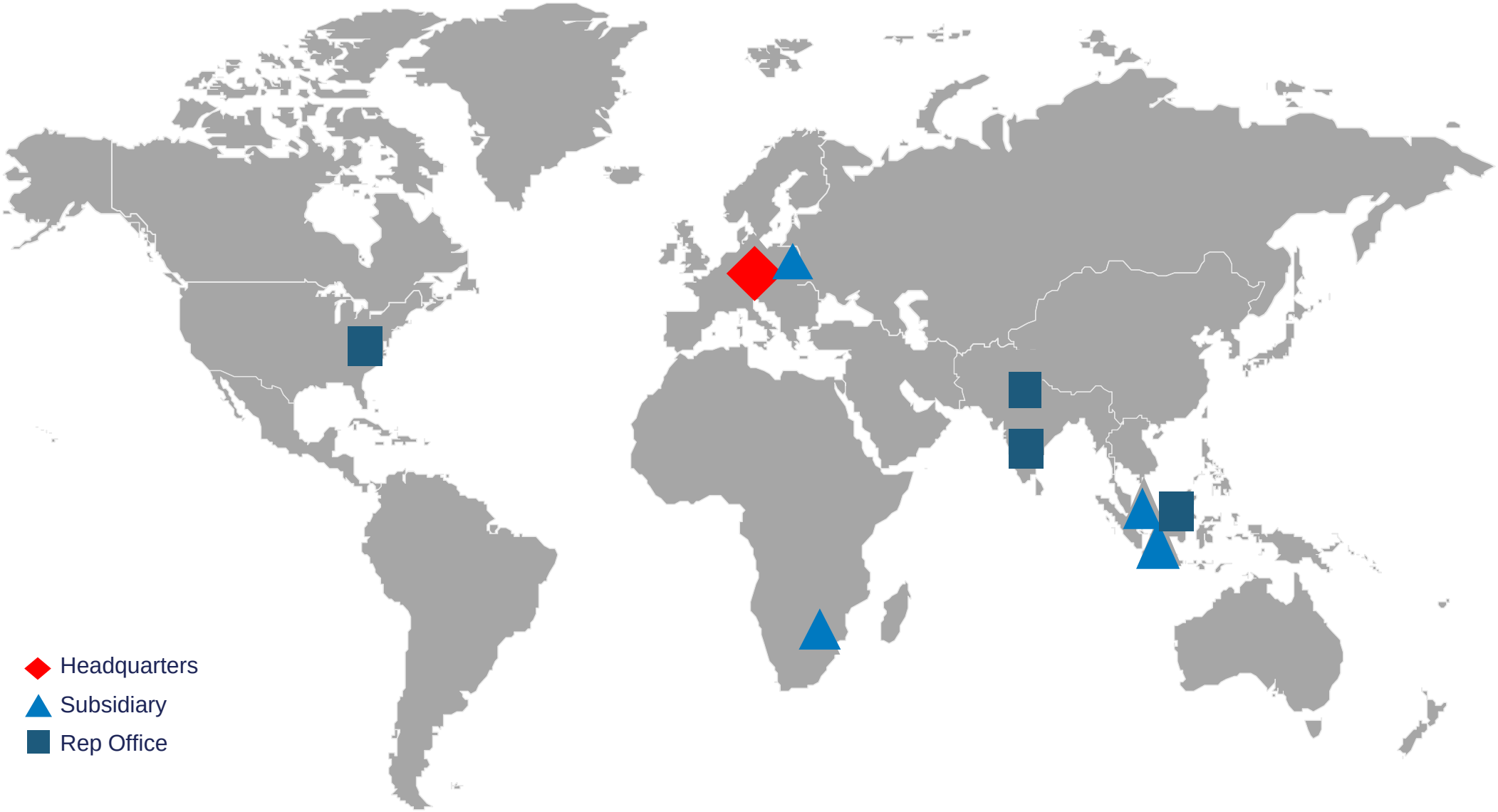
Coal market – a makro trend

Wendelin Knauss

Flensburg, März 2016

© HMS Bergbau Group
not to be copied or distributed without written consent

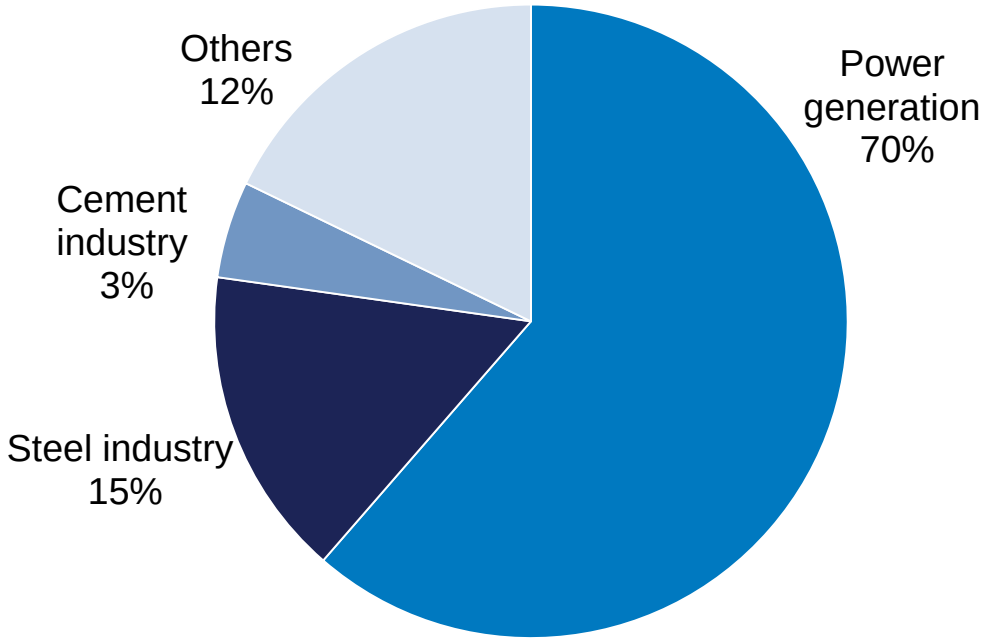
HMS Bergbau AG – Dry Bulk Trading from Berlin with Subsidiaries in South Africa, Singapore, Indonesia, Poland



