

23. October 2023, Neum



Energy markets, renewables and balancing

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- 1. Integrated electricity markets of today**
- 2. Renewables and their impact on prices and imbalances**
- 3. Balancing market integration**
- 4. Expectations for the future**



10 years of operation

until **11:00** TSOs (30) provide to PXs available CZCs

until **12:00** traders place their bids on **PXs** (16) for purchase/sell of energy

until **13:00** hourly marginal price calculation and cross border exchanges
for **27 countries**

Concluded transactions for more than **1.700 TWh / year**

Estimated value of transactions **850 bil EUR / year**



5 years of operation

Trading 24/7; **H** and **15min** products until **H-1**

„one stop shop“ trading from NOR to ITA and POR to ROM

monthly **235 mio** bids and **12 mio** concluded transactions

Traded volume over **100 TWh / year**

Estimated value of transactions over **50 bil EUR / year**



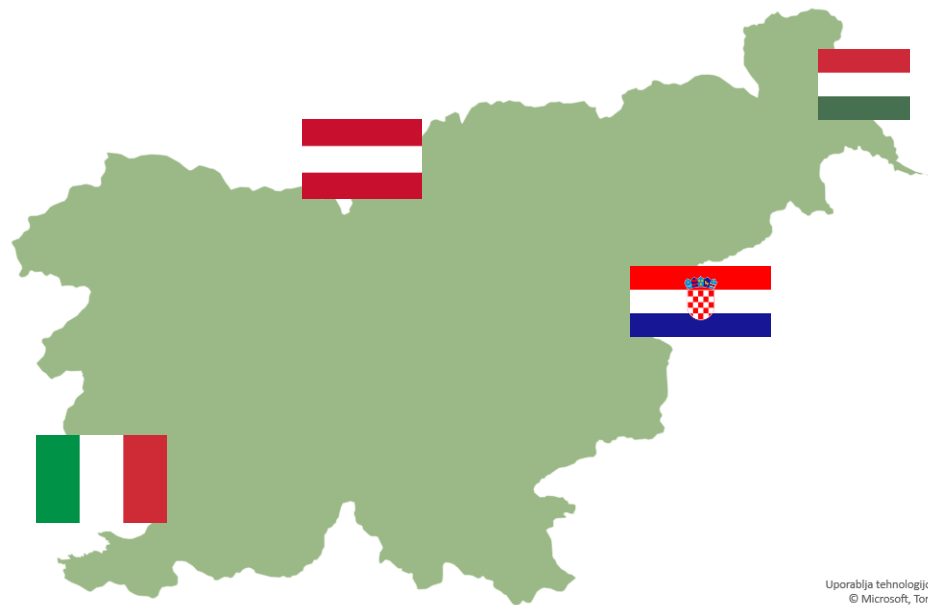
SLOVENIAN market in numbers

Day Ahead 9,5 TWh

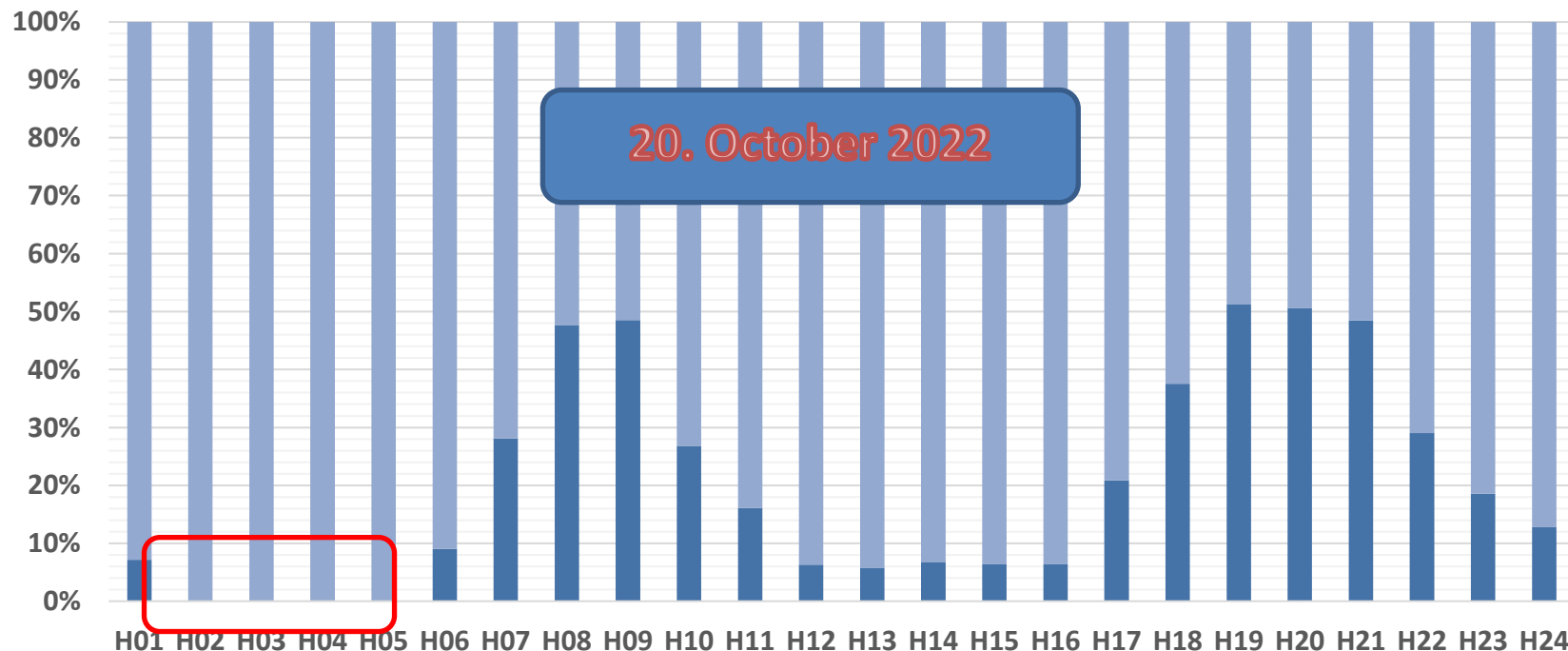
Intra Day 1,5 TWh

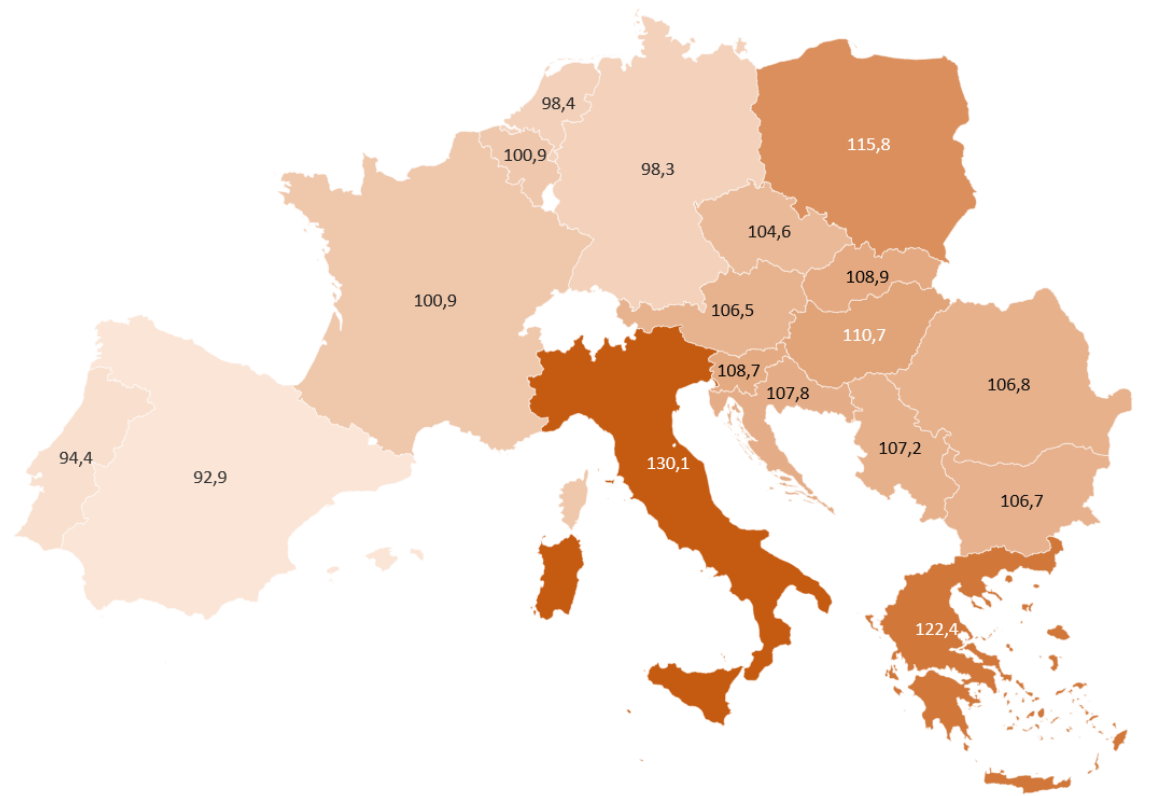
Value of transactions 3,5 bil EUR

Value of CZC 115 mio EUR



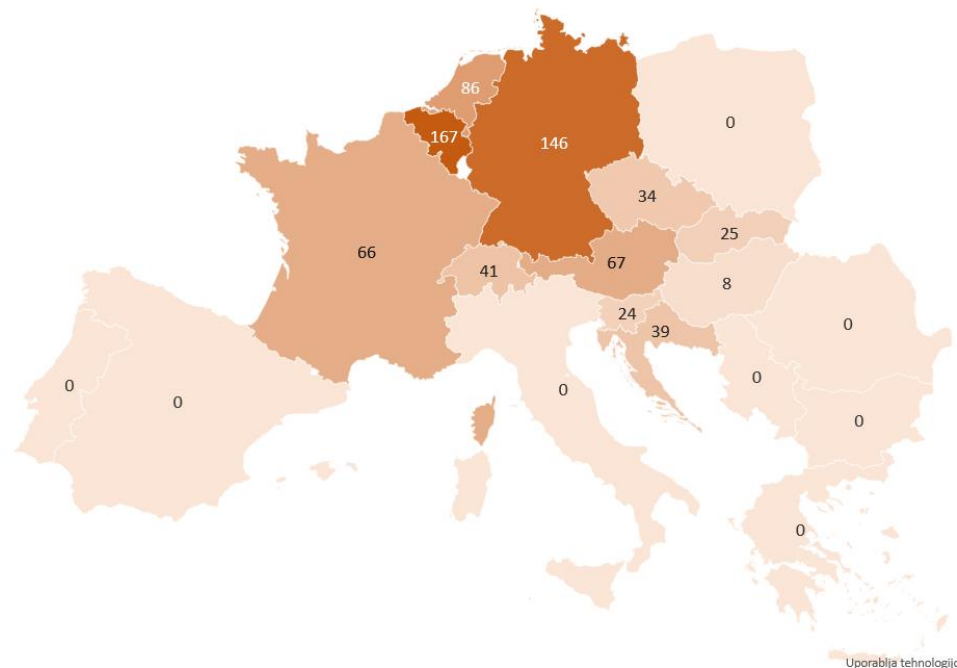
Share of domestic production in consumption - Slovenia



