

Updated development of global greenhouse gas emissions 2013

Hans-Joachim Ziesing

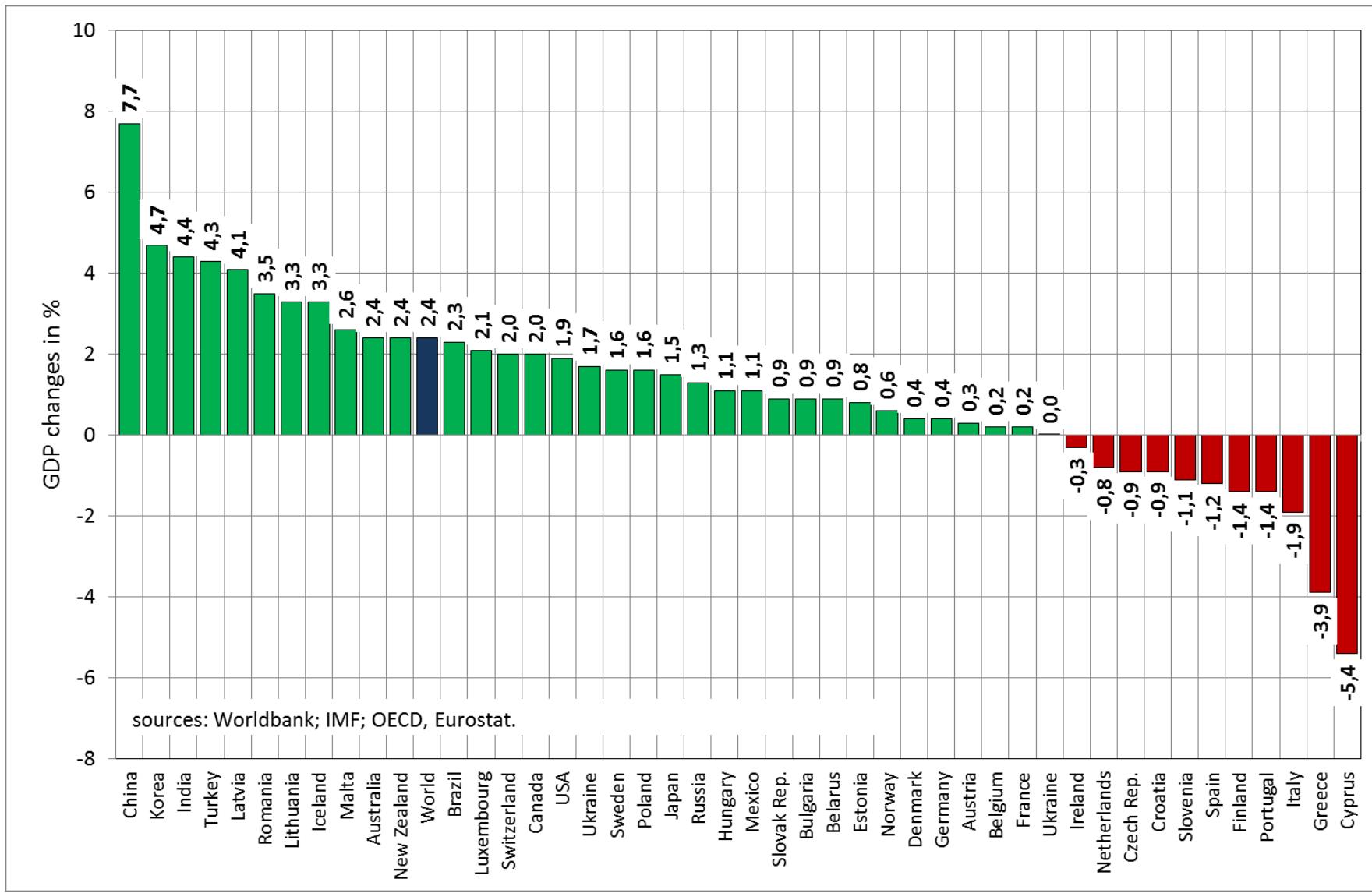
“Low Carbon Markets and the Legacy of Nuclear Power”
19th REFORM Group Meeting,
Schloss Leopoldskron,
Salzburg – September 01–05, 2014

Main data for estimating GHG emissions for 2013

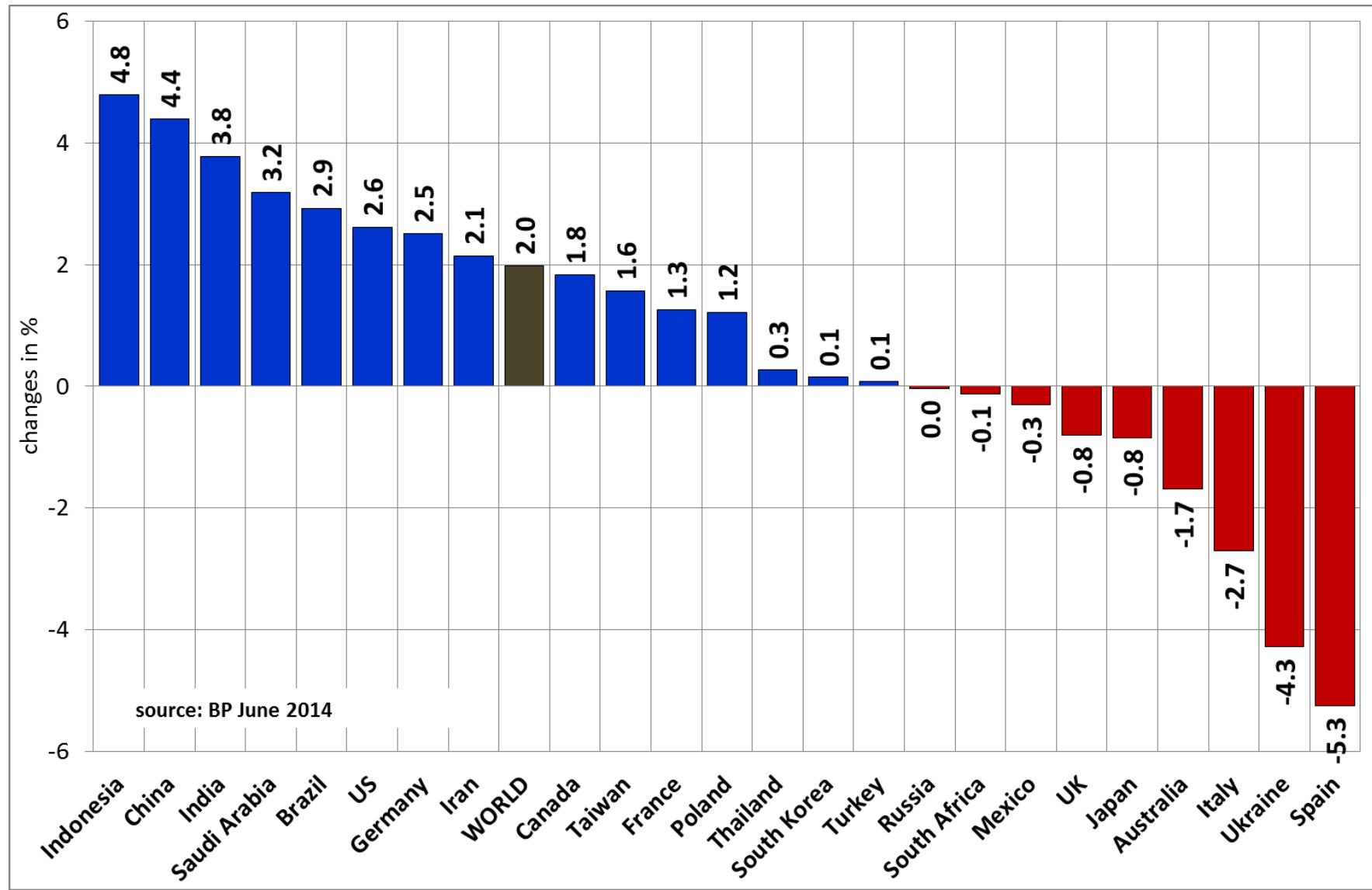
- **UNFCCC: National Communications from Parties included in Annex I to the Convention; National Greenhouse Gas Inventory Data from Annex I Parties for 1990 to 2012**
- **International Energy Agency (IEA): CO₂ Emissions from Fuel Combustion, 2013 Edition, Paris 2013; (up to 2011)**
- **BP Statistical Review of World Energy 2013, June 2014**
- **The World Bank, World Development Indicators, Database May 2014**
- **Eurostat Database**

CO₂ emissions up to 2013 are extrapolated from the 2013 data on energy consumption published in the BP Statistics, June 2013, which are shown by country and energy source.

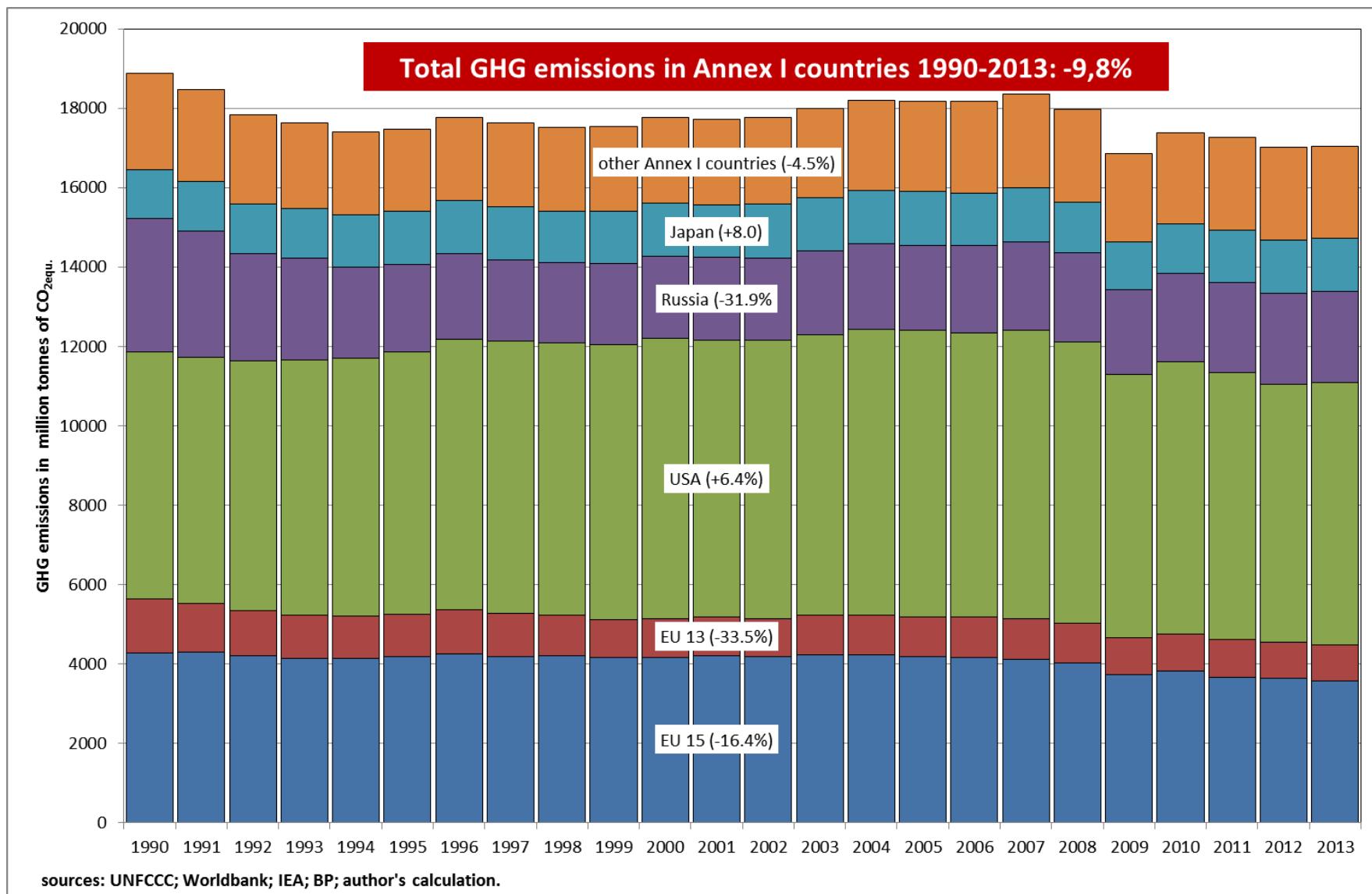
Changes of real GDP 2013 versus 2012 in Annex I countries and others