© HMS Bergbau Group
not to be copied or distributed without written consent

Usage of Coal 2013

Estimation

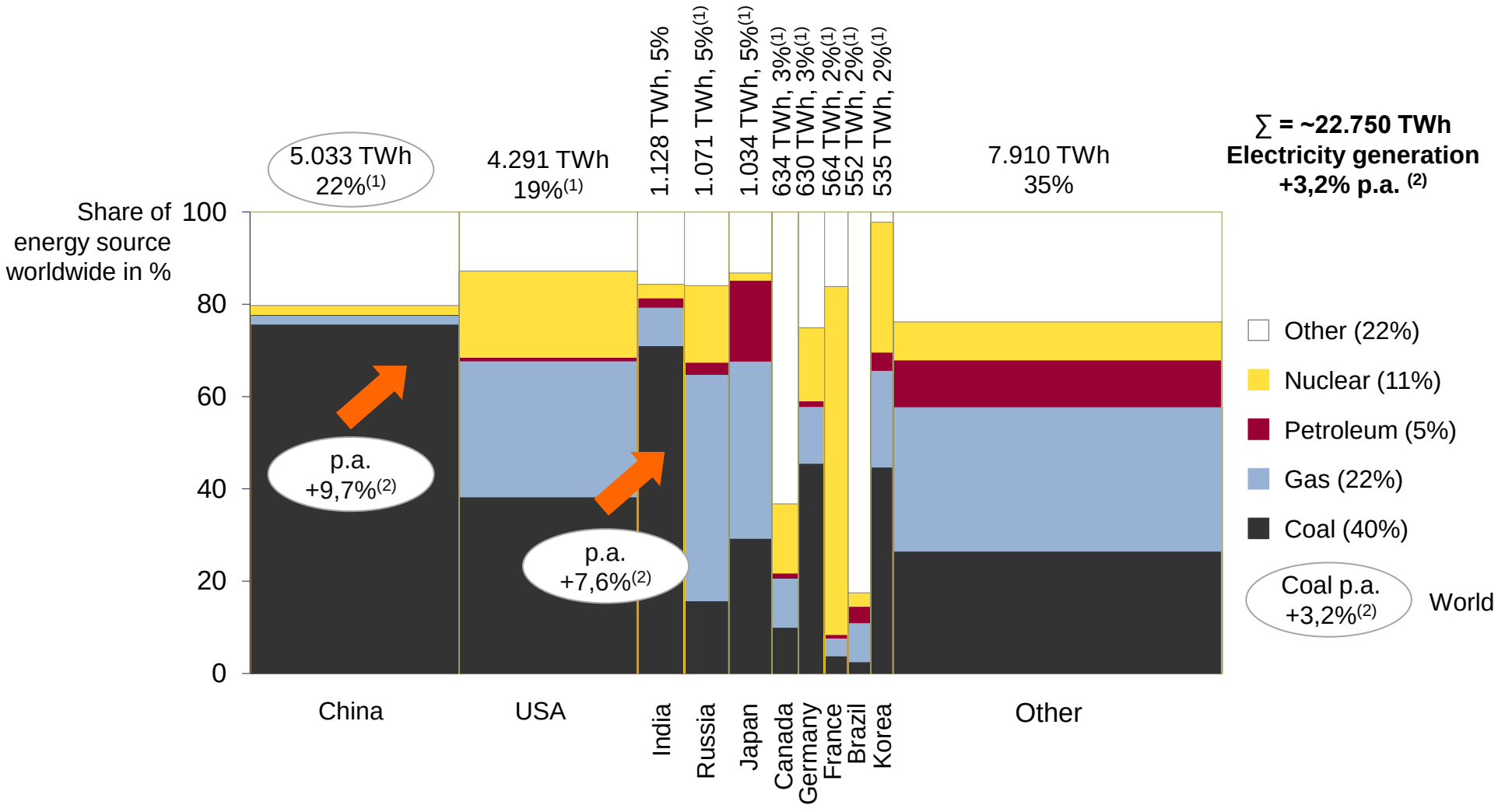


Note: It is assumed that cement consumed about 400 Million tons in 2014
Sources: Author's estimates based on own research and analysis; Schernikau 2010; VDKI 2006-2015; Ritschel/Schiffer 2007; IEA Energy Outlook 2007-2014, i200

