

# **UNCTAD**

## **Multi-Year Expert Meeting on Commodities and Development 2013**

**Recent developments and new challenges in commodity markets, and policy  
options for commodity-based inclusive growth and sustainable development**

Room XXVI  
Palais des Nations  
Geneva, Switzerland

### **Global Energy Policy and Coal**

by

Prof. F.-J. WODOPIA  
Vice-President, EURACOAL

20 MARCH 2013

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# EURACOAL

European Association  
for Coal and Lignite



## Global Energy Policy and Coal

**UNCTAD - Multi-year Expert Meeting on  
Commodities and Development  
Geneva, 20-21 March 2013**

20 March 2013  
Geneva

Prof. F.-J. WODOPIA  
Vice-President, EURACOAL

# EURACOAL: 35 members from 20 countries

- COALPRO - Confederation of UK Coal Producers (GBR)
- DEBRIV - Deutscher Braunkohlen-Industrie-Verein (DEU)
- GVSt - Gesamtverband Steinkohle (DEU)
- MMI - Mini Maritza Istok (BGR)
- PPC - Public Power Corporation (GRC)
- PPWB - Confederation of the Polish Lignite Producers (POL)
- ZPWGK - Polish Hard Coal Employer's Association (POL)
- ENEL (ITA)
- ZSDNP - Czech Confederation of Coal and Oil Producers (CZE)
- APFCR - Coal Producers and Suppliers Association of Romania (ROU)
- BRGM - French Geological Service (FRA)
- CARBUNIÓN - Federation of Spanish Coal Producers (ESP)
- Coallmp - Association of UK Coal Importers (GBR)
- D.TEK (UKR)
- EPS - Electric Power Industry of Serbia (SRB)
- GIG - Central Mining Research Institute (POL)
- HBP - Hornonitrianske bane Prievidza (SVK)
- ISFTA – Institute for Solid Fuels Technology & Applications (GRC)
- Mátrai Kraftwerke (HUN)
- PATROMIN - Federation of the Romanian Mining Industry (ROU)
- Premogovnik Velenje (SVN)
- RMU Banovici D.D. (BIH)
- Swedish Coal Institute (SWE)
- TKI - Turkish Coal Enterprises (TUR)
- Ukrvuglerobotodavtsy - All-Ukrainian Coal Employer's Association (UKR)
- Vagledobiv Bobov dol EOOD (BGR)
- VDKI - Verein der Kohlenimporteure (DEU)
- Coaltrans Conferences Limited (GBR)
- EMAG (POL)
- Finnish Coal Info (FIN)
- Golder Associates (GBR)
- Geocontrol (ESP)
- ISSeP - Institut Scientifique de Service Public (BEL)
- KOMAG (POL)
- University of Nottingham (GBR)

