IGCC Regular Report on Social Welfare

2025

IGCC-Settlement – Basic Principle
(Methodology applied from 01/02/2016)

Value of avoided aFRR activation (VoAAA)

without IGCC	with IGCC	VoAAA= Opportunity Value/IGCC Volume
$BE_{before\ IGCC}$ [MWh] x $BE\ price_{before\ IGCC}$ [€/MWh]	IGCC exchange: $BE_{after\ IGCC}$ [MWh] x $BE\ price_{after\ IGCC}$ [€/MWh]	[($BE_{before\ IGCC}$ * $BE\ price_{before\ IGCC}$) – ($BE_{after\ IGCC}$ * $BE\ price_{after\ IGCC}$)] / IGCC exchange

BE: Balancing Energy from automated frequency restoration reserves (aFRR)

BE price: marginal or average price for balancing energy from aFRR

IGCC Initial Settlement Price

- IGCC Initial Settlement Price (P_{IGCC}): **Energy weighted** ($E_{\mathrm{Imp},i}$ and $E_{\mathrm{Exp},i}$) **average** of the **VoAAA** ($C_{\mathrm{Imp},i}$ and $C_{\mathrm{Exp},i}$)
- Symmetric price for IGCC imports and exports

$$P_{\mathrm{IGCC}} = \sum_{i=1}^{n}\left(C_{\mathrm{Imp},i}E_{\mathrm{Imp},i} + C_{\mathrm{Exp},i}\,E_{\mathrm{Exp},i}\right) \Big/ \sum_{i=1}^{n}\left(E_{\mathrm{Imp},i} + E_{\mathrm{Exp},i}\right)$$

IGCC Settlement Ex-post Adjustment

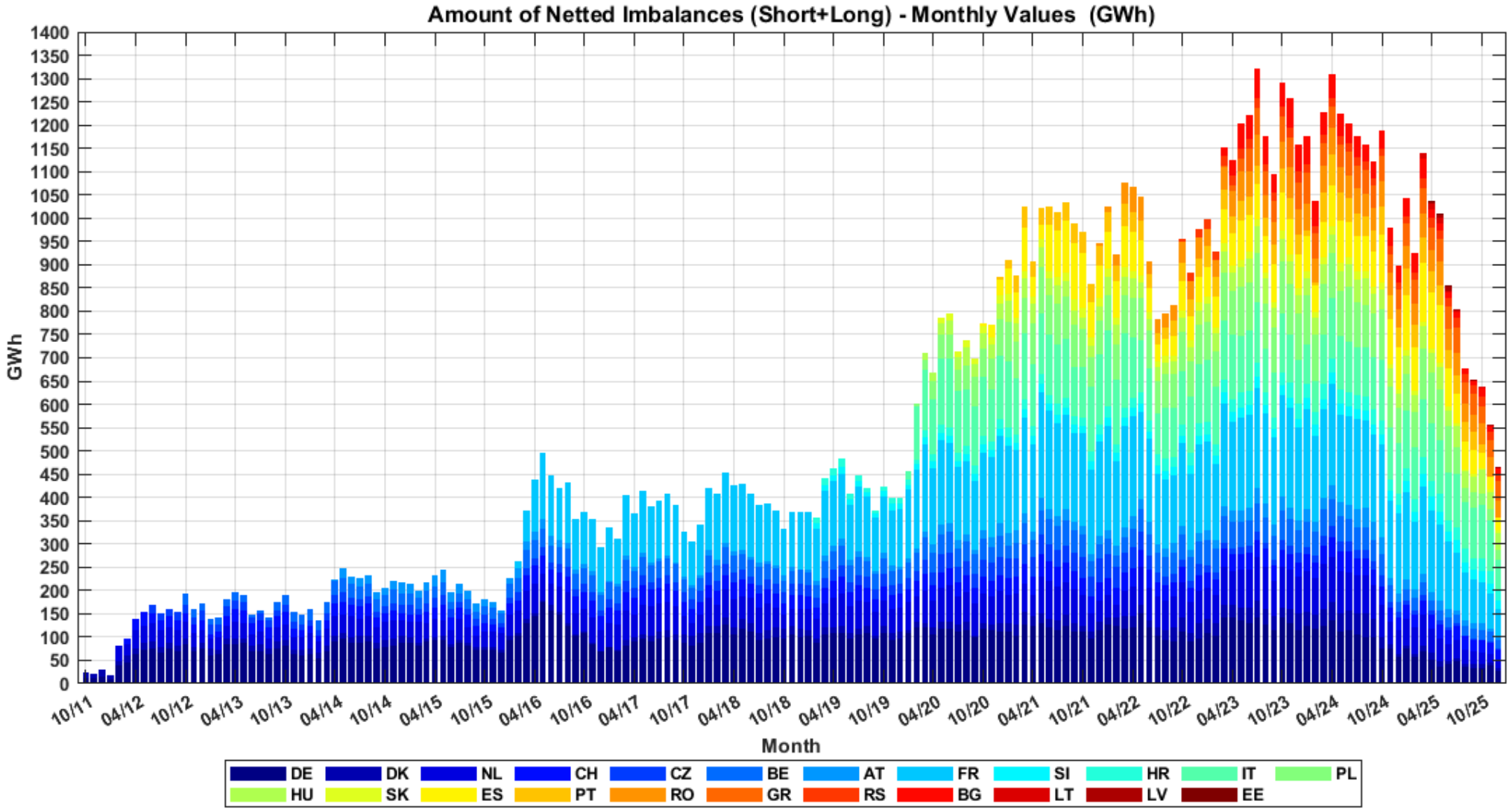
- In case of negative individual benefits for one or more IGCC Members but positive overall benefit of the IGCC, an ex-post adjustment of settlement is performed in order to guarantee TSO neutrality.
- IGCC adjusted settlement prices ($\mathrm{P'}_{\mathrm{IGCC}}$) which may vary from member to member depending on their benefit before the adjustment