© HMS Bergbau Group
not to be copied or distributed without written consent

2013 Top 10 Electricity Producers…

… Account for 68% of Global Electricity Production

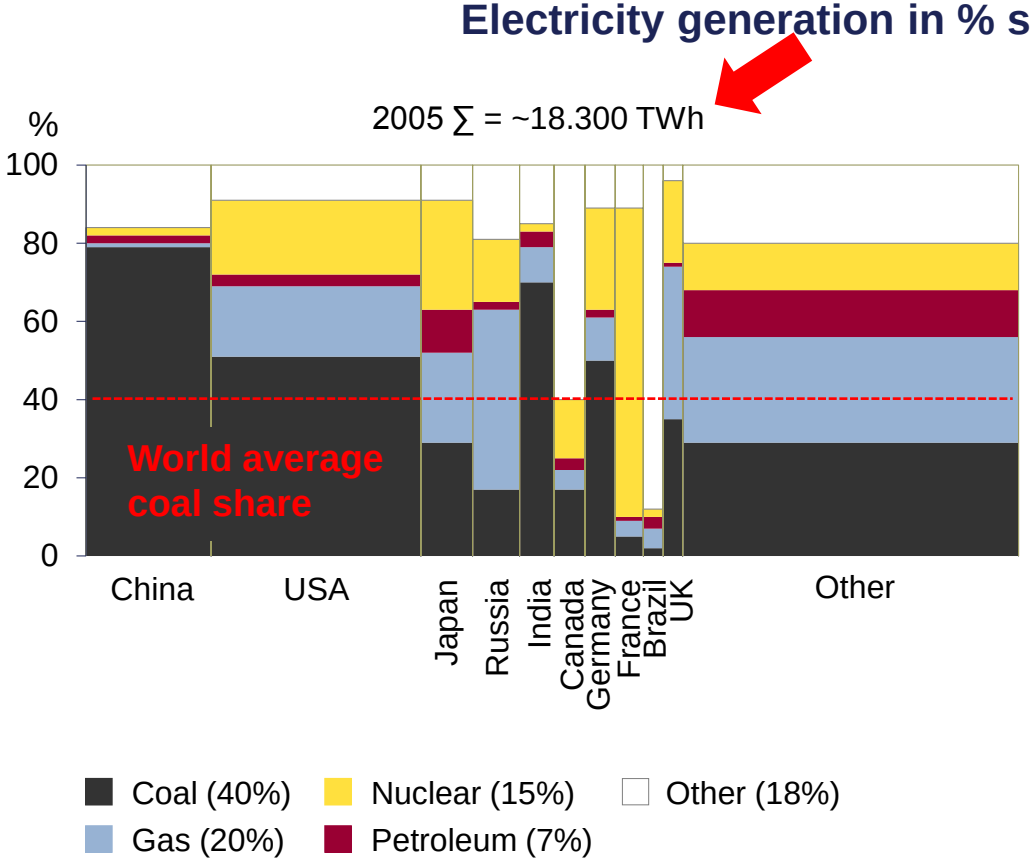


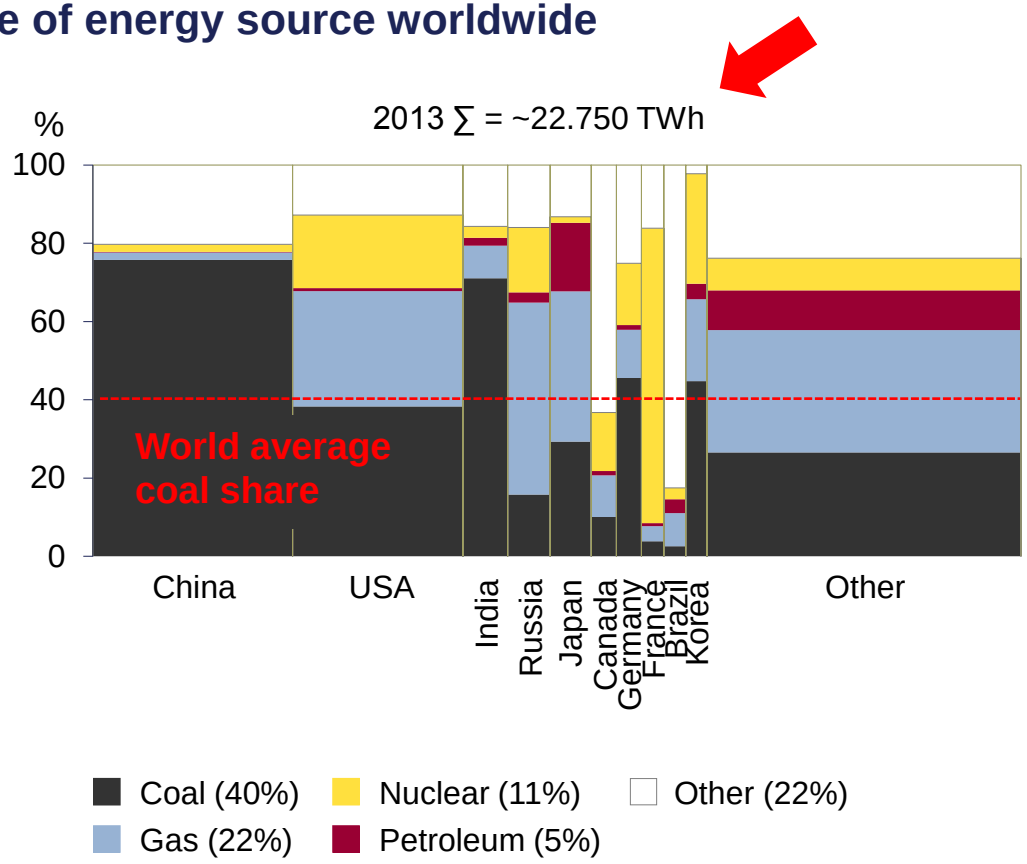
(1) Electricity production share of respective country; (2) CAGR 2005-2012 in %
Sources: IEA-Statistics 2014; author's analysis; i234

© HMS Bergbau Group
not to be copied or distributed without written consent

Coal and Electricity Generation 2005 vs. 2013

Electricity generation in % share of energy source worldwide





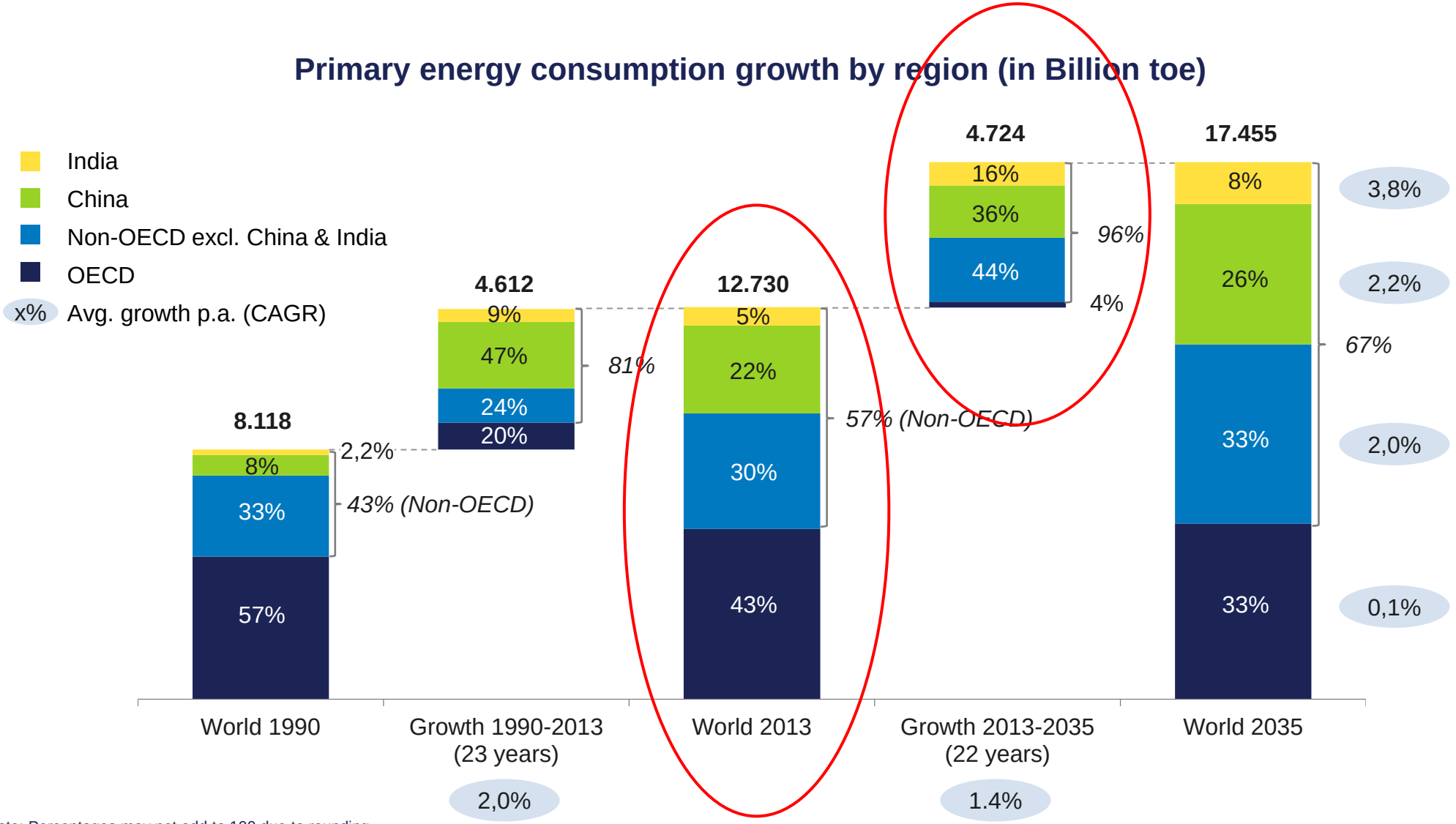
Sources: IEA-Statistics 2004 to 2014; author's analysis, i236

© HMS Bergbau Group
not to be copied or distributed without written consent

Energy Demand Will Grow Until 2035: OECD vs. Non-OECD

World Energy Demand Will Continue to Increase, Driven by Non-OECD Demand

Primary energy consumption growth by region (in Billion toe)



