

AG Energiebilanzen, ENTSO-E, BDEW & Co.

Analyse des deutschen Stromdaten-Wirrwars

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Strommarkttreffen | 5 June 2015

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Bruttostromerzeugung in Deutschland ab 1990 nach Energieträgern

Energieträger	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 ¹⁾
	Mrd. kWh																								
Braunkohle	170.9	158.3	154.5	147.5	146.1	142.6	144.3	141.7	139.4	136.0	148.3	154.8	158.0	158.2	158.0	154.1	151.1	155.1	150.6	145.6	145.9	150.1	160.7	160.9	156.0
Kernenergie	152.5	147.4	158.8	153.5	151.2	154.1	161.6	170.3	161.6	170.0	169.6	171.3	164.8	165.1	167.1	163.0	167.4	140.5	148.8	134.9	140.6	108.0	99.5	97.3	96.9
Steinkohle	140.8	149.8	141.9	146.2	144.6	147.1	152.7	143.1	153.4	143.1	143.1	138.4	134.6	146.5	140.8	134.1	137.9	142.0	124.6	107.9	117.0	112.4	116.4	121.7	109.9
Erdgas	35.9	36.3	33.0	32.8	36.1	41.1	45.6	48.1	50.7	51.8	49.2	55.5	56.3	62.9	63.0	72.7	75.3	78.1	89.1	80.9	89.3	86.1	76.4	67.5	58.5
Mineralölprodukte	10.8	14.8	13.2	10.1	10.1	9.1	8.1	7.4	6.7	6.3	5.9	6.1	8.7	10.3	10.8	12.0	10.9	10.0	9.7	10.1	8.7	7.2	7.6	7.2	5.0
Erneuerbare darunter	19.7	17.5	20.5	21.2	23.0	25.1	23.0	24.2	26.3	29.1	37.9	38.9	46.1	45.6	56.6	62.5	71.6	88.3	93.2	94.9	104.8	123.8	143.8	152.4	157.4
- Windkraft onshore	k.A.	0.1	0.3	0.6	0.9	1.5	2.0	3.0	4.5	5.5	9.5	10.5	15.8	18.7	25.5	27.2	30.7	39.7	40.6	38.6	37.8	48.9	50.7	50.8	51.2
- Windkraft offshore																								0.9	1.2
- Wasserkraft ²⁾	19.7	15.9	18.6	19.0	20.2	21.6	18.8	19.0	19.0	20.7	24.9	23.2	23.7	17.7	20.1	19.6	20.0	21.2	20.4	19.0	21.0	17.7	22.1	23.0	20.8
- Biomasse	k.A.	0.3	0.3	0.4	0.6	0.7	0.8	0.9	1.1	1.2	1.6	3.3	4.5	6.6	8.2	11.1	14.8	19.8	23.1	26.3	29.6	32.8	39.7	41.2	42.8
- Photovoltaik	k.A.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.6	1.3	2.2	3.1	4.4	6.6	11.7	19.6	26.4	31.0	35.2
- Hausmüll ³⁾	k.A.	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.6	1.7	1.8	1.9	1.9	2.2	2.3	3.3	3.9	4.5	4.7	4.3	4.7	4.8	5.0	5.4	6.1
Übrige Energieträger	19.3	16.2	16.3	15.8	17.4	17.7	17.4	17.4	19.1	20.0	22.6	21.4	18.2	20.3	21.2	24.1	25.4	26.6	24.7	21.4	26.8	25.6	25.7	26.2	26.7
Bruttoerzeugung insgesamt	549.9	540.2	538.2	527.1	528.5	536.8	552.7	552.3	557.2	556.3	576.6	586.4	586.7	608.8	617.5	622.6	639.6	640.6	640.7	595.6	633.1	613.1	630.1	633.2	610.4
Stromflüsse aus dem Ausland	31.9	30.4	28.4	33.6	35.9	39.7	37.4	38.0	38.3	40.6	45.1	43.5	46.2	45.8	44.2	53.4	46.1	44.3	40.2	40.6	42.2	49.7	44.2	38.4	39.7
Stromflüsse in das Ausland	31.1	31.0	33.7	32.8	33.6	34.9	42.7	40.4	38.9	39.6	42.1	44.8	45.5	53.8	51.5	61.9	65.9	63.4	62.7	54.9	59.9	56.0	67.3	72.2	73.7
Stromaustauschsaldo Ausland	+ 0.8	- 0.6	- 5.3	+ 0.9	+ 2.3	+ 4.8	- 5.3	- 2.3	- 0.6	+ 1.0	+ 3.1	- 1.3	+ 0.7	- 8.1	- 7.3	- 8.5	- 19.8	- 19.1	- 22.5	- 14.3	- 17.7	- 6.3	- 23.1	- 33.8	- 34.1
Brutto-Inlandsstromverbrauch ⁴⁾	550.7	539.6	532.9	528.0	530.8	541.6	547.4	550.0	556.6	557.3	579.6	585.1	587.4	600.7	610.2	614.1	619.8	621.5	618.2	581.3	615.4	606.8	607.1	599.4	576.3
Veränderung gegenüber Vorjahr in %	X	-2.0	- 1.3	- 0.9	+ 0.5	+ 2.0	+ 1.1	+ 0.5	+ 1.2	+ 0.1	X	+ 1.0	+ 0.4	+ 2.3	+ 1.6	+ 0.6	+ 0.9	+ 0.3	- 0.5	- 6.0	+ 5.9	- 1.4	+ 0.0	- 1.3	- 3.8
	Struktur der Bruttostromerzeugung in %																								
Braunkohle	31.1	29.4	28.7	28.0	27.6	26.6	26.1	25.7	25.0	24.4	25.7	26.4	26.9	26.0	25.6	24.8	23.6	24.2	23.6	24.5	23.0	24.5	25.5	25.4	25.6
Kernenergie	27.7	27.3	29.5	29.2	28.6	28.7	29.2	30.8	29.1	30.7	29.5	29.3	28.1	27.1	27.1	26.2	26.2	21.9	23.2	22.6	22.2	17.6	15.8	15.4	15.9
Steinkohle	25.6	27.7	26.4	27.7	27.4	27.4	27.6	25.9	27.5	25.7	24.8	23.6	22.9	24.1	22.8	21.5	21.6	22.2	19.4	18.1	18.5	18.3	18.5	19.2	18.0
Erdgas	6.5	6.7	6.1	6.2	6.8	7.7	8.3	8.7	9.1	9.3	8.5	9.5	9.6	10.3	10.2	11.7	11.8	12.2	13.9	13.6	14.1	14.0	12.1	10.7	9.6
Mineralölprodukte	2.0	2.7	2.5	1.9	1.9	1.7	1.5	1.3	1.2	1.1	1.0	1.0	1.5	1.7	1.7	1.9	1.7	1.6	1.5	1.7	1.4	1.2	1.2	1.1	0.8
Erneuerbare darunter	3.6	3.2	3.8	4.0	4.4	4.7	4.2	4.4	4.7	5.2	6.6	6.6	7.9	7.5	9.2	10.0	11.2	13.8	14.5	15.9	16.6	20.2	22.8	24.1	25.8

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MONTHLY CONSUMPTION (IN GWh) (Database: 18.12.2014)

Monthly consumption values are calculated to represent 100% of the national values.