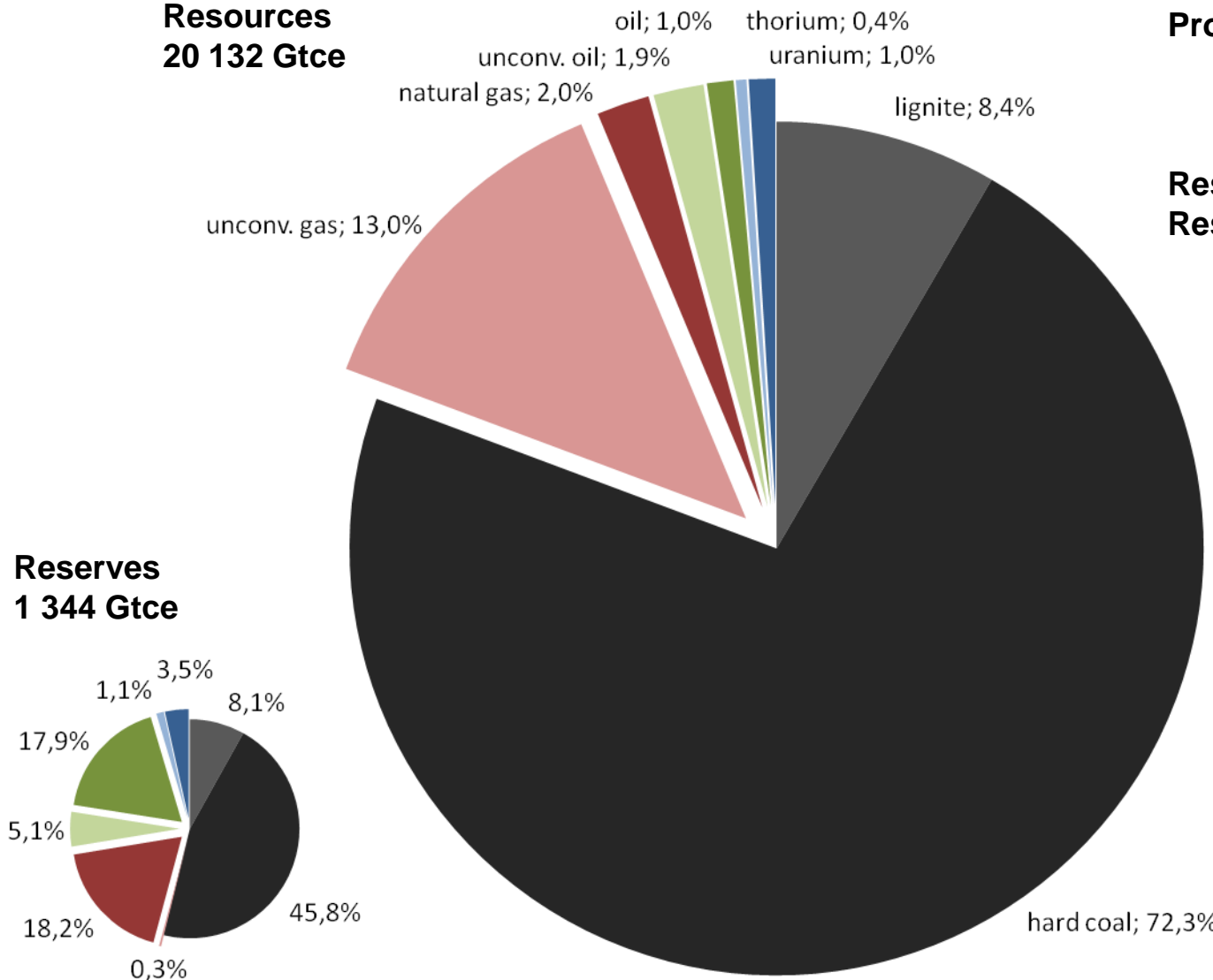


# Global energy resources, reserves and use

**Resources**  
**20 132 Gtce**

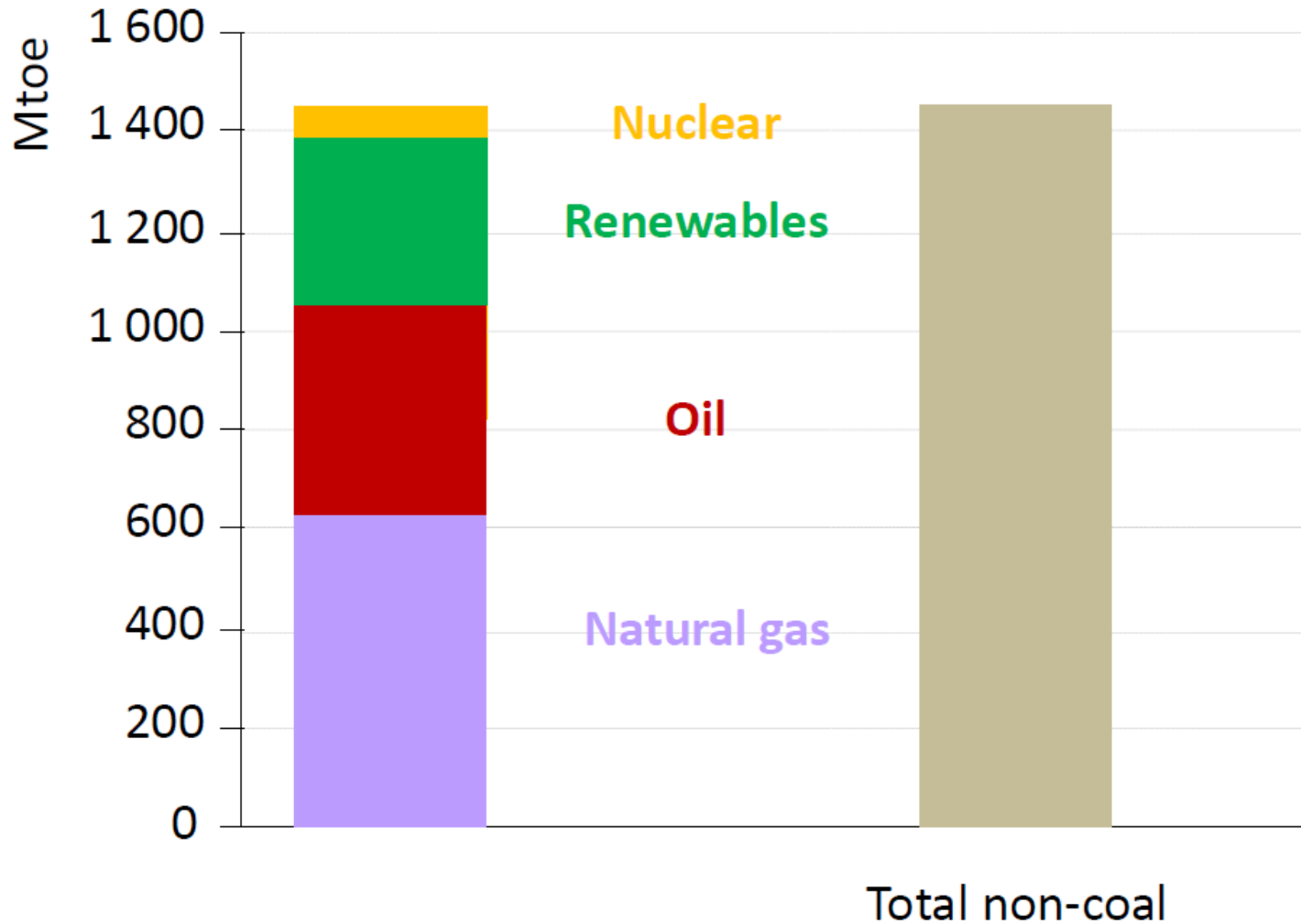
**Production: 16.3 Gtce**

**Reserves/P = 82 years**  
**Resources/P = 1 235 years**



source: Bundesanstalt für  
Geowissenschaften und  
Rohstoffe, 2012

# Primary energy demand increase 2000-2010

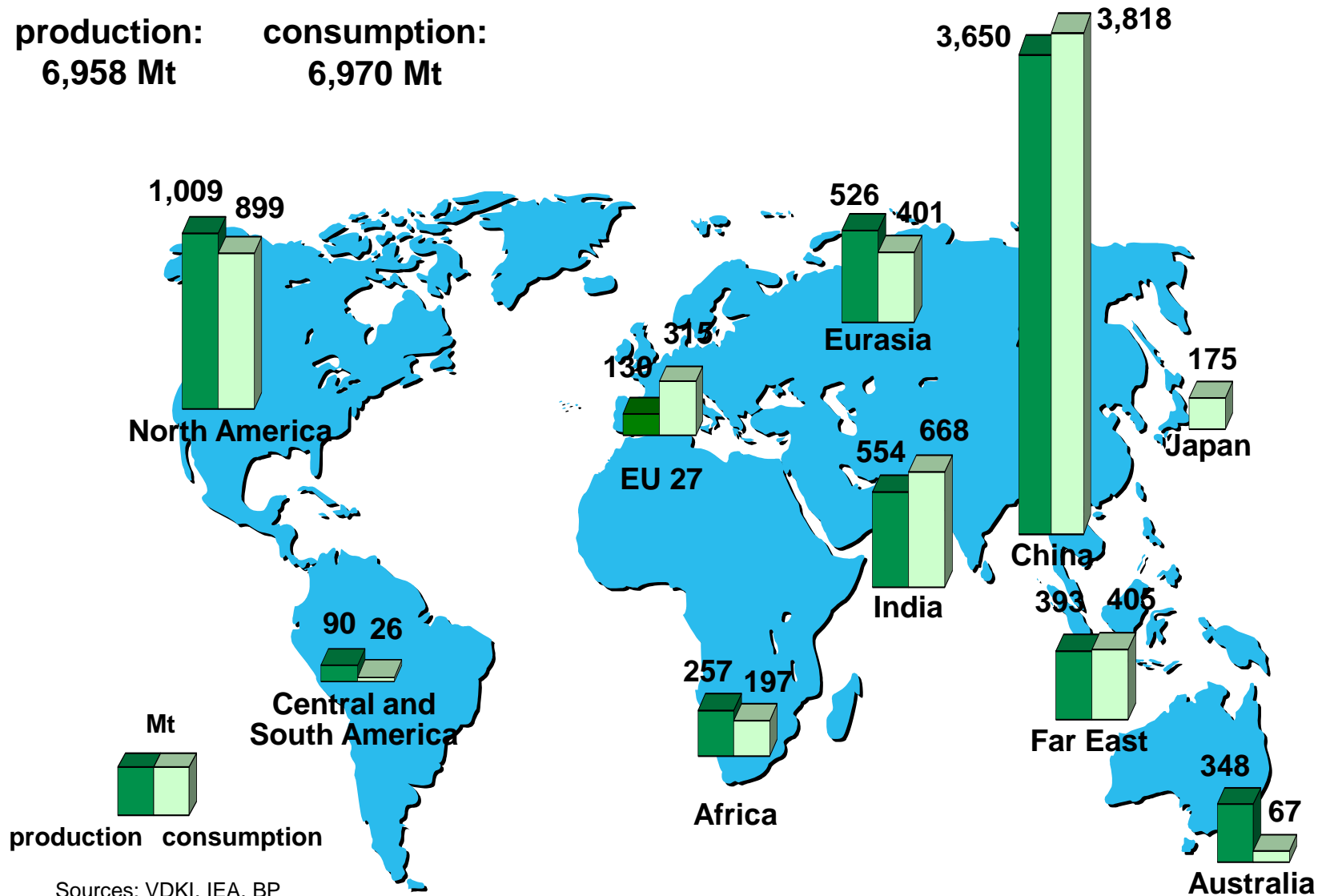


Source: IEA, WEO 2011

# World coal production and consumption 2011

production:  
6,958 Mt

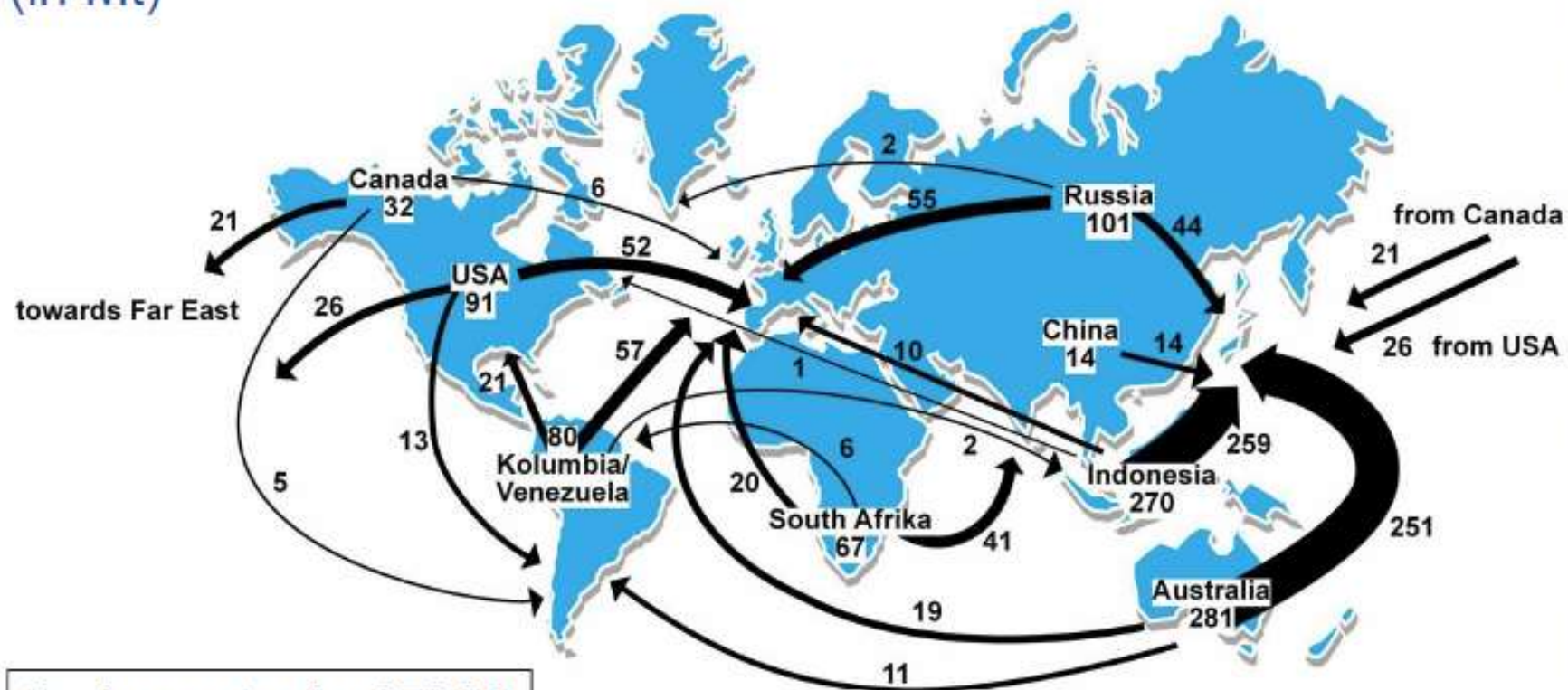
consumption:  
6,970 Mt



Sources: VDKI, IEA, BP

# Main Trade Flows in Seaborne Coal Trade, 2011

(in Mt)