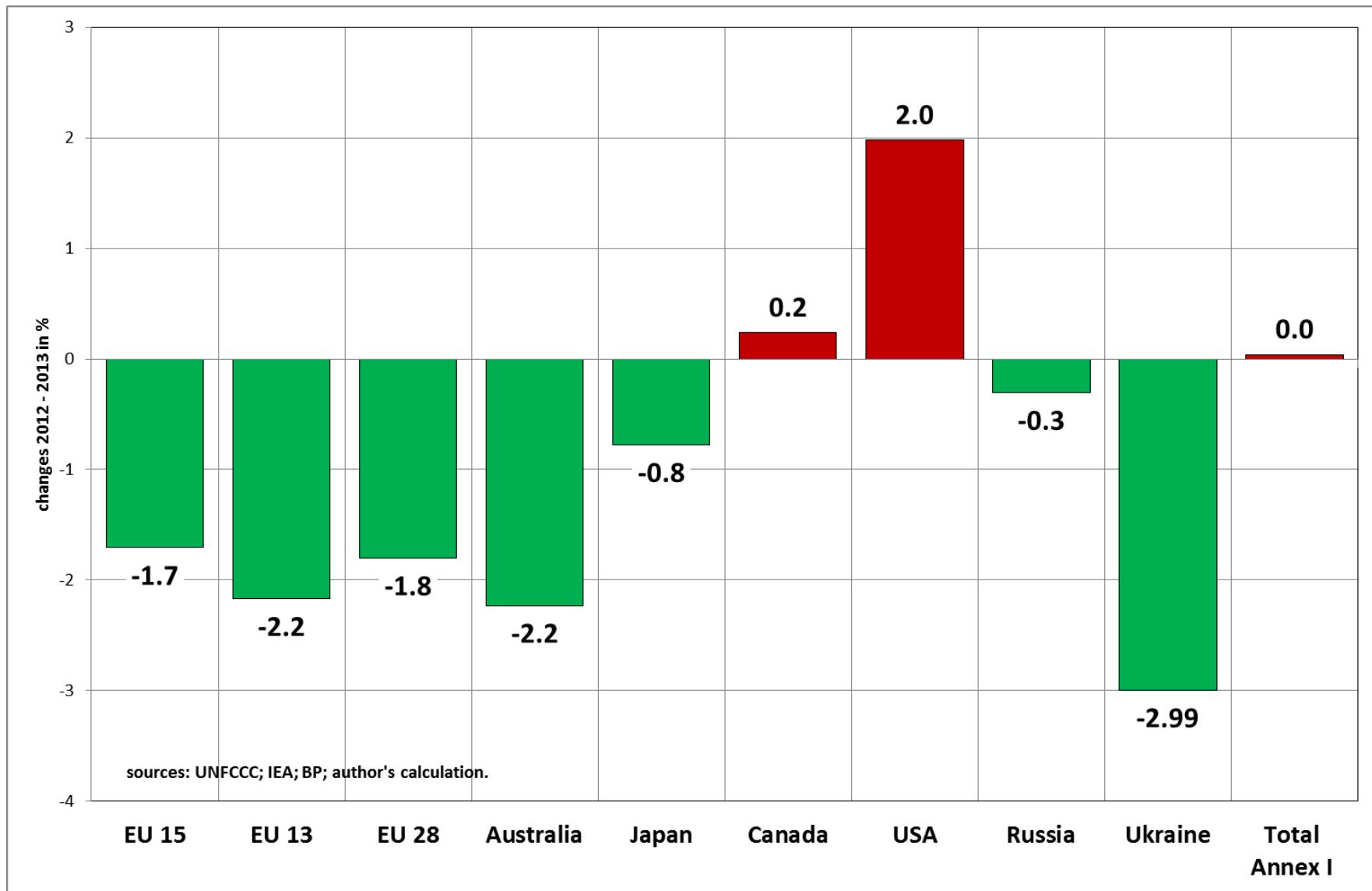
Changes of primary energy 2013 vs 2012 in countries with ≥ 100 Gtoe



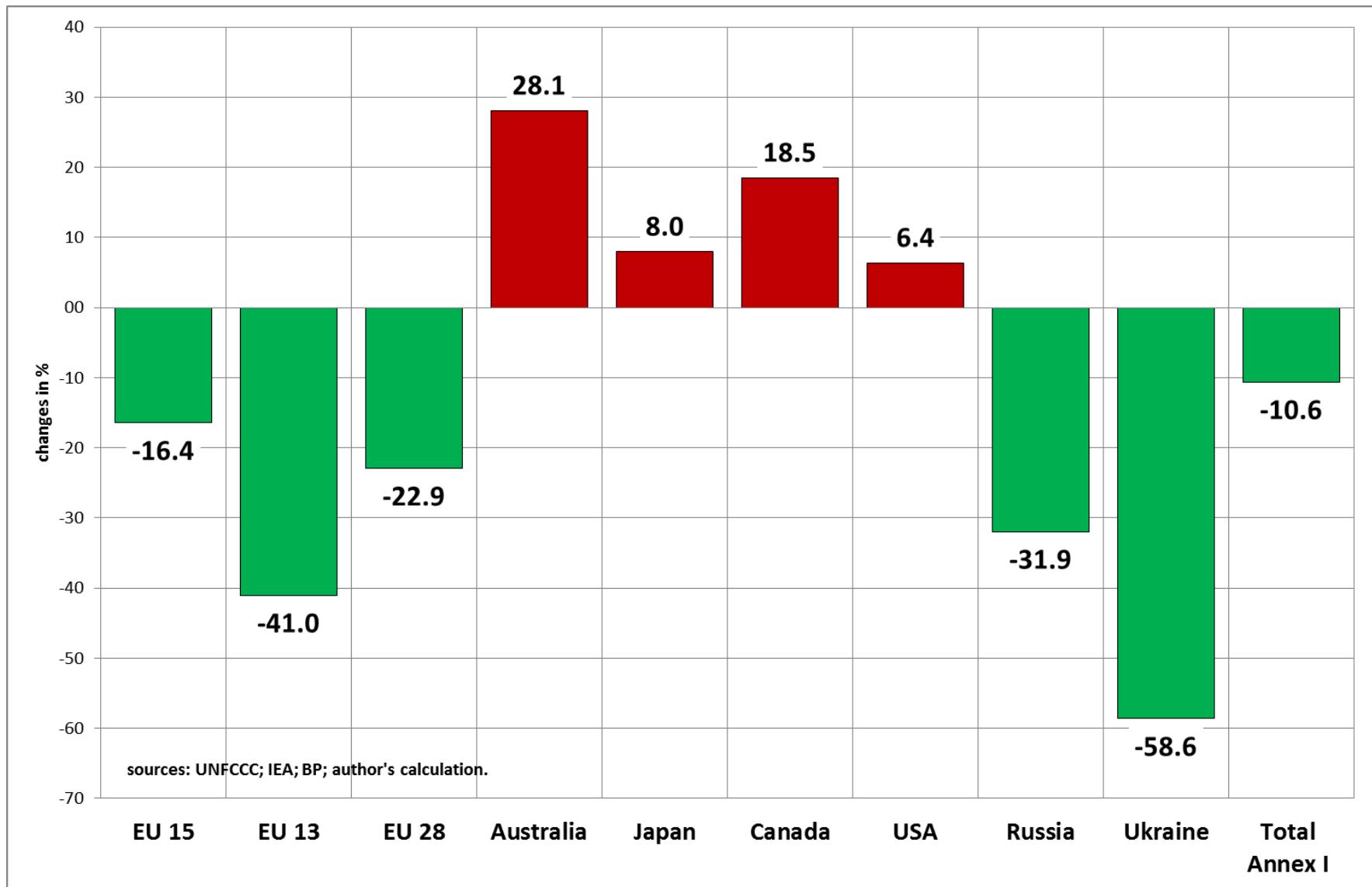
GHG emissions in Annex-I countries 1990 – 2013



GHG emissions in Annex I countries: 2012 – 2013



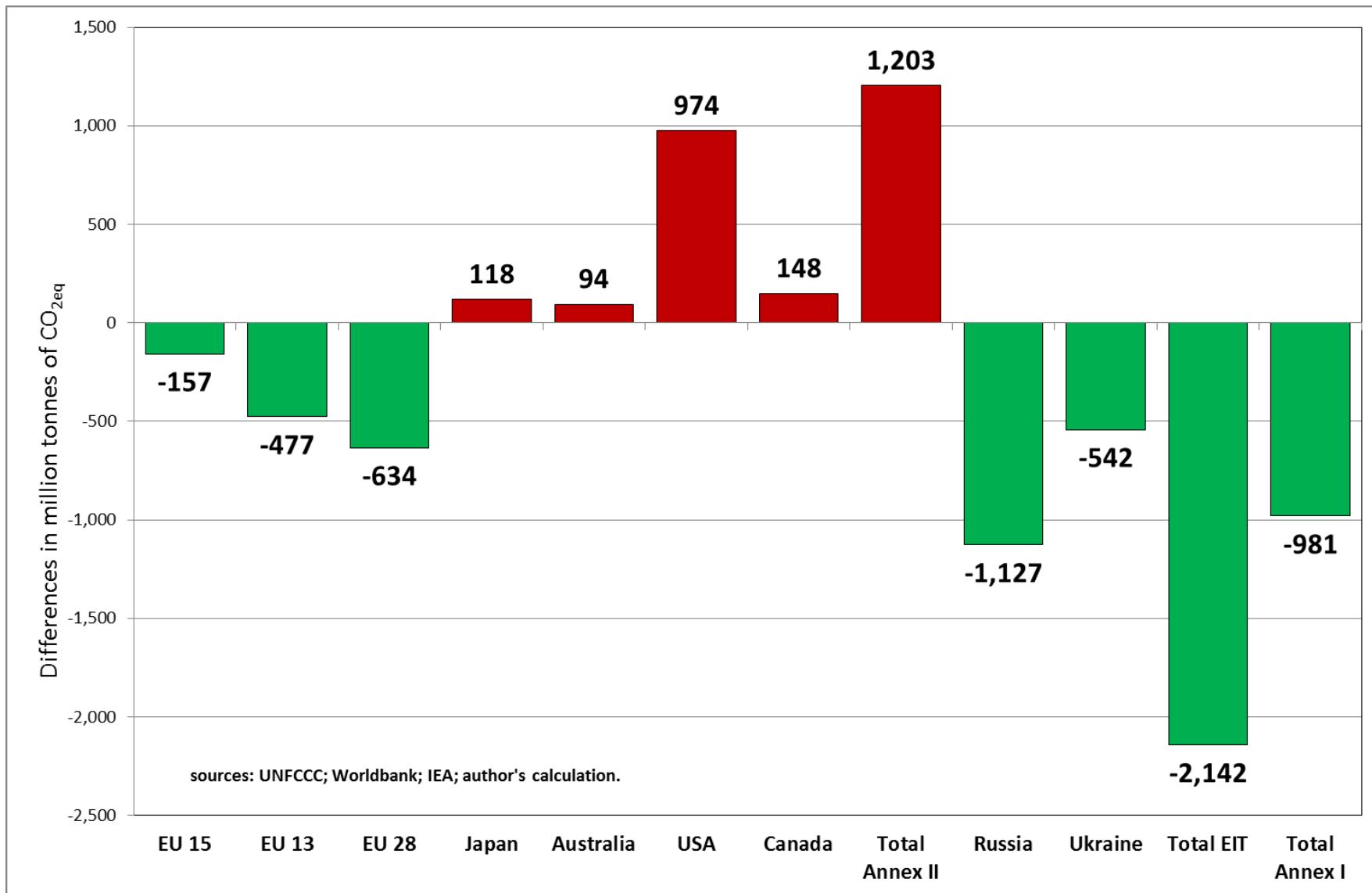
GHG emissions in Annex I countries: base year - 2013