This data may not be used without mentioning the source: 'Data provided by ENTSO-E'

Country	sum	1/2006	2/2006	3/2006	4/2006	5/2006	6/2006	7/2006	8/2006	9/2006	10/2006	11/2006	12/2006
DE	559078	52891	49124	51141	44741	43565	43178	45224	43645	42926	45998	48617	48028

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Deutschland (066 endgültige Ergebnisse)						
Monatsbericht über die Elektrizitätsversorgung						
Tabelle 1: Bilanz der Elektrizitätsversorgung						
Berichtszeitraum: Juli 2012						
Nachweis	Juli		Veränderung (MWh)		Kumuliert	
			Juli gegen		Ifd. Monate 01 bis 07 MWh	Veränderung gegen Vorjahr %
	MWh	%	Vormonat	Vorjahresmonat		
Bruttoerzeugung	34 689 501	+ 2.1	+ 1.3		269 596 051	- 0.2
Eigenverbrauch	2 392 765	+ 0.9	+ 4.7		18 455 338	+ 3.0
Nettoerzeugung	32 296 736	+ 2.2	+ 1.1		251 140 712	- 0.4
Bezug Inland	90 804 913	+ 1.3	- 1.0		694 723 700	- 0.0
darunter:						
von anderen EVU	77 163 183	+ 1.4	- 2.8		596 758 294	- 2.1
darunter:						
aus erneuerbaren Energien	1 248 722	- 9.1	- 11.7		10 158 521	+ 7.1
von sonstigen Marktteilnehmern	13 641 730	+ 1.0	+ 10.7		97 965 406	+ 14.5
darunter:						
aus erneuerbaren Energien	8 438 970	- 0.1	+ 20.1		60 816 150	+ 32.5
Bezug Ausland	4 275 846	+ 2.0	- 13.0		28 451 445	- 5.2
Bezug insgesamt	95 080 759	+ 1.4	- 1.6		723 175 145	- 0.3
Abgabe Inland	88 983 887	+ 1.6	- 2.4		671 440 037	- 1.1
darunter:						
an Letztverbraucher	35 814 348	+ 1.8	- 0.2		266 651 662	- 0.6
Abgabe Ausland	4 346 031	- 2.2	+ 17.5		37 313 508	+ 17.3
Abgabe insgesamt	93 329 918	+ 1.4	- 1.6		708 753 545	- 0.3
Pumparbeit	661 757	+ 9.8	+ 3.2		4 657 800	+ 5.1
Stromverbrauch (einschl. Verluste)	33 385 819	+ 1.9	+ 0.8		260 904 513	- 0.4
Netzverluste	1 760 386	- 0.5	- 2.8		14 496 323	+ 2.1
Nettostromverbrauch	31 625 433	+ 2.1	+ 1.0		246 408 189	- 0.5

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Germany		0000	2000	2115	2116	2117	2118	2210	2112	2121	2122	2130	2230	2310	2330	2410
ktoe	2010	Total all products	Solid fuels	Anthracite	Coking coal	Other bituminous coal	Sub-bituminous coal	Lignite / Brown Coal	Patent Fuels	Coke oven coke	Gas coke	Coal tar	BKB	Peat	Peat products	Oil shale & oil sands
+ Primary production	B_100100	129 375	45 906	1 402	5 642	2 204	0	36 658						0		0
+ Primary production receipt	B_100110	3 458														
+ From other sources (Recovered products)	B_100200	470		0	0	0	0	0	0	0	0	0	0	0	0	0
+ of which From Oil Products	B_150201	0	0													
+ of which From Natural Gas	B_150202	0	0													
+ of which From Renewables	B_150203	470	0						0	0	0	0	0	0	0	0
+ of which From Coal	B_150204	0														
+ Recycled products	B_100210	437														
+ Imports	B_100300	244 629	32 553	811	5 398	23 120	0	0	241	2 934	0	0	50	0	0	0
+ Stock changes	B_100400	4 385	1 273	5	28	1 145	0	74	0	19	0	0	2	0	0	0
- Exports	B_100500	42 939	908	155	4	23	0	0	1	129	0	0	598	0	0	0
- Bunkers	B_100800	2 755	0	0	0	0	0	0	0	0	0	0	0	0	0	0
- Direct use	B_100112	3 385														
Gross inland consumption	B_100900	333 675	78 824	2 063	11 064	26 446	0	36 731	241	2 824	0	0	-546	0	0	0
Transformation input	B_101000	250 750	75 465	1 629	11 064	22 259	0	35 588	0	4 529	0	0	396	0	0	0
+ Conventional Thermal Power Stations	B_101001	90 587	59 687	1 569	3 636	21 760	0	32 359	0	0	0	0	364	0	0	0
+ Main Activity Producer Conventional Thermal Power Stations	B_101021	81 841	56 847	1 569	3 381	20 102	0	31 593	0	0	0	0	203	0	0	0
+ Main Activity Producer Electricity Plants	B_101031	61 382	50 391	1 042	2 726	16 403	0	30 159	0	0	0	0	60	0	0	0
+ Main Activity Producer CHP Plants	B_101032	20 459	6 456	527	655	3 699	0	1 434	0	0	0	0	142	0	0	0
+ Autoproducer Conventional Thermal Power Stations	B_101022	8 746	2 840	0	255	1 658	0	766	0	0	0	0	161	0	0	0
+ Autoproducer Electricity Plants	B_101034	4 076	2 219	0	206	1 337	0	622	0	0	0	0	54	0	0	0
+ Autoproducer CHP Plants	B_101035	4 670	621	0	49	321	0	144	0	0	0	0	107	0	0	0
+ Used for electricity generation	B_101017	0														
+ Nuclear Power Stations	B_101002	36 257														
+ Coke-ovens	B_101004	8 316	7 478	0	7 341	0	0	136	0	0	0	0	0	0	0	0
+ Blast-furnaces	B_101006	4 524	4 524							4 524						
+ Gas works	B_101007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+ Refineries	B_101008	103 238														
+ District heating plants	B_101009	4 754	702	60	87	499	0	19	0	5	0	0	32	0	0	0
+ Main Activity Producer Heat Only Plants	B_101038	4 754	702	60	87	499	0	19	0	5	0	0	32	0	0	0
+ Autoproducer Heat Only Plants	B_101039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+ Used for heat pumps	B_101023	0														
+ Used for electric boilers	B_101023	0														
+ Patent fuel plants	B_101010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+ BKB / PB Plants	B_101011	3 075	3 075	0	0	0	0	3 075	0	0	0	0	0	0	0	0
+ Coal Liquefaction Plants	B_101012	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+ For Blended Natural Gas	B_101013	0														

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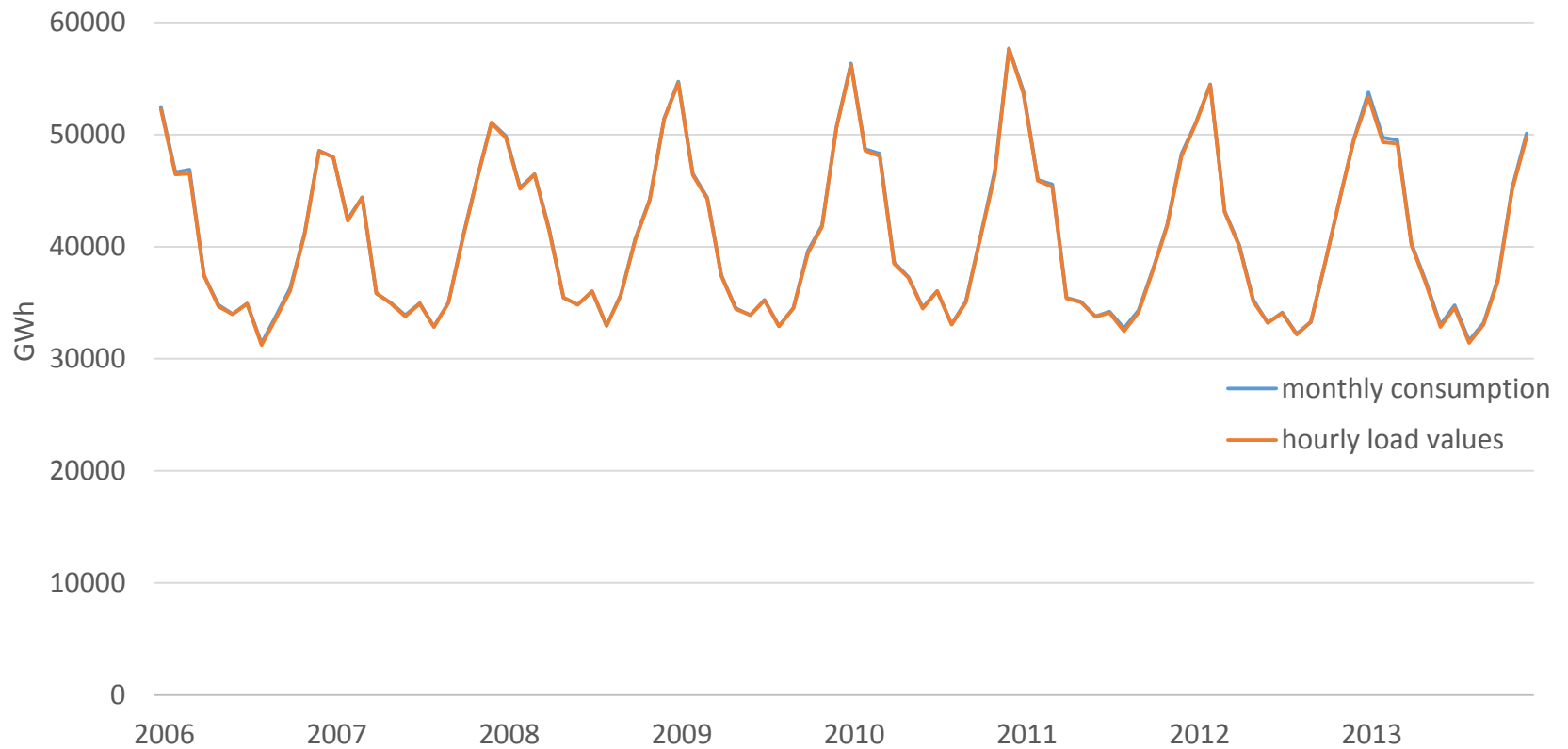
HOURLY LOAD VALUES FOR A SPECIFIC COUNTRY (IN MW) (Database: 18.12.2014)

All hourly load values are national values.