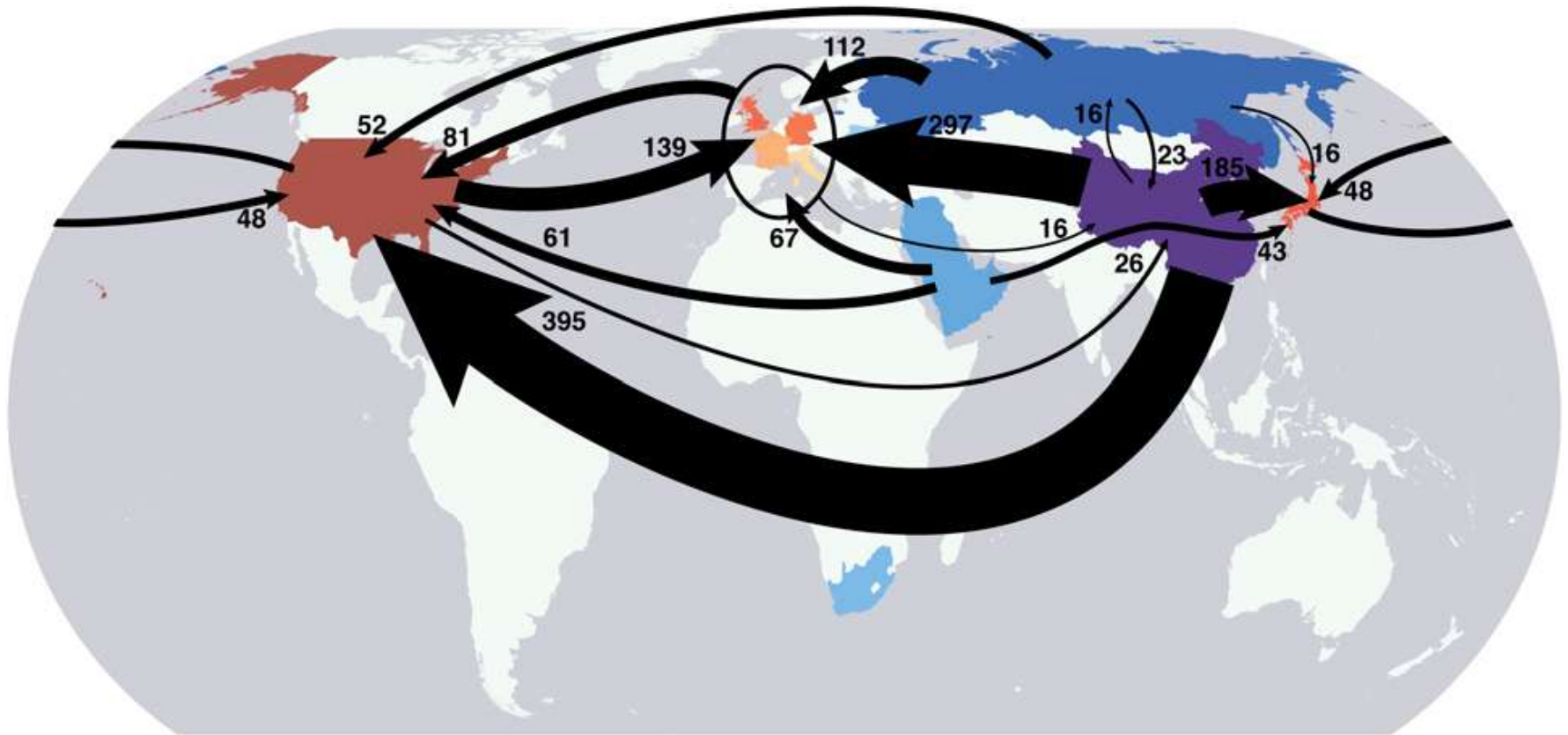


**Seaborne trade: 978 Mt**  
 Incl. 739 Mt steam coal  
 239 Mt coking coal

**Global hard coal production: 6.9 Bnt**

Source: VDKI, Hamburg 2012

# Interregional fluxes of CO<sub>2</sub> embodied in trade (Mt)

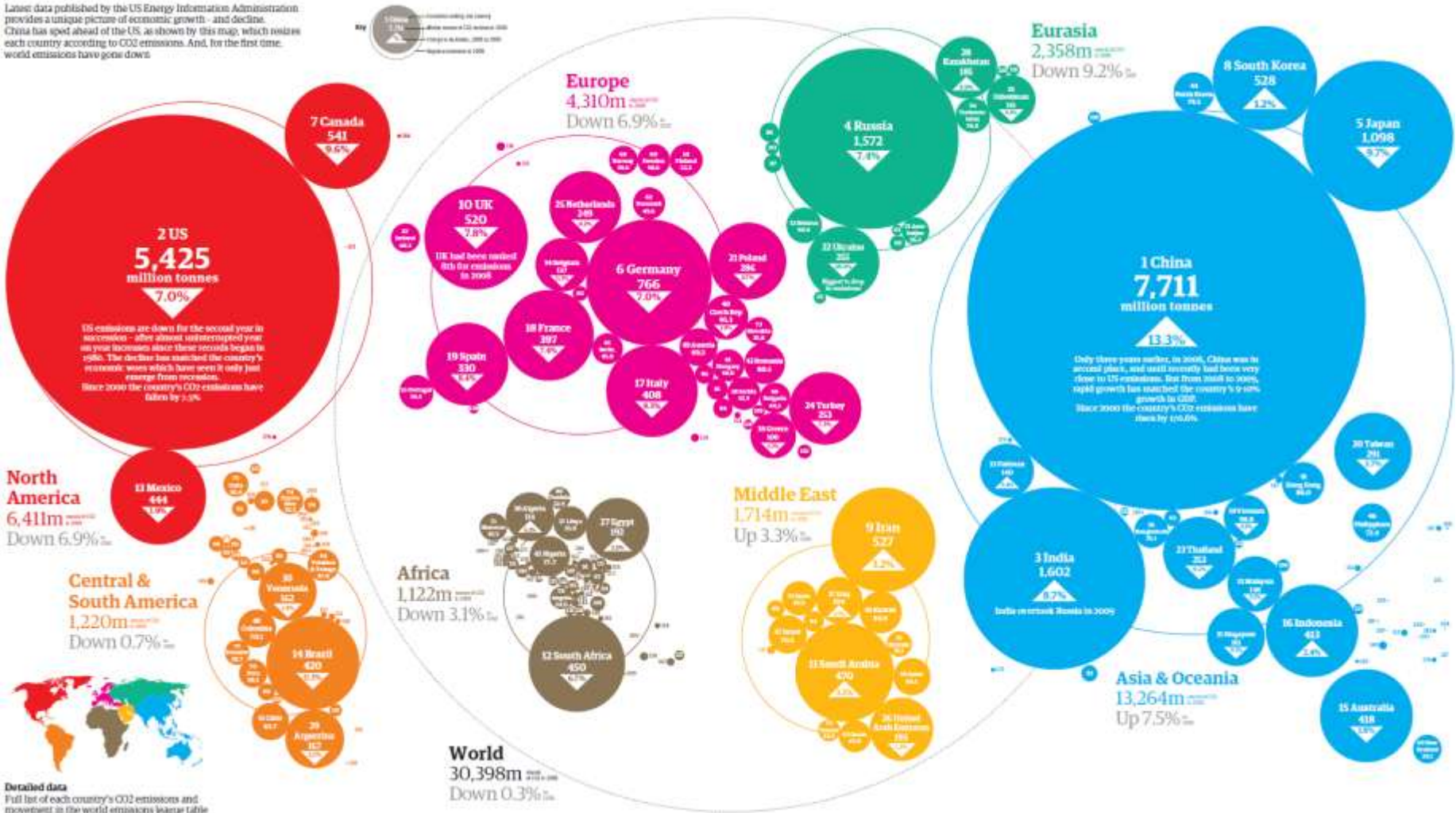


Source: Davis, S. J. and Caldeira, K., Consumption-based accounting of CO<sub>2</sub> emissions, [www.pnas.org/cgi/doi/10.1073/pnas.0906974107](http://www.pnas.org/cgi/doi/10.1073/pnas.0906974107), p. 5688



