

ASIAN DEVELOPMENT

Outlook 2013

Asia's Energy Challenge



Asian Development Bank



CONCITO



Confederation of Danish Industry



CONCITO

Launch of Asian Development Outlook
19 April 2013

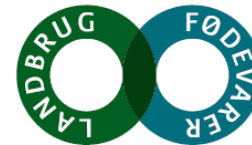
Stine Bosse
Chairman

About CONCITO

Companies



HENNING **LARSEN** ARCHITECTS



RelationsPeople



Scientists

Aalborg Universitet:

Seniorforsker Lars Engberg
Seniorforsker Rob Marsh
Seniorforsker Kirsten Engelund Thomsen
Adjunkt Claus Lassen

Aarhus Universitet:

Professor Mikael Skou Andersen
Professor Ellen Margrethe Basse
Professor Ole Færgeman
Professor Peter Kemp
Professor Jørgen E. Olesen

Copenhagen Business School:

Rektor Per Holten-Andersen
Professor Jens Frøslev Christensen
Professor Susse Georg
Lektor Christian Erik Kampmann

GEUS:

Professor Jens Christian Refsgaard

Syddansk Universitet:

Professor Henrik Wenzel

Roskilde Universitet:

Professor Lise Drewes Nielsen
Lektor Per Homann Jespersen
Lektor Jacob Rendtorff
Lektor Thomas Budde Christensen

Danmarks Tekniske Universitet:

Centerleder Bjarne W. Olesen
Professor Svend Svendsen
Professor Thomas Højlund Christensen
Programleder Kirsten Halsnæs
Seniorforsker Kristian Borch
Seniorforsker Henrik Gudmundsson
Lektor Karsten Arnbjerg-Nielsen
Lektor Susanne Balslev
Lektor Jeppe Rich

Københavns Universitet

Prodekan Birgitte Sloth
Professor John R. Porter
Professor Peter Nedergaard
Professor Svend Christensen
Professor Thomas Højrup
Professor Øjvind Lidegaard
Professor Katherine Richardson