Calculation of Cost Reduction

- Cost reduction for a participant is driven by the spread between the opportunity price and the IGCC adjusted settlement price

$$B'_i = \sum_{t=1}^{T}\left(C_{\mathrm{Imp},i,t} - P'_{\mathrm{IGCC,i,t}}\right)\cdot E_{\mathrm{Imp},i,t} + \sum_{t=1}^{T}\left(P'_{\mathrm{IGCC,i,t}} - C_{\mathrm{Exp},i,t}\right)\cdot E_{\mathrm{Exp},i,t}$$

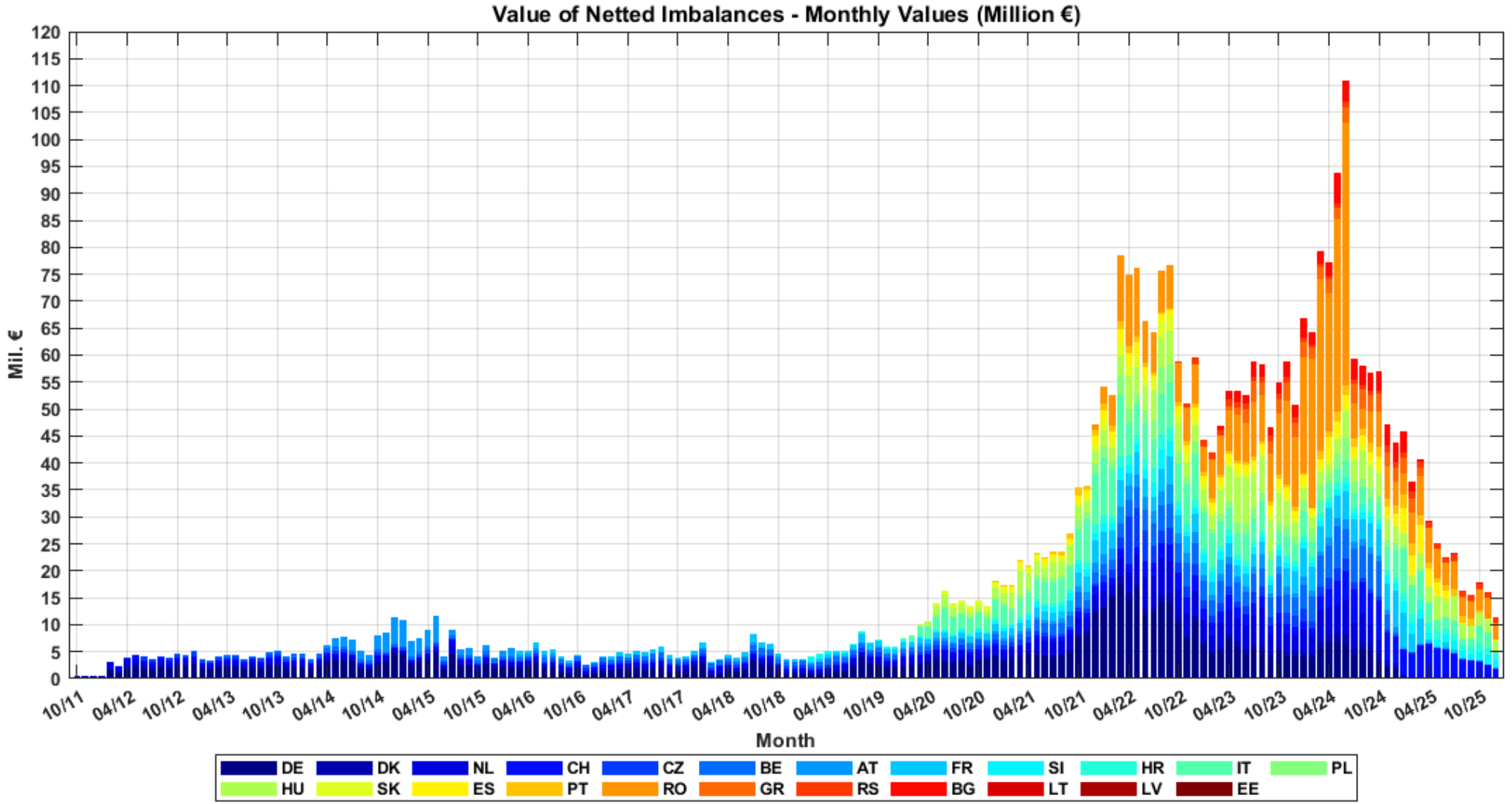
Monthly Volumes of Netted Imbalances



Monthly Volumes of Netted Imbalances (last Year, in GWh)

Month	gr	at	lv	cz	de	ee	si	be	rs	dk	bg	hr	lt	hu	pl	es	pt	fr	sk	ch	ro	it	nl	total
2025/1	49.41	22.3	0	10.9	75.1	0	23.1	22.8	16.2	6.1	38.8	27.4	0	36.92	81.37	119.7	57.9	185.9	11.8	29.2	46.4	123.9	58.6	**1043.78**
2025/2	50.62	17.6	0	9.48	58.6	0	23.4	26.3	17.8	5.45	39.5	25.9	0	35.47	74.11	93.91	49.7	144.4	9.53	28	44	113.6	56.6	**923.83**
2025/3	55.16	17.2	0	14.3	70.8	0	28.5	26.6	18.9	11.98	42	34.6	12.2	45.5	111.3	127.9	55.3	187.4	9.31	30.6	51.5	123.7	64.2	**1138.91**
2025/4	49.11	18.7	3.4	9.62	52.6	2.67	28.6	21.2	19.2	13.79	20.2	34.6	11.9	41.44	110.5	120.2	45.8	175.7	8.96	29.7	46.1	121.7	51.9	**1037.57**