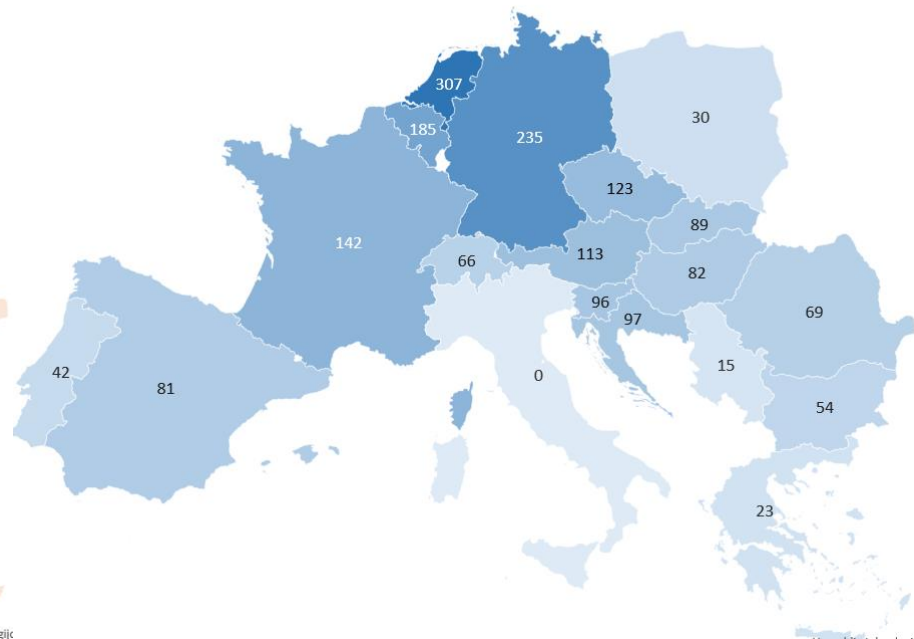


Number of hours with negative prices on Day Ahead market 2021 vs 2023

2021



2023

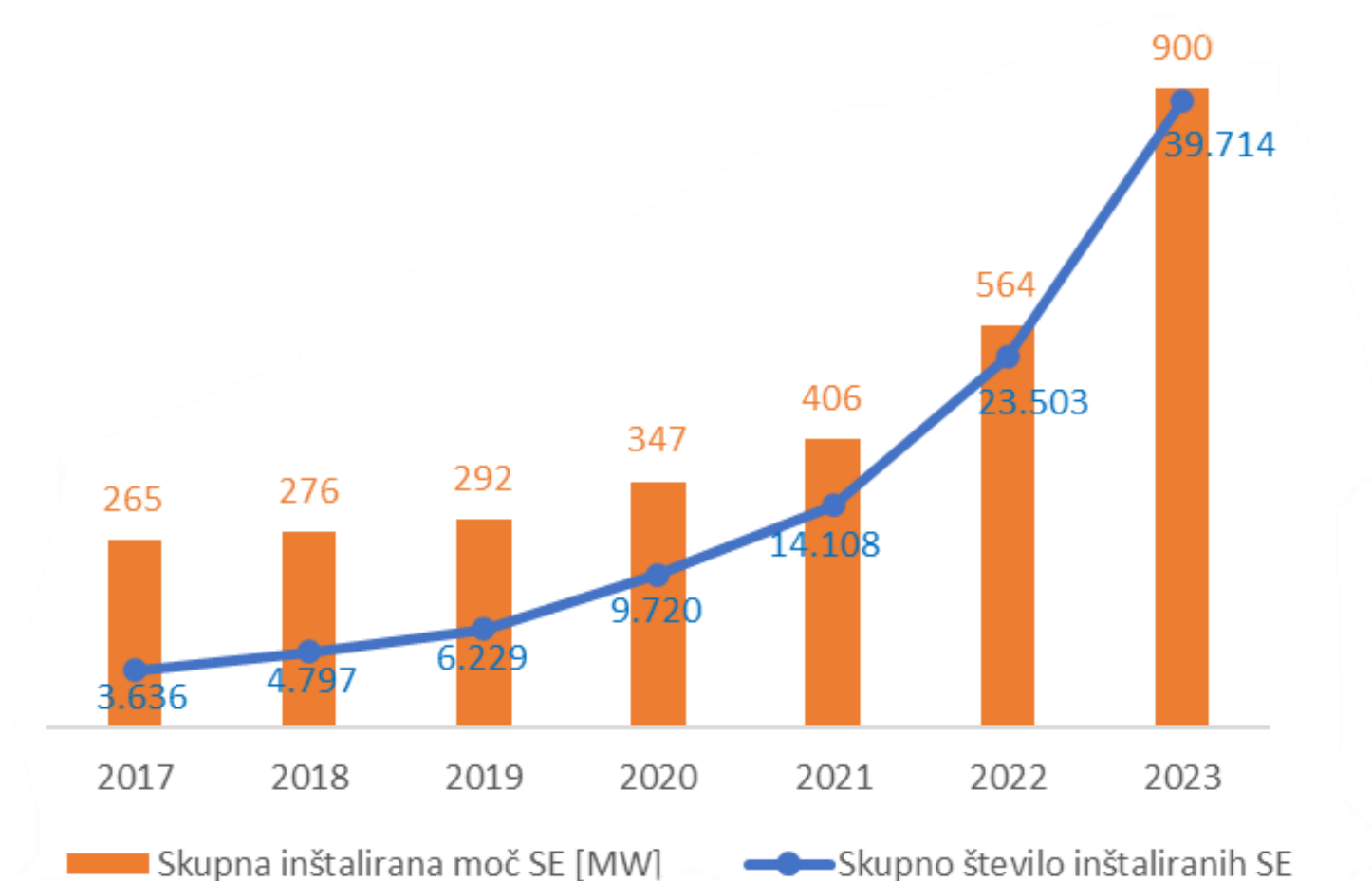


AVERAGE HOURLY prices JANUARY vs JUNE 2023

Hour	SI	HR	IT	AT	HU	RO	FR	DE	BE	NL
H01	115,69	95,11	155,56	113,42	111,57	95,08	104,87	88,40	102,78	97,63
H02	108,25	86,45	148,52	108,28	102,97	80,22	100,77	82,62	96,90	87,48
H03	101,81	77,16	142,15	104,24	95,64	66,64	97,72	80,58	94,24	82,81
H04	94,60	67,27	137,10	97,76	87,34	56,65	87,05	75,43	83,63	75,77
H05	99,56	73,97	137,61	101,93	92,74	63,44	85,07	76,59	81,72	76,33
H06	110,86	94,48	148,02	114,27	108,23	86,40	93,43	84,35	90,10	83,32
H07	137,78	124,97	172,16	137,11	135,74	125,91	116,56	108,87	113,36	107,52
H08	157,38	147,96	188,62	155,27	157,96	154,09	138,56	129,29	138,14	131,93
H09	170,17	165,69	204,84	168,35	170,94	171,82	156,76	143,69	156,40	157,89
H10	170,89	167,21	204,38	169,20	173,35	165,28	160,46	144,92	160,91	163,04
H11	164,97	155,94	190,66	162,94	165,11	151,13	153,81	137,84	156,13	148,31
H12	161,98	150,82	184,09	159,68	160,83	143,17	149,51	134,06	150,29	139,47
H13	156,85	149,95	173,76	156,08	157,88	143,91	140,93	128,33	140,00	131,91
H14	153,57	145,89	169,21	152,66	154,79	141,17	133,18	124,67	130,83	127,69
H15	158,66	153,49	175,62	156,93	160,19	151,35	137,21	127,23	134,92	131,90
H16	165,62	167,18	183,93	162,90	175,26	175,90	140,06	131,88	138,51	139,10
H17	173,79	181,85	192,61	167,62	193,85	200,12	144,30	136,94	143,73	146,27
H18	182,56	188,23	209,38	178,14	197,49	207,93	160,22	149,03	159,63	167,20
H19	182,76	187,14	211,38	176,40	197,17	195,92	170,33	151,02	171,48	169,07
H20	173,25	176,94	209,52	167,97	189,16	181,41	164,35	139,29	165,03	153,51
H21	159,82	161,12	193,26	156,65	170,24	157,28	150,72	126,95	150,19	143,55
H22	146,73	139,23	180,31	143,27	150,30	136,89	134,87	116,21	133,02	131,33