Civil society

Stine Bosse, bestyrelsesformand og
-medlem

Jørgen Abildgaard

Thomas Alstrup

Jesper Asholt, skuespiller

Ole Boisen, skuespiller

Kim Carstensen, fhv. generalsekretær
WWF

Anders Eldrup

Jørn Jespersen, direktør for Dansk
Miljøteknologi, tidl. MF

Jørgen Henningsen, Senior Advisor,
European Policy Center

Per Henriksen

Tobias Lau, Social Action

Torben Melchior, fhv. præsident for
højesteret

Henrik Nordbrandt, forfatter

Fritz Schur, bestyrelsesformand, konsul

Göran Wilke, Exergi



CONCITO

Purpose

Contribute to lower carbon emissions



Limit the harmful effects of climate change



Focus areas

Green development

Policy, technology, economy



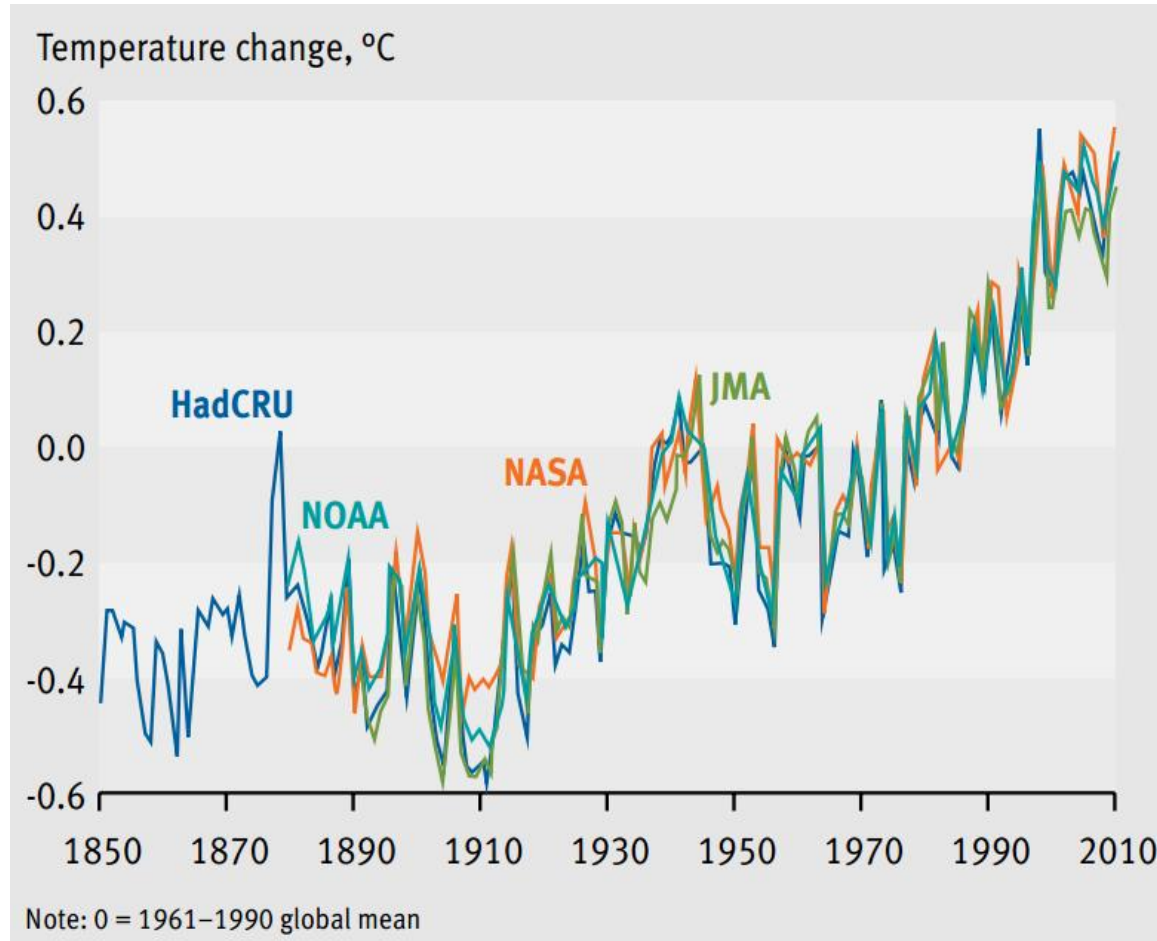
Green behaviour

Consumption and lifestyle



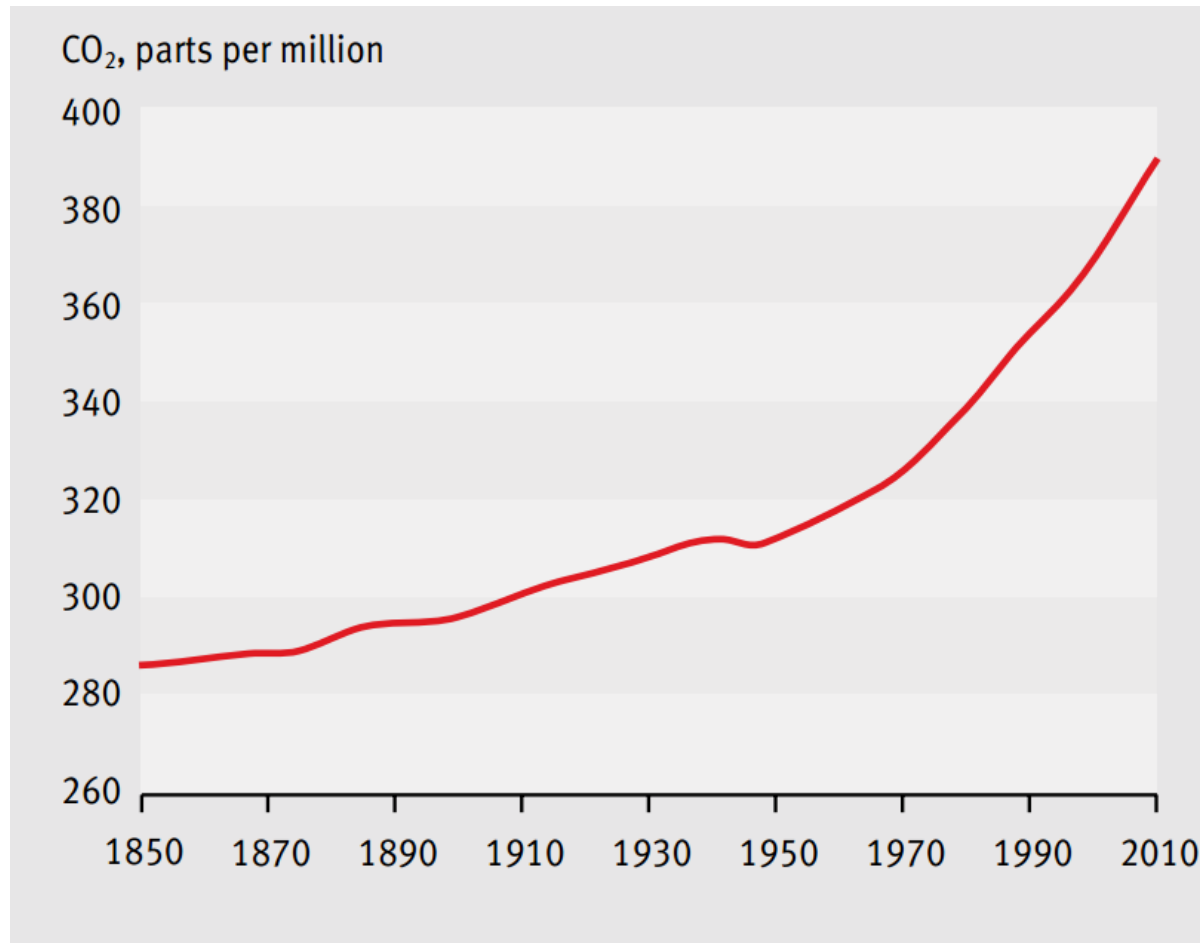
The climate challenge

Rising temperatures



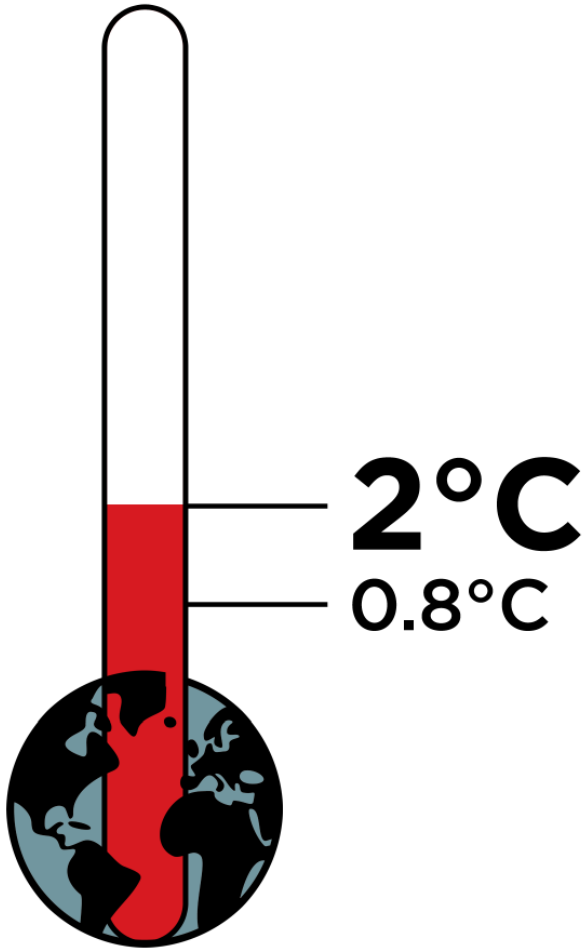
Kilde: GEO5

CO₂ in atmosphere



Kilde: GEO5

What's the objective?

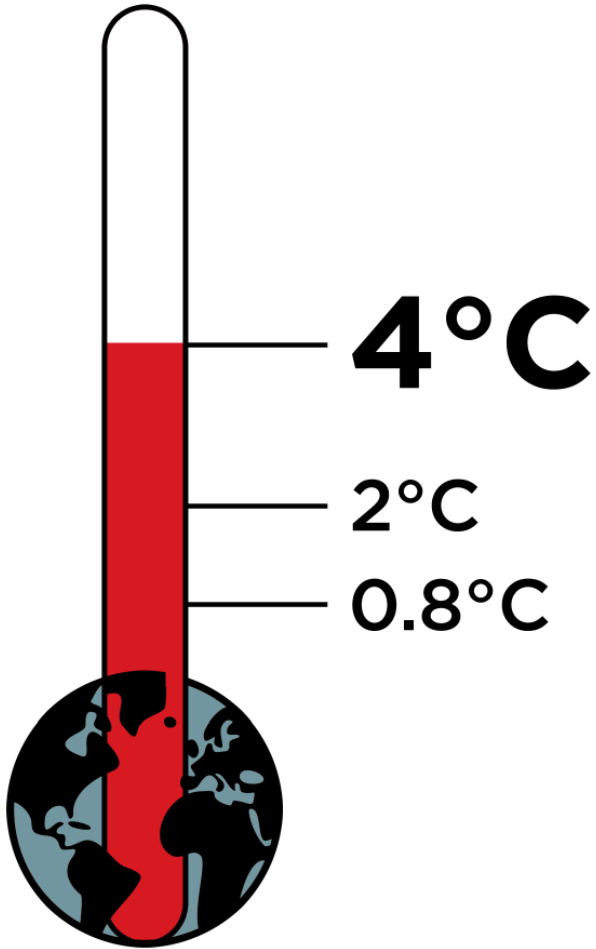


Too high to be safe

Too low to be possible?