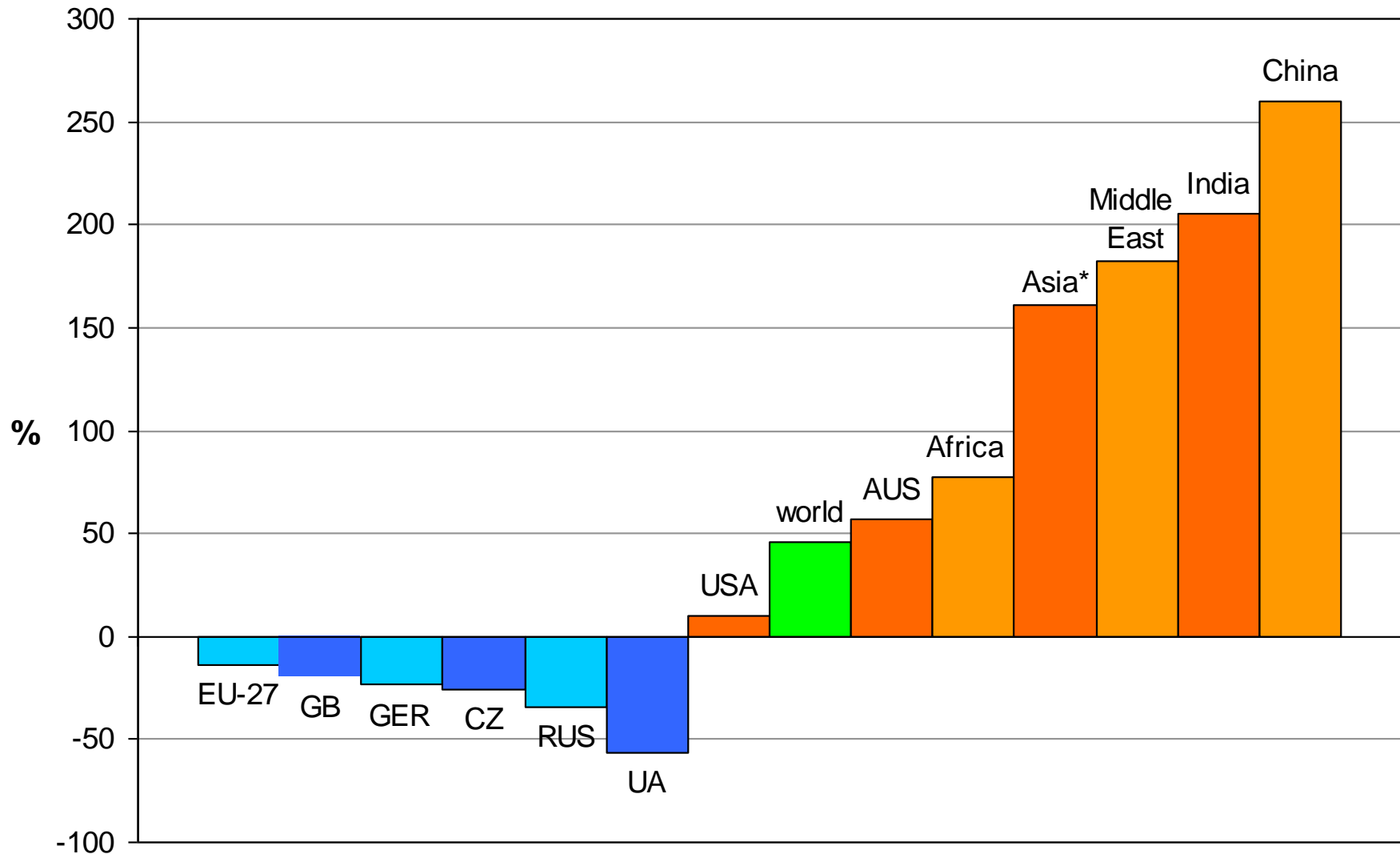
# Global CO<sub>2</sub> emissions, 2009

Lower data published by the US Energy Information Administration provides a unique picture of economic growth – and decline. China has overtaken the US, as shown by this map, which ranks each country according to CO<sub>2</sub> emissions. And, for the first time, world emissions have gone down.



Detailed data  
Full list of each country's CO<sub>2</sub> emissions and movement in the world emitters league table

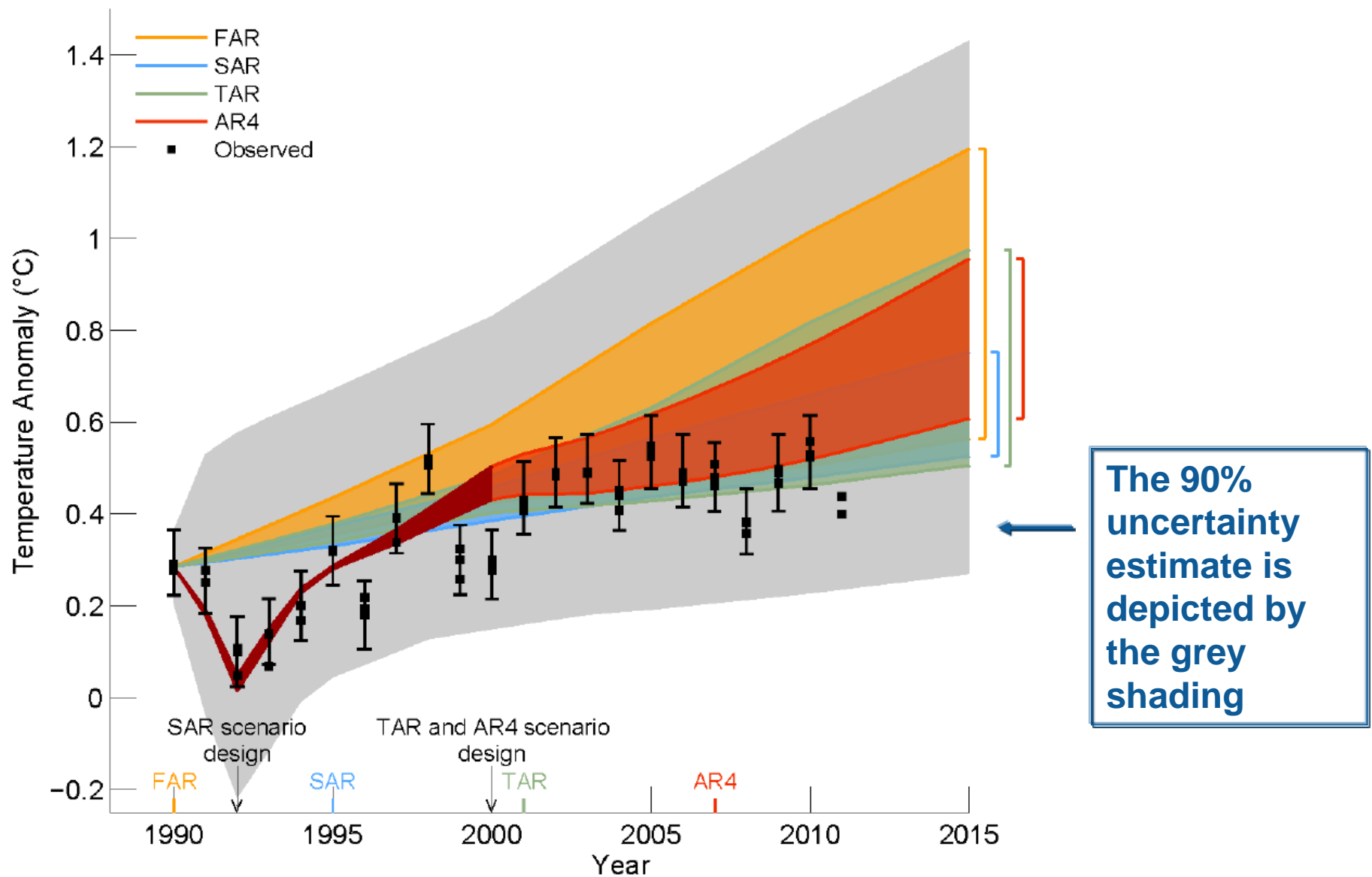
# CO<sub>2</sub> emission changes, 1990 to 2011 in %



