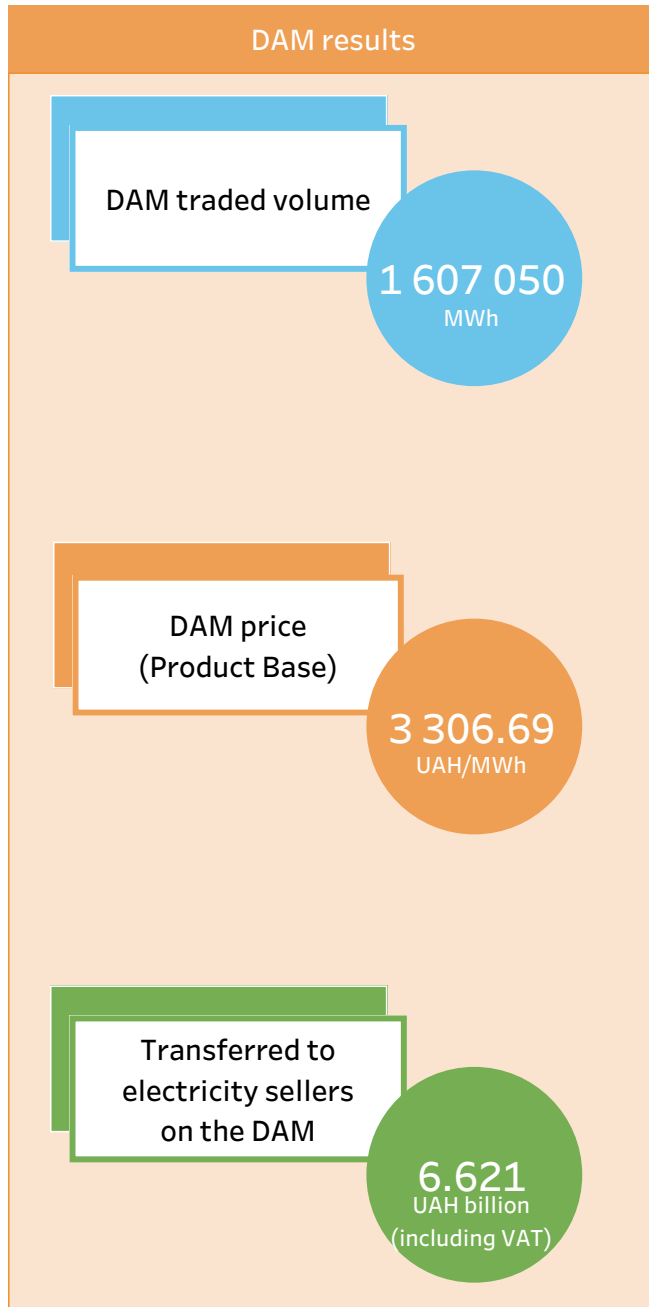




BRAVERY 
TO THINK ABOUT TOMORROW

EMPHASES OF DAM AND IDM NOVEMBER 2022



Legislative changes in the electricity market, extended in November:

NEURC’s Resolution dated on 23.11.2022 №1551 “On Amendments to the NEURC’s Resolution dated on 25.02.2022 №332”:

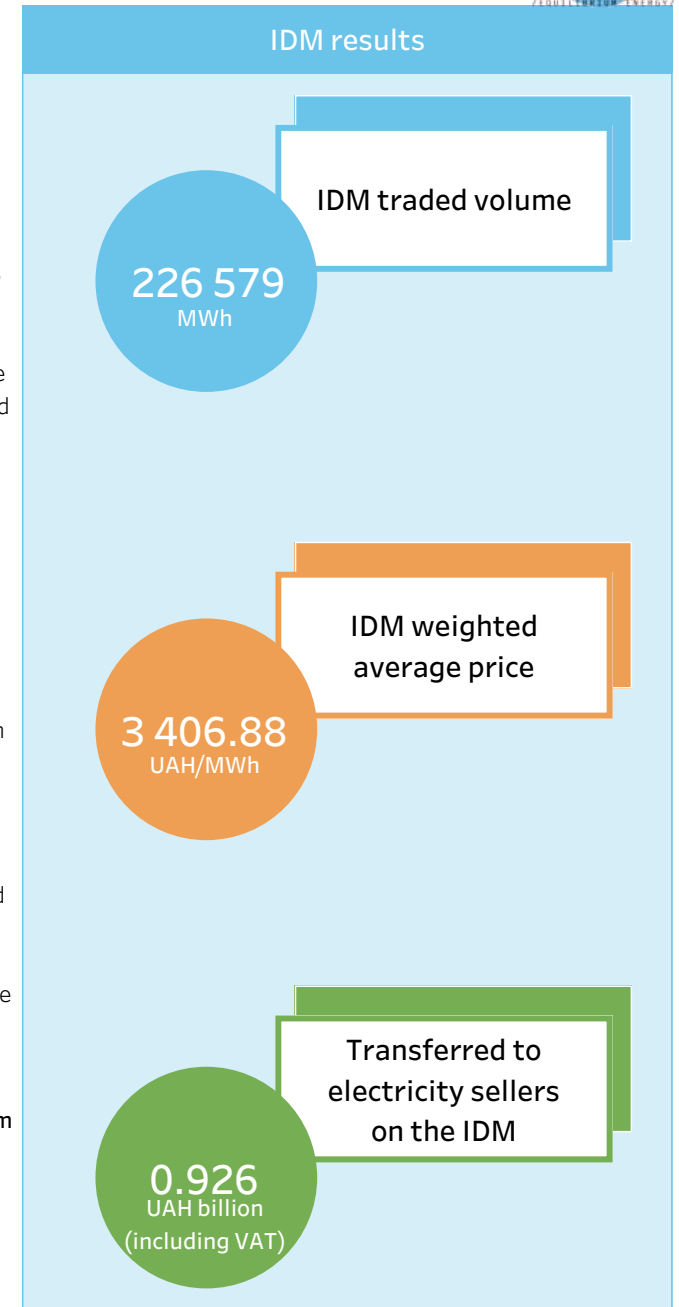
The maximum volume of electricity which could be sold by energy producers (generating units of type D with a capacity of 75 MW or more) on BCM, DAM, IDM and on export in trading day d is 125% of the average traded volume of electricity for the period of d-3 - d-9 of this market participant in accordance with the available commercial accounting data in the market management system and the accepted volume of auxiliary services accepted in accordance with the Temporary order for the purchase of auxiliary services to ensure regulation of frequency and active power in electricity system of Ukraine, namely the replacement reserves provision (tertiary regulation) on trading day d at the settlement time.