Illustration: David Roberts, Grist.org

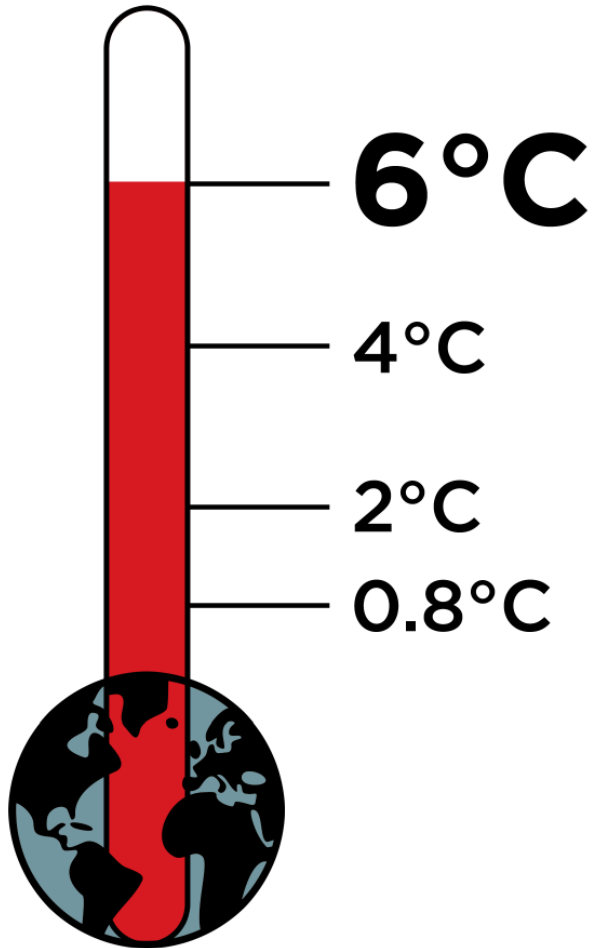
Where are we heading?



If we don't reduce enough

Illustration: David Roberts, Grist.org

Where are we heading?



If we continue with
"business as usual"

Illustration: David Roberts, Grist.org

How many gigatons of CO₂?

have we released to date?



more can we "safely" release*?



are left to release?



CURRENT HUMAN EMISSIONS PER YEAR

31 gigatons

TIME BEFORE WE BREAK OUR 'CARBON BUDGET'