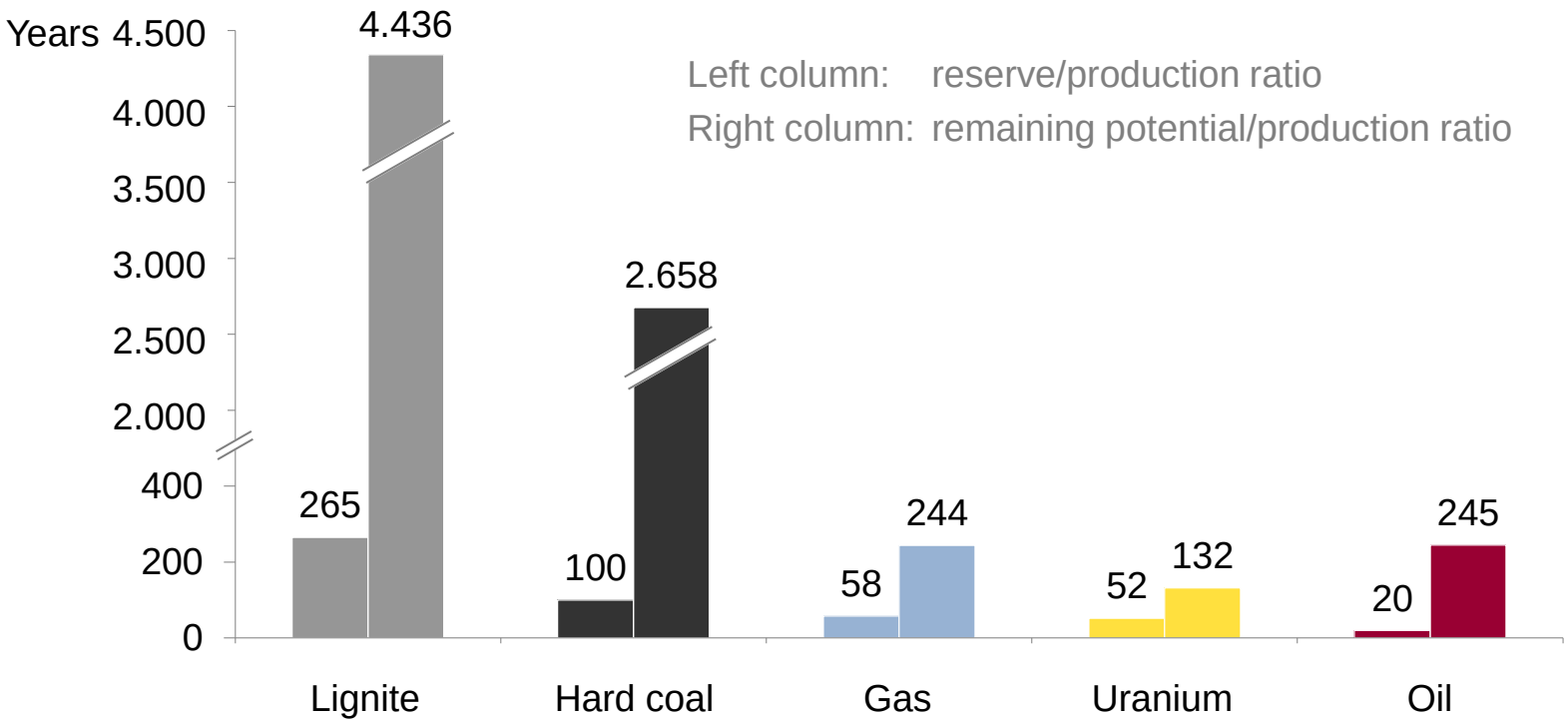
Note: Percentages may not add to 100 due to rounding

Sources: BP Energy Outlook 2015; s695 and S154; IEA (what, year?); author's analysis; i202

© HMS Bergbau Group
not to be copied or distributed without written consent

2013 Coal's Remaining Potential is Huge

Static range of energy fuels worldwide (production ratios) in 2013



Note: 2013 data; reserves + resources = remaining potential; oil and gas include non-conventional reserves and resources
Sources: BGR 2014; author's analysis; i254b

© HMS Bergbau Group
not to be copied or distributed without written consent

So, what's the macro-trend for coal?

Coal: 30% primary energy share

Coal: +40% electricity share
(China ~75%, India ~70%, ∑ Asia +60%)

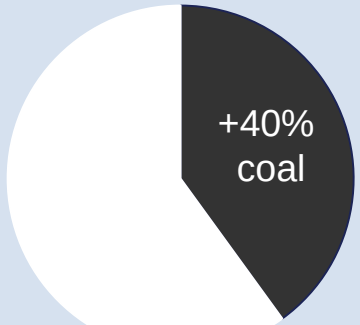
1,5 Bln people have no electricity

2 Bln people have only access to erratic power

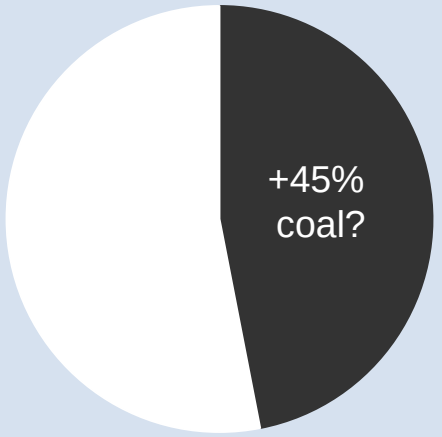
∑ 3,5 Bln people lack electricity today!

… population will grow from 7,3 Bln people today to about ~8,5 Bln by 2035

World electricity (today)



World electricity (in 20 years)