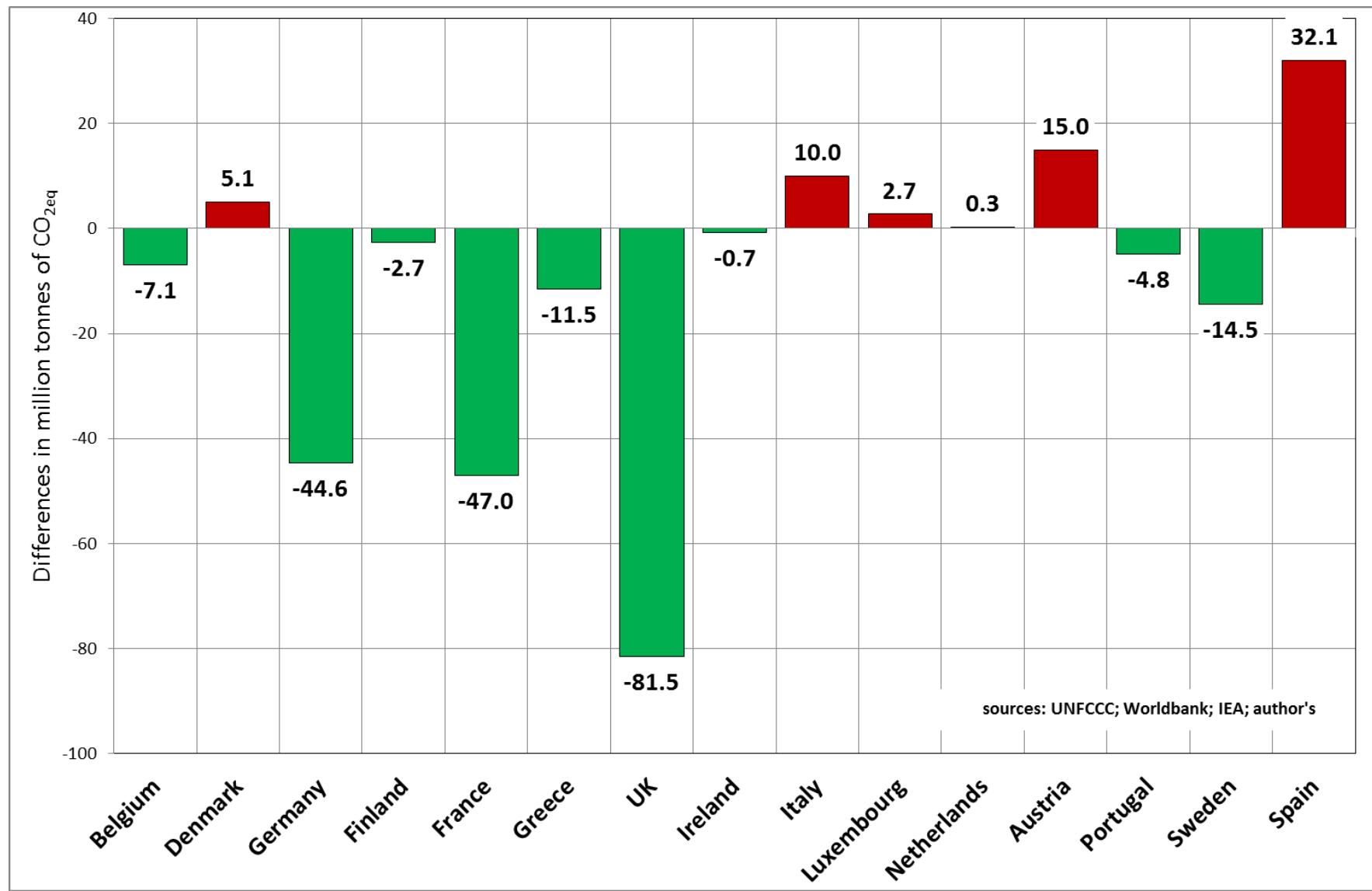
GHG emissions in Annex I countries 1990 – 2012 targets↔reality

	Base year 1990 (1995)	2012	2013	2012 bis 2013	Base year to 2013	Emissions targets 2008-2012 vs. base year	Emissions targets averaged over 2008-2012	Effective emissions averaged over 2008-2012	Differences between targets and reality
	GHG emissions in Gt CO ₂ eq			changes in %			GHG emissions in Gt CO ₂ eq		%
EU 15	4269.8	3630.3	3568.4	-1.7	-16.4	-8.2	3928.3	3770.9	-4.0
EU 13	1536.3	926.3	906.2	-2.2	-41.0	-9.0	1427.2	950.3	-33.4
EU 28	5806.1	4556.6	4474.6	-1.8	-22.9	-7.8	5355.5	4721.2	-11.8
Japan	1234.3	1343.1	1332.7	-0.8	8.0	-6.0	1160.3	1278.5	10.2
Australia	415.0	543.6	531.5	-2.2	28.1	8.0	448.2	542.2	21.0
USA	6219.5	6487.8	6616.2	2.0	6.4	-7.0	5784.2	6758.5	16.8
Canada	590.9	698.6	700.3	0.2	18.5	-6.0	555.5	703.9	26.7
Total Annex II	12897.3	12888.5	12936.8	0.4	0.3	-6.7	12035.8	13239.2	10.0
Russia	3362.1	2295.1	2288.1	-0.3	-31.9	0.0	3362.1	2235.3	-33.5
Ukraine	940.2	401.0	389.0	-3.0	-58.6	0.0	940.2	398.3	-57.6
Total EIT	18866.9	16587.8	16597.9	0.1	-12.0	-5.2	17893.2	16911.9	-5.5
Total Annex I	19055.3	17027.6	17034.4	0.0	-10.6	-6.1	17893.2	16911.9	-5.5
sources: UNFCCC; Worldbank; IEA; author's calculation.									

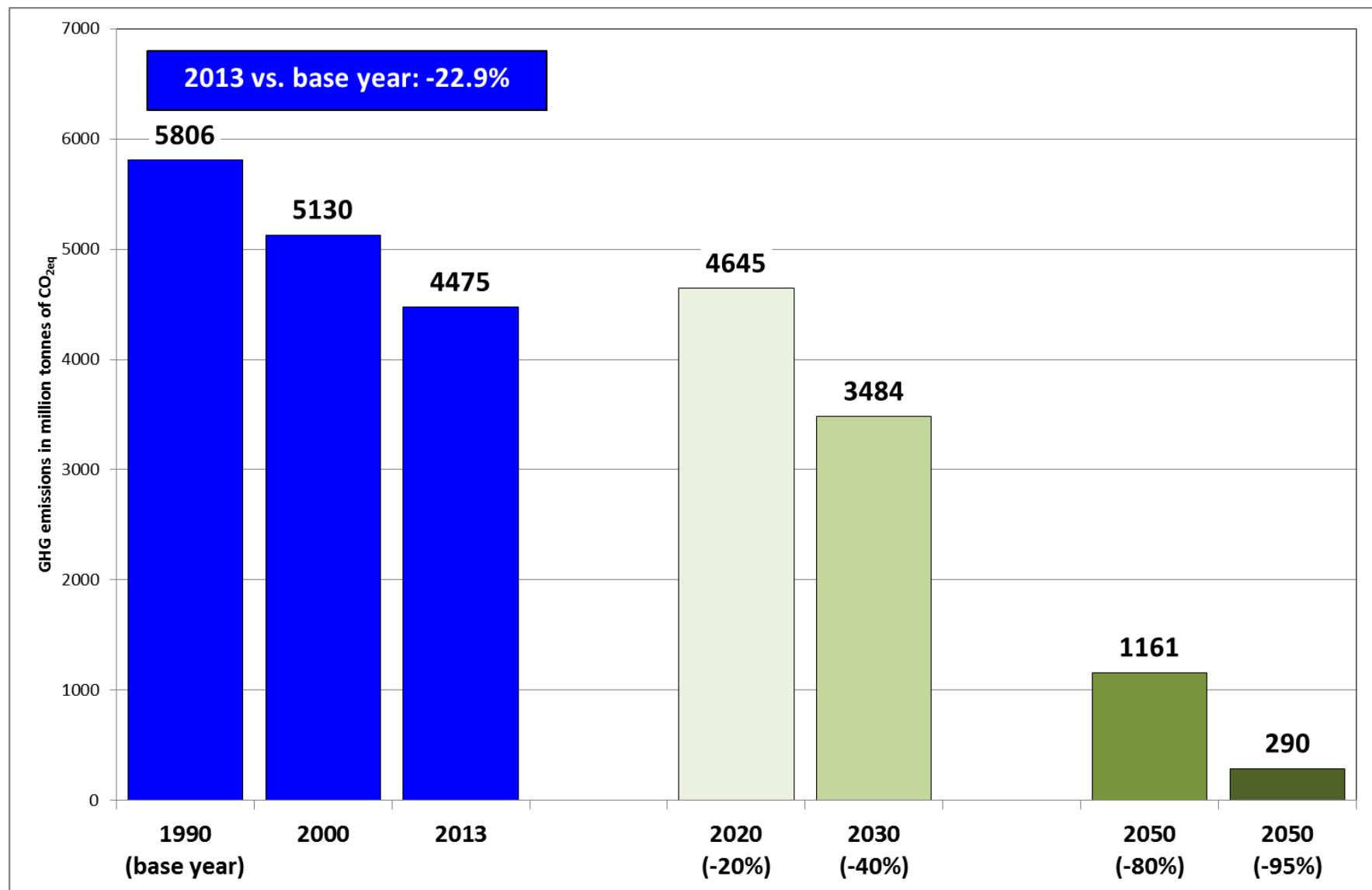
Annex I: Difference between realized and targeted emissions 2008/2012