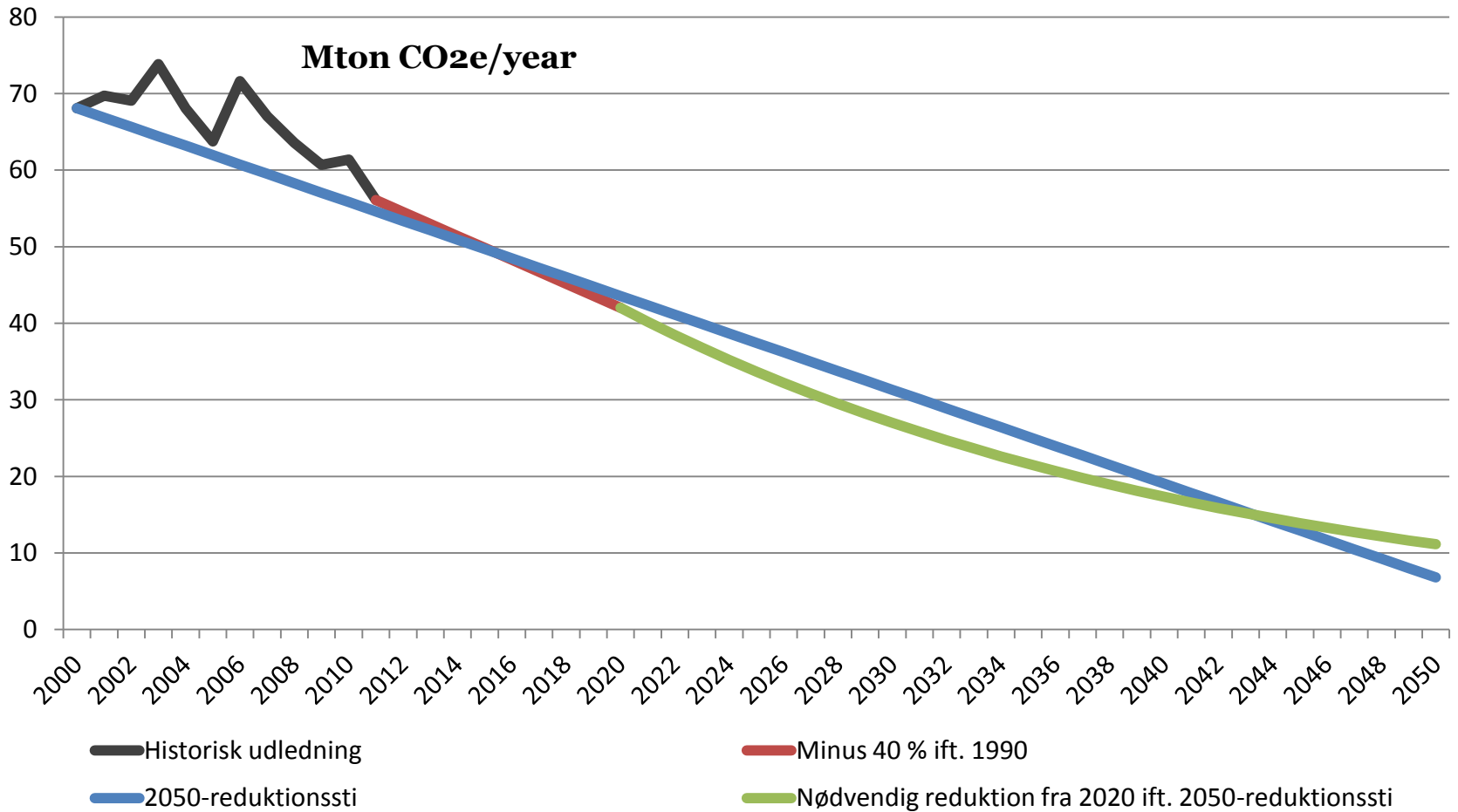
13 YEARS

average yearly emissions increase: 3%

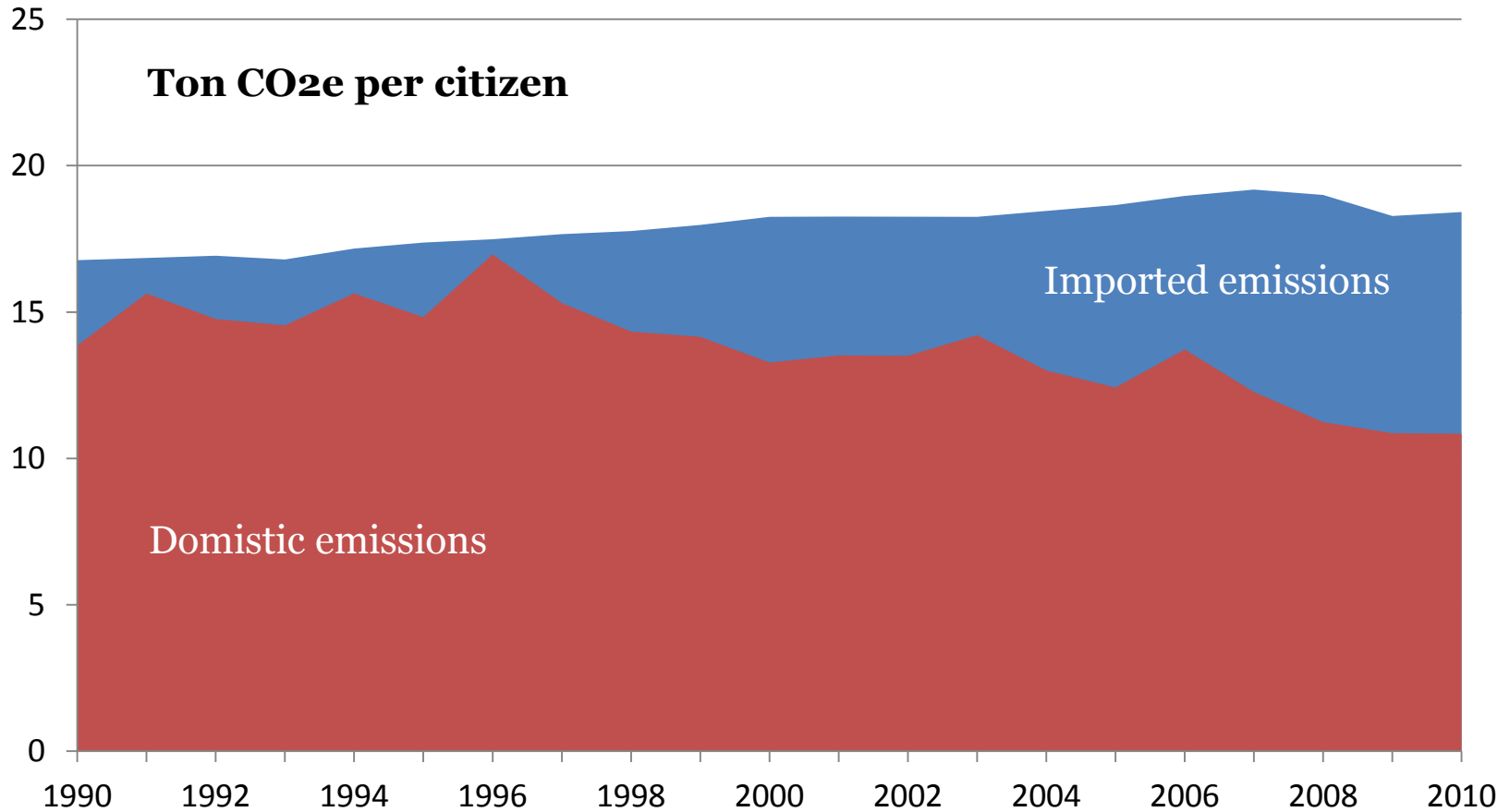
* before 2050 and still have a chance of staying below 2°C warming

Danish and European outlook

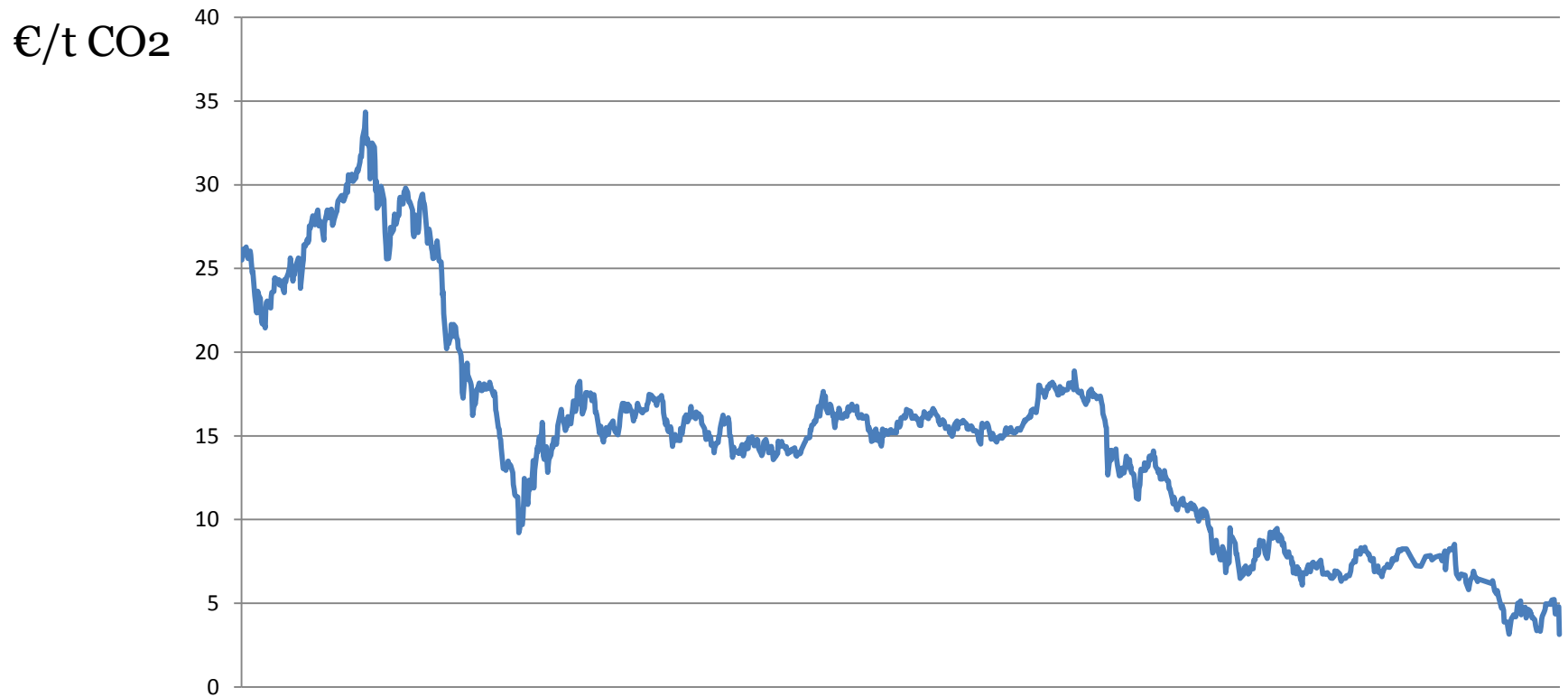
Denmark's climate challenge (-40 %)