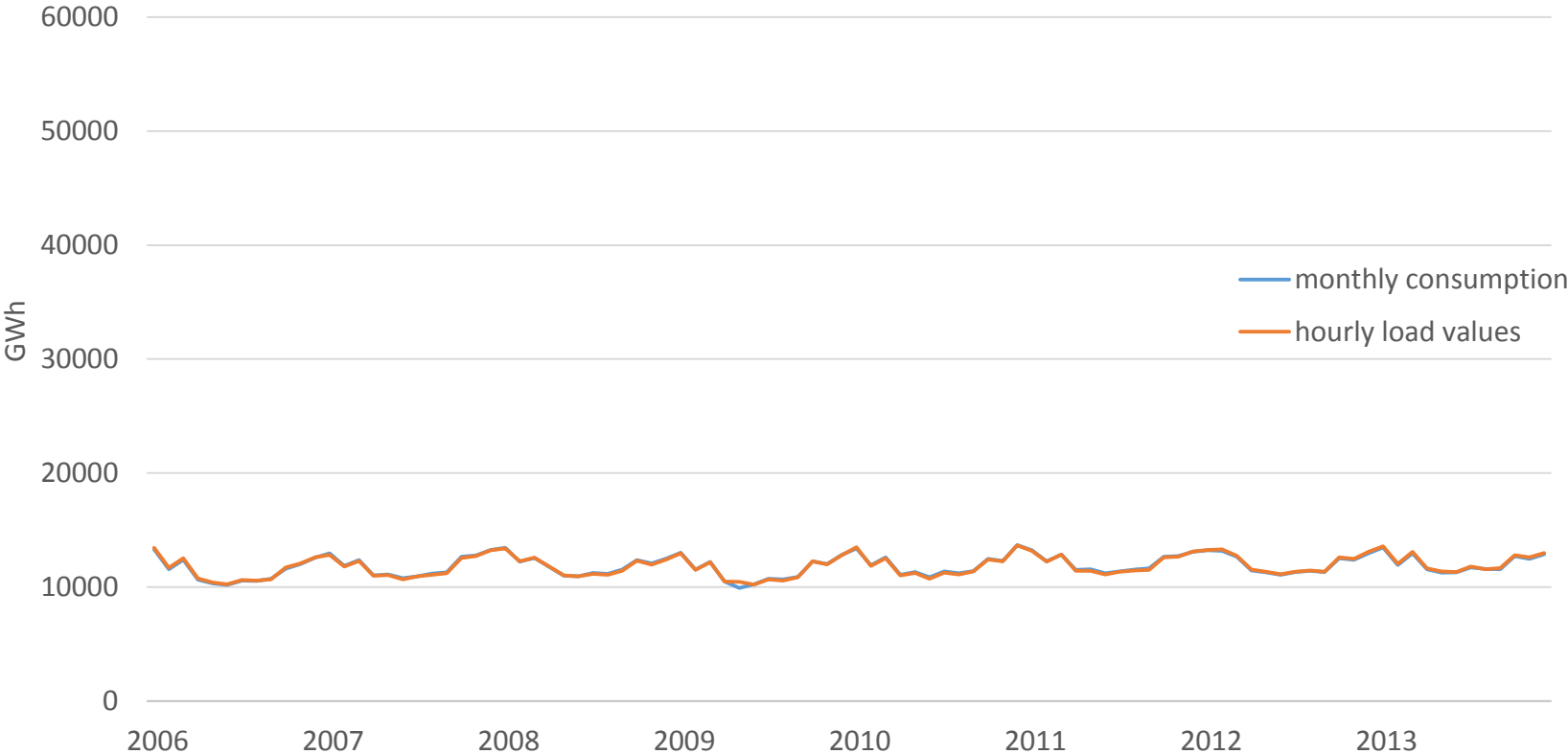
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Country	Date/Time	01:00:00	02:00:00	3A:00:00	3B:00:00	04:00:00	05:00:00	06:00:00	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00
DE	2006-01-01	47823	47823	43444		41432	40508	38865	35817	35555	36263	38569	41078	44206	45108
DE	2006-01-02	44990	43319	42327		41921	42697	44602	48751	55363	59779	62054	63978	65766	65965
DE	2006-01-03	51829	49637	48680		48487	48975	49969	53502	59379	62764	64240	65613	66924	66890
DE	2006-01-04	52859	50821	49464		49190	49824	50895	54410	60466	63306	64676	66058	67349	66987
DE	2006-01-05	53612	51393	50016		49765	50219	51527	54993	60864	64401	65923	67398	68884	68619
DE	2006-01-06	54131	51659	50412		50107	49880	50353	52352	56965	60110	61737	63287	64673	64465
DE	2006-01-07	53384	51189	49771		48814	48256	46955	45335	47965	52069	55080	57131	58541	58389
DE	2006-01-08	50815	48068	46263		45595	44661	42921	40004	40877	43548	47348	50425	53722	53304
DE	2006-01-09	51983	50296	49342		49050	49604	52273	57473	66508	69029	68969	69553	70171	69877
DE	2006-01-10	58523	57376	56567		55771	55879	56020	61632	68683	70489	69878	70404	71033	70751
DE	2006-01-11	58392	56713	55458		54832	55110	56961	62184	69025	70903	70365	70814	71364	70875
DE	2006-01-12	57001	54934	53541		53067	53492	55126	60726	67752	70029	69734	70332	71067	70494
DE	2006-01-13	56234	54669	53601		53106	53766	55346	60940	67878	70179	70016	70674	70803	70154
DE	2006-01-14	58544	56780	55523		54112	52934	51216	49198	51779	55118	57858	59637	60472	59843
DE	2006-01-15	53440	51353	50067		49013	48102	46038	42470	43319	46616	50455	53355	56000	54976
DE	2006-01-16	55462	54198	52872		51882	52067	54993	61382	68988	70782	70579	70854	70963	70635
DE	2006-01-17	58640	57136	55883		55199	55369	57191	62659	69861	71750	71830	72505	73261	72945
DE	2006-01-18	56762	54922	53690		53535	54712	56915	62686	69322	71029	70669	71503	72536	71628
DE	2006-01-19	56471	55079	54167		53879	54474	56059	61441	68450	70127	69535	70160	70900	70204
DE	2006-01-20	55827	54134	53218		52750	53250	55246	61120	68225	70518	70103	71179	72009	70971
DE	2006-01-21	55662	53171	51979		51398	51245	49679	48471	51982	55722	58462	60227	61434	60470
DE	2006-01-22	51659	49437	47976		47039	46697	44887	41694	42850	45748	49565	53051	56057	55343
DE	2006-01-23	54823	53797	52935		51962	51961	54562	61313	68150	70131	69931	70574	71190	70705
DE	2006-01-24	61156	59789	57968		56617	56322	57976	63302	69829	71080	70507	71095	71458	70855
DE	2006-01-25	60707	58792	57385		56534	56656	58151	63584	70476	72075	71808	72618	73233	73041
DE	2006-01-26	59666	57826	56697		56011	56168	57609	62782	69361	71284	71315	71572	72472	72145
DE	2006-01-27	60793	59272	57996		56825	56575	57859	62832	69610	71149	70958	71237	71738	71330
DE	2006-01-28	61033	58903	56838		55160	53816	51995	49539	52270	55770	58737	60352	61157	59894