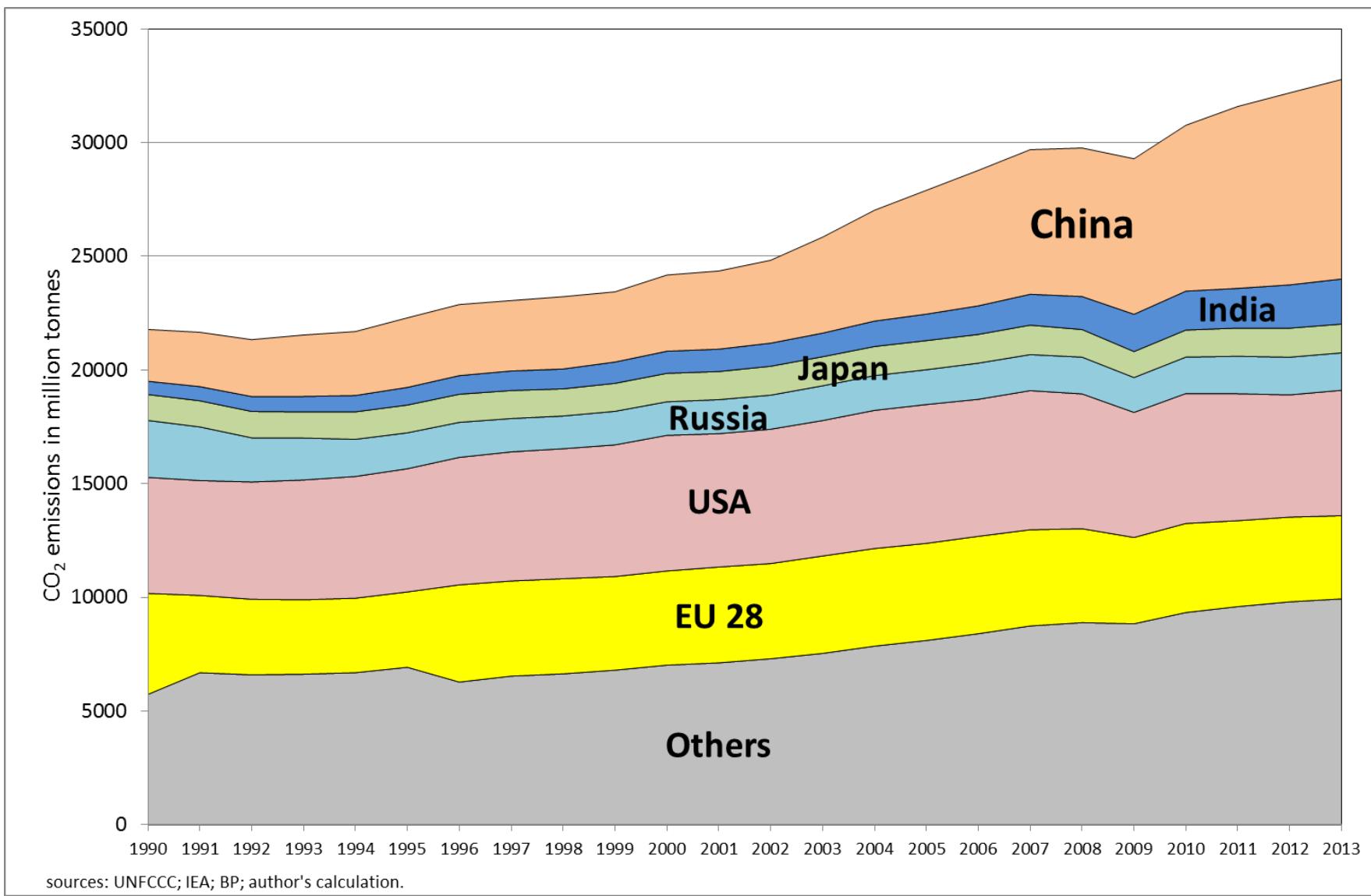
EU 15: Difference between realized and targeted emissions Ø2008/2012



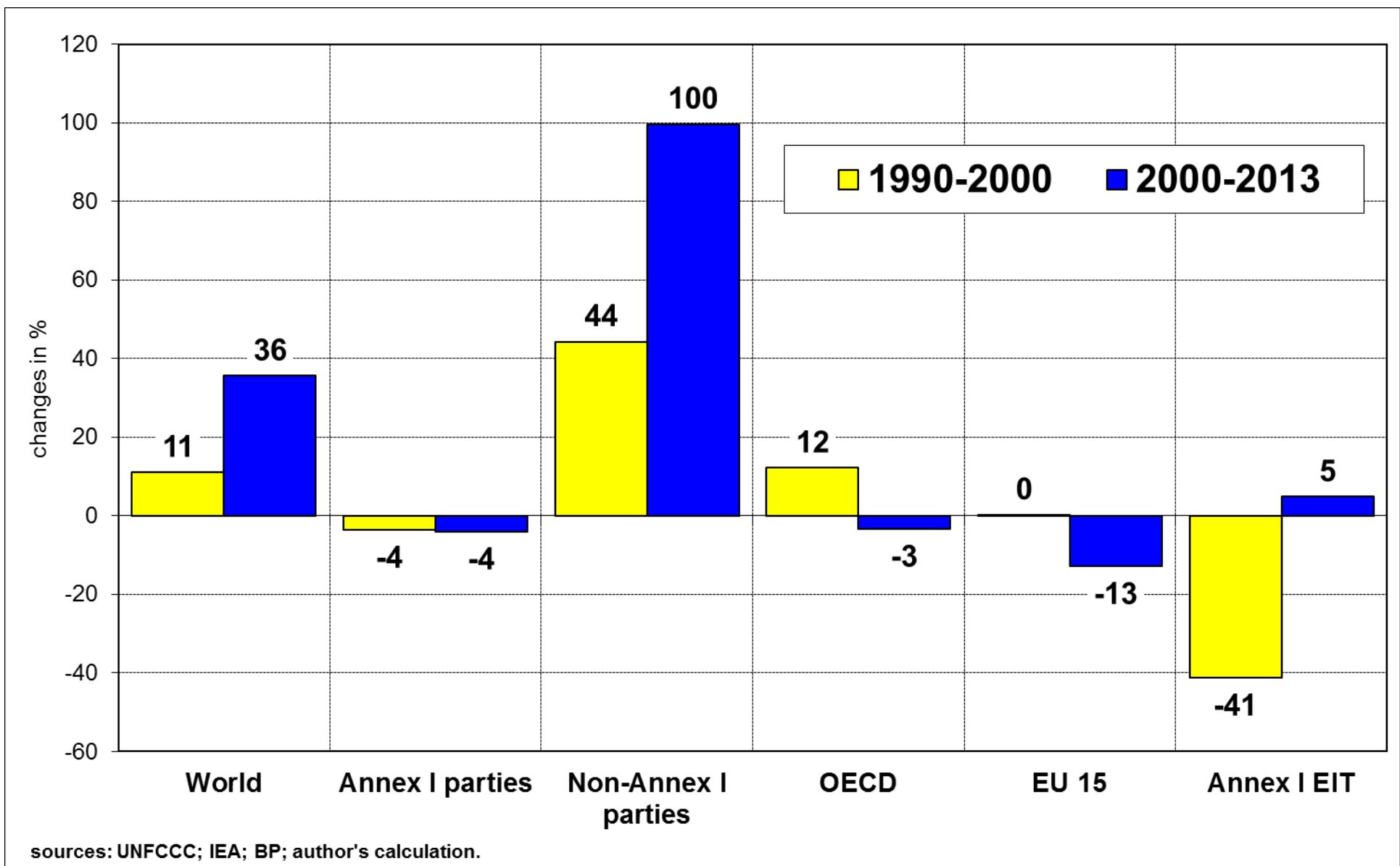
EU 28: GHG emissions targets by 2020, 2030 and 2050