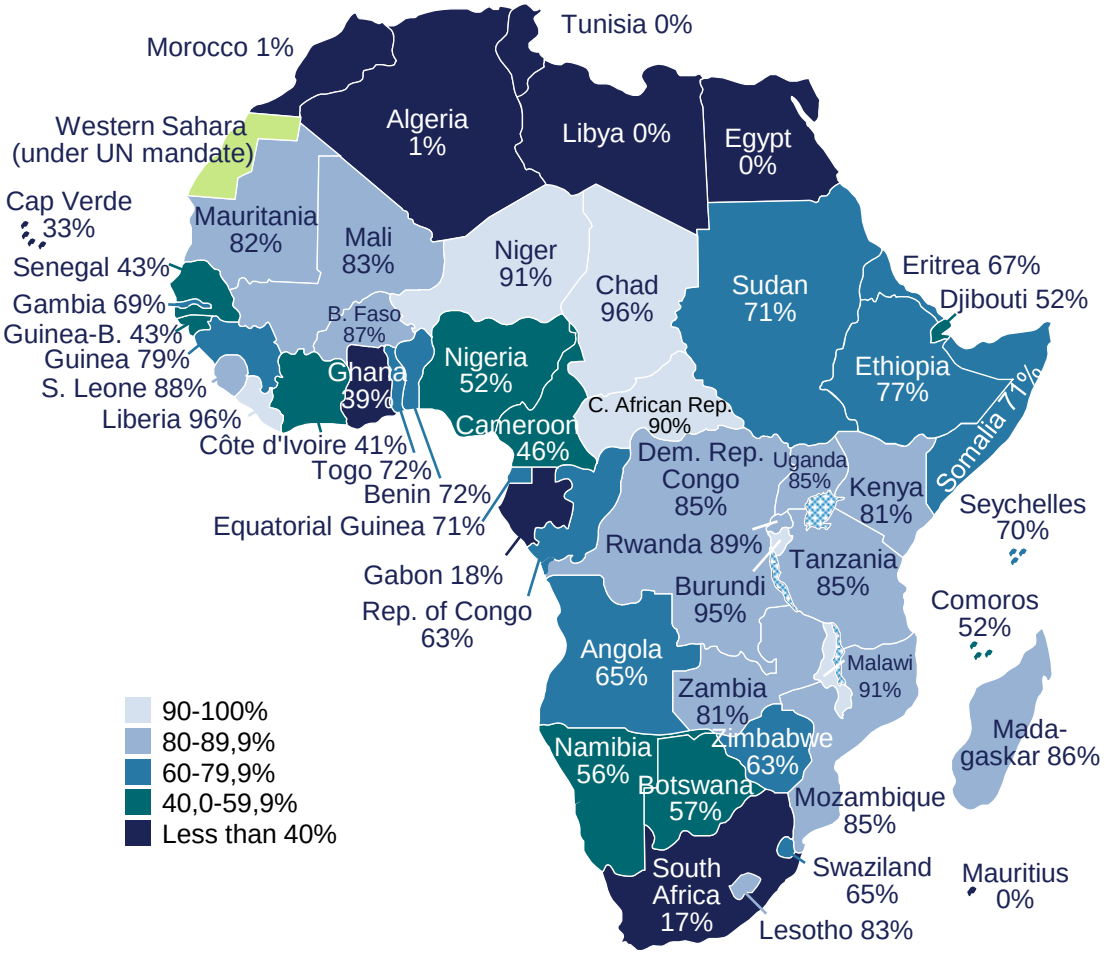
Absolute and relative growth of coal for power is inevitable – until an energy revolution!

Source: Author's research and analysis based on Schernikau 2010; IEA-Statistics 2012 and 2014; Forbes 2014; VDKI 2006 to 2015; ixxx

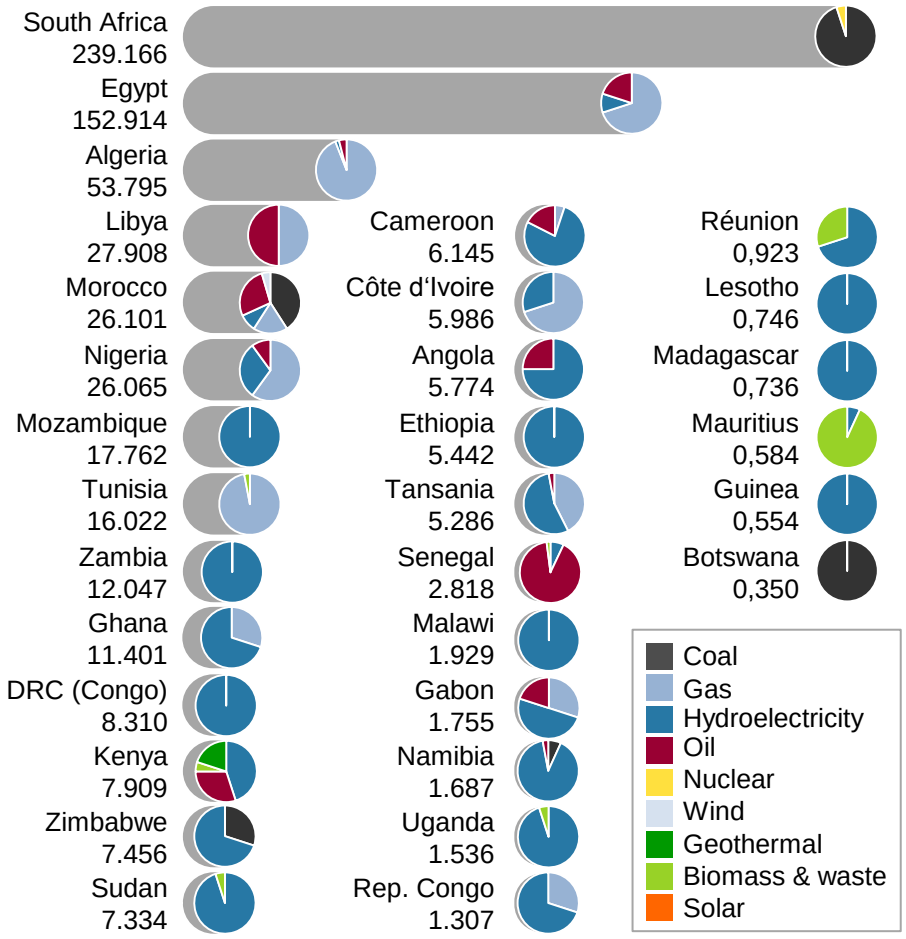
© HMS Bergbau Group
not to be copied or distributed without written consent

Powering the African Continent

African Population without access to electricity



Electricity generation in selected African countries (in TWh)



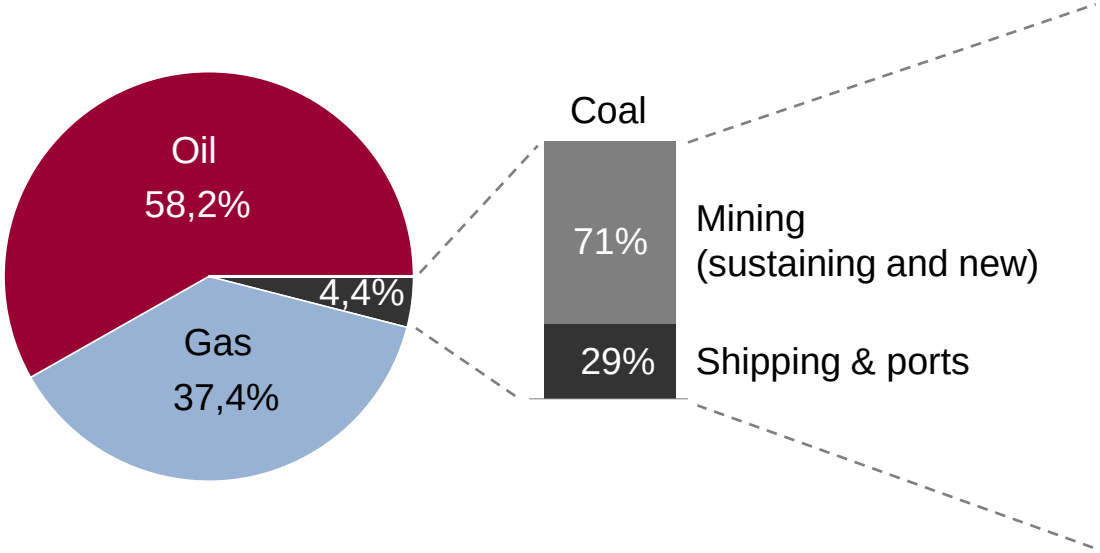
Source: Renewable Energy 2015; Renewable Energy World Magazine crediting AEEP Status Report 2014 and The Shift Projects, s746, i284