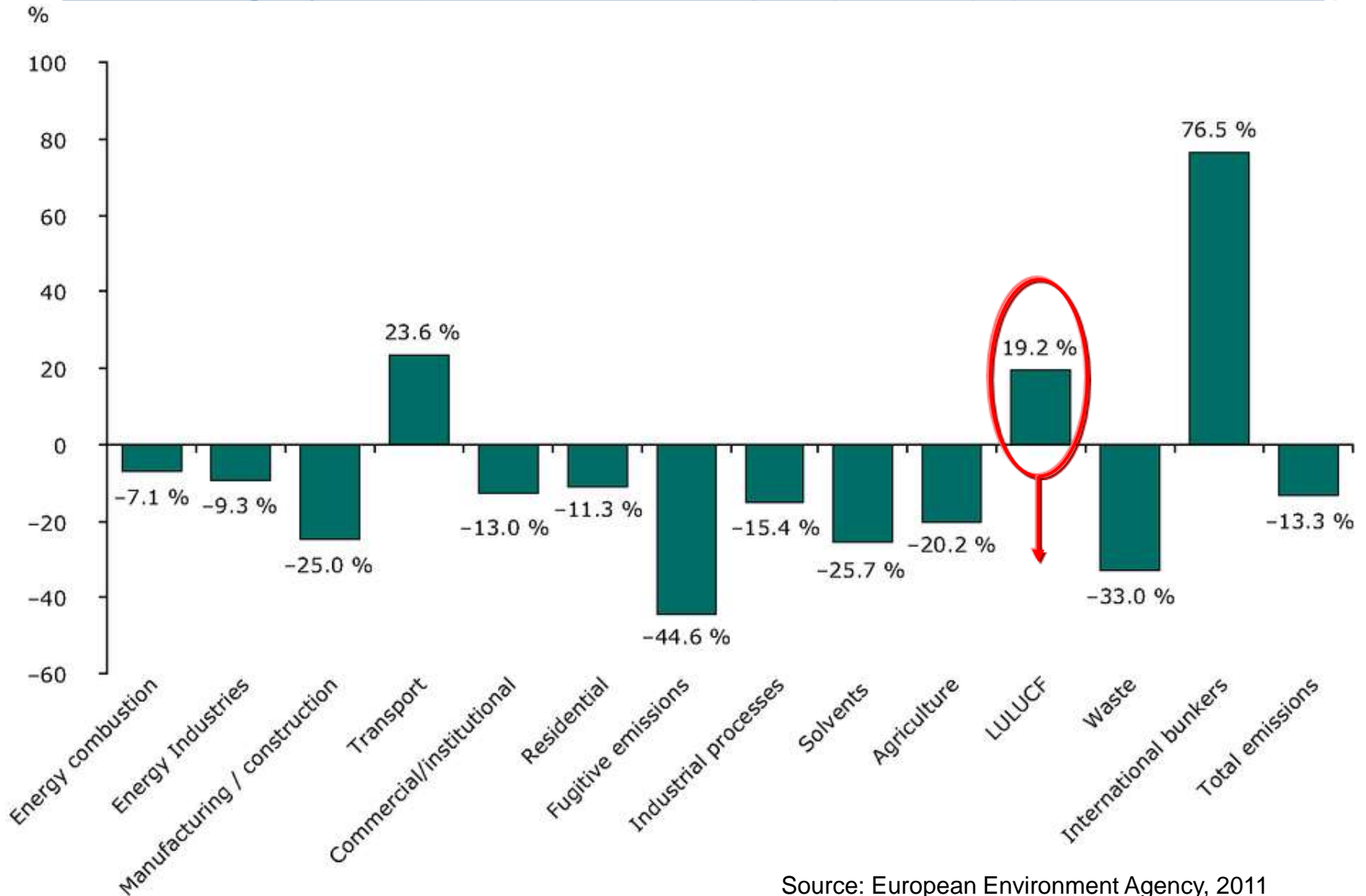
\*excl. China, India, Korea

Source: H.-J. Ziesing, ET, 2012

# Estimated changes in the observed globally and annually averaged surface temperature since 1990 compared with the range of projections from the previous IPCC assessments

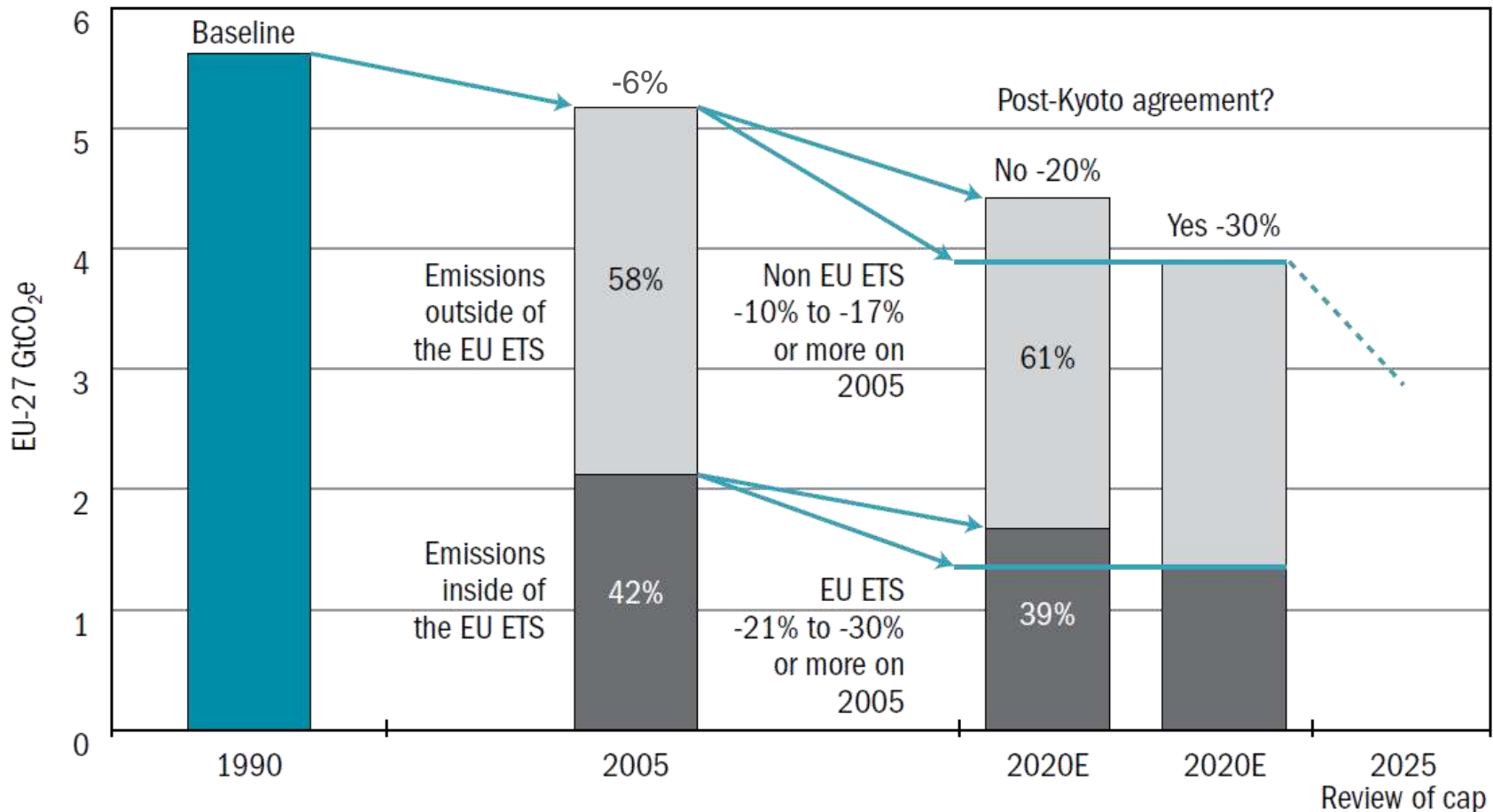


# Changes in greenhouse gas emissions (Kyoto gases) and sinks by source category in the EU, 1990-2008 (weighted by gwp, IPCC's SAR)



Source: European Environment Agency, 2011

# EU GHG emissions, 1990 to 2020



- The EU is on target to meet its agreed 2020 emissions reduction target.
- There is no post-Kyoto agreement, so no 30% target.
- Debate now should be about post 2020 – as foreseen in ETS Directive.

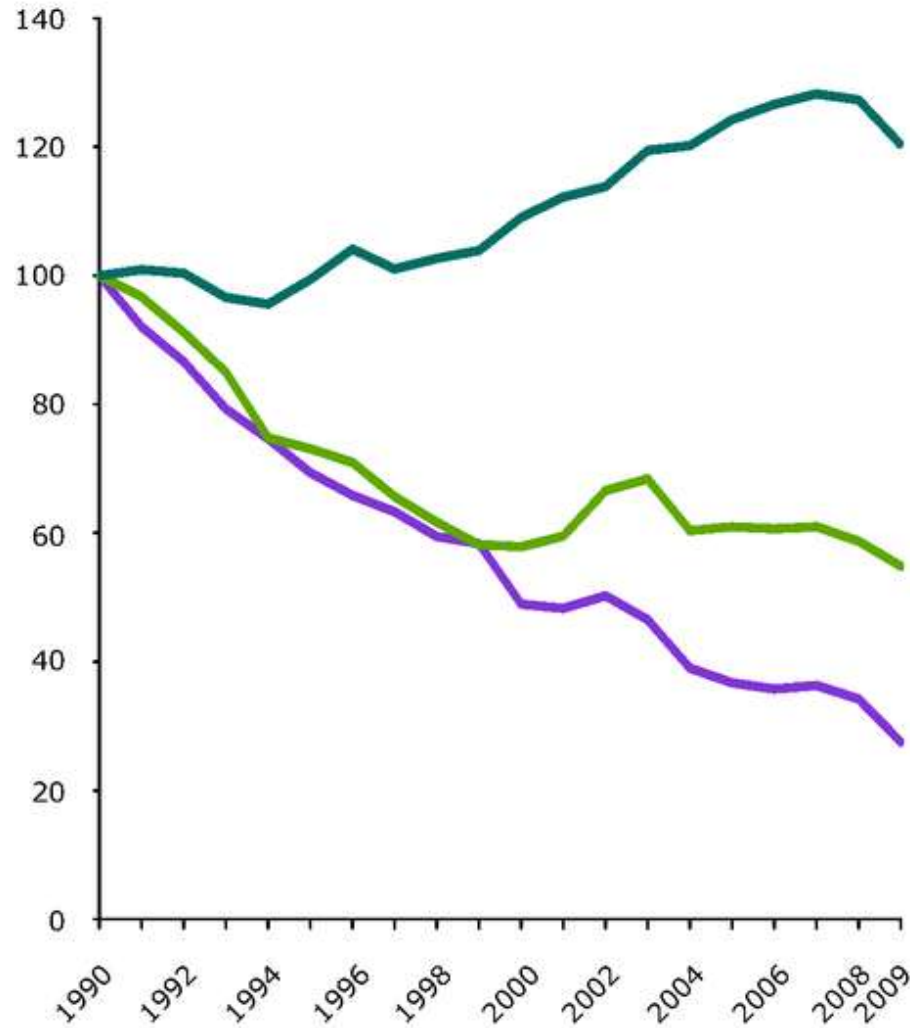
# EU ETS allowance prices, Jan 2005 to Feb 2013