H23	142,49	127,14	172,61	138,64	142,09	116,74	131,03	111,79	129,79	122,99
H24	126,53	99,54	161,29	119,84	117,76	100,09	118,54	97,93	114,95	108,20

Hour	SI	HR	IT	AT	HU	RO	FR	DE	BE	NL
H01	101,33	100,12	104,63	101,80	102,34	90,63	100,63	101,88	101,99	102,98
H02	93,88	92,51	99,76	94,52	95,34	80,66	93,12	94,76	94,44	95,32
H03	89,74	88,51	96,76	90,19	90,84	75,83	88,61	90,62	89,90	91,09
H04	87,39	86,32	95,03	87,87	88,72	76,63	83,88	88,81	86,33	89,13
H05	87,27	86,55	94,84	87,70	88,44	78,61	82,48	88,78	84,96	87,69
H06	91,44	90,26	97,40	92,20	93,35	80,78	84,72	94,14	88,52	92,15
H07	103,09	101,08	102,89	104,35	106,93	84,40	92,21	111,22	97,63	99,75
H08	112,42	110,35	114,13	113,02	116,03	95,79	105,31	116,66	108,32	110,12
H09	106,80	105,10	115,41	107,16	108,60	90,89	105,82	107,55	106,48	106,97
H10	90,80	89,41	107,32	91,02	91,84	71,02	91,12	91,01	91,25	90,59
H11	75,70	74,84	98,36	76,09	76,05	61,13	76,36	75,33	76,99	74,16
H12	67,11	66,16	94,90	66,91	67,06	52,08	68,64	66,07	70,08	63,68
H13	61,54	60,88	87,64	61,72	62,09	51,46	63,42	58,77	64,98	52,99
H14	56,85	56,10	84,98	56,80	57,00	47,20	58,39	50,63	60,54	40,85
H15	55,30	54,53	88,38	54,53	56,42	44,15	53,64	48,66	55,17	43,87
H16	62,75	62,48	89,73	60,81	64,06	53,74	59,39	56,90	59,78	52,19
H17	70,50	70,42	94,01	68,68	71,54	63,91	67,07	66,77	66,72	64,88
H18	88,44	87,99	97,85	86,64	89,28	82,30	85,61	86,04	85,36	84,63
H19	107,13	107,22	108,87	106,05	108,37	106,32	104,03	105,85	104,42	103,79
H20	128,51	128,29	128,03	126,30	130,07	125,55	119,21	127,43	121,41	119,97
H21	138,12	138,89	134,55	136,50	142,25	138,10	124,07	139,13	128,51	133,48
H22	130,31	130,16	127,04	129,70	133,99	124,20	120,12	131,46	125,05	131,56
H23	118,58	117,26	117,93	118,94	120,32	106,18	117,03	119,01	118,65	120,05
H24	106,16	104,58	108,15	106,40	107,54	94,19	107,29	106,57	107,95	107,53