2025/5	48.13	20.5	4.4	8.94	37.6	3.77	28.2	21	19.8	11.66	15.7	38.2	12.1	48.35	110.8	123.9	40.5	162.1	9.21	31.3	51.7	114.7	47.8	**1010.28**
2025/6	46.95	19.1	8	6.07	40.9	3.71	21.3	20.6	19.3	8.07	11.6	26.4	4.13	34.9	98.55	83.02	37.5	143.2	8.46	29.9	46.6	101.7	36.5	**856.31**
2025/7	54.29	9.47	1.5	3.76	47.2	1.51	26.5	19.1	21.8	5.95	12.5	29.6	2.94	46.25	55.89	63.66	39.7	123.2	5.41	32	48.2	114.6	40.2	**805.24**
2025/8	45.58	11.9	0.7	1.92	35.3	0.54	22.1	20.7	19	7.95	10.8	31.7	0.61	35.44	30.48	61.41	40	101.2	4.11	28	39.6	98.18	30.8	**677.96**
2025/9	44.34	12.1	1.7	3.64	33.3	0.43	19.9	21	18.9	10.28	9.24	24.6	0.27	34.84	32.5	50.39	40	92.93	5.74	24.9	36.7	109.9	26	**653.67**
2025/10	39.01	14.9	1.3	2.2	33.5	0.76	23.4	21.3	19.6	8.88	19.4	28.2	1.29	48.7	25.83	34.13	18.6	86.8	4.3	26.3	42.9	114.2	24	**639.45**
2025/11	38.11	7.22	1.4	2.21	38.2	0.57	21.9	22.2	17.4	6.03	13.4	26.7	0.04	37.18	24.25	28.67	0	73.34	5.78	23	40.2	108.7	20.1	**556.55**
2025/12	42.29	6.34	1.4	2.28	28.1	0.65	18.3	19.7	15.6	5.32	11.6	22	0.25	35.31	21.88	27.06	0	60.41	6.11	22	38.6	64.03	16.5	**465.85**