Order of the Ministry of Energy of Ukraine dated on 21.10.2022 №362

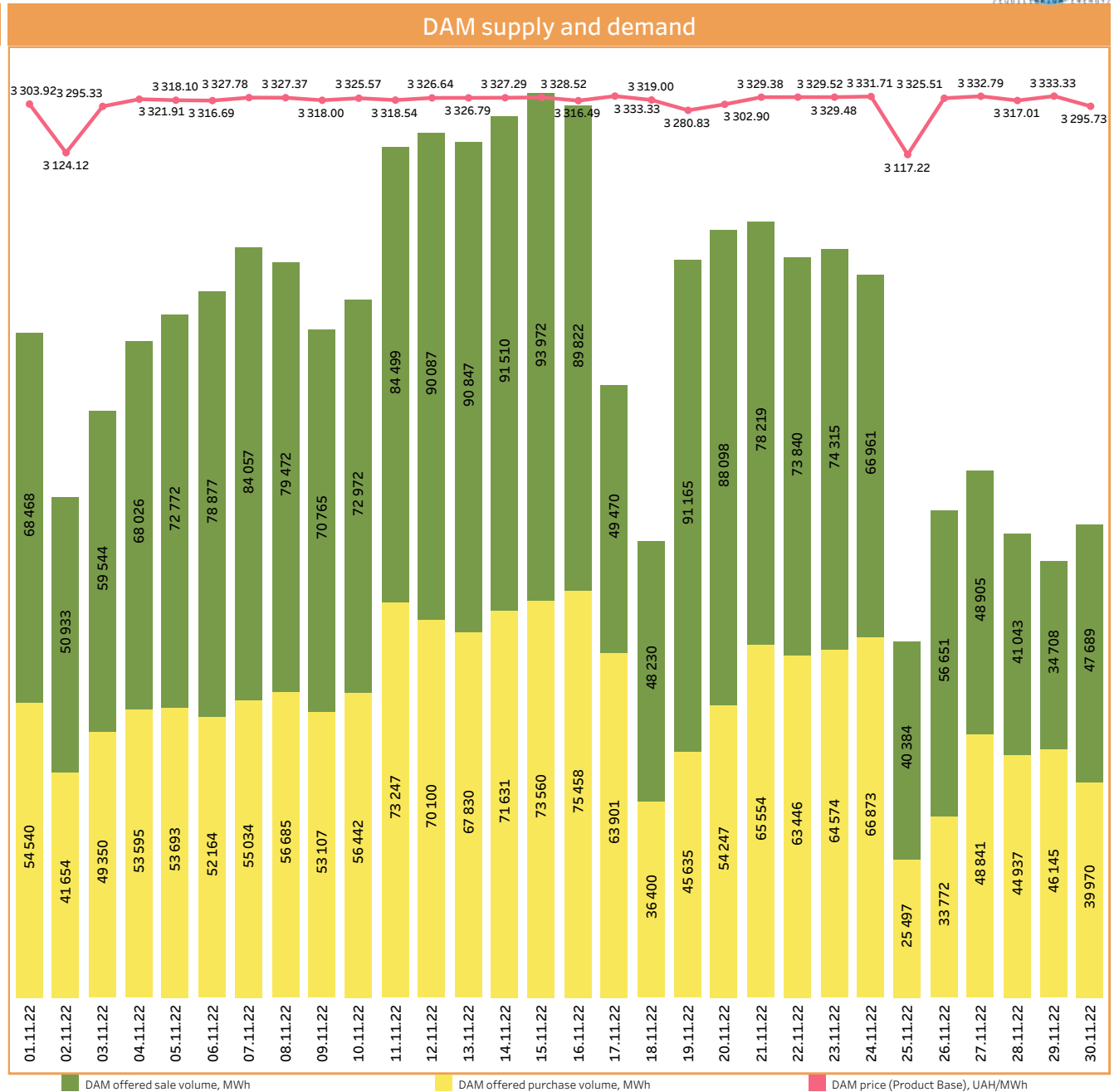
“On stabilization of the electricity market operation”: Temporarily, for the period of martial law in Ukraine, starting from the supply day on October 24, 2022, the maximum volume of electricity sales for electricity suppliers and/or traders: 1) the volume of electric energy imported by such participant in the relevant day of supply cannot exceed the amount of electricity on the DAM; 2) cannot exceed the volume on the IDM, which is defined as the minimum value of the total balanced value of the bilateral agreements volume, DAM import and export of electricity; as well as the total volume, which is proven by the party responsible for the balance, in accordance with the requirements of Section II of the Market Rules, and DAM sales and purchase volumes.

The ENTSO-E has increased opportunities for electricity import from the EU to Ukraine:

the available cross-border transmission capacity of electricity between Ukraine and ENTSO-E is 600 MW for import from November 21, 2022.

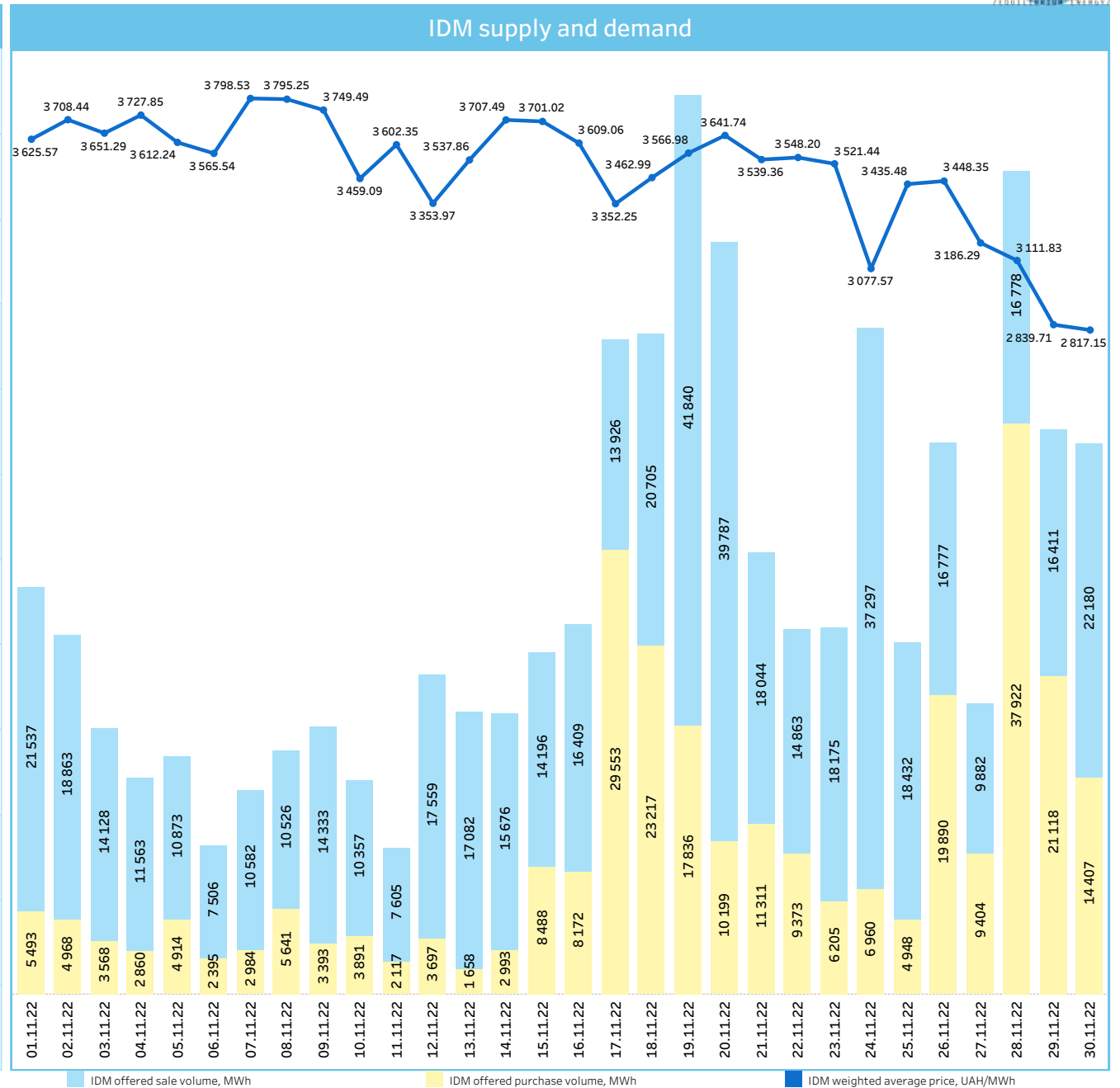


DAM emphases	
DAM price (Product Base)	3 306.69 UAH/MWh
DAM price (Product Base) change	0.2%
	+ 5.02 UAH/MWh
DAM traded volume	1 607 050 MWh
DAM traded volume change	+14.1%
	+198 170 MWh
Demand	1 657 880 MWh
Demand change	10.0%
	+151 146 MWh
Supply	2 086 299 MWh
Supply change	9.1%
	+173 285 MWh