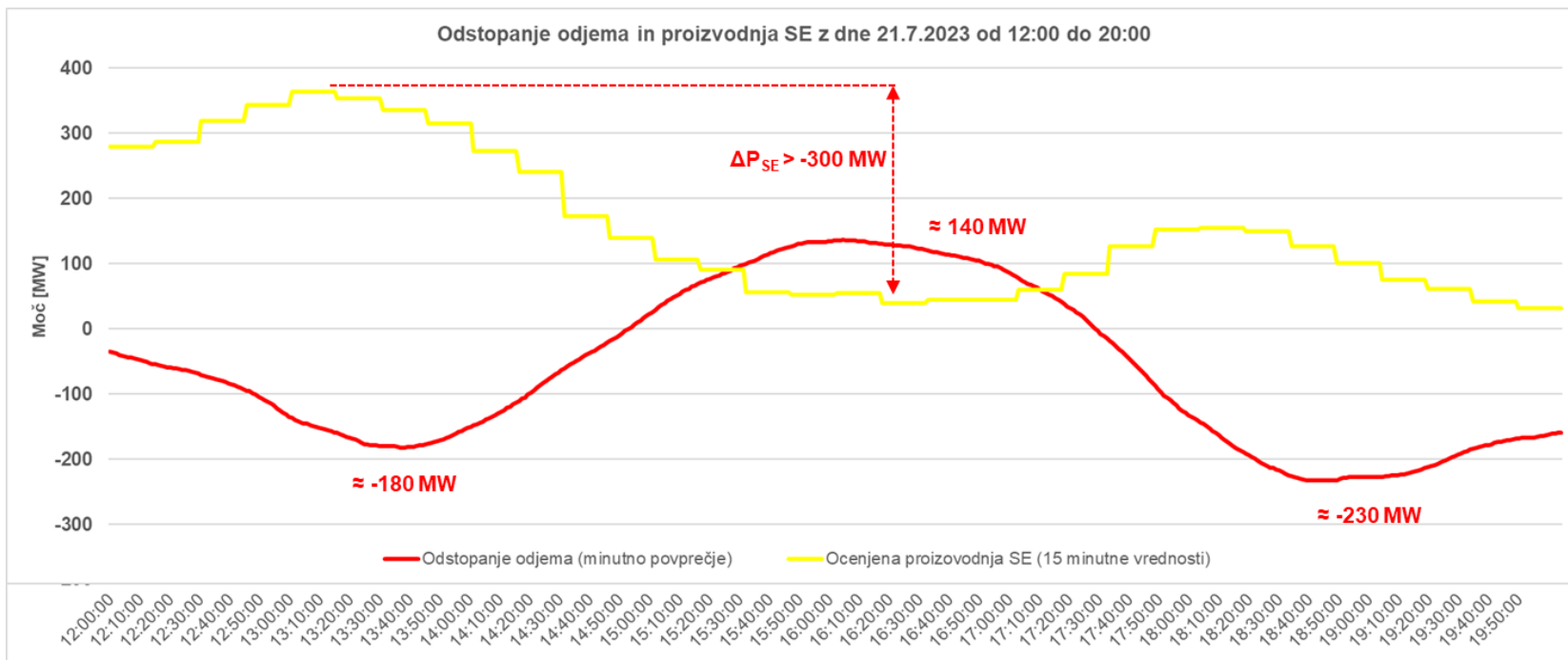
Connection of solar production in MW - Slovenia



Consequence and response to the changes

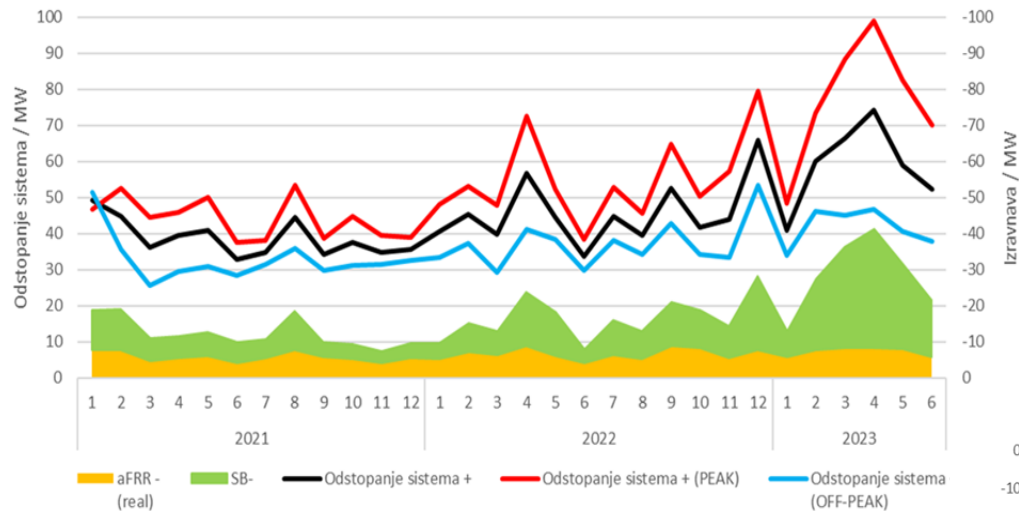
Case of consumption imbalance due to the solar production in Slovenia