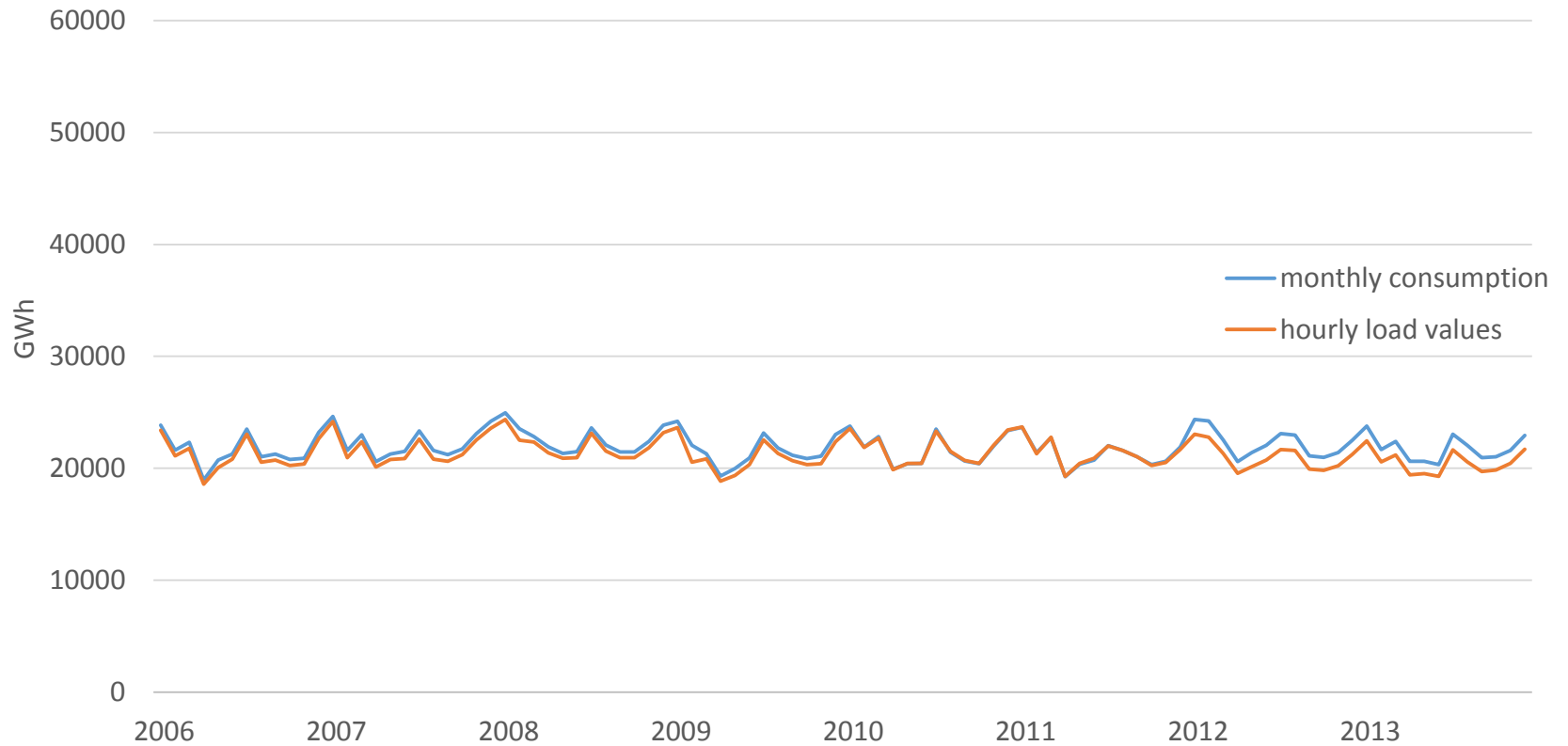
ENTSO-E Daten Frankreich



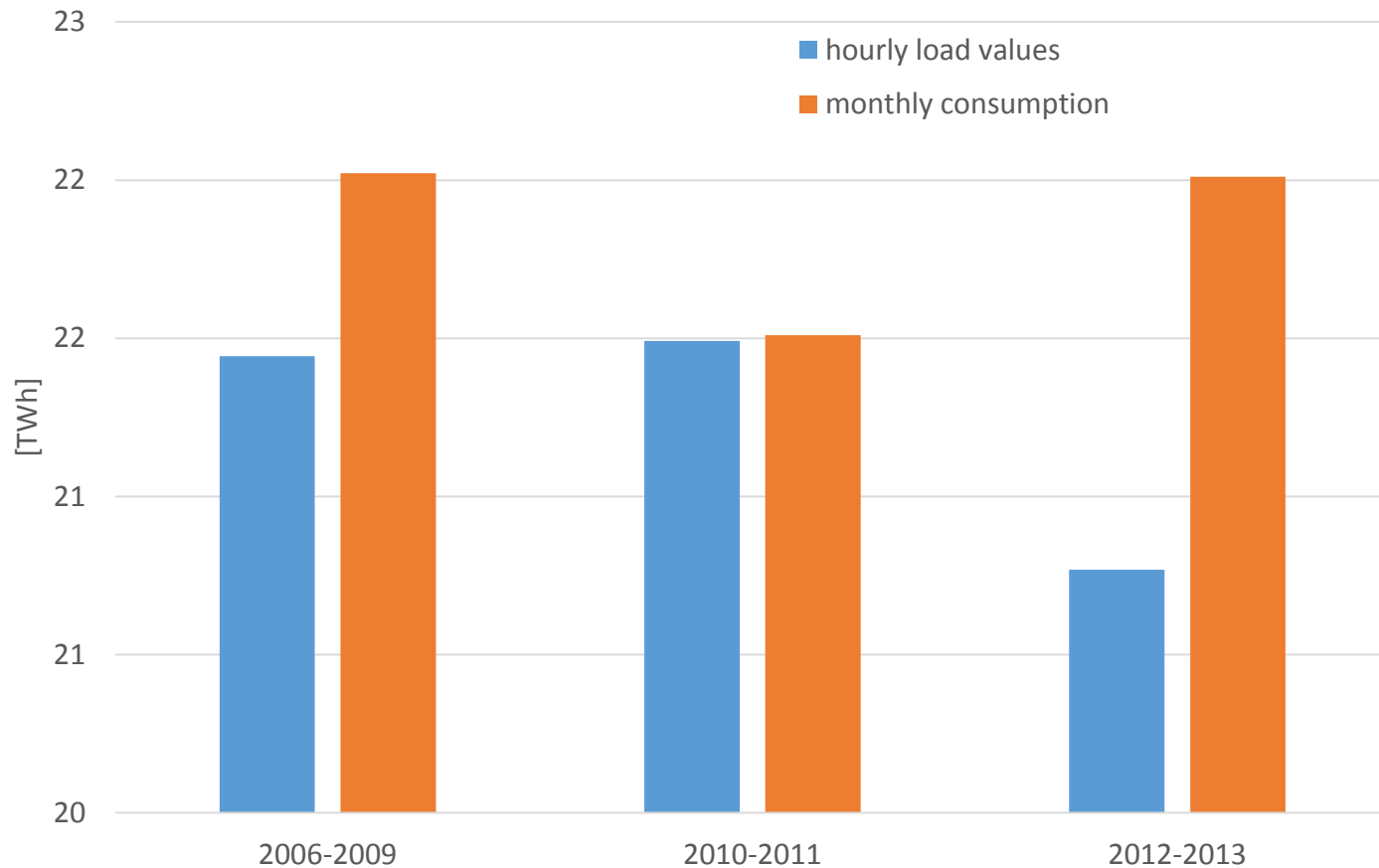
ENTSO-E Daten Polen



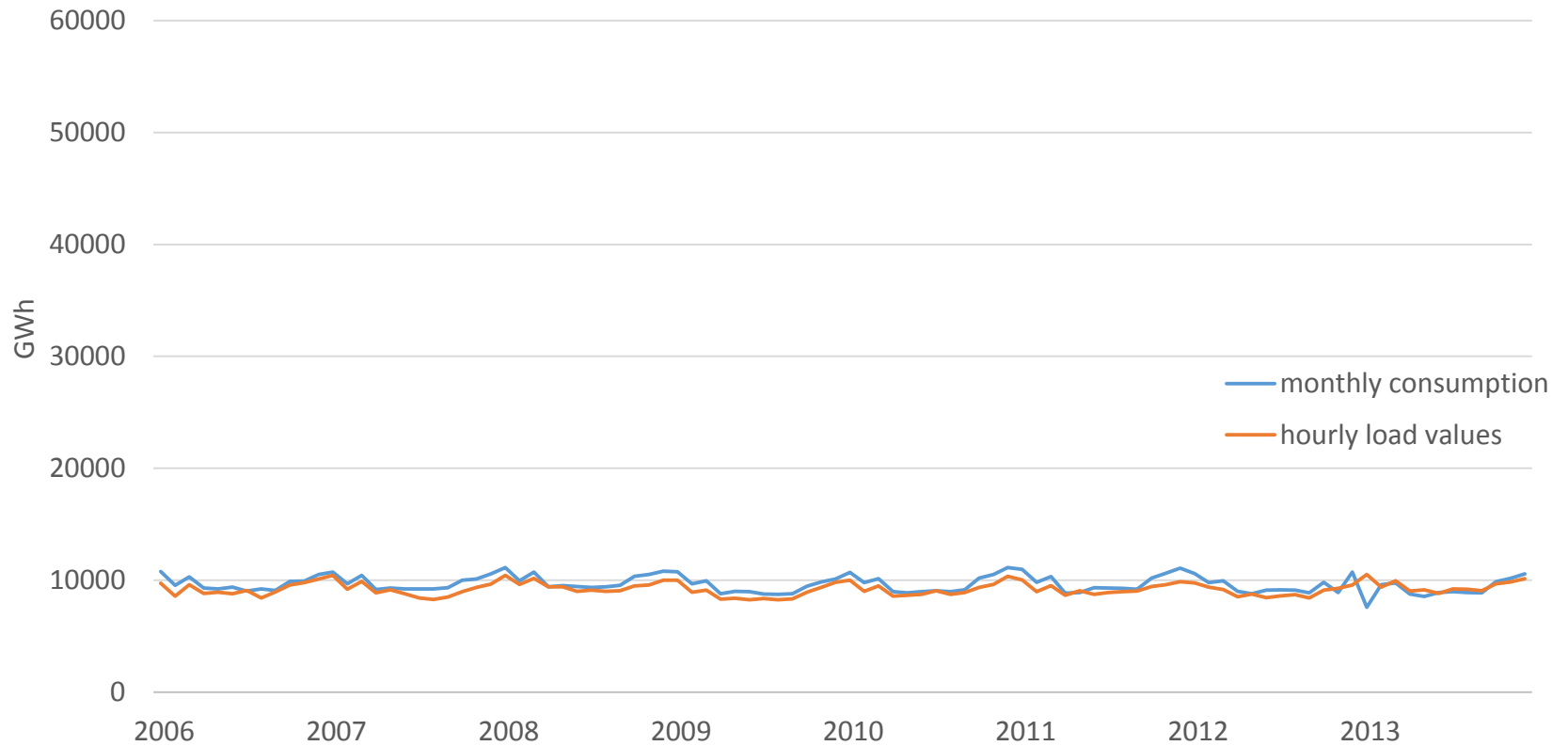
ENTSO-E Daten Spanien



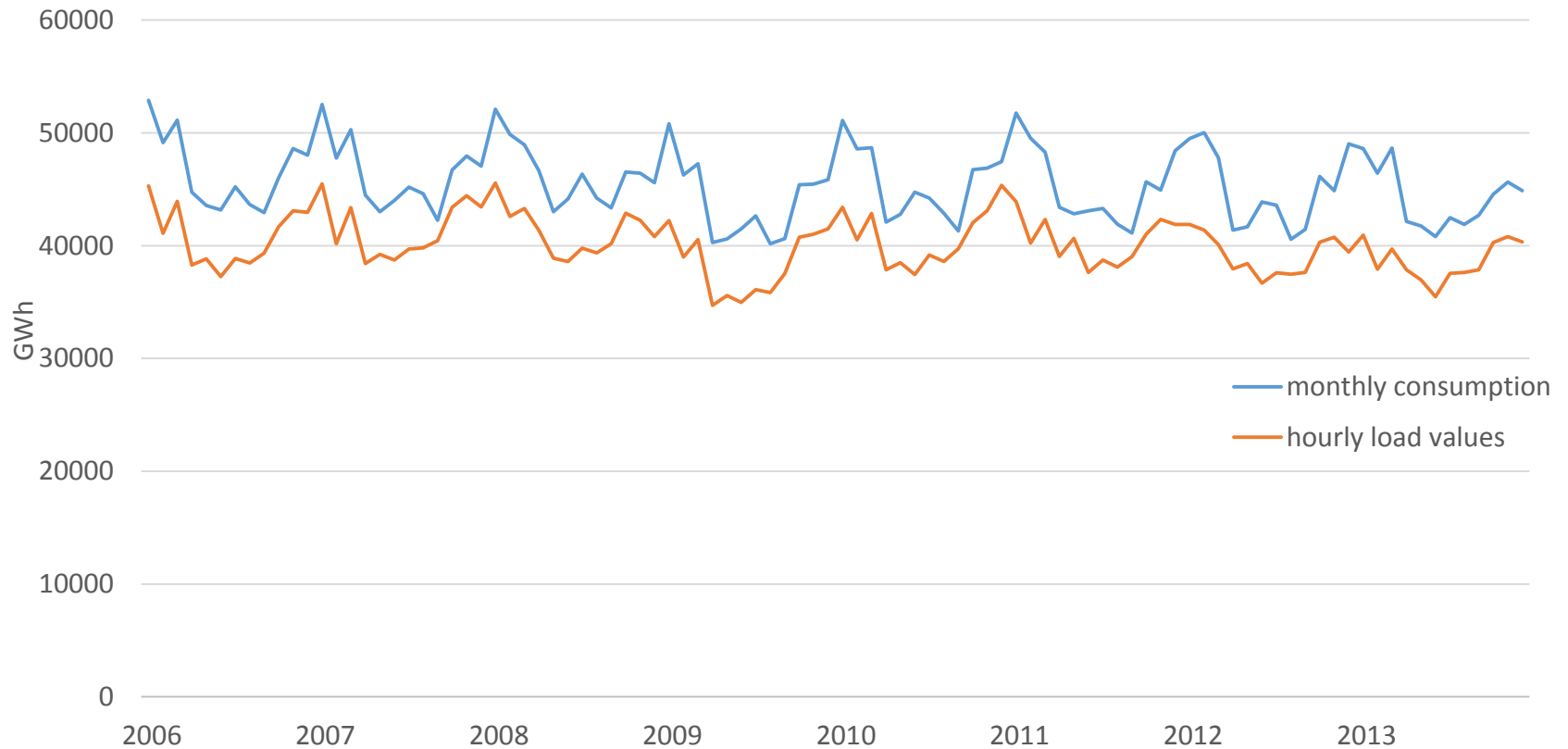
Differenzen spanischer ENTSO-E Daten



ENTSO-E Daten Niederlande



ENTSO-E Daten Deutschland



Differenzen europäischer ENTSO-E Daten

	Abweichung	min. & max.		Spread
Germany	12%	min 4%	max 20%	24%
Netherlands	5%	min 9%	max 11%	50%
Spain	3%	min -1%	max 7%	8%
Poland	0%	min -5%	max 1%	6%
France	0%	min 0%	max 1%	1%