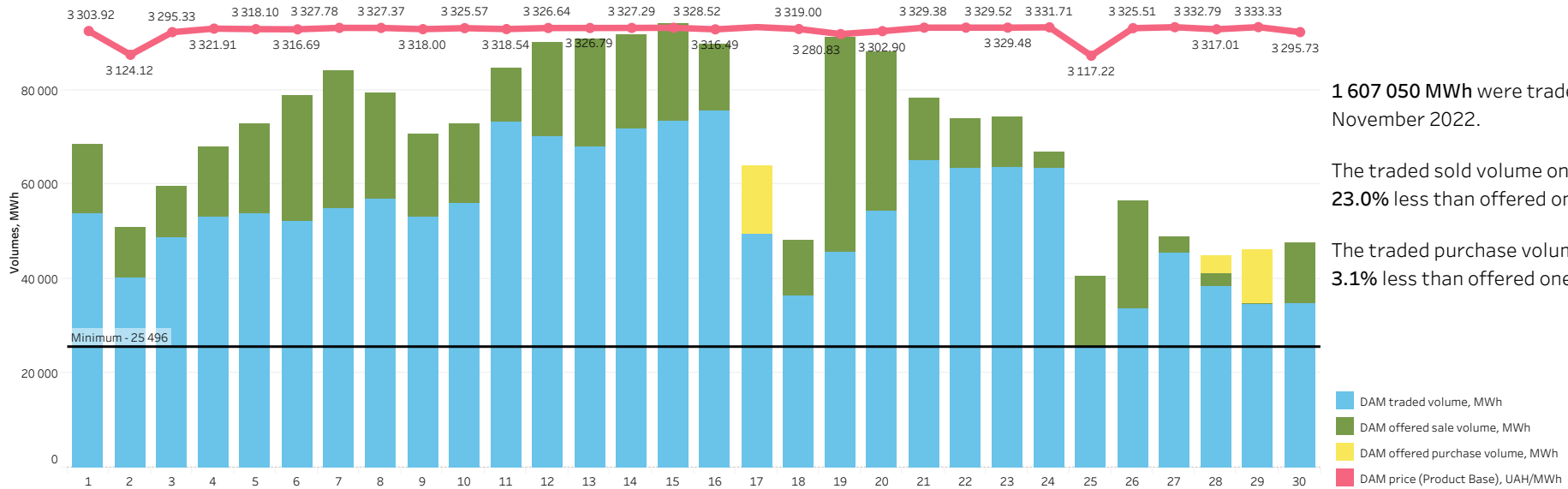
*Compared with October 2022 **all prices are net of VAT ***Ukraine's IPS data

IDM emphases	
IDM weighted average price	3 406.88 UAH/MWh
IDM weighted average price change	-5.7%
	-204.89 UAH/MWh
IDM traded volume	226 579 MWh
IDM traded volume change	+35.8%
	+59 720 MWh
Demand	289 572 MWh
Demand change	+18.5%
	+45 270 MWh
Supply	523 891 MWh
Supply change	+21.3%
	+92 152 MWh



*Compared with October 2022 **all prices are net of VAT ***Ukraine's IPS data

Prices, traded and offered volumes on the DAM



1 607 050 MWh were traded on the DAM in November 2022.

The traded sold volume on the DAM was 23.0% less than offered one for the November.

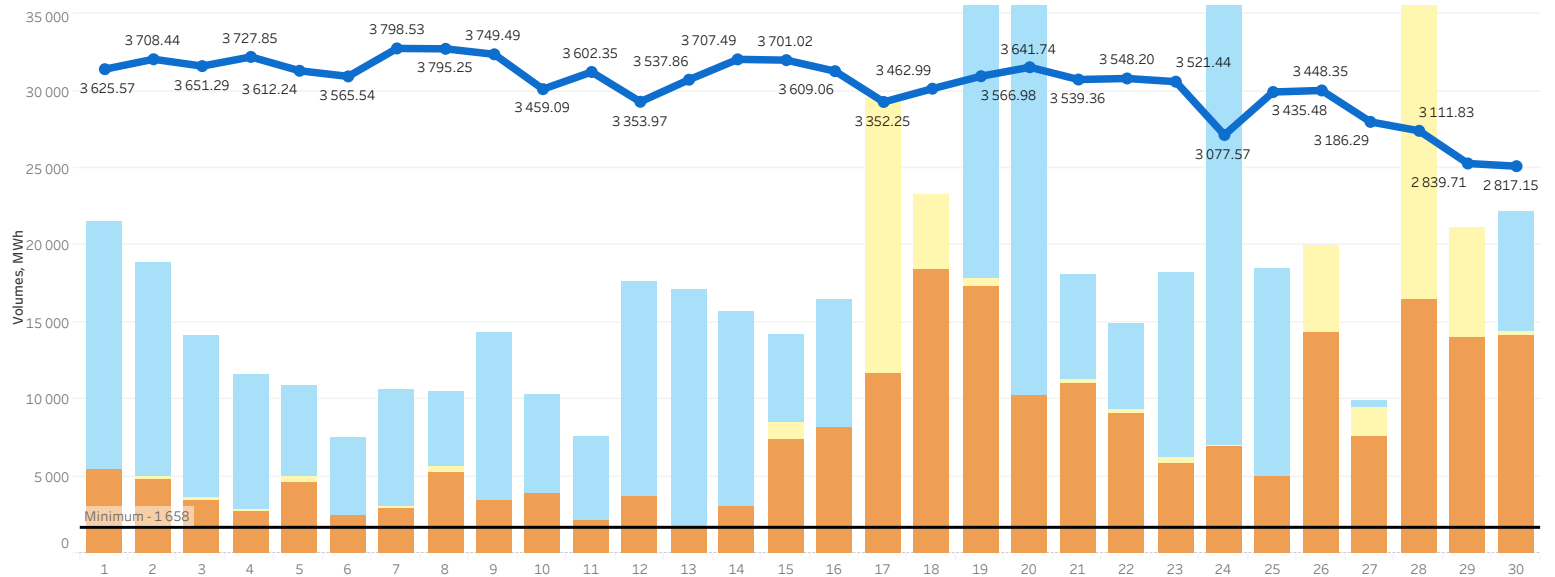
The traded purchase volume on the DAM was 3.1% less than offered one.

Prices, traded and offered volumes on the IDM

226 579 MWh were traded on the IDM in November 2022.

The traded sold volume on the IDM was 56.8% less than offered one for November.

The traded purchase volume on the IDM was 21.8% less than offered one.