Denmark's climate challenge



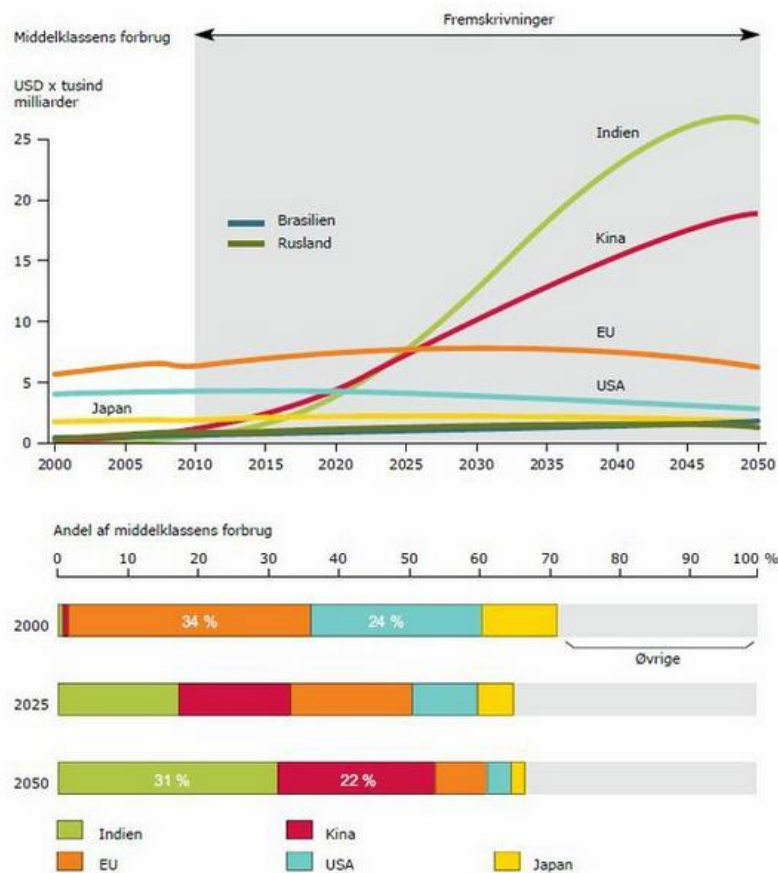
Europe's climate challenge



Carbon price in the EU-ETS 2008-2013.

Asian outlook

Asia's climate challenge



I denne undersøgelse er middelklassen defineret ved forbrugets størrelse: Det er den gruppe husholdninger, der bruger mellem 10 og 100 USD dagligt (i købekraftspariteter).

Kilde: Kharas, H., 2010, *The emerging middle class in developing countries*.

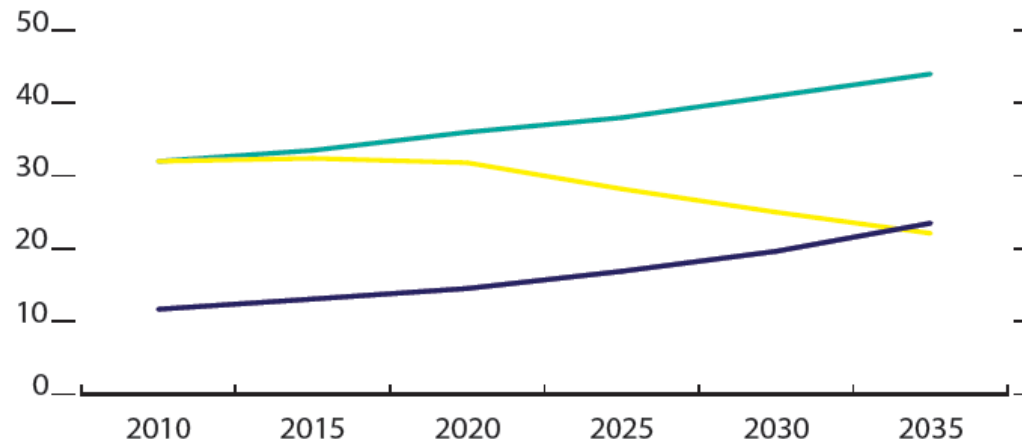
EEA, miljøsignaler 2011

Asia's climate challenge

2.1.9 Projected energy-related carbon dioxide emissions from developing Asia

- IEA current policies scenario (world)
- IEA 450 scenario (world)
- Developing Asia carbon dioxide emissions

Energy-related carbon dioxide emissions (billion tons)



IEA = International Energy Agency.

Sources: IEA 2012a; Lee, Park, and Saunders, forthcoming.