„hourly load values“ vs. „monthly consumption“

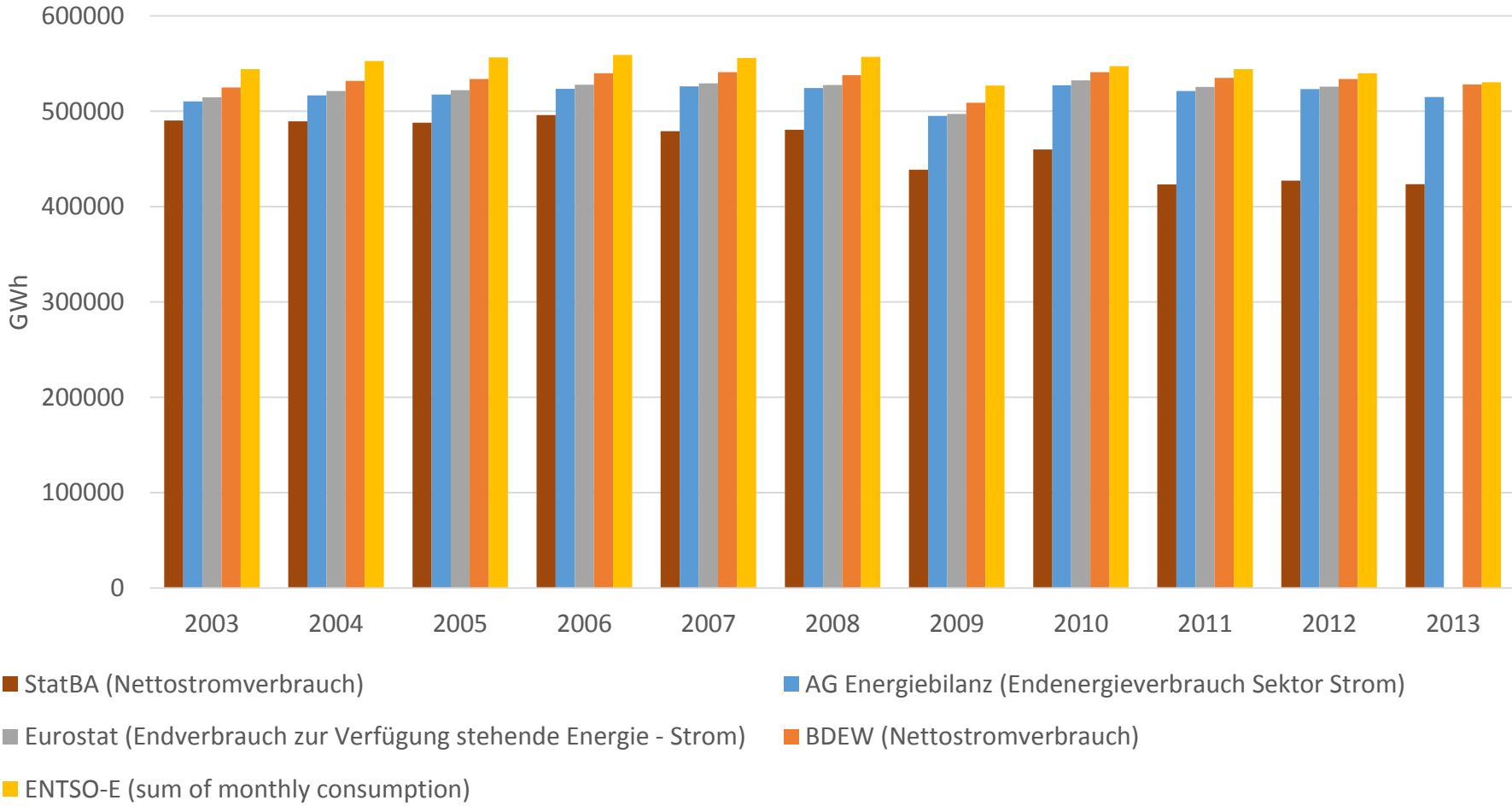
hourly load values:

- Ermittelt von TSO's
- Durchschnittswert der Regelzonenlast zur jeweiligen Stunde
- Aggregierte MaBiS Daten

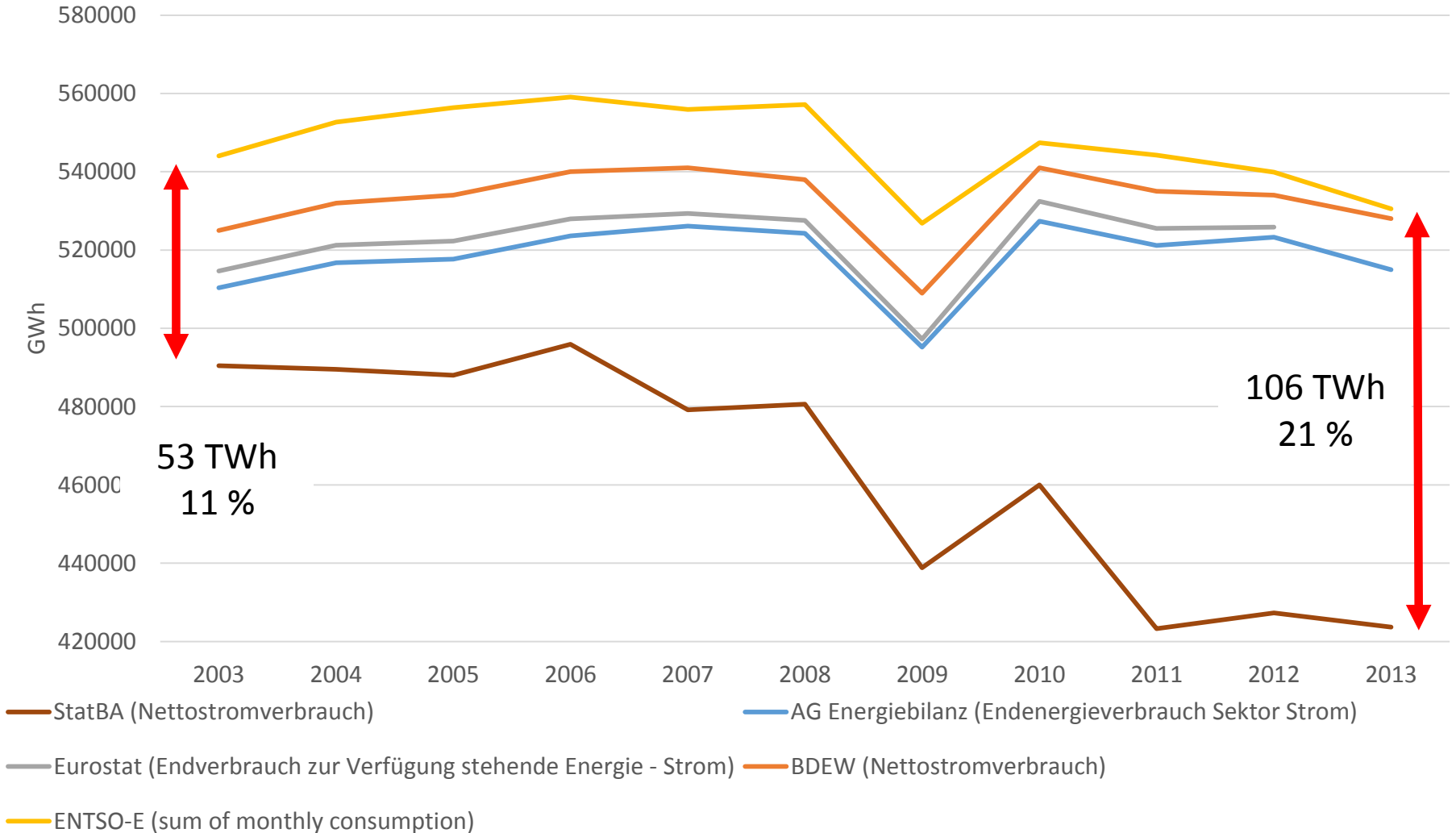
monthly consumption:

- “National Data”