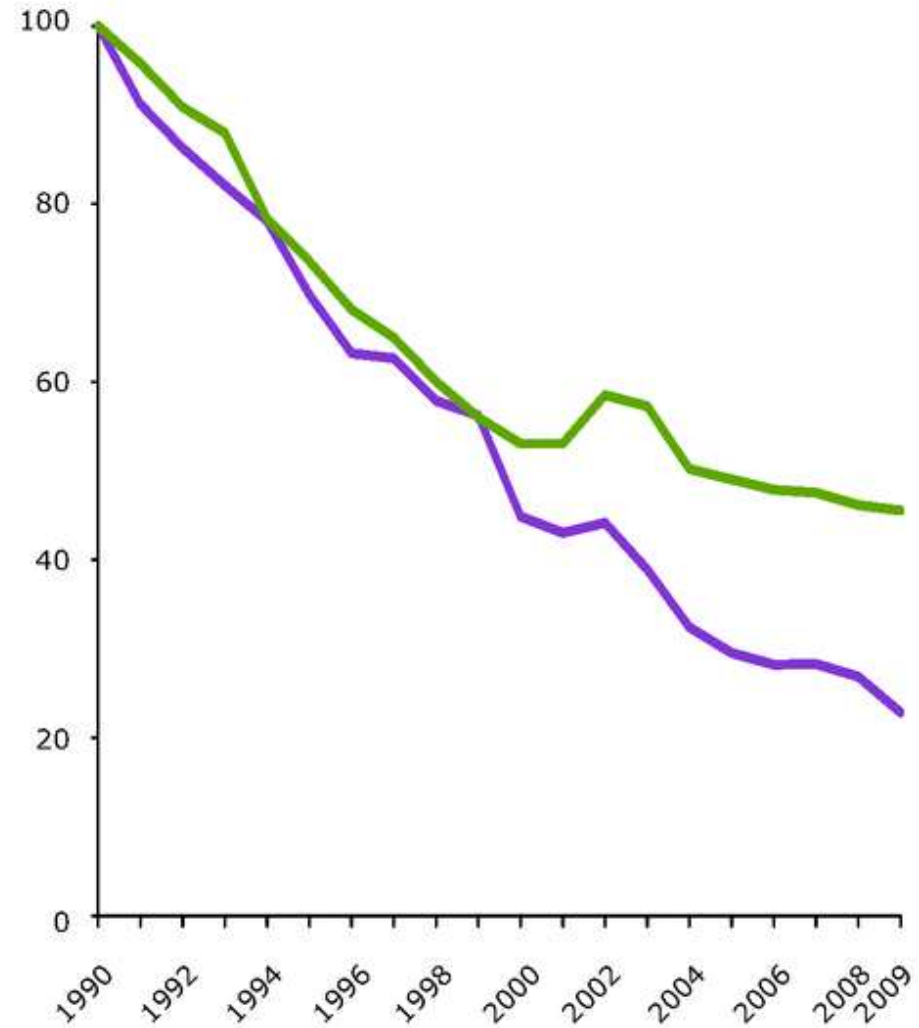
- EU ETS allowance prices reflect the dynamics of a true market.
- With no “banking” of surplus allowances, prices collapsed in Phase 1.
- Phase 2 prices have reflected the depressed state of the EU economy.
- Achieving reduction targets with a low CO<sub>2</sub> prices is a good outcome.
- If a target CO<sub>2</sub> price is wanted, then the ETS is the wrong mechanism.

# Emissions intensity of electricity & heat production and public conventional thermal power production, EEA-32-member countries

Index, 1990=100



Intensity index



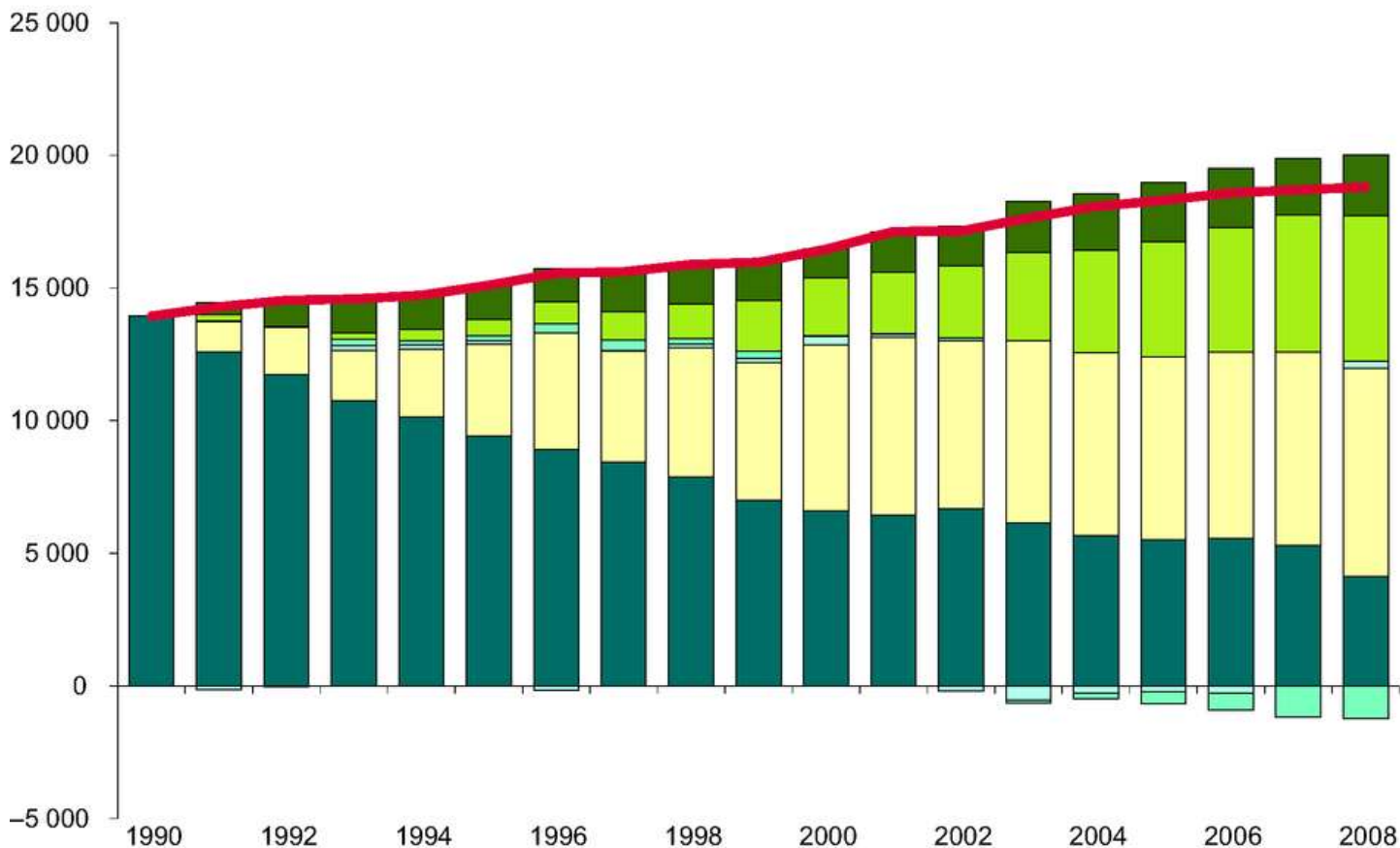
SO<sub>2</sub> emissions

NO<sub>x</sub> emissions

Electricity & heat production

# Estimated impact of different factors on the reduction in emissions of SO<sub>2</sub> from public electricity & heat production, 1990 - 2008, EEA-32

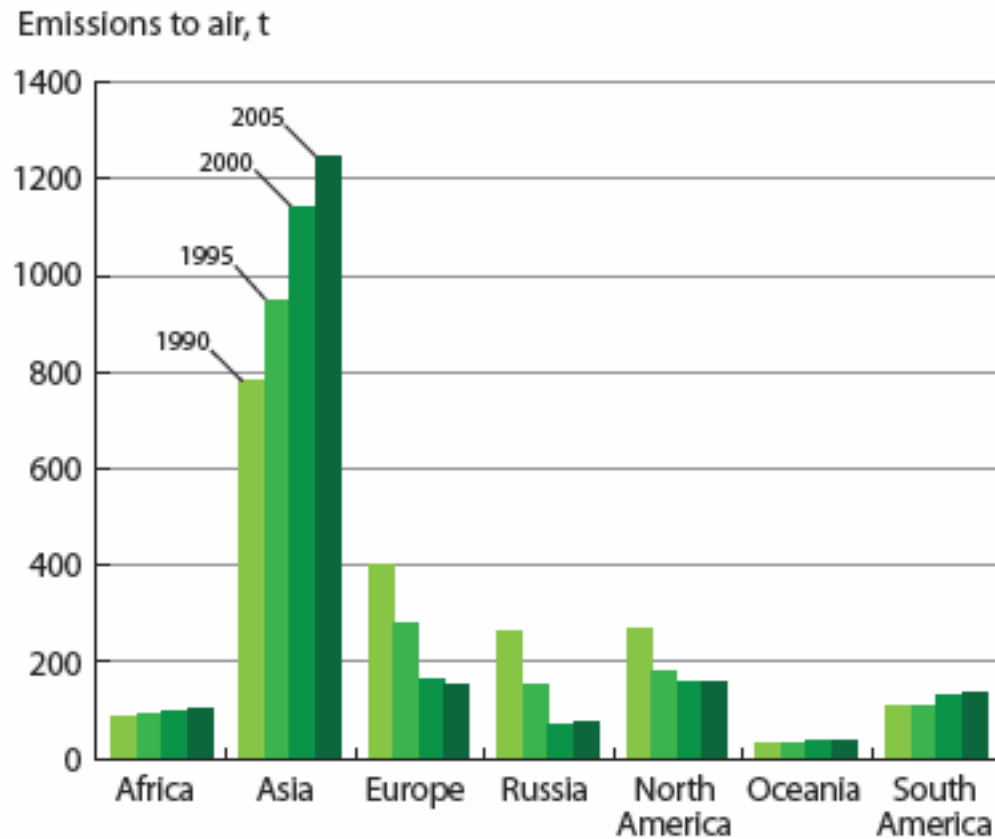
Emissions of sulphur dioxide (kt)