Monthly Value of Netted Imbalances

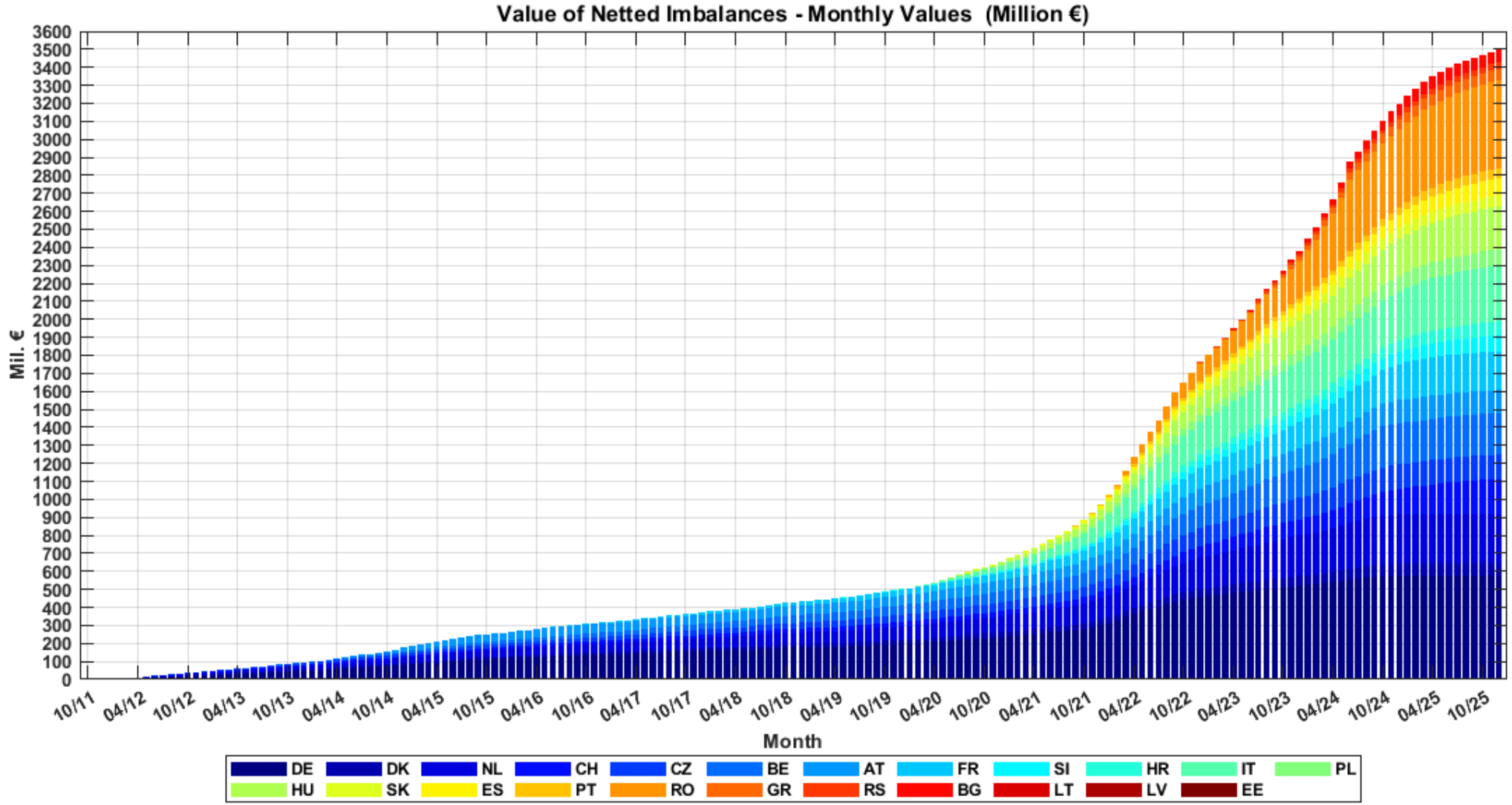


IGCC
International Grid Control Cooperation