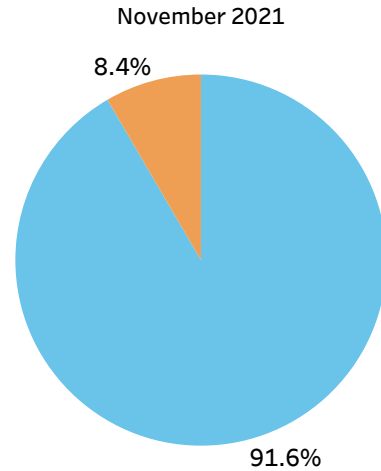


*all prices are net of VAT **IPS Ukraine data

The total traded volume of electricity within the two market segments amounted to **3 443 446 MWh** in **November 2021**.

The share of the DAM was **91.6%** or **3 154 261 MWh** in the total volume.

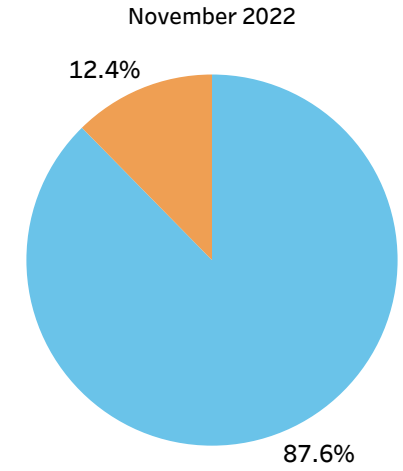
The share of the IDM was **8.4%** or **289 186 MWh** in the total volume.



The total traded volume of electricity within the two market segments amounted to **1 833 629 MWh** in **November 2022**.

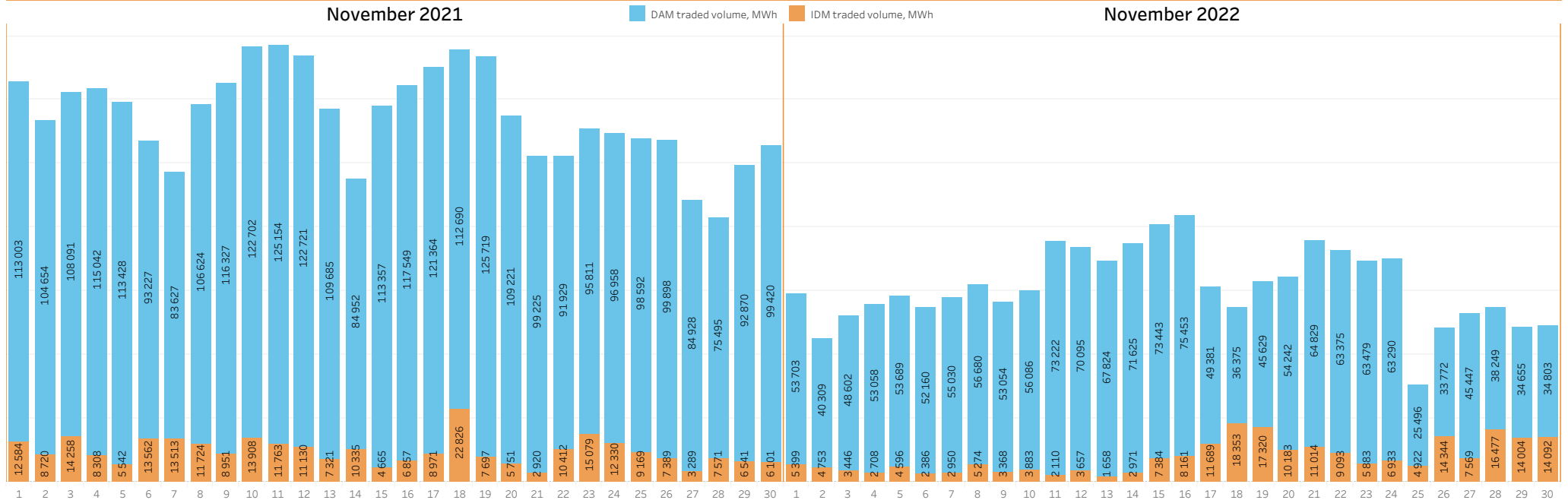
The share of the DAM was **87.6%** or **1 607 050 MWh** in the total volume.

The share of the IDM was **12.4%** or **226 579 MWh** in the total volume.



In November 2022 the total traded volume was **46.8%** or **1 609 818 MWh** less than the total traded volume in November 2021: on the DAM traded volume was **49.1%** or **1 547 211 MWh** lower, on the IDM traded volume was **21.6%** or **62 607 MWh** lower.

Distribution of traded volumes



*IPS Ukraine data

The difference between offered purchase and sales volumes on the DAM, MWh

H	01.11.22	02.11.22	03.11.22	04.11.22	05.11.22	06.11.22	07.11.22	08.11.22	09.11.22	10.11.22	11.11.22	12.11.22	13.11.22	14.11.22	15.11.22	16.11.22	17.11.22	18.11.22	19.11.22	20.11.22	21.11.22	22.11.22	23.11.22	24.11.22	25.11.22	26.11.22	27.11.22	28.11.22	29.11.22	30.11.22
1	-256	510	591	551	490	609	956	386	285	-119	53	119	594	134	301	381	-844	193	894	1070	840	425	-200	112	196	760	-518	-984	-1223	-979
2	41	555	524	475	551	714	1031	349	235	-181	173	189	881	303	513	683	-697	455	1112	1312	783	530	39	365	508	966	-415	-933	-1174	-849
3	237	605	610	539	739	814	1114	445	492	88	409	391	1150	598	749	976	-491	584	1312	1591	996	793	330	608	524	1034	-184	-791	-972	-617
4	349	663	637	563	856	978	1216	550	620	330	541	479	1285	723	846	1088	-421	692	1562	1755	1107	866	494	685	592	1093	-98	-675	-817	-486
5	362	600	633	502	873	1024	1227	529	626	337	492	462	1278	688	803	793	-422	644	1730	1725	1094	867	524	591	629	1133	-65	-603	-782	-500
6	366	642	568	477	899	1020	1275	705	561	228	376	530	1189	515	667	608	-634	421	1937	1692	851	657	443	360	547	968	-190	-640	-964	-616
7	18	294	51	27	730	946	822	257	33	-51	-15	309	860	135	129	137	-1005	-21	1780	1534	461	11	187	255	411	665	-364	-774	-1225	-842
8	131	325	230	63	1266	1421	1328	894	581	1060	262	848	1427	734	903	843	-440	538	2350	2344	461	482	1008	630	649	1173	539	289	-91	159
9	760	647	237	850	1164	1405	1425	1200	723	1176	140	876	1274	1032	873	505	-723	596	2161	1779	-137	177	840	65	598	1169	448	-212	-397	98
10	1433	915	607	1322	1241	1378	1715	1703	1255	1389	288	1208	1258	1569	1328	495	-753	689	2283	1421	-241	242	1079	-126	746	1090	381	-275	-458	569
11	2049	1113	902	1458	1205	1619	2004	2031	1681	1428	469	1572	1296	1947	1778	490	-842	815	2385	1404	-100	555	1144	-271	866	1164	315	-180	-383	942
12	2138	1115	1220	1585	1332	1755	2087	2292	2089	1713	825	1738	1442	2012	2043	447	-948	682	2563	1114	65	783	1243	-76	959	1265	374	-11	-152	1326
13	2356	1150	1269	1303	1165	1560	1981	2178	2265	1786	717	1790	1459	2035	2076	373	-823	687	2762	1224	197	1027	1195	-2	1027	1399	510	152	22	1532
14	1989	857	1065	1109	885	1281	1636	1819	1807	1346	486	1623	1312	1671	1780	232	-928	483	2547	1102	69	839	736	-324	953	1291	410	143	-140	1279
15	1244	331	743	963	715	1091	1236	1449	1084	688	310	1179	927	1013	1150	39	-1018	264	2243	1061	-102	625	388	-417	817	1164	311	32	31	953
16	237	-311	115	262	129	741	630	661	263	377	158	801	617	287	382	163	-868	94	1927	958	-105	268	62	-401	653	984	134	-8	-124	614
17	-264	-424	-404	-275	554	1011	893	790	461	383	427	767	705	412	363	654	-464	286	1919	1323	673	21	-267	-406	477	598	-40	118	-179	518
18	-139	-258	-218	-259	586	1026	916	707	113	513	549	574	431	397	330	602	-500	431	1792	1478	764	120	-221	-364	481	555	-85	140	-211	590
19	-113	-123	-59	10	619	1069	849	719	325	663	761	680	528	587	700	827	-304	428	1819	1333	830	34	-3	-117	514	612	-108	214	-244	708
20	-60	-127	22	226	587	1086	998	972	453	792	946	829	677	692	829	936	-160	586	1816	1334	885	130	184	-137	583	702	36	270	-255	779
21	74	-2	188	489	659	1195	977	845	468	586	910	938	852	733	642	880	-125	587	1831	1282	875	422	292	-2	607	798	-103	392	-205	873
22	382	133	327	621	671	1254	1140	623	691	860	882	969	770	824	712	1064	89	786	1819	1432	912	314	332	-83	624	983	-156	516	-18	996
23	454	169	399	825	912	1108	1173	656	595	1022	858	885	623	767	628	1009	-43	784	1739	1802	1023	277	318	-321	625	830	-53	529	-113	952
24	143	-102	-63	146	252	610	396	28	-48	117	237	232	184	70	-113	141	-1066	126	1248	784	464	-71	-404	-536	303	485	-1015	-602	-1365	-280