- Change due to efficiency improvement
- Change due to fossil fuel switching
- Change due to share of nuclear
- Change due to share of renewables (excluding biomass)
- Change due to abatement
- Actual SO<sub>2</sub> emissions
- Hypothetical emissions if no changes has occurred



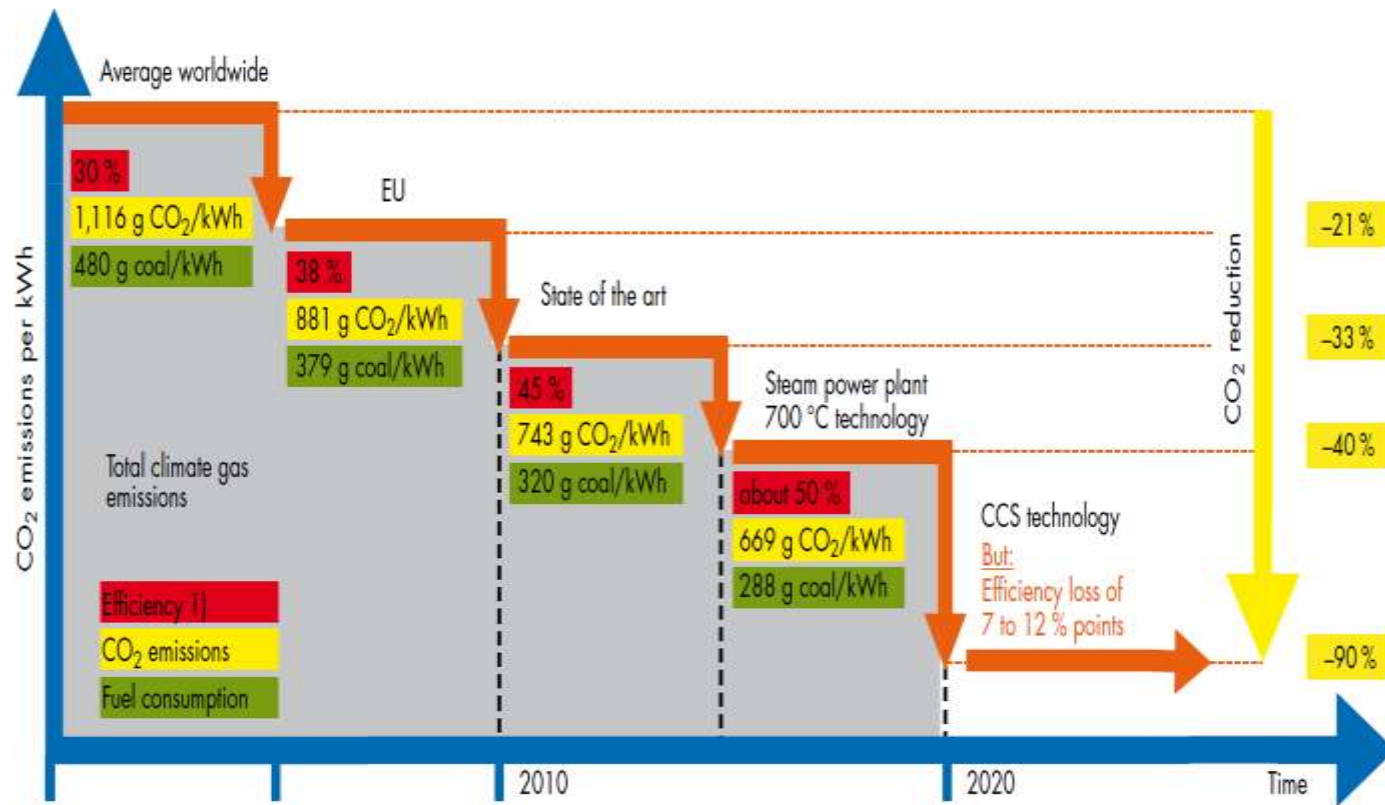
# Estimates of annual anthropogenic mercury emissions from different continents/regions, 1990-2005



*Estimates of annual anthropogenic mercury emissions from different continents/regions, 1990-2005.*

Source: UNEP, Global Mercury Assessment 2013

# EURACOAL calls for a 3-step clean coal strategy



# A Strategy for Clean Coal

**DAY AFTER TOMORROW** CO<sub>2</sub> capture & storage demonstration  
Public CO<sub>2</sub> infrastructure

**TOMORROW** R&D for high efficiency & flexibility

**TODAY** Replace old power plants  
with new plants

**A STRATEGY FOR CLEAN COAL**

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17% of EU primary energy and 27% of EU electricity come from coal.

# EURACOAL

European Association  
for Coal and Lignite



## Thank you!



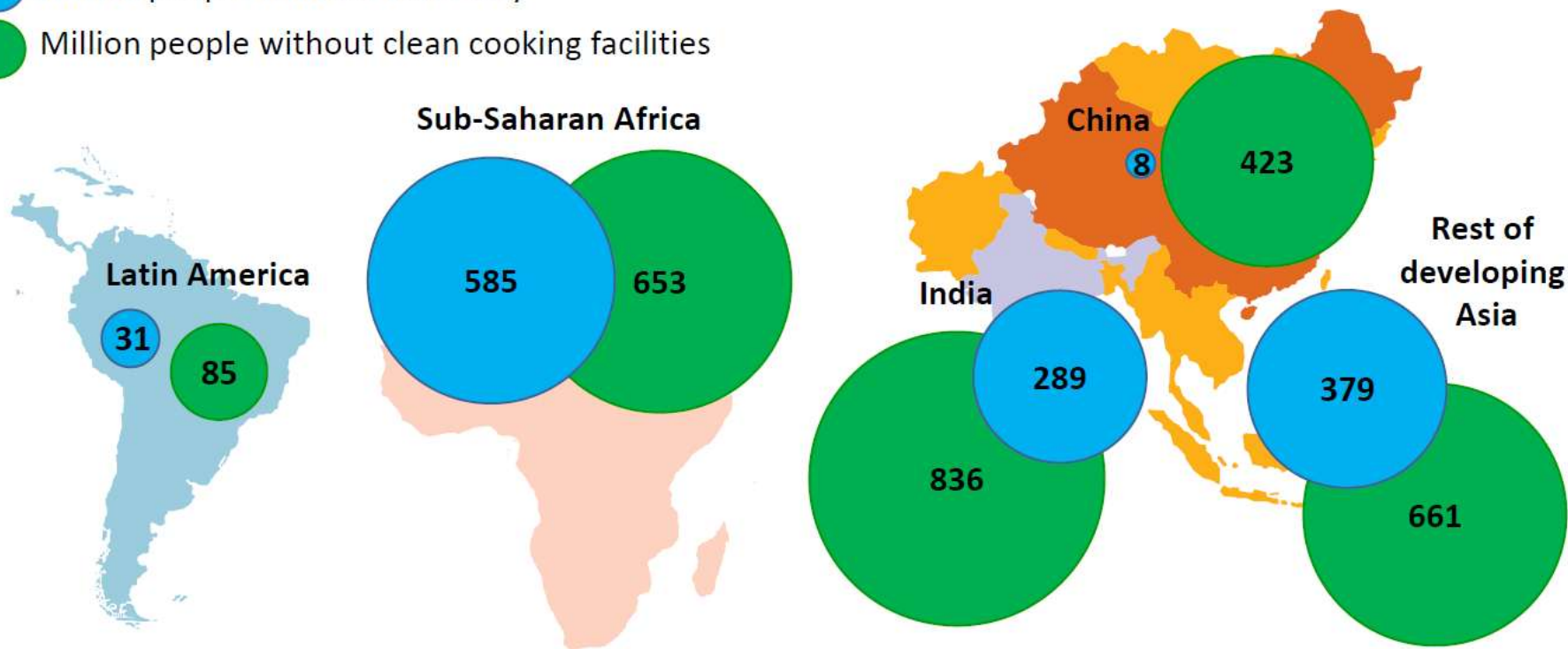
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BE-1150 Brussels  
Belgium  
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# Backup