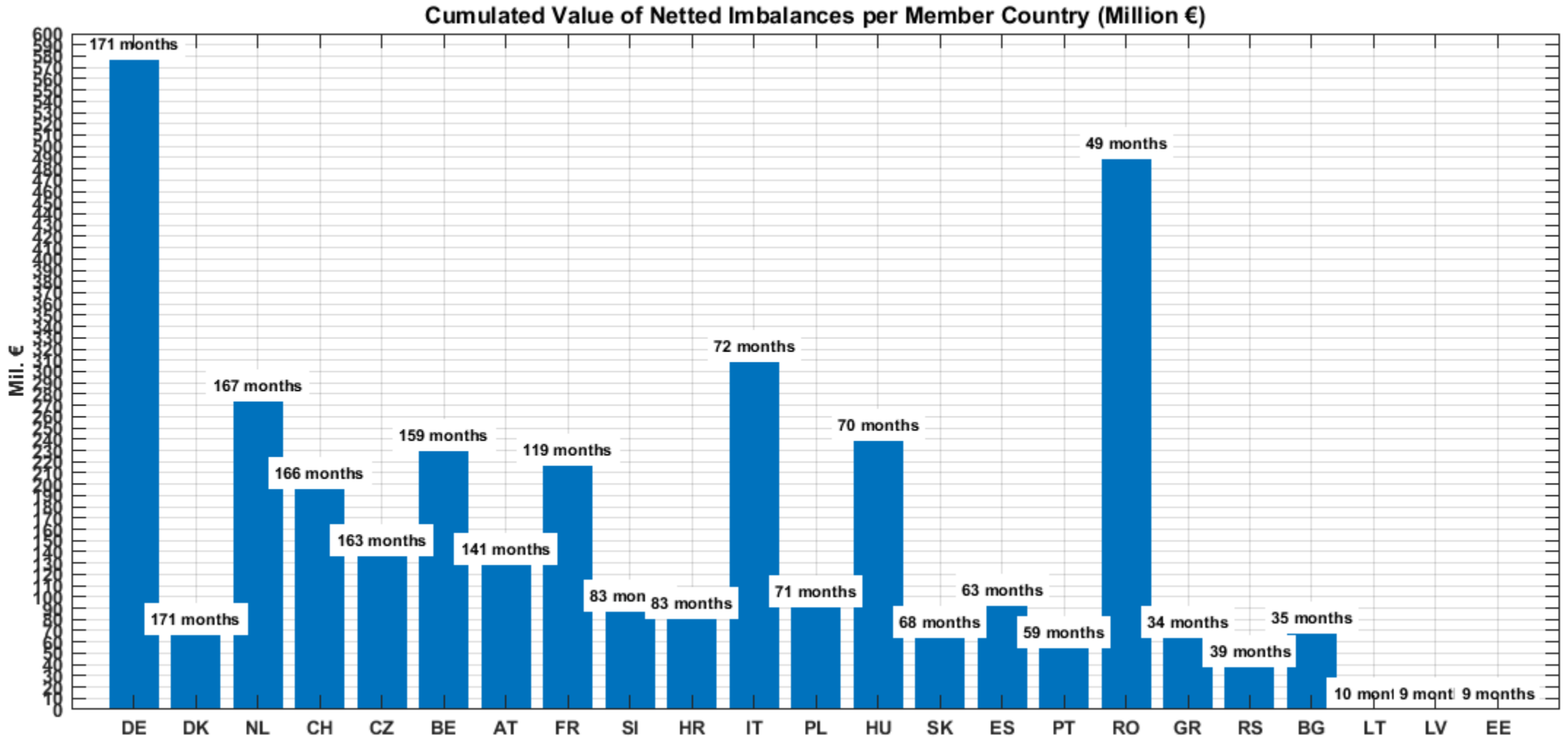
Monthly Value of Netted Imbalances (last Year, in Million €)