Climate solutions

Global solutions



Regional, national, local solutions

Energy efficiency

Renewable energy

Climate friendly lifestyles

Adaptation

Important issues to debate

How to develop a climate friendly energy system in Asia

How to improve living standards of the new Asian middle class in a climate friendly way

Potential of a global carbon footprint standard to be used in climate and trade agreements

Thank you!

concito.dk

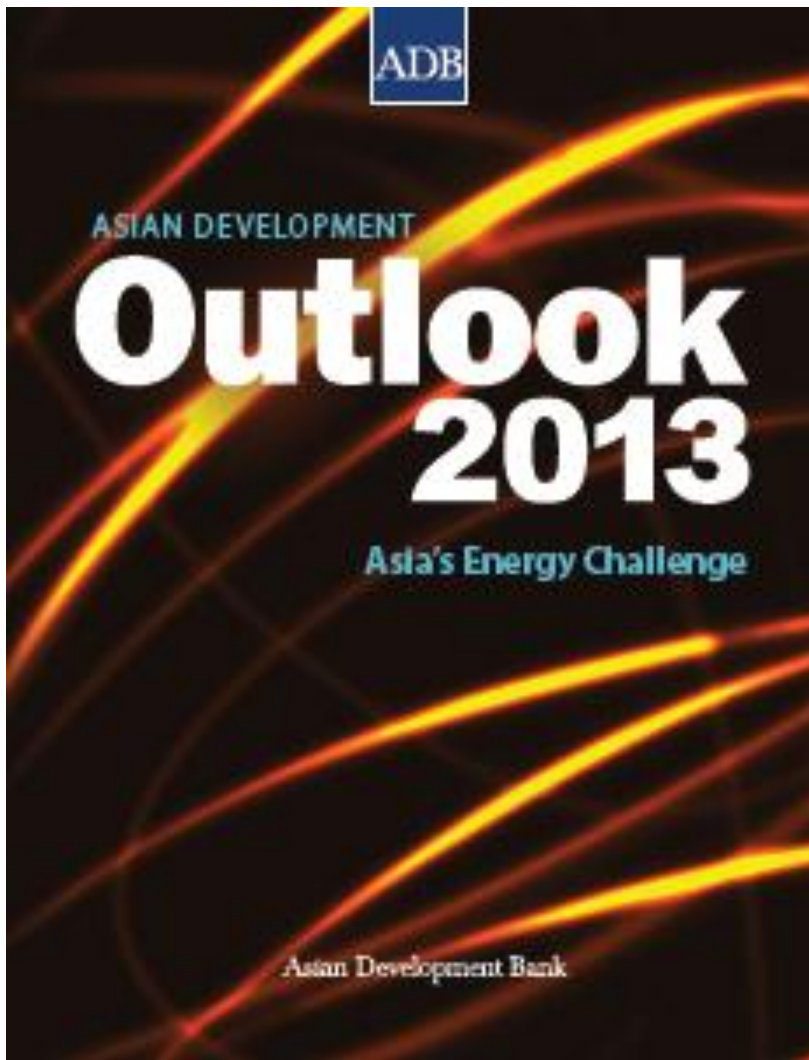
ASIAN DEVELOPMENT

Outlook 2013

Asia's Energy Challenge



Asian Development Bank



Asian Development Outlook 2013

Asia's Energy Challenge

Joseph E. Zveglich, Jr.

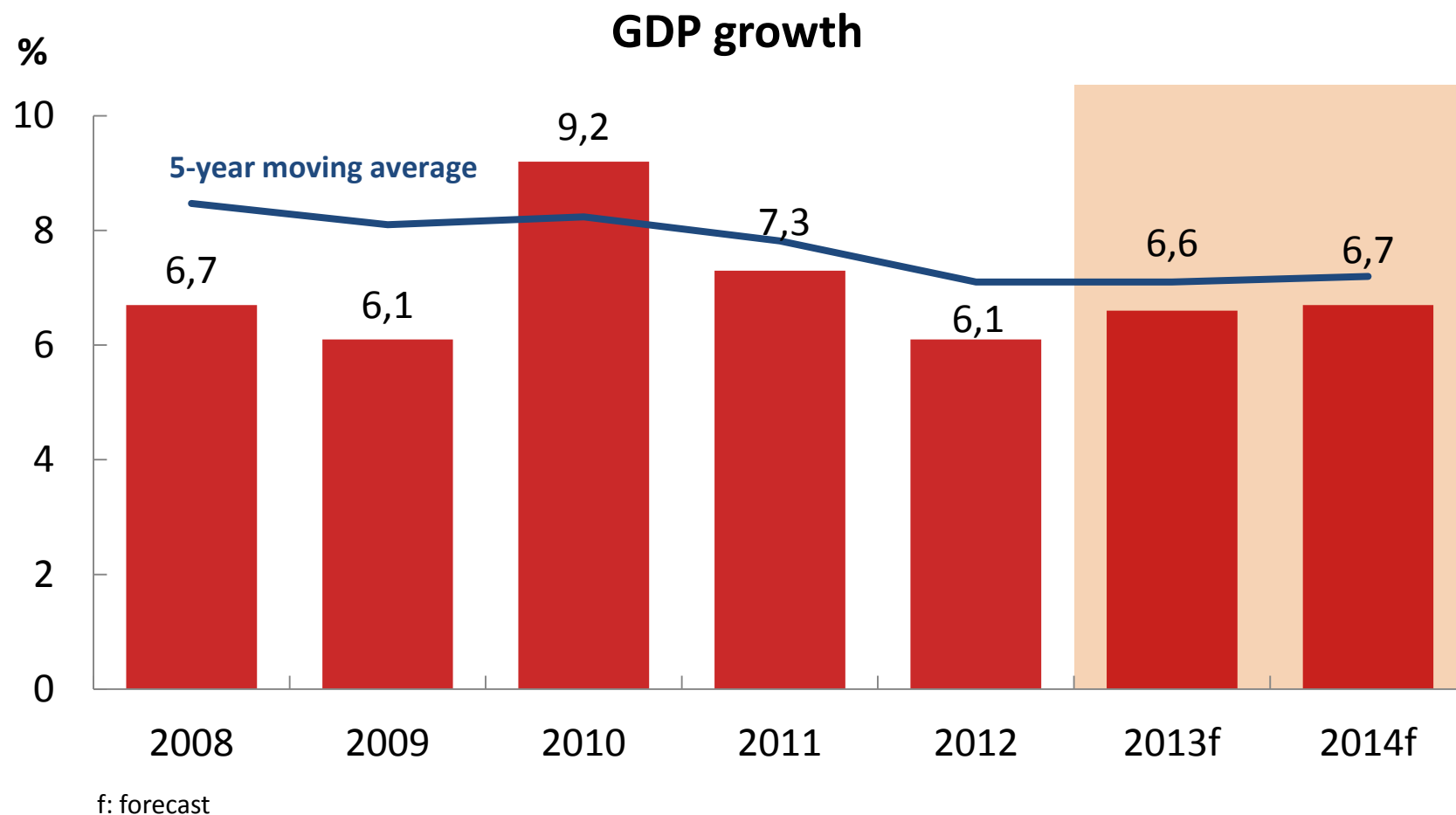
**Assistant Chief Economist
Asian Development Bank**

17 April 2013

Key findings

- Developing Asia's growth is picking up to 6.6% in 2013 and 6.7% in 2014
- PRC's rebound and ASEAN's resilience drive the region's pick up
- Inflation will remain in check at about 4% but price pressures are building
- Risks to the outlook go beyond economics in the US, euro area, and Asia
- Sustaining Asia's growth requires diversification of its energy mix, making it cleaner and more affordable

Developing Asia's growth is picking up...