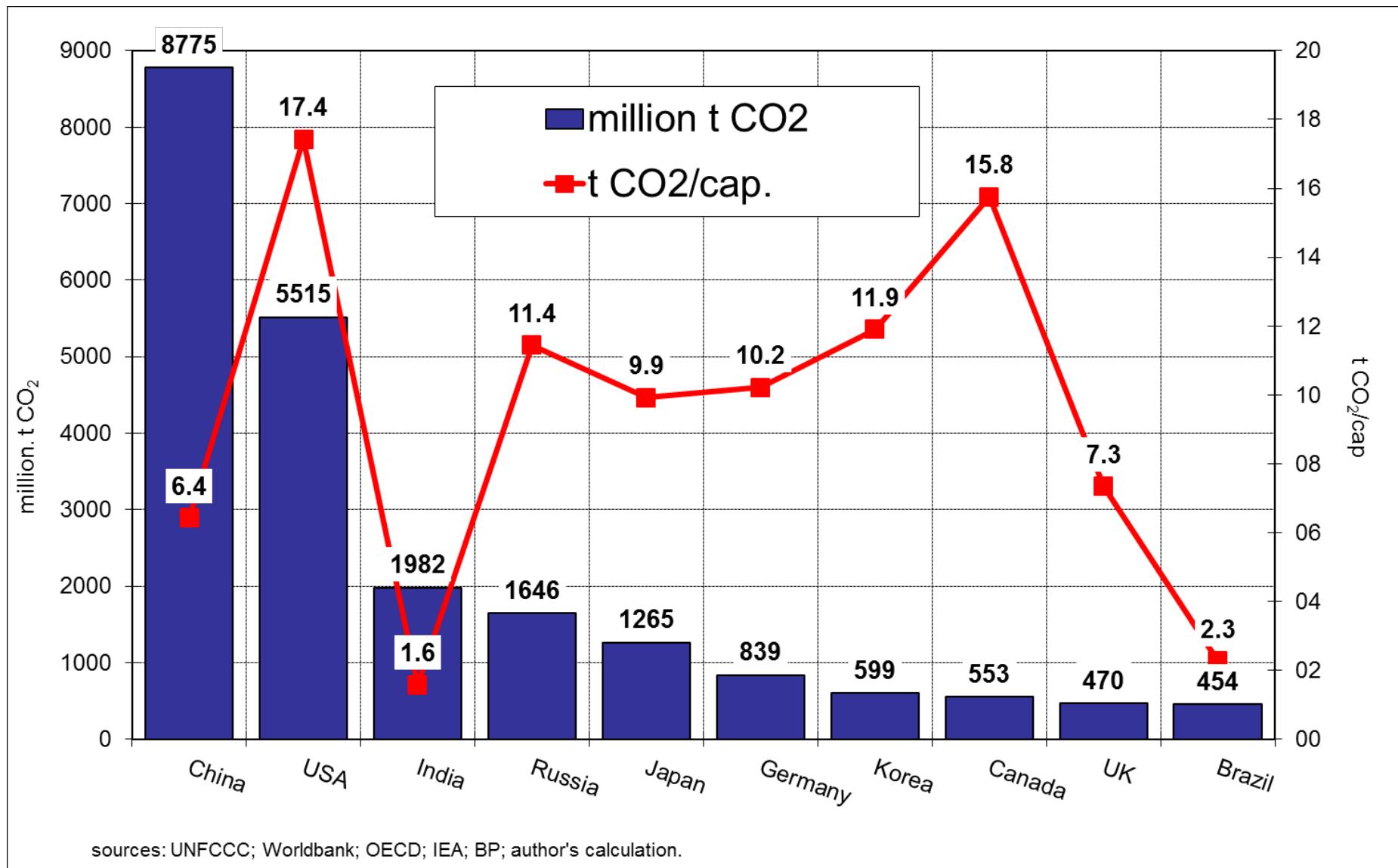
World-wide CO₂ emissions 1990 - 2013



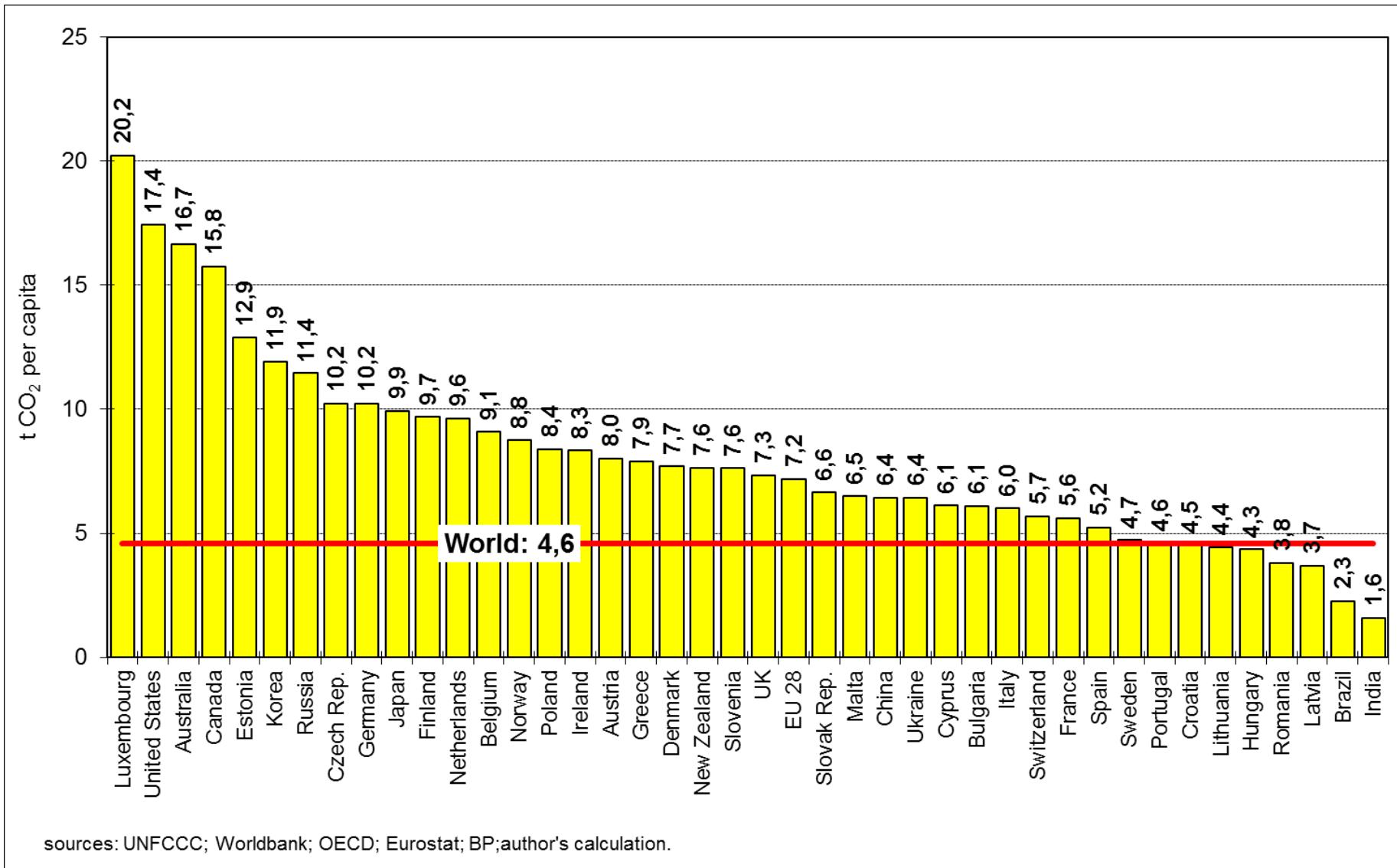
World-wide CO₂ emissions by regions 1990 - 2013



The ten major emitters world-wide 2013



Per capita CO₂ emissions: EU-27 and selected countries 2013



World-wide CO₂ emissions 1990 – 2013 by regions

	1990	1995	2000	2005	2010	2012	2013	1990-2013	2012-2013
	CO ₂ emissions in million tonnes							changes in %	
WORLD	21,779	22,291	24,173	27,899	30,760	32,185	32,773	50.5	1.8
Annex I	14,989	13,884	14,432	14,900	14,170	13,816	13,843	-7.6	0.2
Non-Annex I	6,172	7,698	8,904	12,026	15,493	17,236	17,778	188.1	3.1
EIT	4,388	2,851	2,575	2,683	2,692	2,737	2,699	-38.5	-1.4
OECD	11,883	12,401	13,326	13,768	13,169	12,811	12,871	8.3	0.5
EU 28	4,442	4,175	4,143	4,271	3,918	3,727	3,658	-17.6	-1.9
sources: UNFCCC; IEA; BP; author's calculation.									

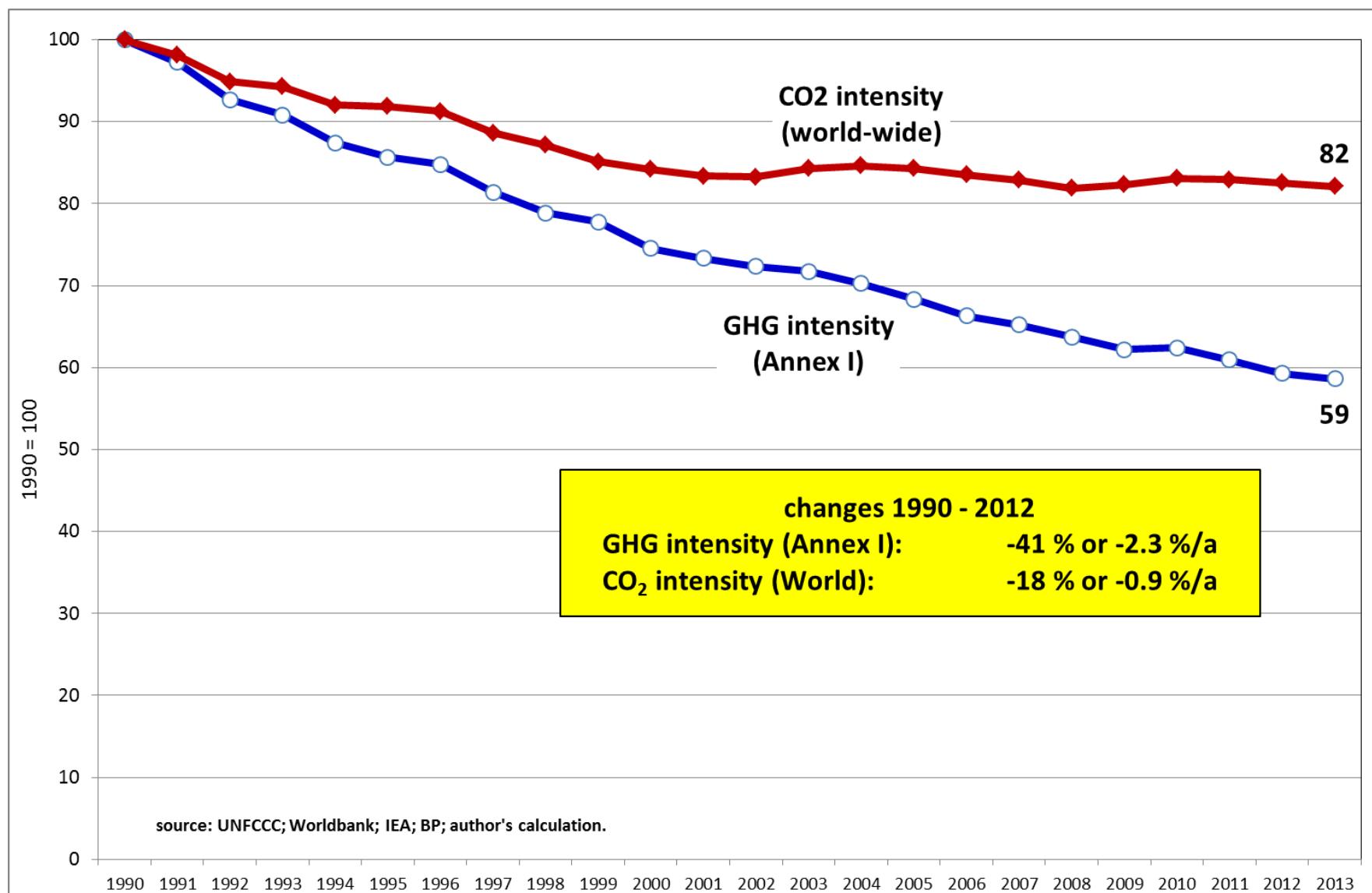
World-wide CO₂ emissions 1990 – 2013 by selected countries

	1990	1995	2000	2005	2010	2012	2013	1990-2013	2012-2013
	CO ₂ emissions in million tonnes							changes in %	
Germany	1042	931	892	862	829	822	839	-19.4	2.2
UK	591	554	557	561	505	483	470	-20.6	-2.8
Italy	435	445	462	488	425	387	364	-16.2	-5.8
France	399	398	415	426	391	369	371	-7.0	0.6
Poland	374	360	318	318	330	321	323	-13.5	0.7
Japan	1141	1224	1251	1282	1191	1276	1265	10.9	-0.8
Australia	276	303	347	380	399	398	385	39.6	-3.1
USA	5101	5417	5963	6103	5713	5375	5515	8.1	2.6
Kanada	459	491	568	577	554	551	553	20.6	0.5
Russia	2505	1580	1477	1532	1602	1657	1646	-34.3	-0.6
Ukraine	719	360	294	321	290	303	292	-59.4	-3.6
Mexico	265	297	350	386	418	440	436	64.2	-1.0
Brazil	192	236	304	323	389	427	454	136.1	6.4
Korea	229	359	438	469	564	593	599	161.2	1.0
China	2278	3058	3350	5444	7294	8445	8775	285.2	3.9
India	582	777	972	1164	1710	1903	1982	240.4	4.1
Africa	544	597	680	829	967	1002	1015	86.4	1.3
Middle East	557	751	869	1113	1488	1607	1645	195.2	2.3
Latin America*	384	424	495	540	660	707	728	89.5	2.9
Other Asia	696	936	1160	1450	1694	1780	1823	161.8	2.4