Month	gr	at	lv	cz	de	ee	si	be	rs	dk	bg	hr	lt	hu	pl	es	pt	fr	sk	ch	ro	it	nl	total
2025/1	2.928	0.16	0	0.041	0.375	0	2.05	0.11	1.03	0.03	3.8	1.61	0	2.425	0.66	4.55	2.48	6.55	0.06	4.68	4	8.047	0.33	**45.908**
2025/2	2.562	0.08	0	0.032	0.113	0	2.09	0.06	1.42	0.003	1.818	1.64	0	1.928	0.09	3.41	2.26	3.37	0.04	4.54	5.85	5.248	0.11	**36.67**
2025/3	1.733	0.13	0	0.048	0.144	0	1.69	0.08	1.07	0.026	0.35	1.82	0.16	2.997	0.29	5.06	1.96	4.75	0.05	5.75	7.08	5.414	0.21	**40.801**
2025/4	0.105	0.09	0.028	0.02	0.036	0.01	1.16	0.01	1.02	0.023	0.091	1.77	0.158	2.789	0.19	3.41	1.08	0.65	0.04	6.42	6.41	3.81	0.08	**29.397**
2025/5	0.072	0.01	0.017	0.007	-0.03	0.01	1.17	0.01	1.01	0.027	0.006	1.71	0.034	4.354	-0.08	2.6	0.73	0.24	0.05	5.72	5.25	2.081	0.03	**25.016**
2025/6	0.05	0.09	0.002	-0.01	0.064	0	1.31	0.03	0.98	0.034	-0.04	1.16	0	3.35	0.14	1.47	1.14	1.24	0.02	5.28	4.09	2.043	0.1	**22.551**
2025/7	0.153	0.06	0.001	0.01	0.051	0	1.6	0.04	1.27	0.023	0.045	1.38	0.003	4.295	0.17	0.2	1.22	0.55	0.03	4.55	5.1	2.365	0.1	**23.206**
2025/8	0.297	0.04	0	0.004	0.047	0	1.28	0.03	0.91	0.019	0.037	1.12	0.001	2.672	0.08	0.19	1.4	0.29	0.02	3.41	3.41	1.071	0.03	**16.353**
2025/9	0.228	0.05	0	0.009	0.021	0	1.12	0.01	1.11	0.005	0.022	1.23	0	2.231	0.18	0.16	1.13	0.12	0.02	3.3	3.13	1.495	0	**15.564**
2025/10	0.074	0.06	0.002	0.005	0.026	0	1.47	0.01	1.13	0.003	0.18	1.61	0	2.19	0.04	0.07	0.6	0.08	0.01	3.19	3.65	3.429	0.01	**17.847**
2025/11	0.003	0.03	0	0.006	0.054	0	1.69	0.01	1.08	0.004	0.011	1.31	0	2.435	0.03	0.18	0	0.03	0.02	2.45	3.88	2.926	0.02	**16.166**
2025/12	0.045	0.03	0.001	0.008	0.018	0	1.42	0.02	0.97	0.003	0.03	1.18	0	2.136	0.03	0.08	0	0.09	0.03	1.88	3.18	0.226	0.01	**11.388**

Value of Netted Imbalances - Development



Cumulated Value of Avoided Activations



Appendix - Mathematical formulas of figures

- **Amount of netted imbalances (volume):**

$$E_{short+long,i} = E_{exp,i} + E_{\mathrm{Imp},i}$$

- **Amount of netted imbalances (value):**

$$R_{\mathrm{IGCC}} = \sum_{i=1}^{n} \left(C_{\mathrm{Imp},i} - C'_{\mathrm{IGCC}}\right) \cdot E_{\mathrm{Imp},i} + \sum_{i=1}^{n} \left(C'_{\mathrm{IGCC}} - C_{\mathrm{Exp},i}\right) \cdot E_{\mathrm{Exp},i}$$

Appendix - Mathematical formulas of figures

- **Local value of the avoided activated positive balancing energy (imported by IGCC):**

$$LV_{paid,i} = \sum_{i=1}^{n} C_{\mathrm{Imp},i} \cdot E_{\mathrm{Imp},i}$$

- **Local value (received) of the avoided activated negative balancing energy (exported to IGCC):**

$$LV_{received,i} = \sum_{i=1}^{n} C_{\mathrm{Exp},i} \cdot E_{\mathrm{Exp},i}$$