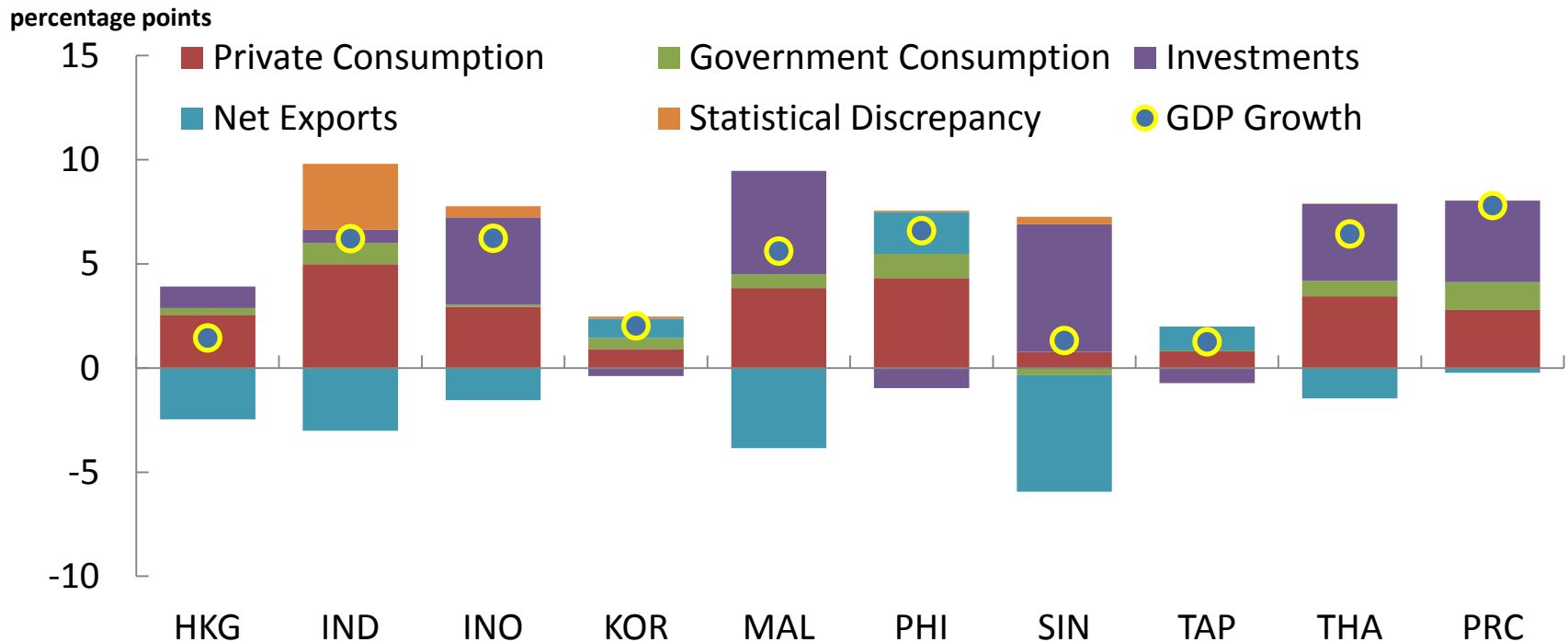


...despite the subdued external environment

GDP growth (%)	2011 Actual	2012 Actual	2013 ADO 2013 projection	2014 ADO 2013 projection
Major industrial economies	1.2	1.2	1.0	1.9
United States	1.8	2.2	2.0	2.6
Euro area	1.4	-0.6	-0.3	1.2
Japan	-0.6	2.0	1.2	1.4