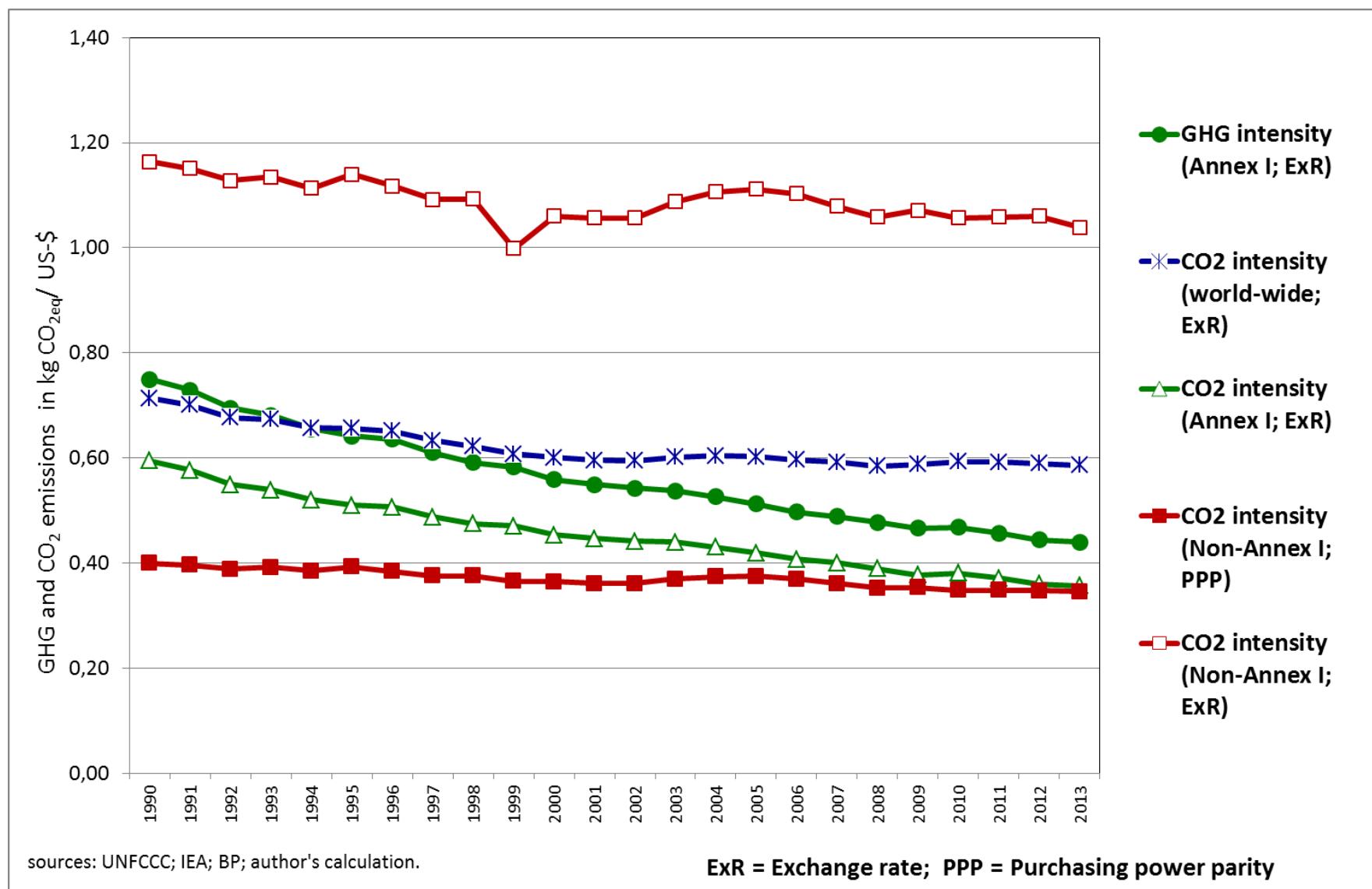
sources: UNFCCC; IEA; BP; author's calculation.

*) without Brazil and Mexico

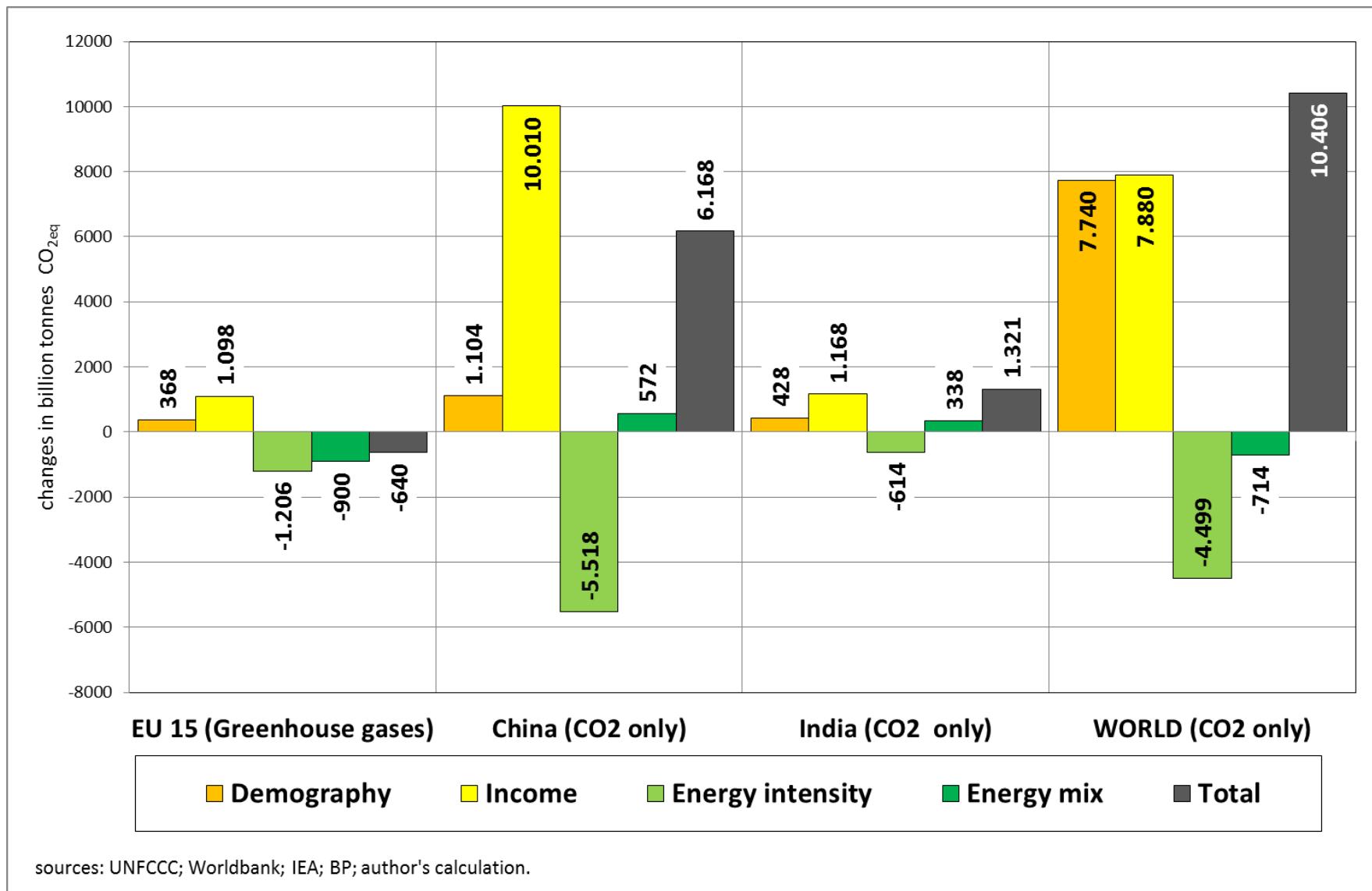
GHG intensity in Annex I countries/world-wide CO₂ intensity 1990 - 2013



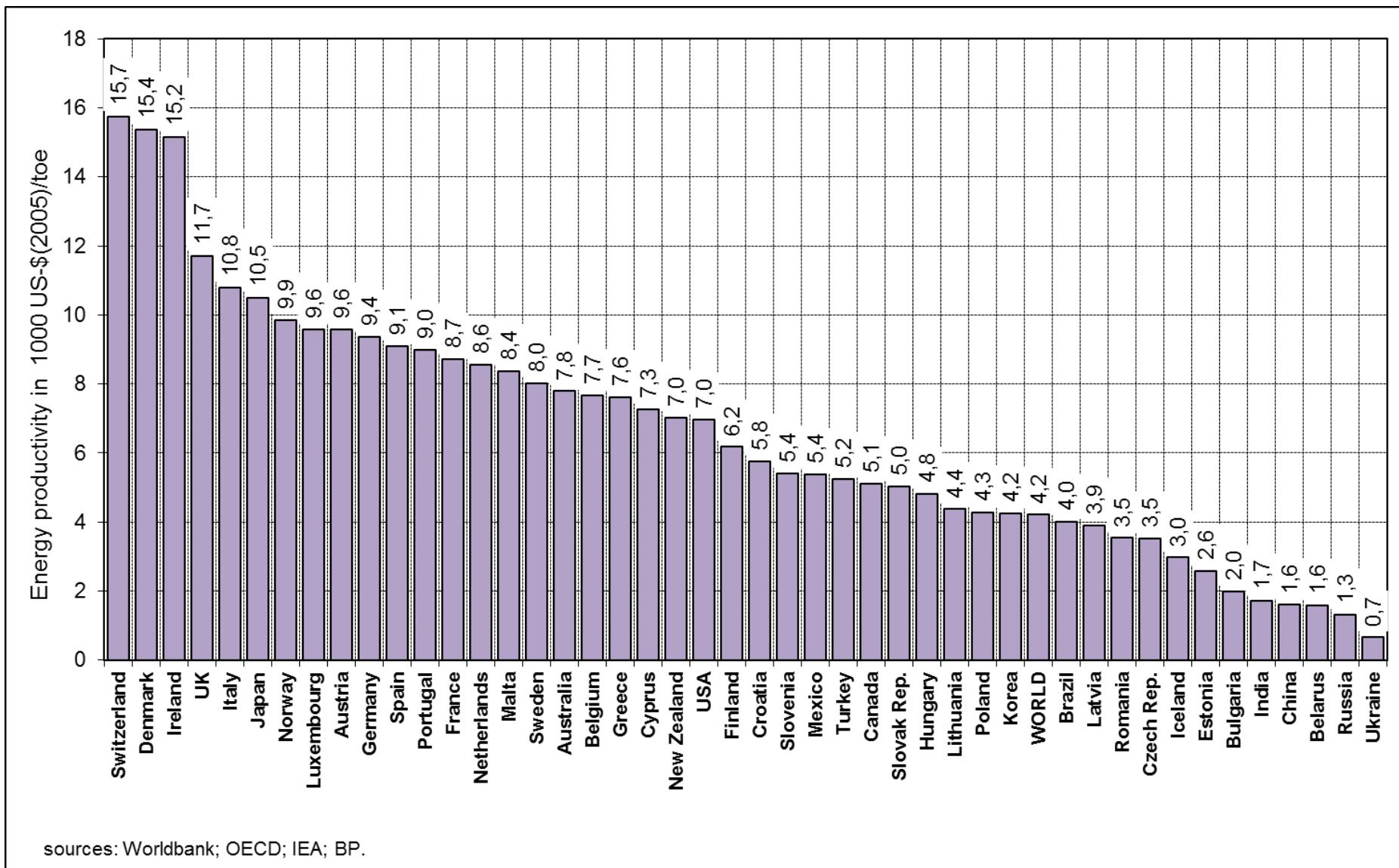
GHG/CO₂ intensity in Annex I and Non-Annex I countries 1990 - 2013