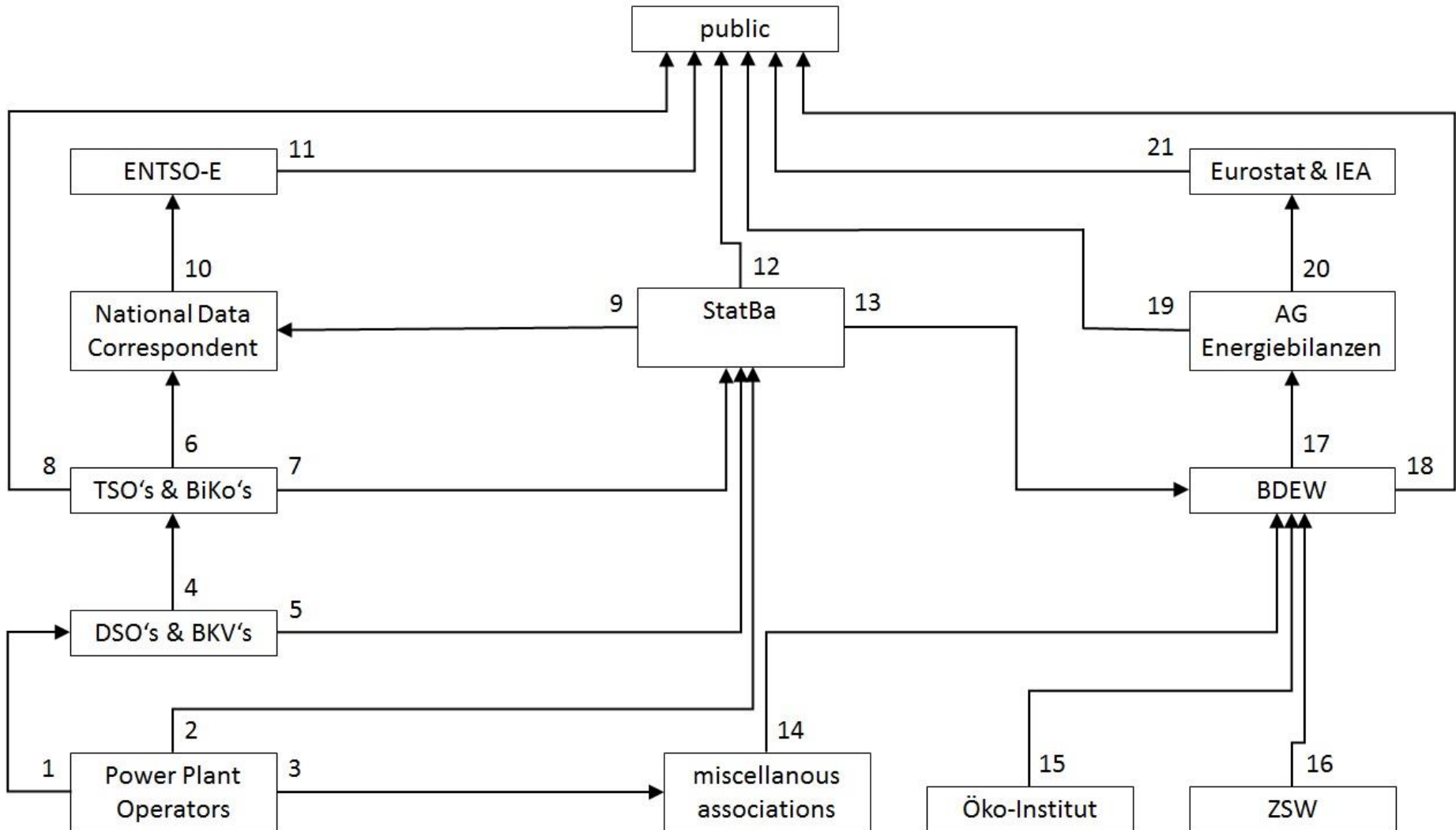
Nettostromverbrauch in Deutschland



Stromverbrauch



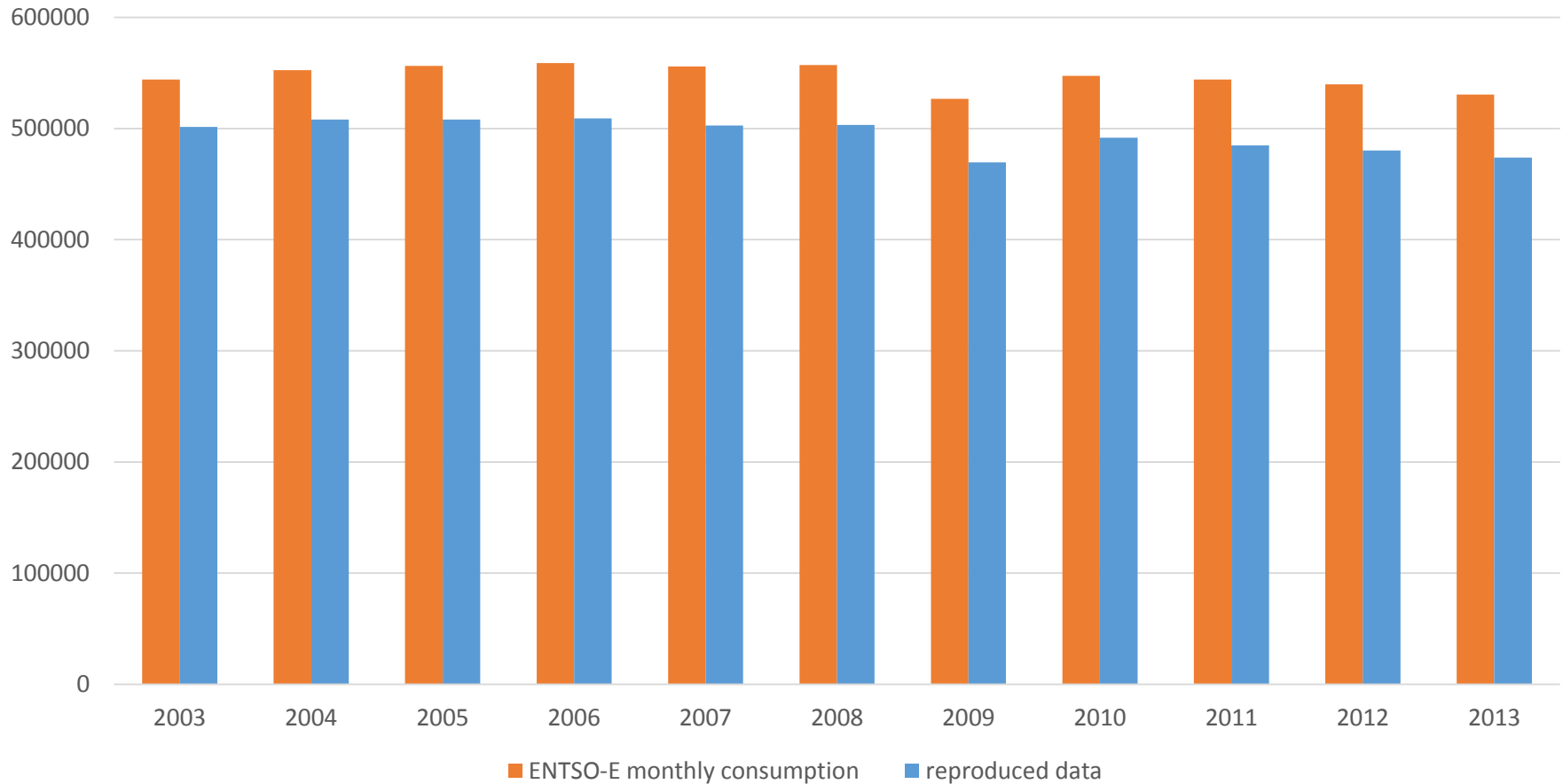
Weg deutscher Stromverbrauchsdaten



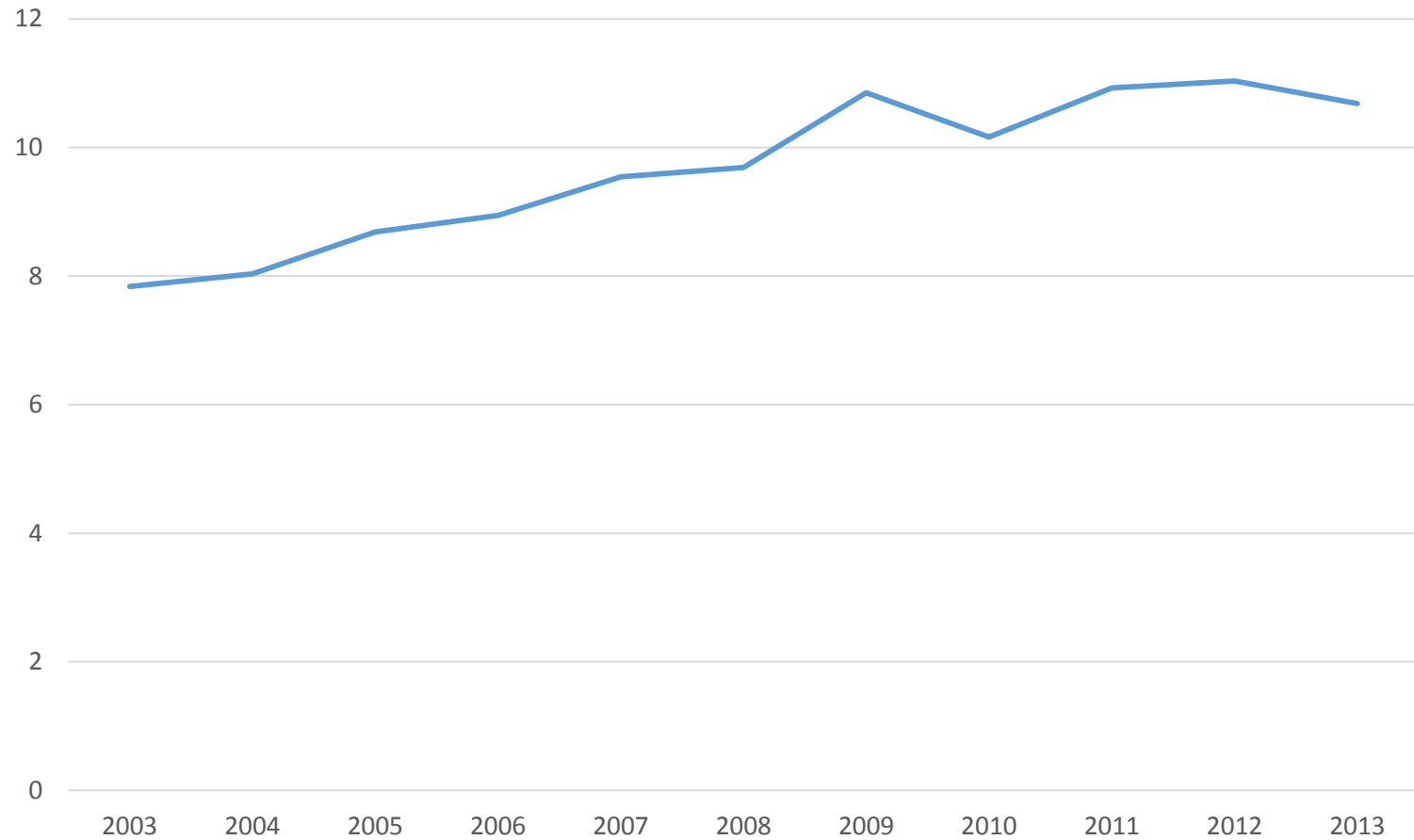
„monthly consumption“ in Deutschland

- “National Data”
- Für Deutschland berechnet vom National Data Correspondent
- Basierend auf Nettostromerzeugung ermittelt vom StatBa (deStatis)
- $net\ prod_{TSO \& StatBa} + exchange\ balance_{TSO} - hydropower\ consum_{StatBa}$