- Increased risk that the TSO fails to balance the system with available measures
- Increased risk for BRPs due to high imbalance cost

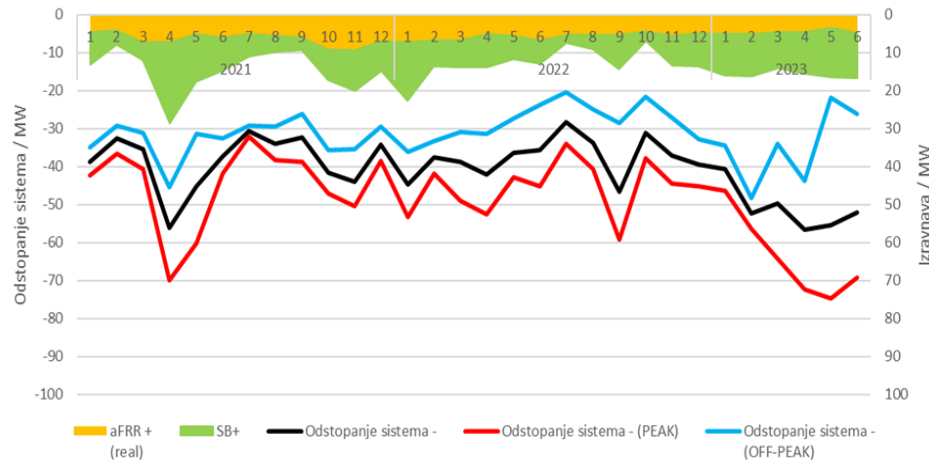


Consequence and response to the changes

Povprečna pozitivna odstopanja sistema in negativna izravnava



Povprečna negativna odstopanja sistema in pozitivna izravnava



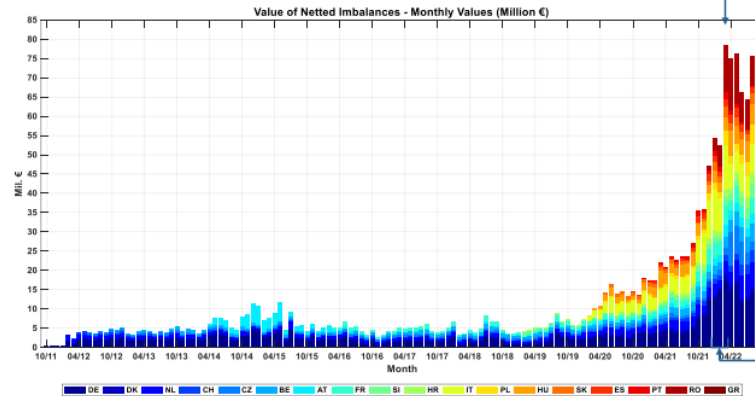
Implementation of IN platform



 IGCC Member
  IGCC Observer
 IGCC non-operational member

Historical evolution of IGCC

Value of Netted Imbalances



New record of monthly value amount of netted imbalances: nearly 80 million € in March 2022

Aggregated savings: surpassed 1.5 billion € savings.

The value of quarterly savings in Q1 2022 has reached 217.61 million €

PICASSO & IGCC

Implementation of MARI and PICASSO

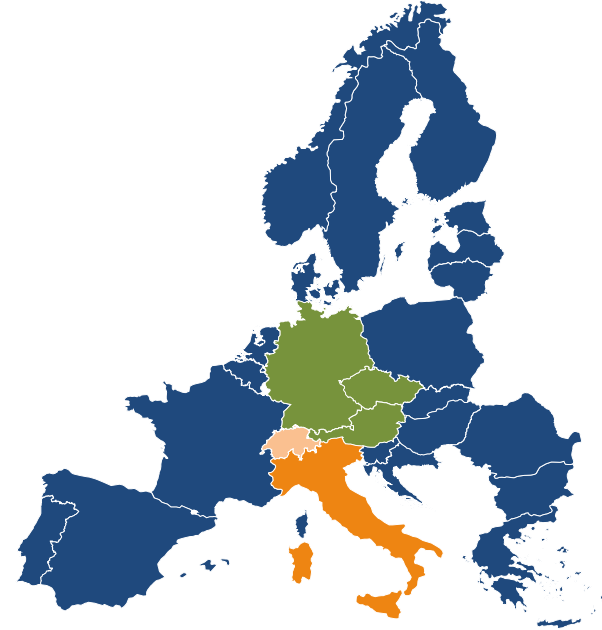
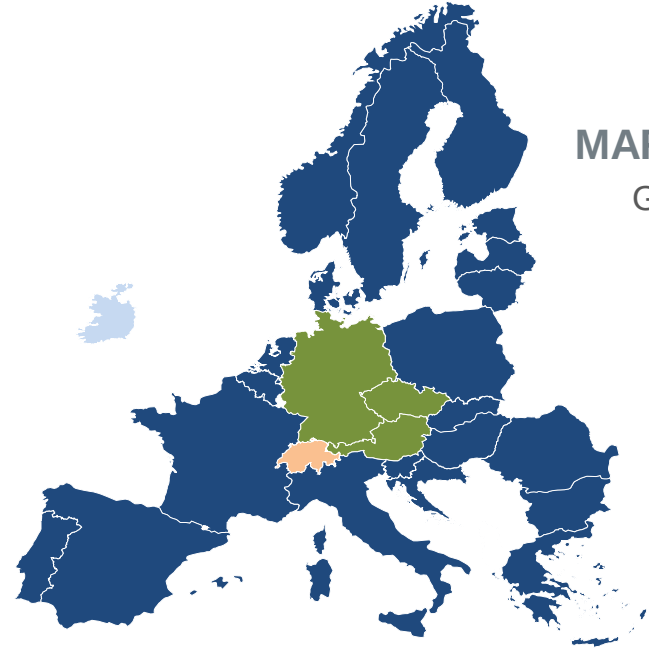
PICASSO - aFRR