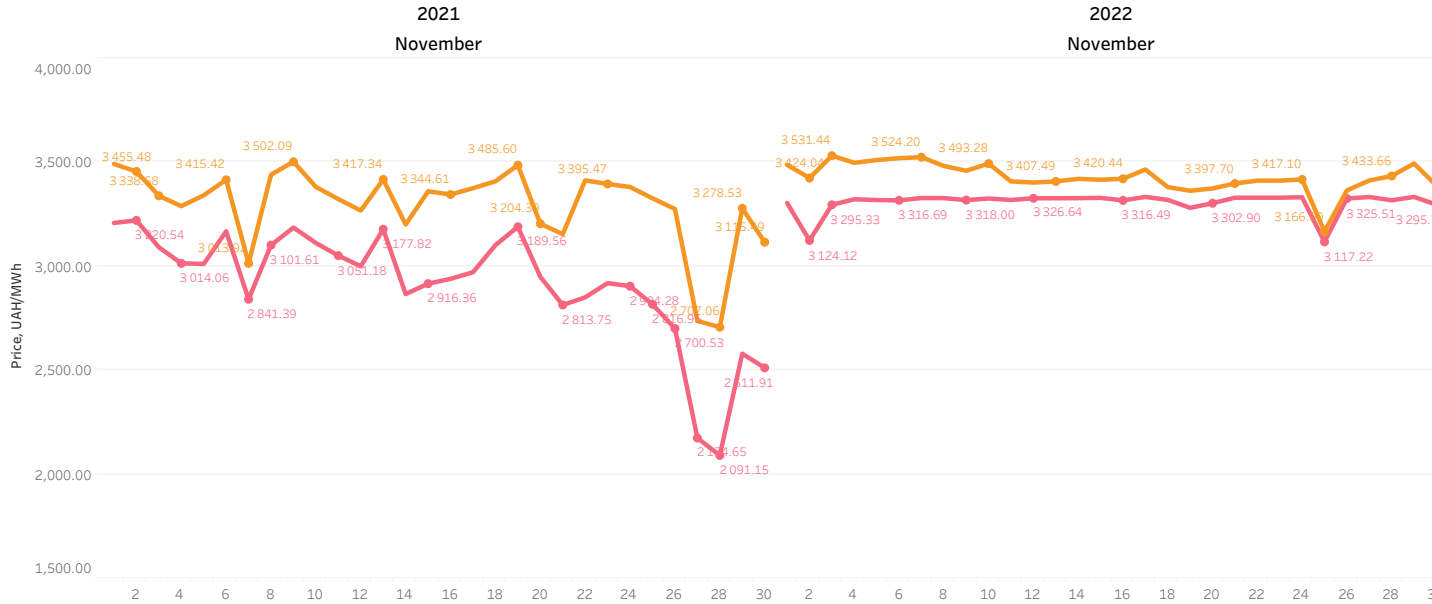
On the DAM the largest deficit of supply was recorded during **November 17 and 19**.

The largest difference between the supply and demand on the DAM was recorded at **01 p.m. on November 19** and was fixed in amount of **2 762 MWh**.

The difference between offered purchase and sales volumes on the IDM, MWh

H	01.11.22	02.11.22	03.11.22	04.11.22	05.11.22	06.11.22	07.11.22	08.11.22	09.11.22	10.11.22	11.11.22	12.11.22	13.11.22	14.11.22	15.11.22	16.11.22	17.11.22	18.11.22	19.11.22	20.11.22	21.11.22	22.11.22	23.11.22	24.11.22	25.11.22	26.11.22	27.11.22	28.11.22	29.11.22	30.11.22
1	85	664	345	258	65	100	24	35	-25	30	40	0	204	113	2	204	-879	-483	214	848	419	282	-2	133	504	115	-420	-103	-1291	-91
2	236	812	572	357	399	102	299	154	308	23	40	0	196	180	15	147	-547	-108	144	852	352	255	50	48	599	136	-315	-230	-503	-85
3	419	1129	879	479	258	190	385	206	374	207	48	181	339	260	54	227	-317	88	266	1194	487	391	260	50	695	204	-125	-301	-286	-38
4	752	1227	954	514	335	213	443	236	495	194	81	192	474	394	42	330	-469	99	478	1517	499	267	401	93	797	277	11	-1079	-286	1
5	925	1381	959	552	338	194	381	180	414	179	69	168	467	350	44	255	-464	97	1011	1591	540	253	420	201	798	192	68	-830	-283	-33
6	587	1094	428	399	1462	178	423	165	168	-1	177	204	480	268	34	216	-626	-35	1054	1667	543	202	387	252	643	73	-57	-879	-150	0
7	170	506	-16	125	147	40	13	-51	97	2	179	-25	373	30	-3	-3	-889	-583	1010	1486	412	35	310	154	360	81	-4	-1011	-396	0
8	219	531	35	118	183	474	203	72	221	142	391	460	906	486	371	436	-479	-329	1442	1514	330	125	960	154	882	122	300	-678	25	24
9	870	492	51	279	341	369	246	105	218	157	380	433	815	746	416	91	-629	-358	1620	2480	-11	52	788	890	730	107	246	-1297	-439	11
10	1430	794	417	497	215	333	455	441	717	311	224	774	794	1096	825	98	-771	-78	1923	1691	-3	46	739	948	687	-58	196	-1396	-645	260
11	2049	1048	722	926	464	435	690	682	1268	505	190	1281	899	1388	1217	190	-806	105	2011	1532	-38	139	527	1024	806	-211	227	-1437	-322	589
12	2310	1104	1126	1091	540	587	781	929	1487	820	322	1211	998	1406	1257	543	-862	-50	1539	660	-17	388	575	1305	830	86	218	-1277	-7	944
13	2338	1194	1490	1190	485	556	1074	1012	1541	783	318	1423	1133	1498	1155	485	-745	59	1521	1024	0	680	444	1132	859	10	108	-906	296	1049
14	1861	849	993	916	309	379	724	613	1216	533	280	1060	918	1192	839	1175	-1224	-21	1256	483	-42	450	443	885	815	-28	235	-1033	-87	920
15	1093	295	292	483	171	139	280	134	707	260	199	857	678	701	364	143	-2238	-465	966	523	-79	218	163	881	614	-258	256	-1265	456	812
16	38	-17	75	238	1	153	311	0	160	185	251	413	633	311	5	160	-2247	-259	837	534	-80	30	32	801	450	-595	173	-1336	189	188
17	-37	69	130	-103	65	209	433	14	200	226	312	696	714	238	-10	262	-978	-209	1134	1198	258	56	401	1652	292	-468	75	-1273	-17	284
18	14	-92	159	-41	65	43	1	-67	189	381	365	416	518	182	-3	373	-1077	-83	915	1436	374	116	178	2283	299	-493	-18	-1175	-302	410
19	21	-6	84	113	10	19	-9	-67	194	403	302	524	565	282	72	469	-21	-31	741	1079	405	295	916	2740	345	-645	-33	-1092	-134	578
20	-6	-22	163	52	-12	13	54	91	232	342	286	781	746	305	-164	627	380	-22	921	1275	456	381								