© HMS Bergbau Group
not to be copied or distributed without written consent

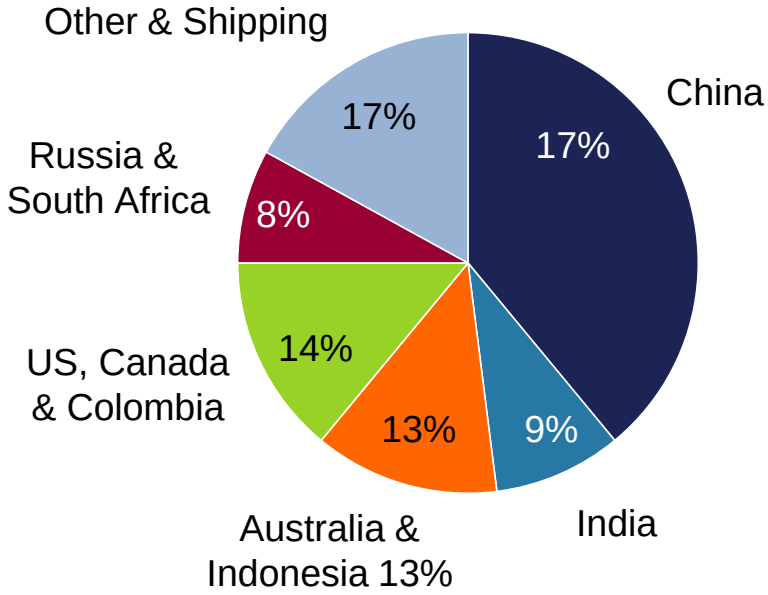
Coal Receives Only Minimal Resource Investment Share …

World Energy Investments Cumulative Between 2014 and 2035 (New Policies Scenario)

Energy resource investments: ~23,8 Trillion US$(1)



Coal resource investments: ~1,0 Trillion US$(1)



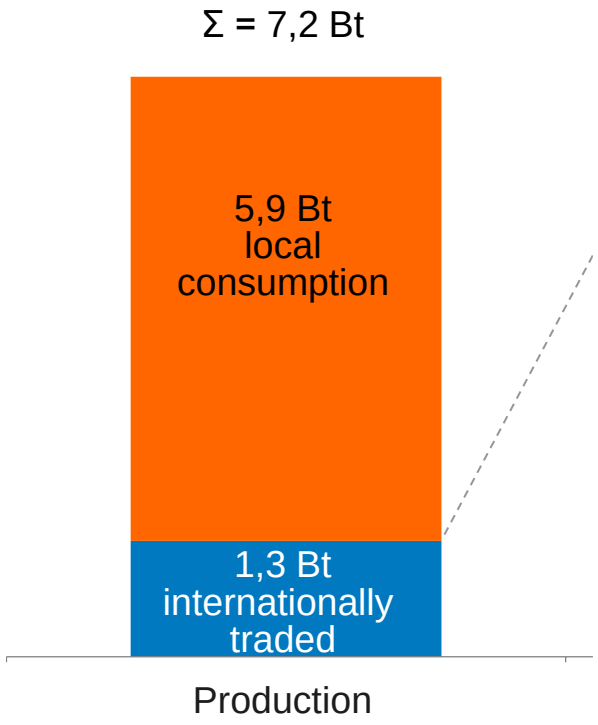
Coal receives only 1.034 Billion US$ or 4% of resource investments

(1) Global cumulative investment in Energy 40 Trillion US$, of which 40% or 16,4 Trillion US$ are investments in electricity generation (of which 9,6 Trillion power generation); 23,8 Trillion US$ investments in energy resources
Note: IEA New Policy Scenario assumed, US$ of year 2012
Sources: IEA World Energy Investment Outlook 2014; Dissertation Lars Schernikau 2009, s683, p101, p103; i221b