- Go-live June 2022 – (DE, AT, CZ)
- Italy July 2023
- Others Q3 2024 or later

MARI - mFRR

Go-live October 2022 – (DE, CZ)

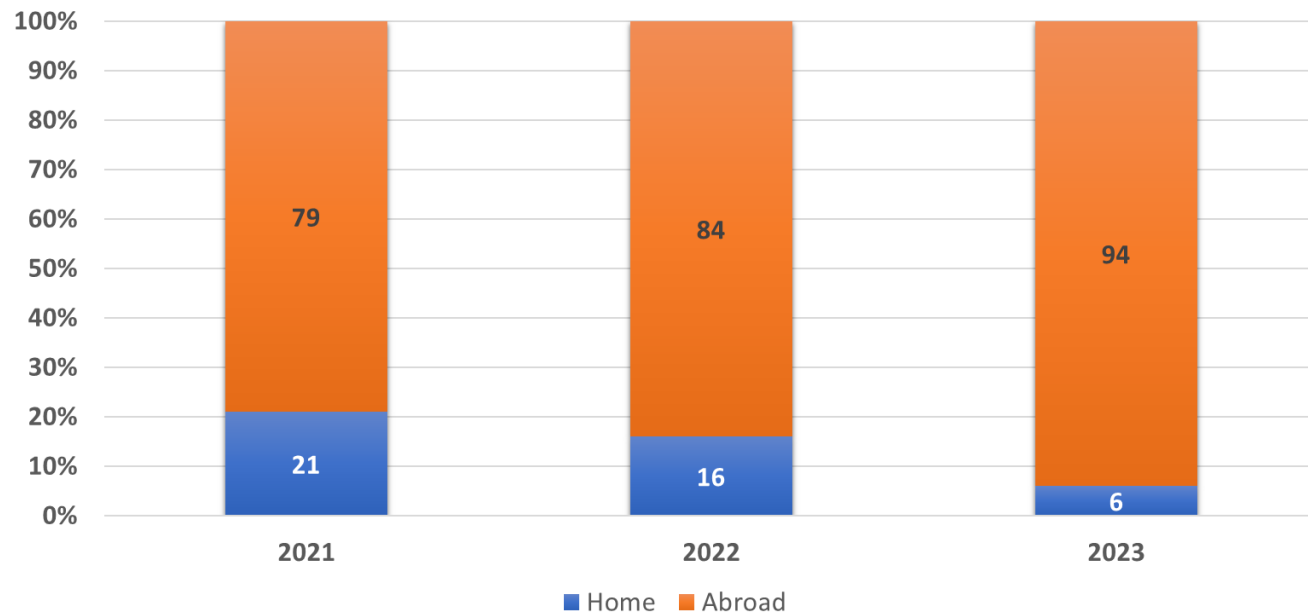
- AT Q2 2023;
- Others by Q3 2024 or later