DAM prices comparison: price (Product Base) and weighted average price



In November 2022:

DAM price (Product Base) was 3 306.69 UAH/MWh;
 DAM weighted average price was 3 433.50 UAH/MWh;
 DAM price (Product Peak) was 3 973.50 UAH/MWh;
 DAM price (Product OffPeak) was 2 640.09 UAH/MWh.

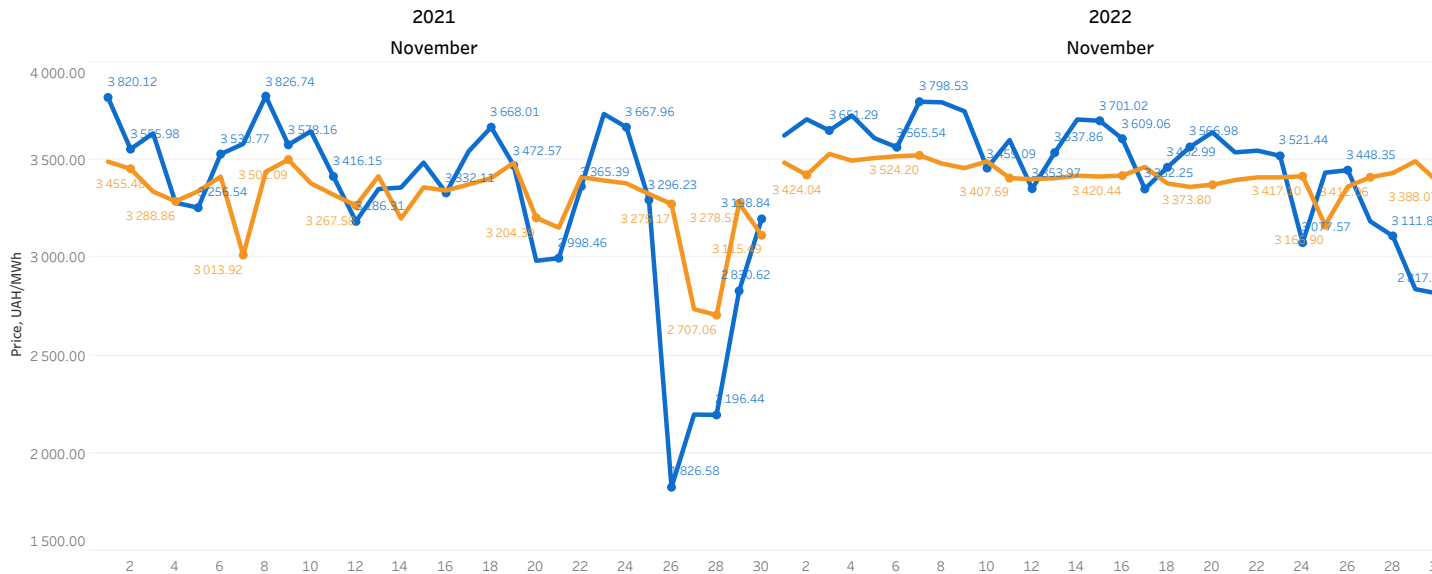
The difference between the DAM price (Product Base) and the weighted average price on the DAM was 126.81 UAH/MWh.

In November 2021:

DAM price (Product Base) was 2 915.98 UAH/MWh;
 DAM weighted average price was 3 309.65 UAH/MWh.

In November 2022 the DAM price (Product Base) was 390.71 UAH/MWh higher than the DAM price (Product Base) in November 2021.

Weighted average prices comparison : on the DAM and IDM



In November 2022 the DAM weighted average price was 123.85 UAH/MWh higher than the DAM weighted average price in November 2021.

In November 2022:

IDM weighted average price was 3 406.88 UAH/MWh.

In November 2021:

IDM weighted average price was 3 404.56 UAH/MWh.

The IDM weighted average price was 2.33 UAH/MWh higher in November 2022 than the IDM weighted average price in November 2021.

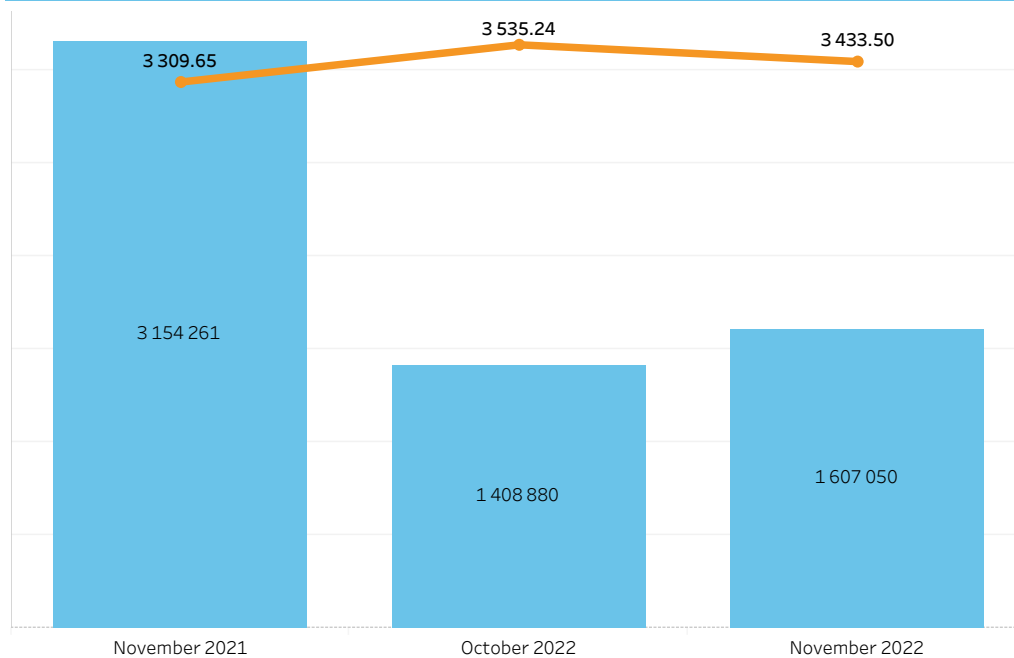
*all prices are net of VAT **IPS Ukraine data