© HMS Bergbau Group
not to be copied or distributed without written consent

939 Mt International Traded Steam Coal

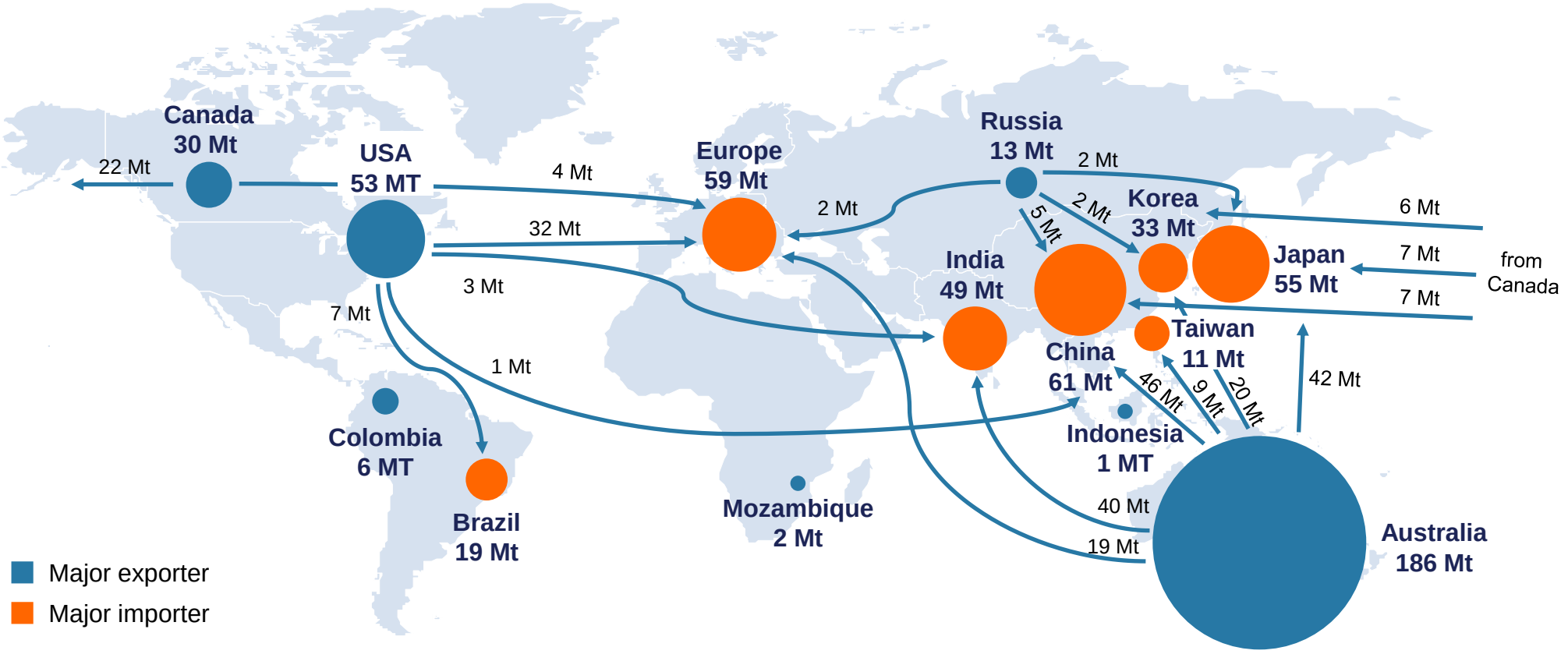
Global coal volumes in 2014



(1) The author added 61 Mt of subbituminous coal supplied to India in 2014 to the seaborne trade numbers; Perret estimates 985 Mln tonnes
Sources: VDKI 2014-2015; author's analysis; i206b

© HMS Bergbau Group
not to be copied or distributed without written consent

2014 Global Seaborne Coking Coal Trade Flows

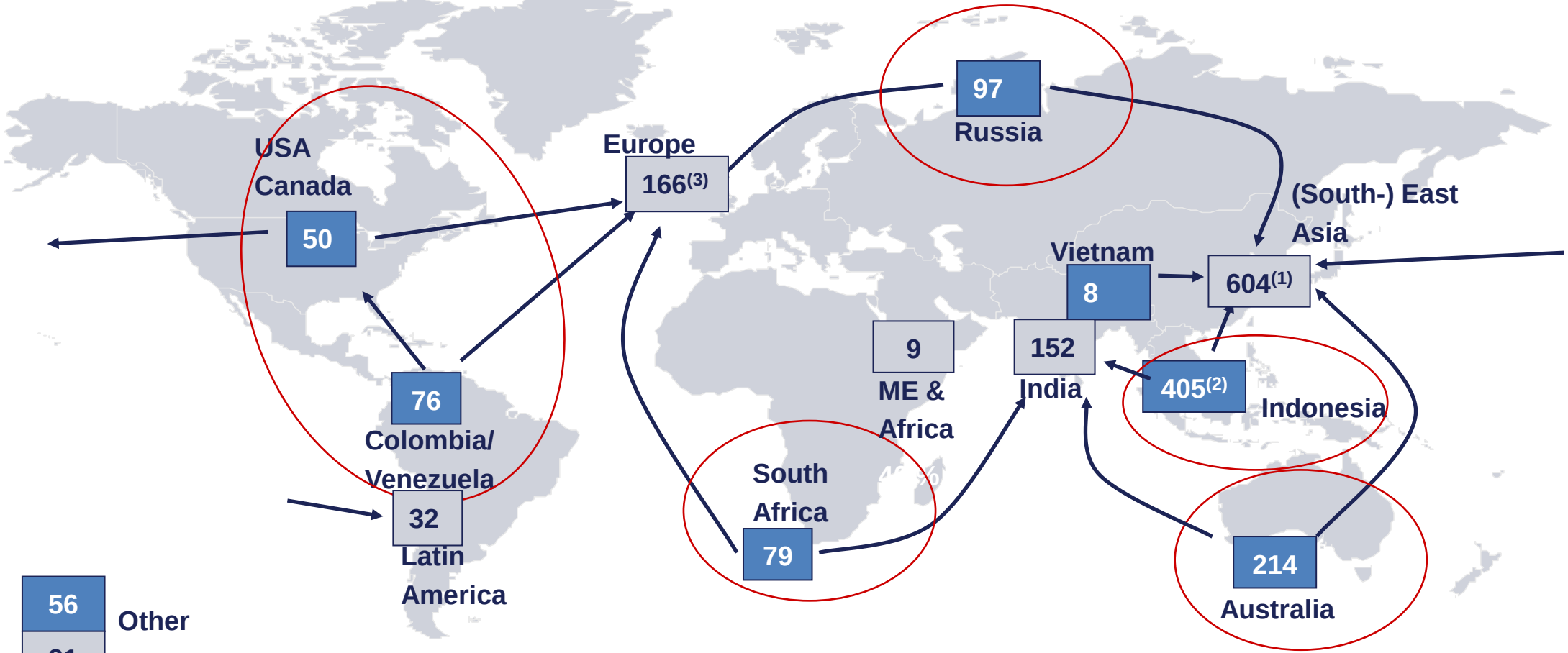


Note: 2014 full-year data, making assumptions for land-borne trade
Source: MacQuarie 2015 (s754) based on Customs data, Macquarie Research, September 2015, i227