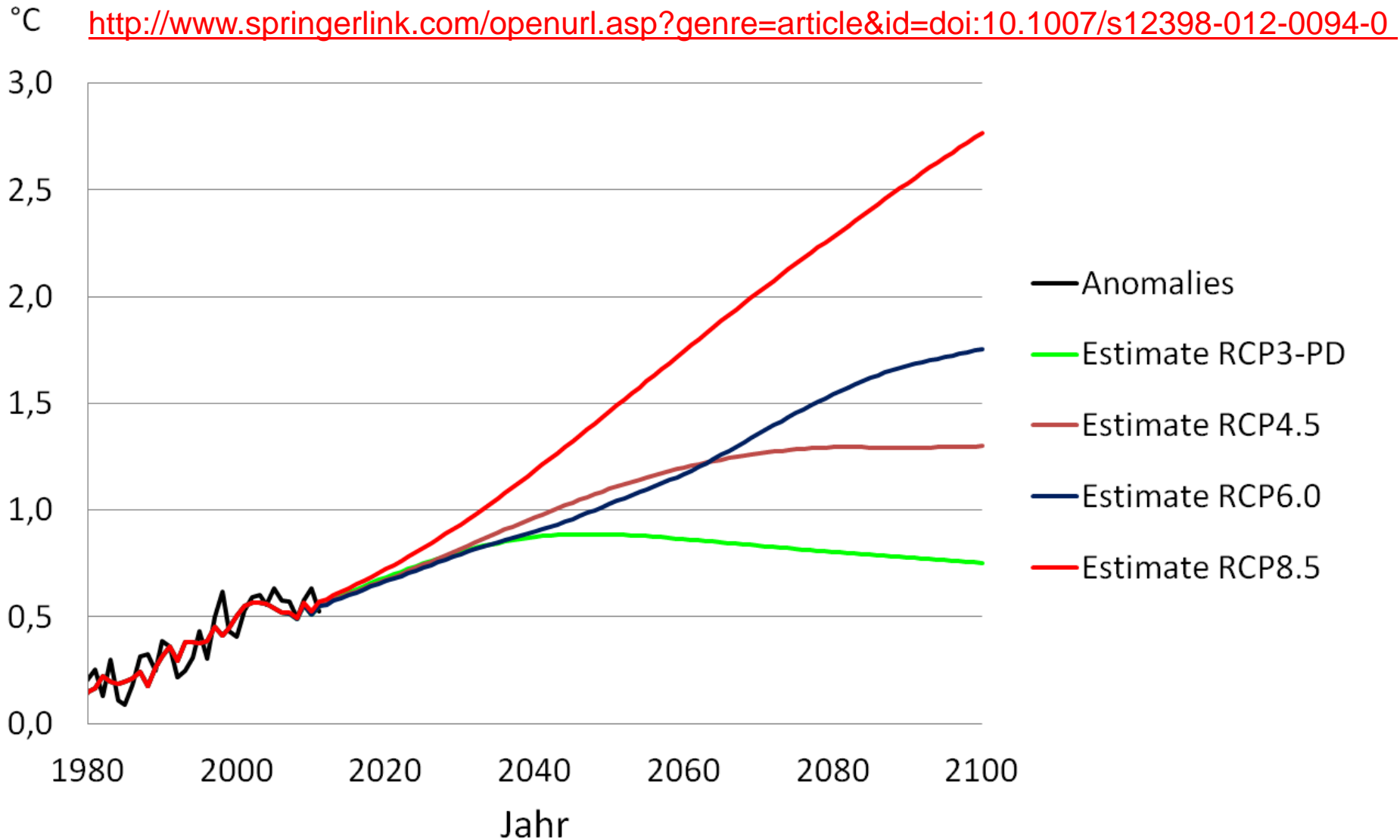
# Energy poverty

- Million people without electricity
- Million people without clean cooking facilities



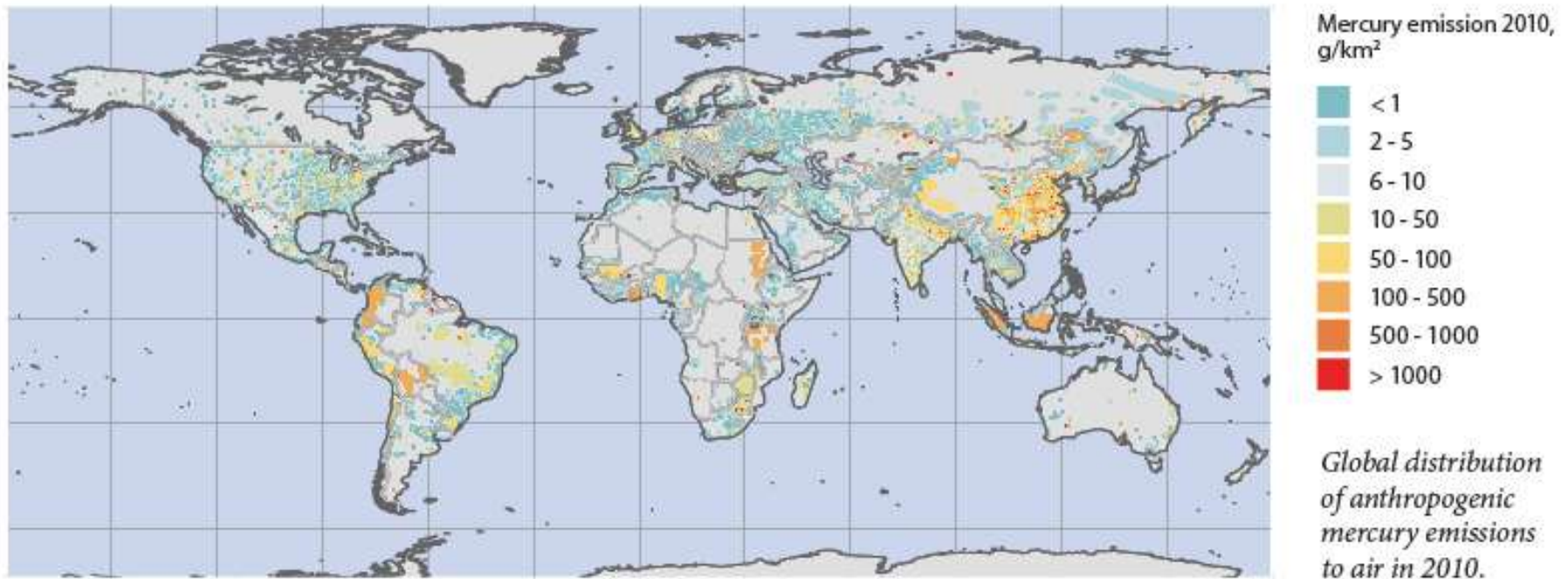
***1.3 billion people in the world live without electricity  
and 2.7 billion live without clean cooking facilities***

# Estimate of the anomalies based on IPCC scenarios from RCP3-PD to RCP8.5



# Global distribution of anthropogenic mercury emissions to air in 2010

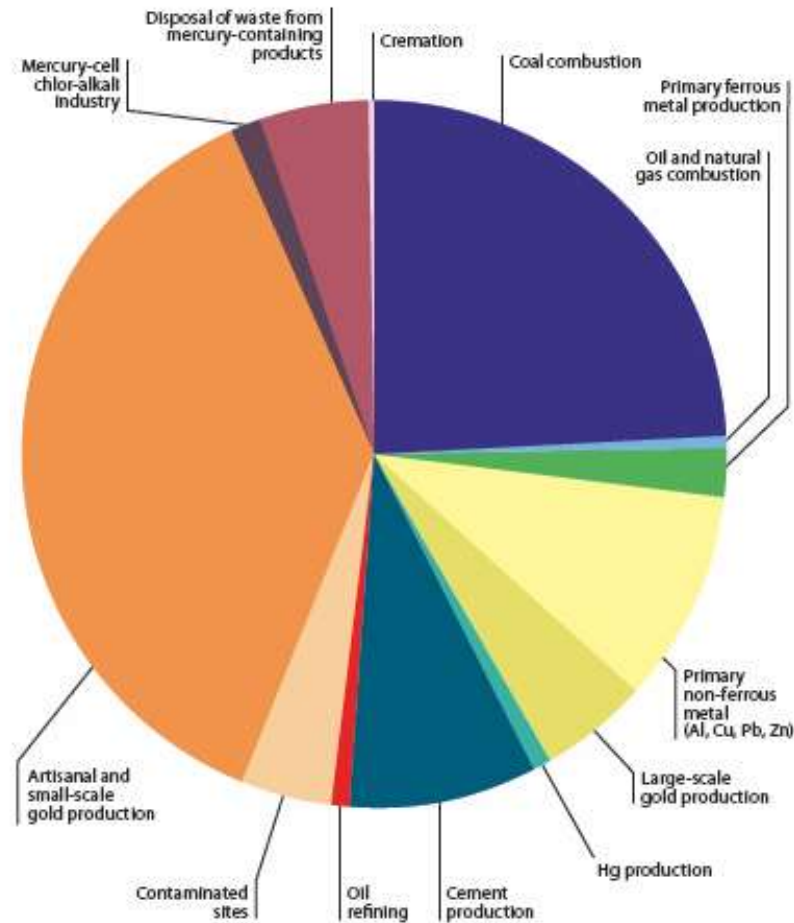
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Source: UNEP, Global Mercury Assessment 2013



# Relative contributions to estimated emissions to air from anthropogenic mercury sources in 2010



*Relative contributions to estimated emissions to air from anthropogenic sources in 2010.*

Source: UNEP, Global Mercury Assessment 2013