Weighted average prices and traded volumes on the DAM and on the IDM compared with the previous periods

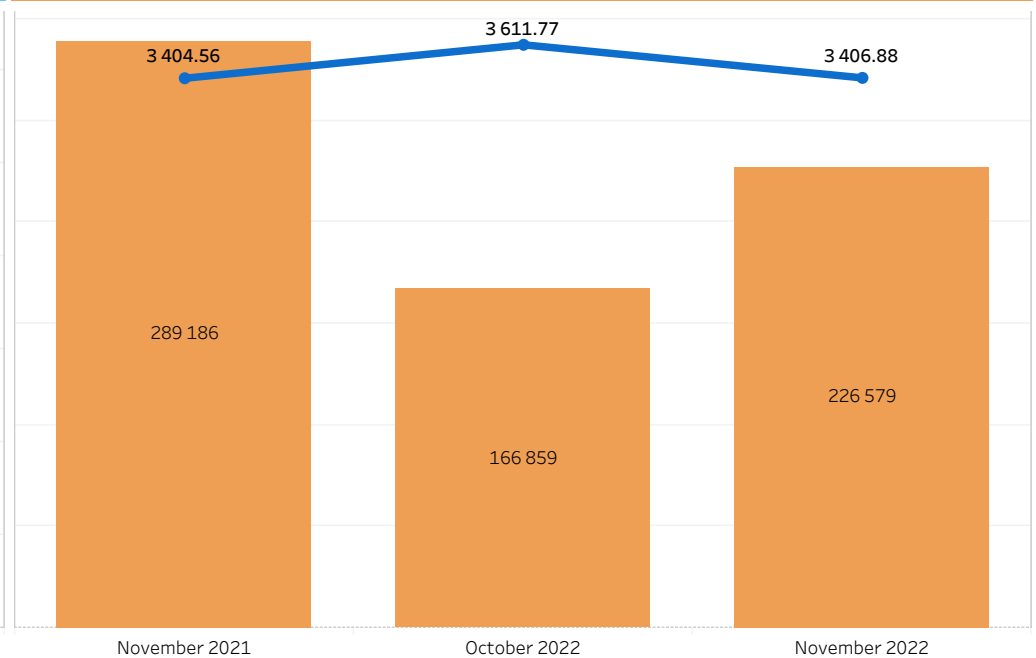


Indicator	November 2021	October 2022	November 2022	1 decade of November 2022	2 decade of November 2022	3 decade of November 2022
DAM weighted average price, UAH/MWh	3 309.65	3 535.24	3 433.50	3 494.18	3 407.68	3 399.79
DAM traded volume, MWh	3 154 261	1 408 880	1 607 050	522 369	617 288	467 393
IDM weighted average price, UAH/MWh	3 404.56	3 611.77	3 406.88	3 670.23	3 535.13	3 206.42
IDM traded volume, MWh	289 186	166 859	226 579	38 762	83 486	104 330

Weighted average prices and traded volumes on the DAM for the periods: November 2021, October 2022 and November 2022

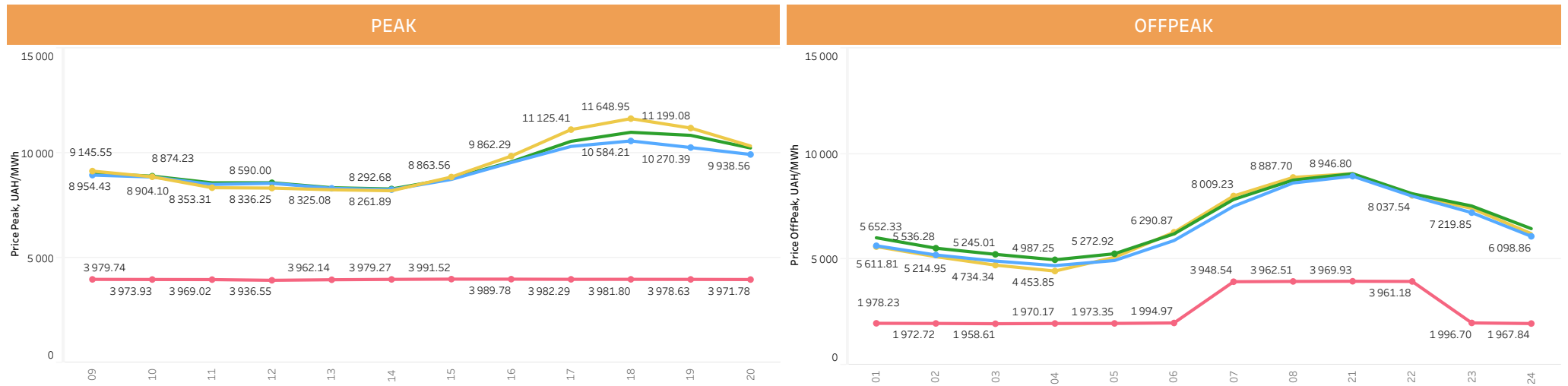


Weighted average prices and traded volumes on the IDM for the periods: November 2021, October 2022 and November 2022



*all prices are net of VAT **IPS Ukraine data

DAM hourly prices (Peak Product and OffPeak Product)*: Ukraine, Romania, Slovak Republic and Hungary

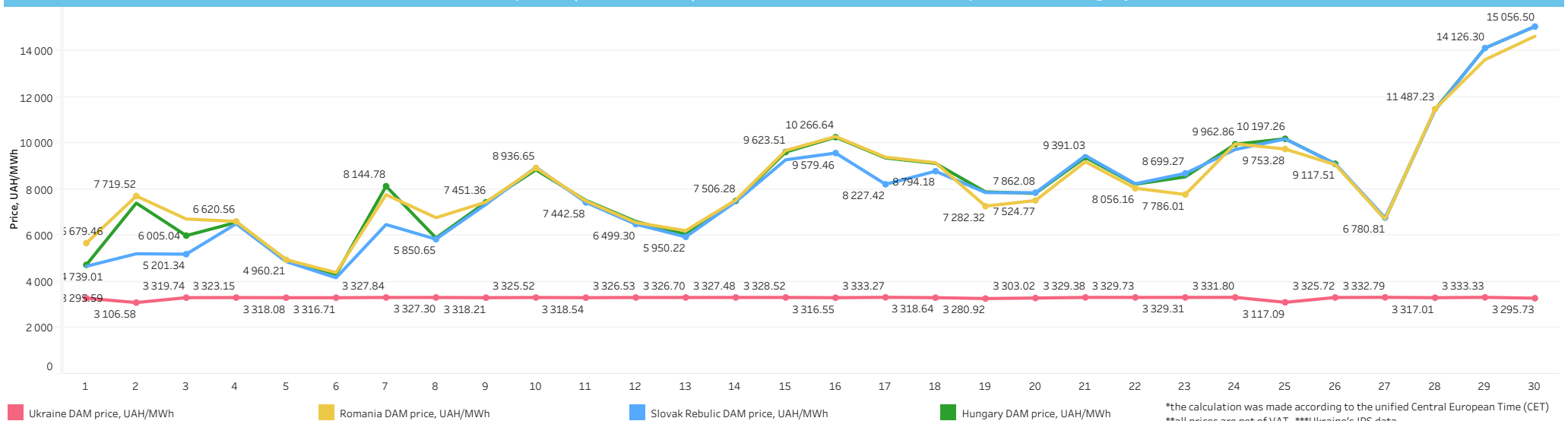


DAM prices (Product Base) were amounted to*:
 Ukraine: 3 306.69 UAH/MWh;
 Romania: 8 049.85 UAH/MWh;
 Slovak Republic: 8 038.86 UAH/MWh;
 Hungary: 8 301.04 UAH/MWh.