© HMS Bergbau Group
not to be copied or distributed without written consent

985 Mio. Tons Steam Coal Traded in 2014 (Perret)

Coal movements in 2014 in Mio t

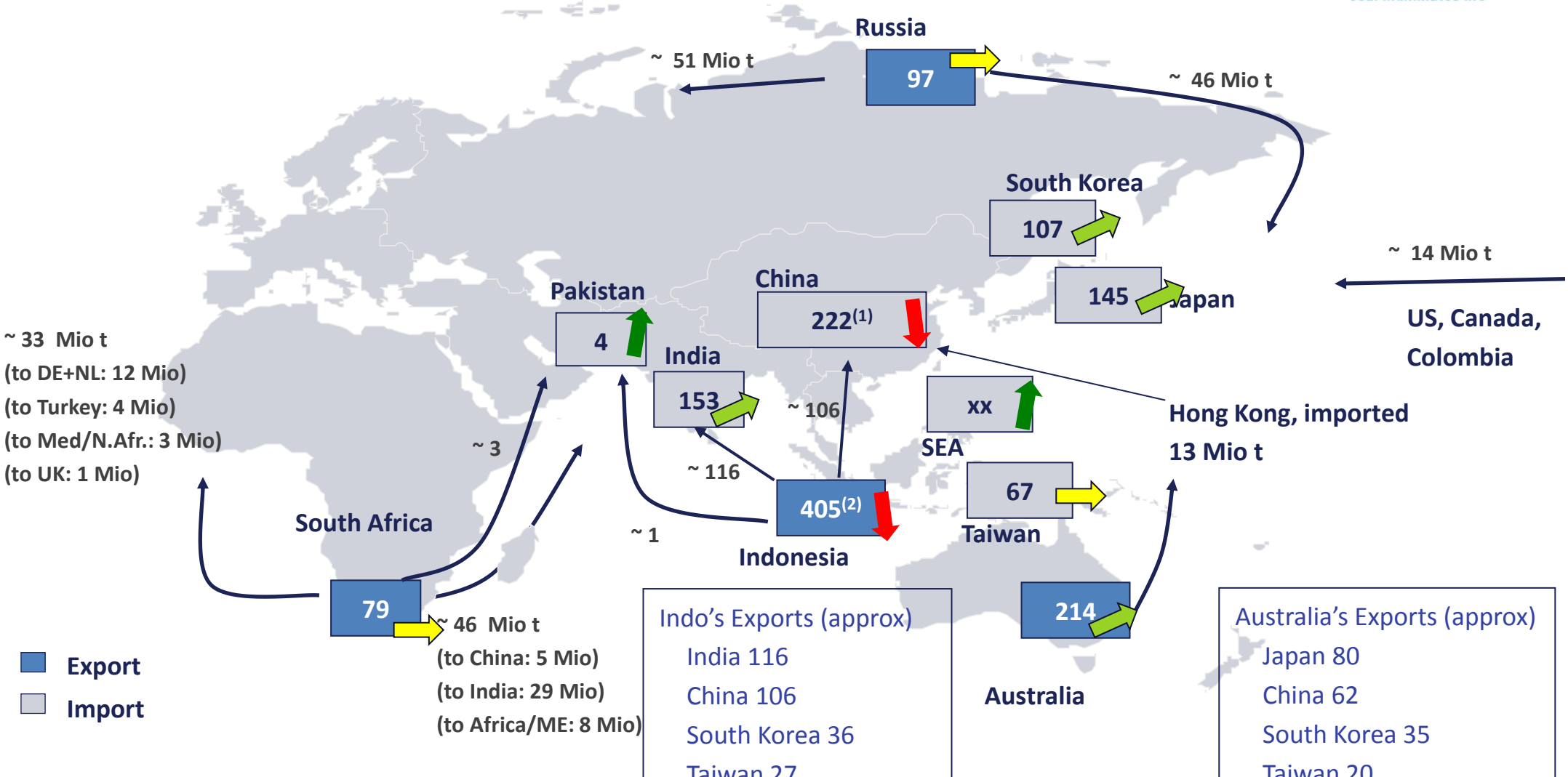


1) Includes China (222 incl 60 lignite), Japan (114), Korea (107), Taiwan (68), Thailand (25), Malaysia (22) Hong Kong (13), other (South East) Asia (35)
2) Including low CV/lignite steam coal exports
3) Including Mediterranean and North Africa
Source: Author's research and analysis, based on Perret

© HMS Bergbau Group
not to be copied or distributed without written consent

2014 Asian Steam Coal Trading Distribution (Perret)

Pacific Market: coal movements in 2014 in Mio t



Indo's Exports (approx)
- India 116
- China 106
- South Korea 36
- Taiwan 27
- Japan 15

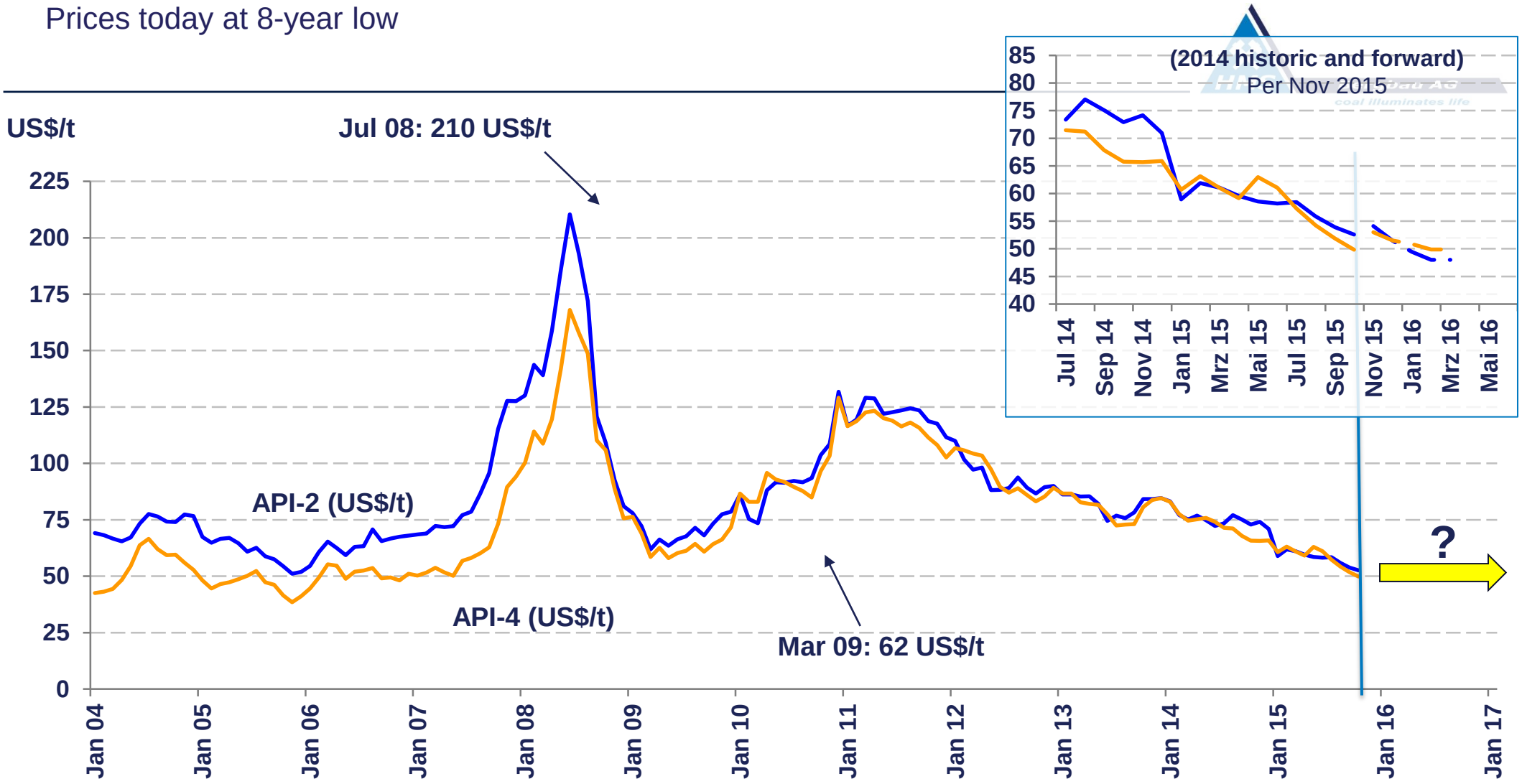
Australia's Exports (approx)
- Japan 80
- China 62
- South Korea 35
- Taiwan 20

1) Inc lignite coal from Indonesia
2) Inc lignite coal
Source: Author's research and analysis, based on Perret; Chinese Customs Data; RBCT Export Data; and various market research

© HMS Bergbau Group
not to be copied or distributed without written consent

Coal Indices 2002-2015 (as per November 2015)

Prices today at 8-year low



Coal will be around for decades to come…
… and coal prices will definitely recover (only when?)

Note: API2 = coal price CIF Europe; API4 = coal price FOB South Africa
Source: Author's Analysis; McCloskey Coal Price Index, author's analysis

© HMS Bergbau Group
not to be copied or distributed without written consent