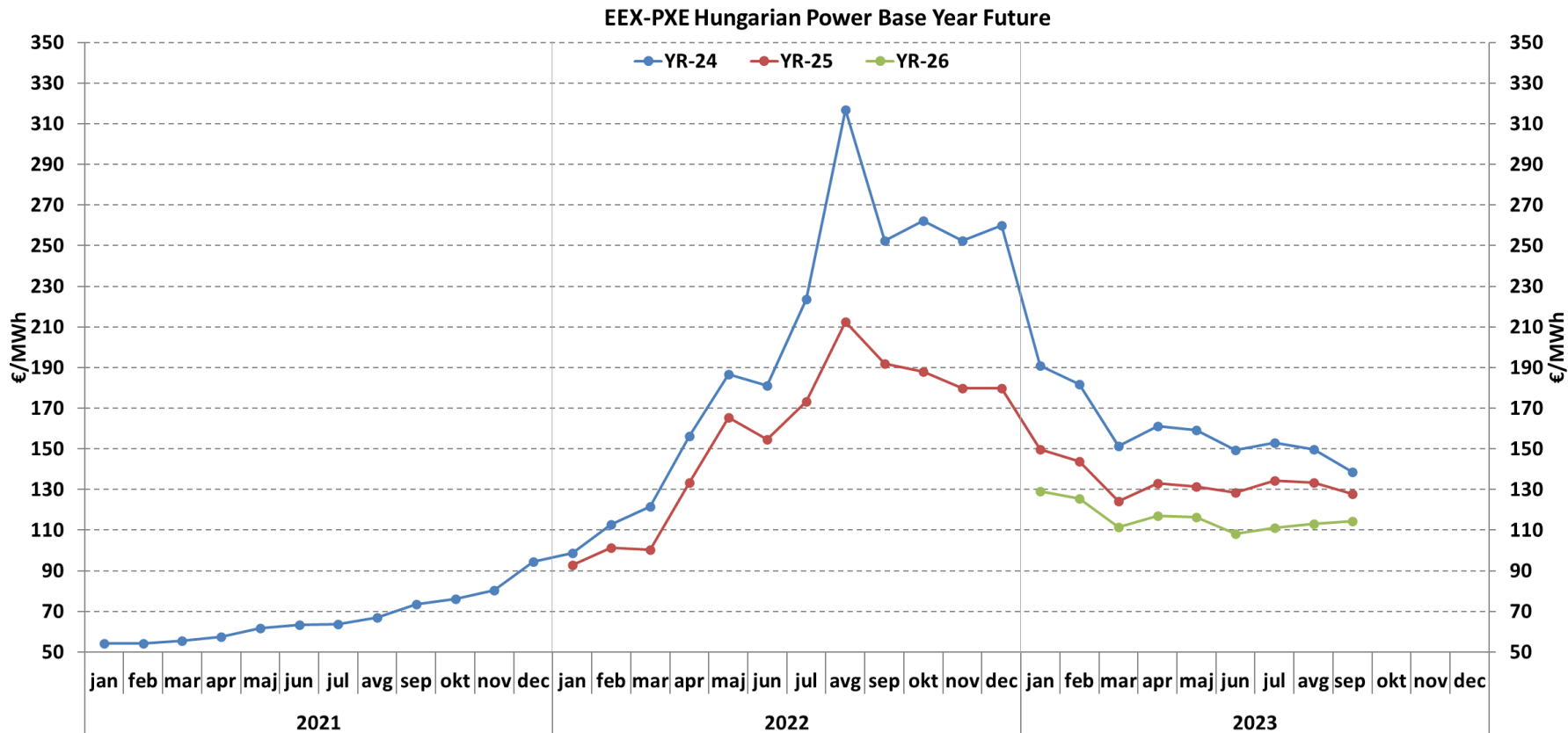
FCR Cooperation

> ELES joined the cooperation in January 2021

> Domestic producers not competitive enough – majority of FCR procured abroad



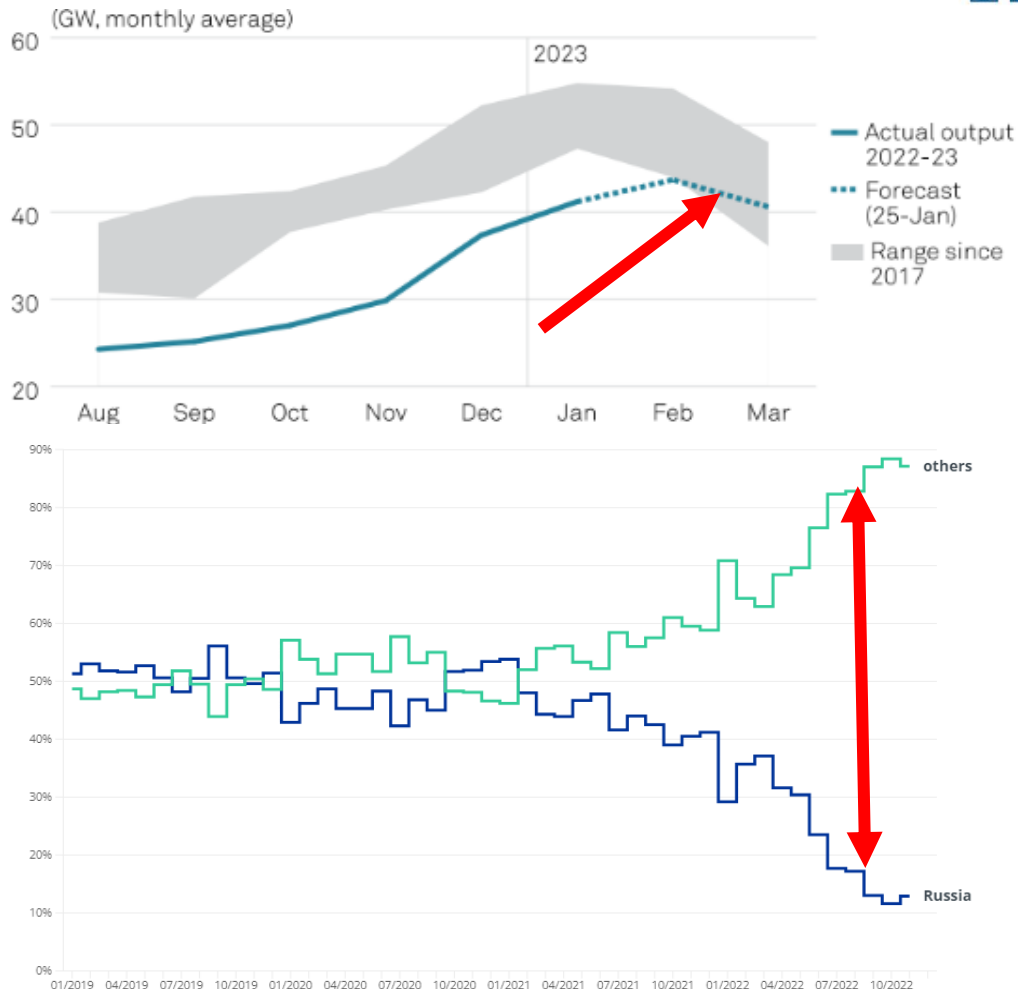
Futures price on the reference HU market



Expectations for winter 2023/2024

Adequacy

- Compared to 2022/23, less severe situation is expected for the coming winter
- Expected availability of French nuclear power plants is returning to the average range of recent years
- EU largely replaced imports of Russian gas with additional imports from Norway and Algeria, as well as LNG from the USA, Qatar and Nigeria.



Thank you for the attention!