DAM prices (Product Peak) were amounted to*:
 Ukraine: 3 973.80 UAH/MWh;
 Romania: 9 799.57 UAH/MWh;
 Slovak Republic: 9 511.23 UAH/MWh;
 Hungary: 9 709.42 UAH/MWh.

DAM prices (Product OffPeak) were amounted to*:
 Ukraine: 2 639.58 UAH/MWh;
 Romania: 6 772.45 UAH/MWh;
 Slovak Republic: 6 556.50 UAH/MWh;
 Hungary: 6 892.66 UAH/MWh.

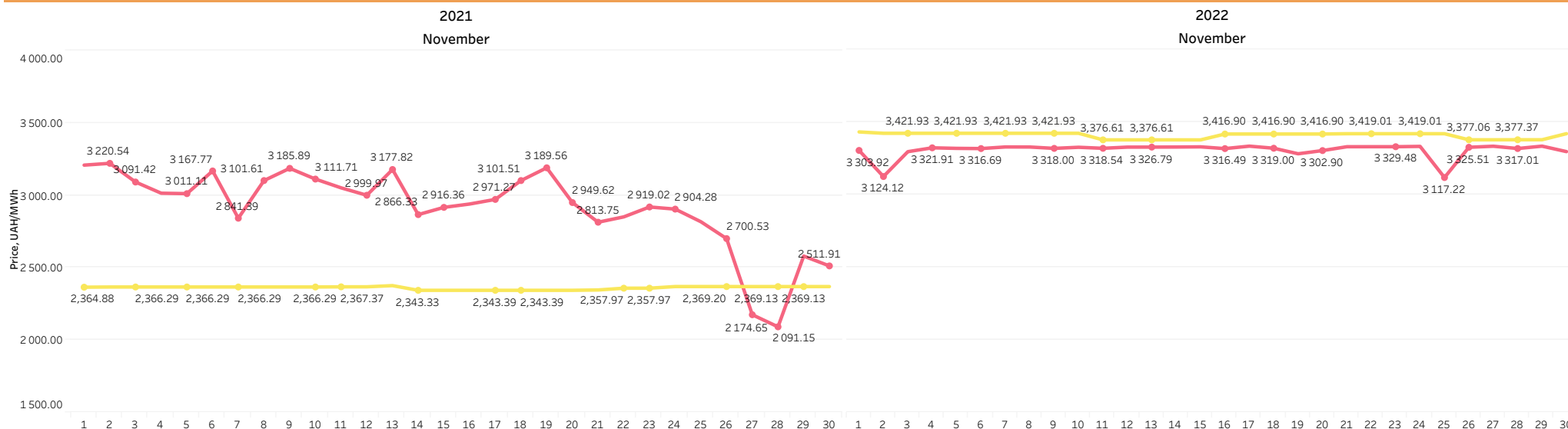
The DAM prices (Product Base) of Ukraine, Romania, Slovak Republic and Hungary



*the calculation was made according to the unified Central European Time (CET)
 all prices are net of VAT *Ukraine's IPS data

DAM and BCM prices comparison for November 2021 and November 2022

The DAM and the BCM prices



■ BCM price (Product Base), UAH/MWh ■ DAM price (Product Base), UAH/MWh

In November 2021:

DAM price (Product Base) was **2 915.98 UAH/MWh**;
 BCM price (Product Base) was **2 360.73 UAH/MWh**.

The DAM price was **555.26 UAH/MWh** higher than the BCM price.

In November 2022:

DAM price (Product Base) was **3 306.69 UAH/MWh**;
 BCM price (Product Base) was **3 407.30 UAH/MWh**.

The BCM price was **100.61 UAH/MWh** higher than the DAM price.

Day	2021			2022		
	DAM price (Product Base), UAH/MWh	BCM price (Product Base), UAH/MWh	Price difference, UAH/MWh	DAM price (Product Base), UAH/MWh	BCM price (Product Base), UAH/MWh	Price difference, UAH/MWh
1	3208.11	2364.88	-843.23	3303.92	3431.27	+127.35
2	3220.54	2366.16	-854.38	3124.12	3421.95	+297.83
3	3091.42	2366.29	-725.13	3295.33	3421.93	+126.60
4	3014.06	2366.29	-647.77	3321.91	3421.93	+100.02
5	3011.11	2366.29	-644.82	3318.10	3421.93	+103.83
6	3167.77	2366.29	-801.48	3316.69	3421.93	+105.24
7	2841.39	2366.29	-475.10	3327.78	3421.93	+94.15
8	3101.61	2366.29	-735.32	3327.37	3421.93	+94.56
9	3185.89	2366.29	-819.60	3318.00	3421.93	+103.93
10	3111.71	2366.29	-745.42	3325.57	3421.93	+96.36
11	3051.18	2367.37	-683.81	3318.54	3376.61	+58.07
12	2999.97	2367.54	-632.43	3326.64	3376.61	+49.97
13	3177.82	2375.72	-802.10	3326.79	3376.61	+49.82
14	2866.33	2343.33	-523.00	3327.29	3376.61	+49.32
15	2916.36	2343.40	-572.96	3328.52	3376.39	+47.87
16	2939.41	2343.40	-596.01	3316.49	3416.90	+100.41
17	2971.27	2343.39	-627.88	3333.33	3416.90	+83.57
18	3101.51	2343.39	-758.12	3319.00	3416.90	+97.90
19	3189.56	2343.39	-846.17	3280.83	3416.90	+136.07
20	2949.62	2343.39	-606.23	3302.90	3416.90	+114.00
21	2813.75	2345.76	-467.99	3329.38	3419.01	+89.63
22	2850.71	2357.97	-492.74	3329.52	3419.01	+89.49
23	2919.02	2357.97	-561.05	3329.48	3419.01	+89.53
24	2904.28	2369.34	-534.94	3331.71	3419.01	+87.30
25	2816.95	2369.34	-447.61	3117.22	3418.87	+301.65
26	2700.53	2369.20	-331.33	3325.51	3377.06	+51.55
27	2174.65	2369.13	+194.48	3332.79	3377.06	+44.27
28	2091.15	2369.13	+277.98	3317.01	3377.37	+60.36
29	2579.92	2369.13	-210.79	3333.33	3377.37	+44.04
30	2511.91	2369.13	-142.78	3295.73	3419.29	+123.56
Average indicator	2915.98	2360.73	-555.26	3306.69	3407.30	+100.61

*The BCM price was calculated according to the results of UEB auctions for the sale of electricity under bilateral contracts held in the previous month(October) and the month of supply (November), for the purchase and sale of base load electricity for the month of supply (November 2021 and November 2022, respectively)

all prices are net of VAT *IPS Ukraine data