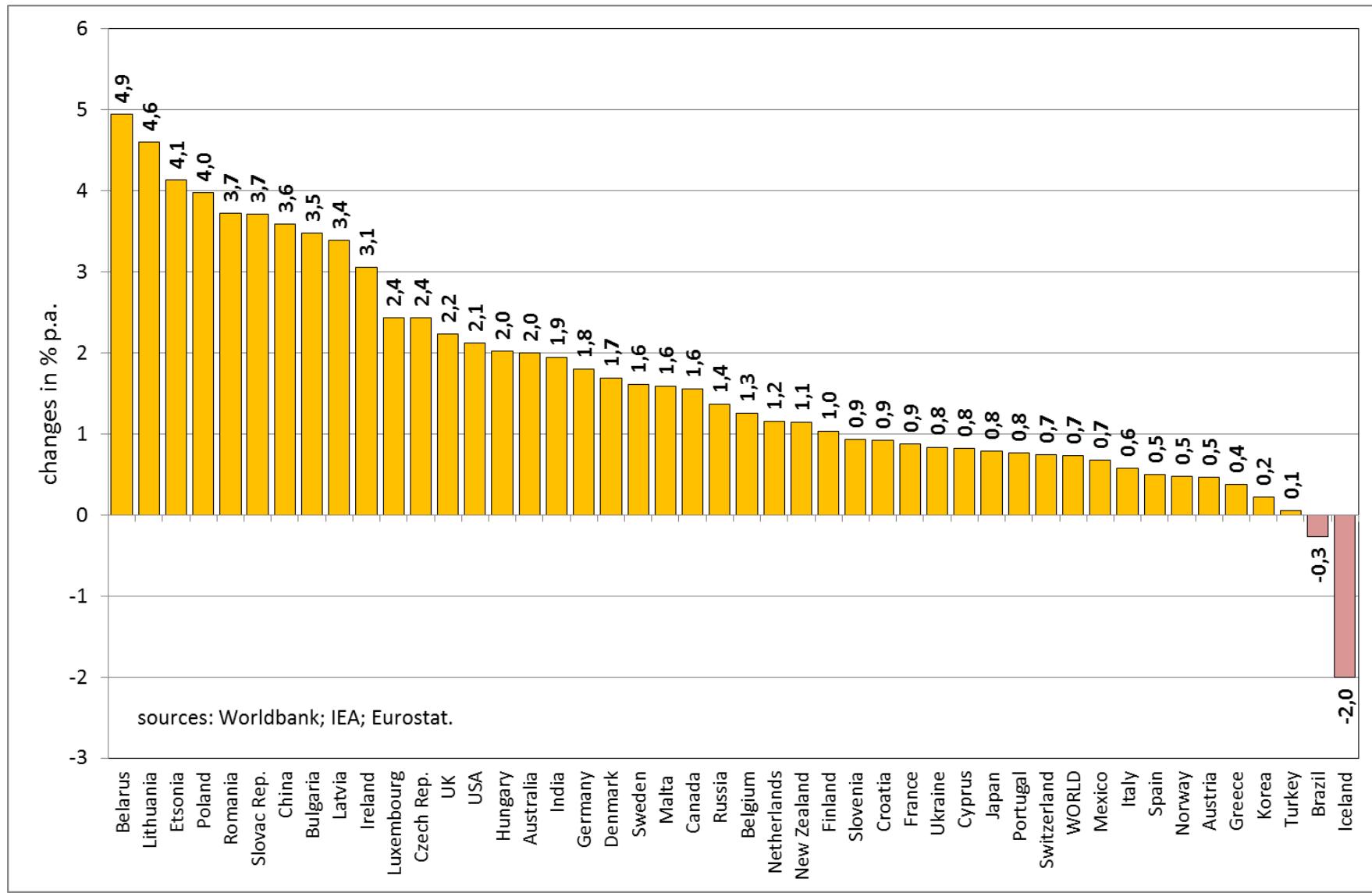
Components influencing GHG emissions 2013 vs. base year (1990)



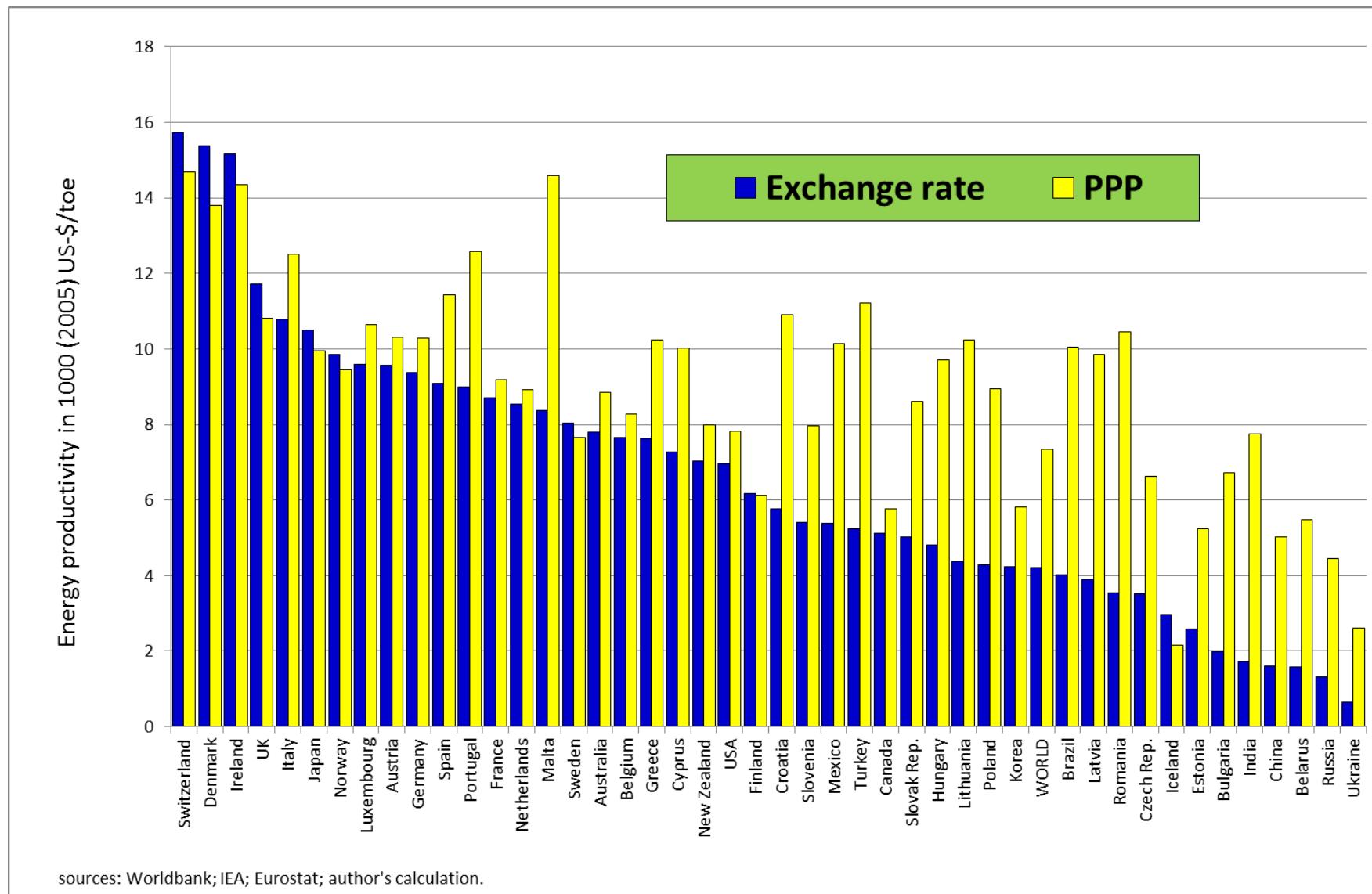
Energy productivity in selected countries 2013



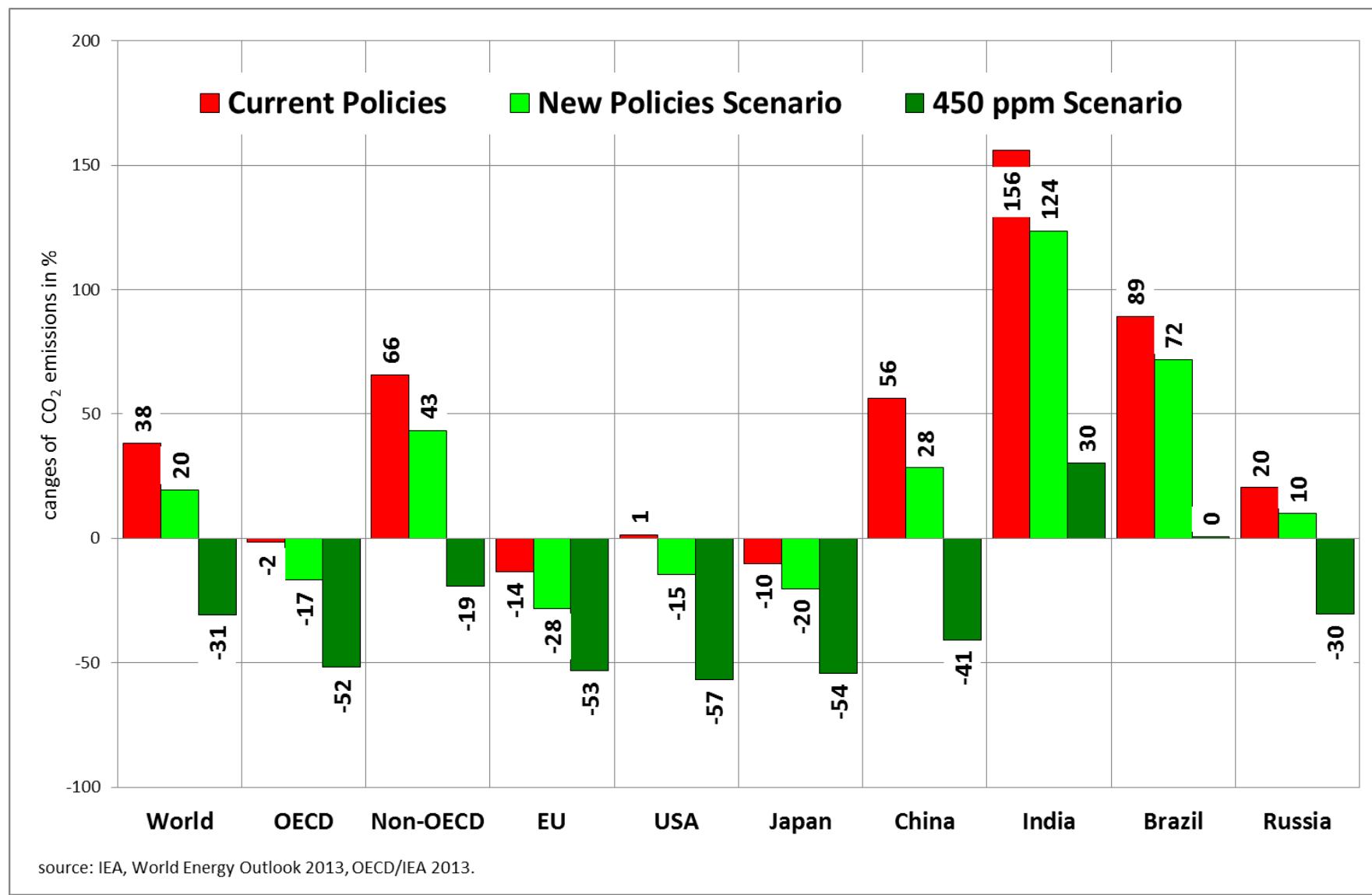
Changes of energy productivity in selected countries 1990 - 2013



Energy productivity 1990 – 2013 with different base of calculation :