Black Box „monthly consumption“



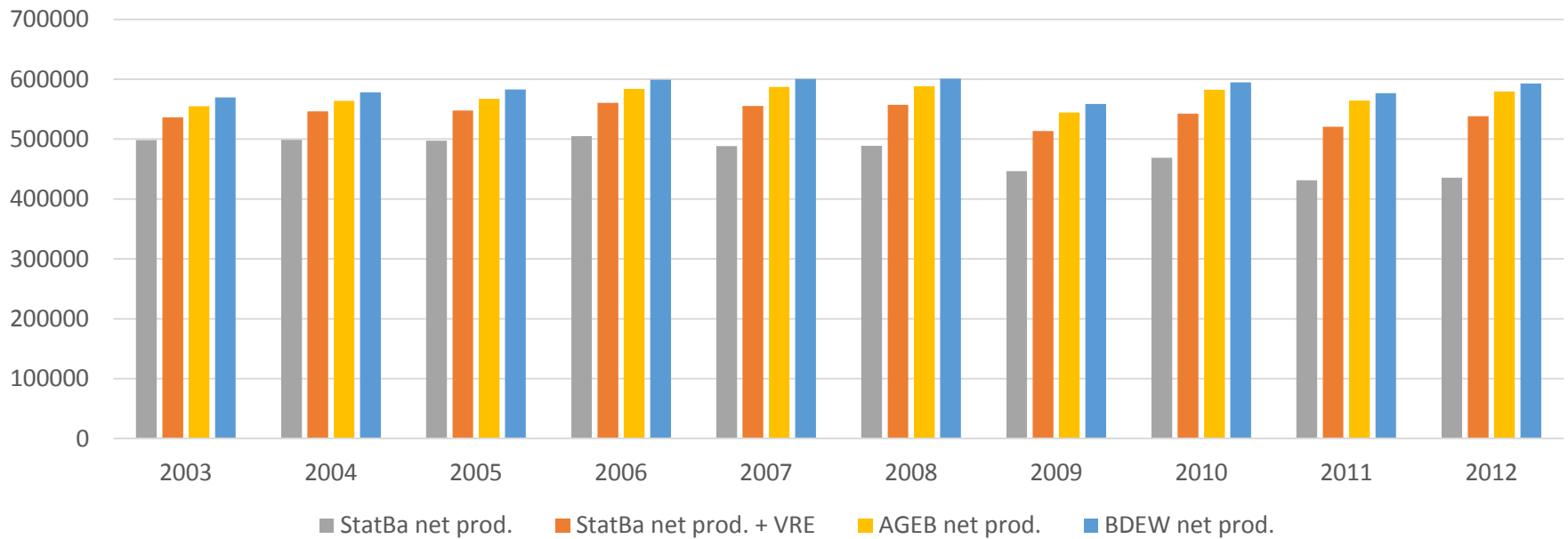
Abweichung „monthly consumption“



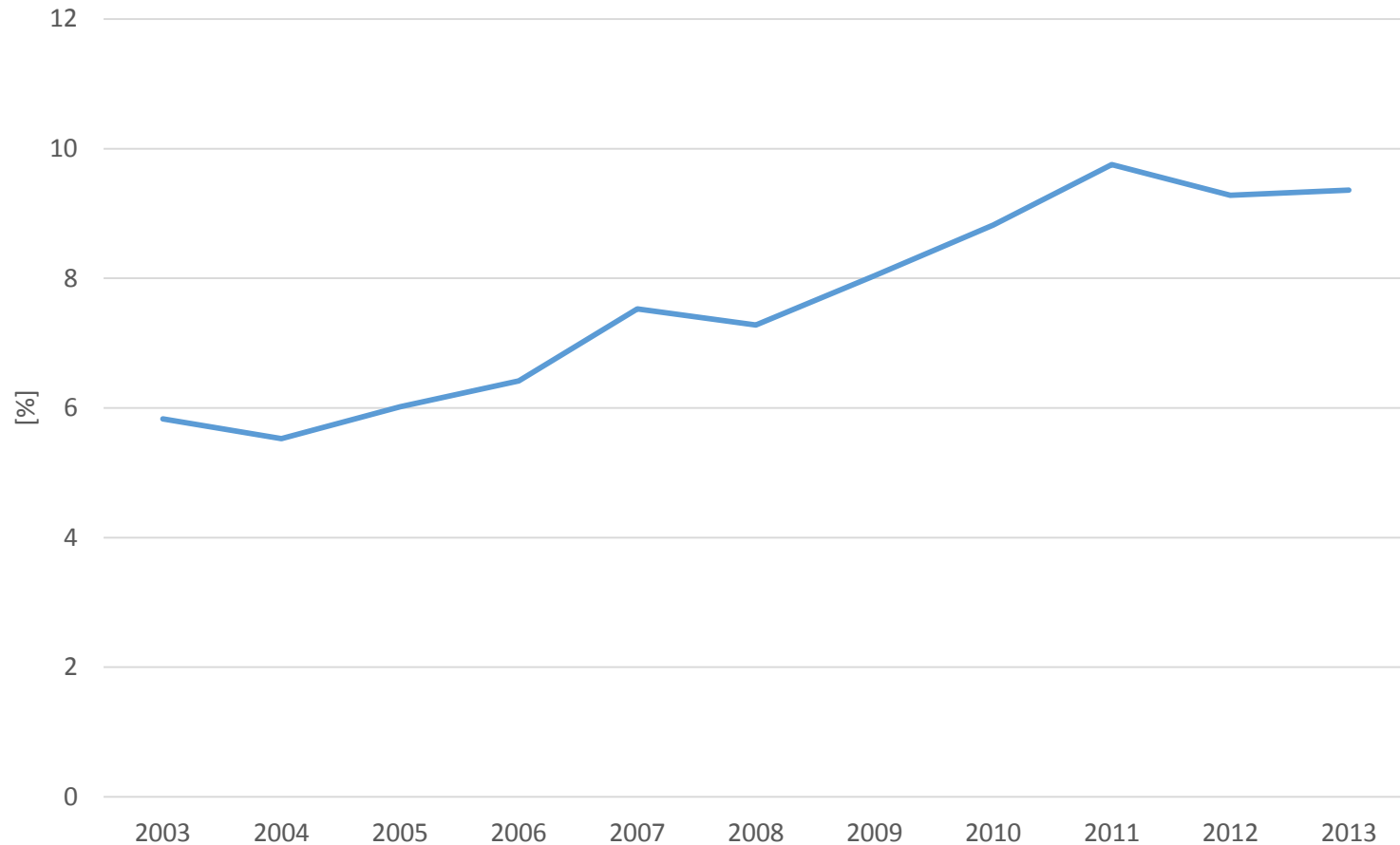
Daten AG Energiebilanzen

- DIW und EEFA GmbH sind beauftragt
- Sektor Strom größtenteils vom BDEW erstellt
- Kern bilden StatBa Daten
 - plus Daten vom ZWS
 - plus Daten vom Öko-institute
 - plus EEX Daten, später StatBa Daten
 - plus Informationen von Mitgliedsunternehmen und Verbänden
- Seltener aktualisiert als BDEW Daten

Vergleich AG Energiebilanz Daten



Abweichung AG Energiebilanz Daten



Besten Dank!

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Strommarkttreffen | 5 June 2015