Perspective: World-wide CO₂ emissions by countries/regions 2011-2035



Conclusions – almost the same as all the previous years

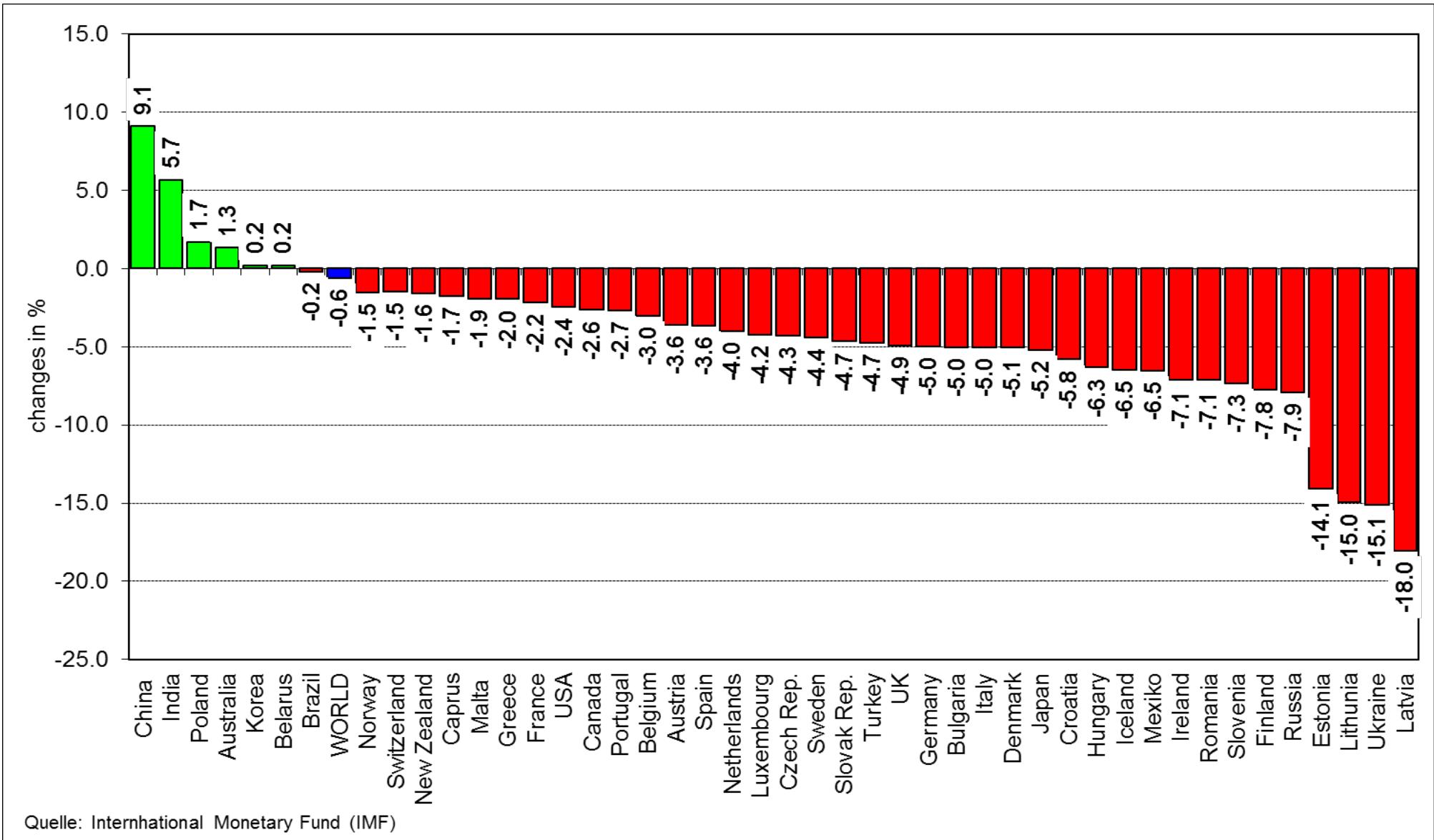
- The discussion mostly concentrates on emissions targets. This is necessary and has to be pursued in the future - **but**
- The real emission's development and their business-as-usual-perspectives should not be neglected.
- The gap between the desired targets and the expected real development can only be filled with an appropriate policy and effective measures for more energy efficiency and renewable energies.
- Targets are necessary but not sufficient: It needs policies and measures. That's the proof for an effective climate protection policy and not only the target setting!



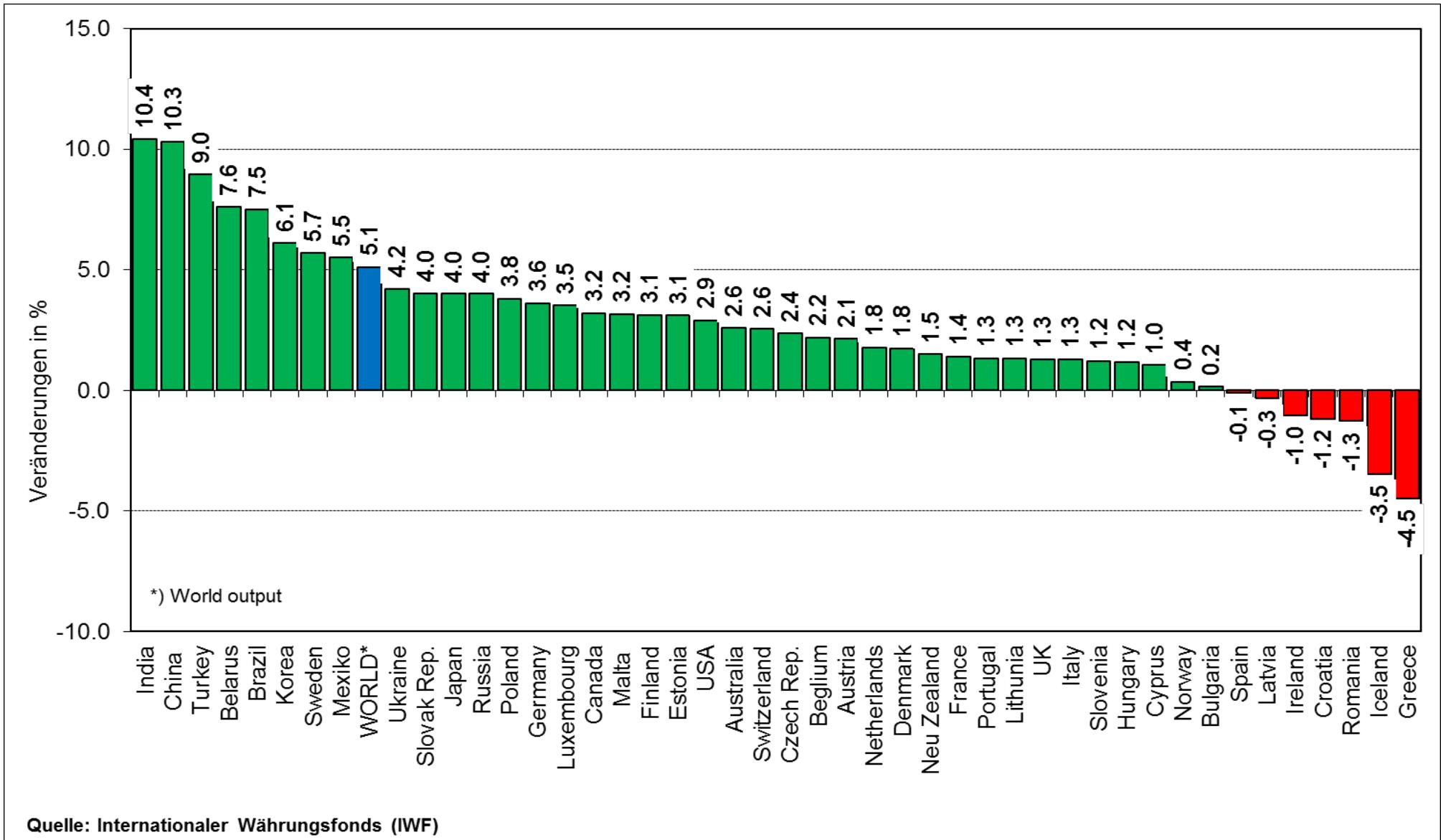
The paper is published in September in:
„Energiewirtschaftliche Tagesfragen“,
9/2014 (in German only)

Thanks for listening
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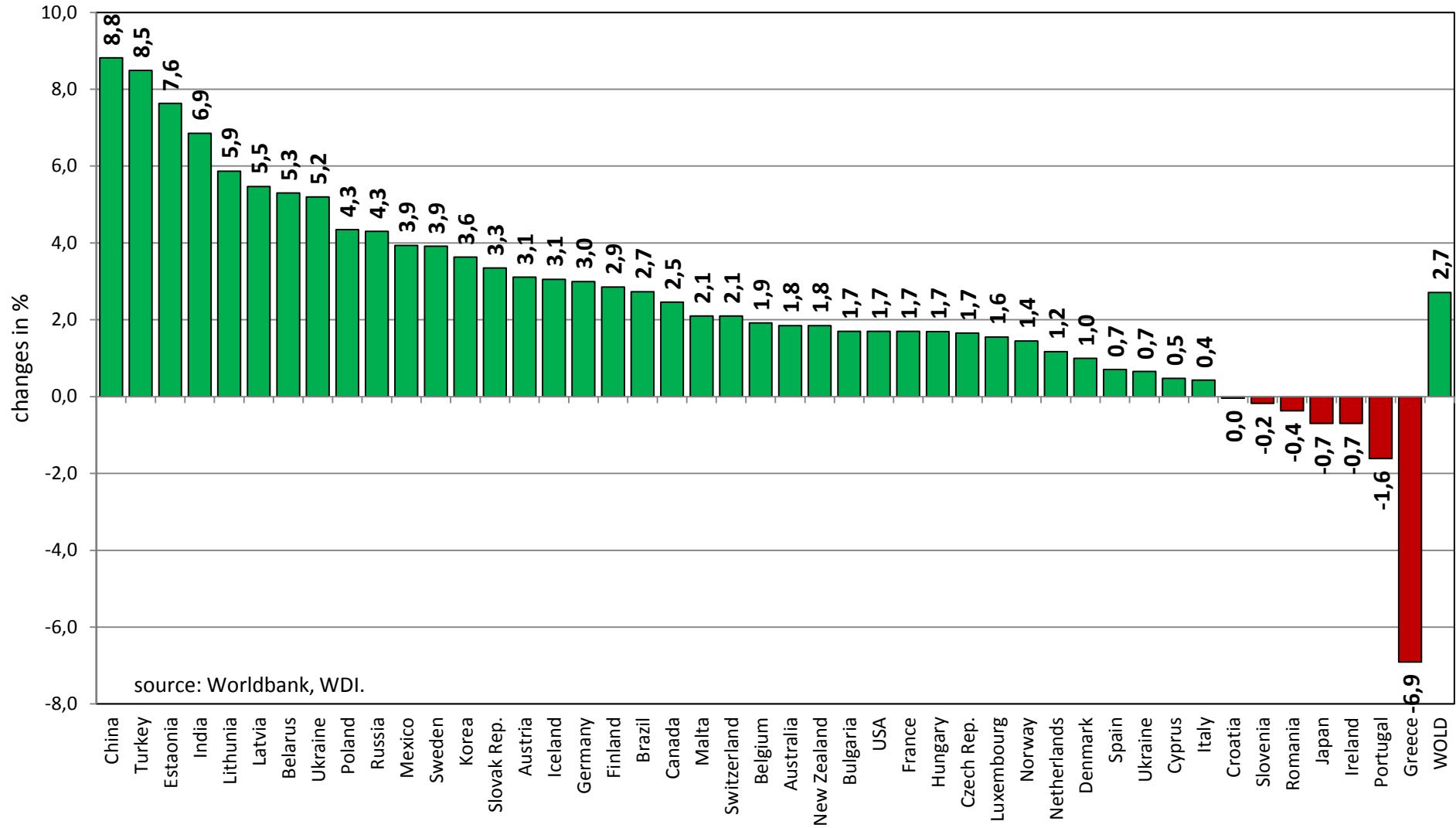
Changes of GDP 2009 vs. 2008 in Annex I Parties and selected other countries



Changes of GDP 2010 vs. 2009 in Annex I Parties and selected other countries



Changes of real GDP 2011 versus 2010 in Annex I countries and others



Changes of real GDP 2012 versus 2011 in Annex I countries and others