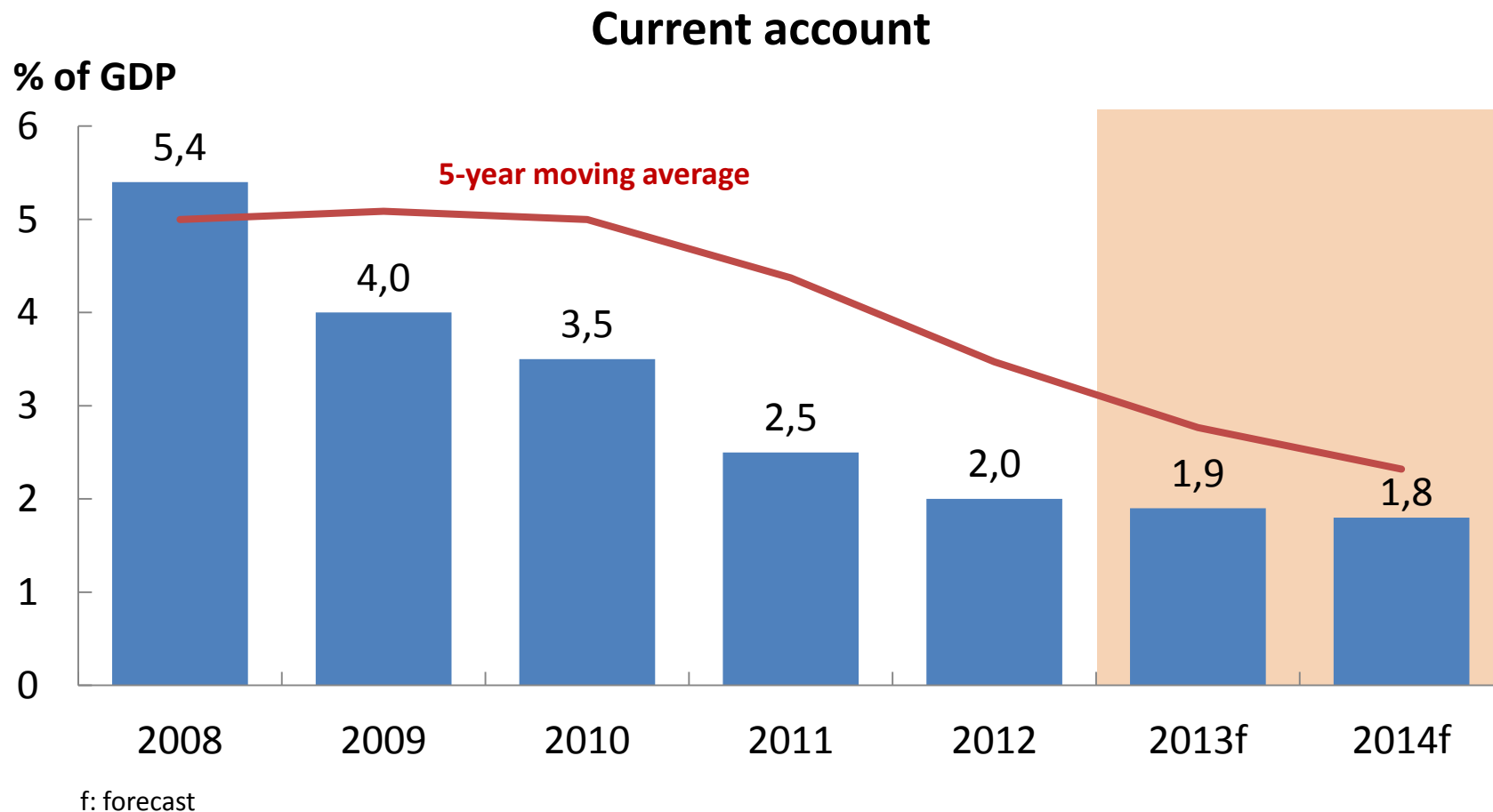
Growth driven by domestic demand...

Contributions to growth (demand), 2012



HKG=Hong Kong, China; IND=India; INO=Indonesia; KOR=Rep. of Korea; MAL=Malaysia; PHI=Philippines; SIN=Singapore; TAP=Taipei,China; THA=Thailand; PRC=People's Rep. of China

...and rebalancing is well under way



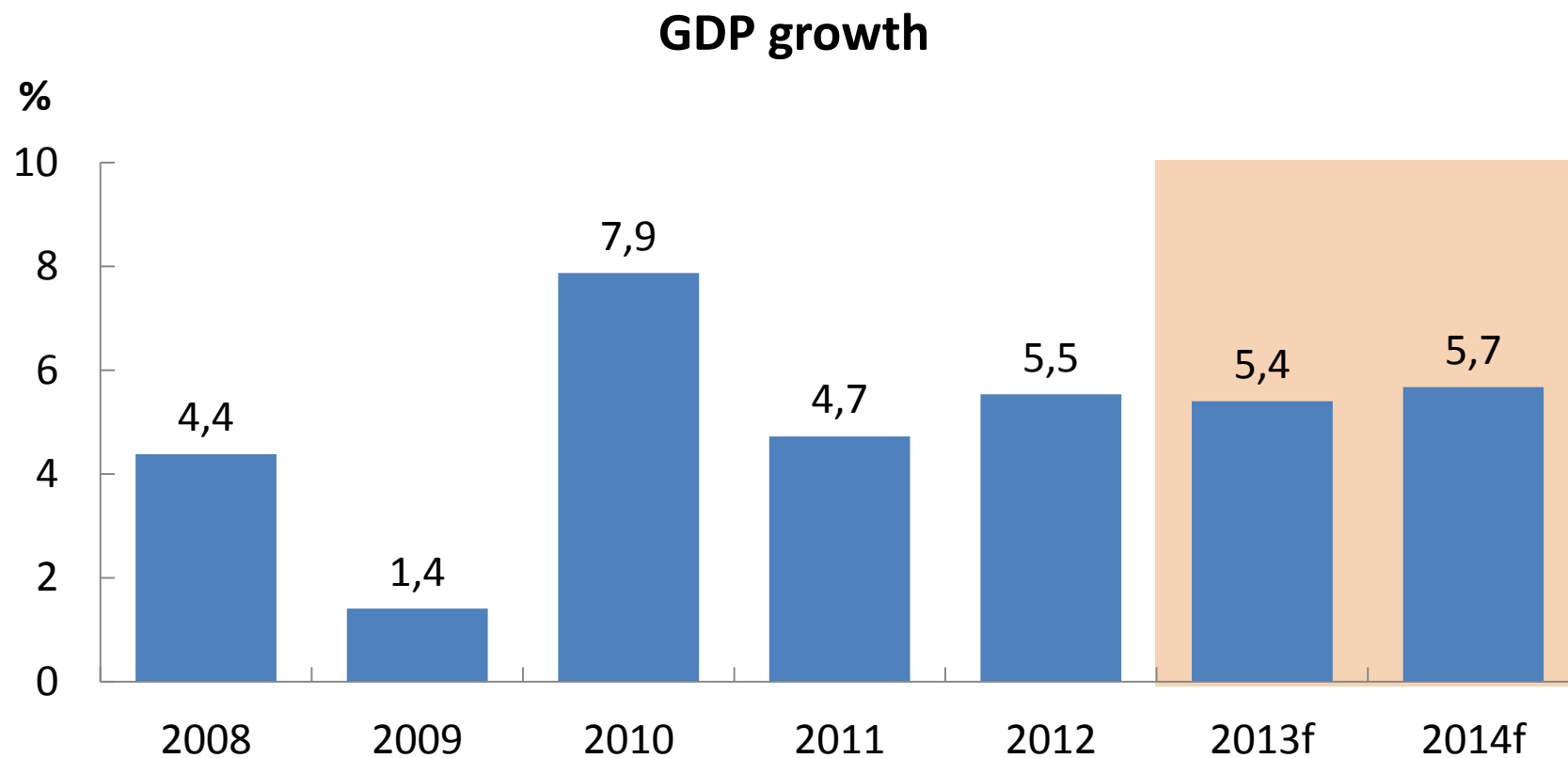
The region's two giants are showing different speeds of recovery...

	2012	2013 ^f	2014 ^f
South Asia	5.0	5.7	6.2
India	5.0	6.0	6.5
Pakistan	3.7	3.6	3.5
Sri Lanka	6.4	6.8	7.2
Southeast Asia	5.5	5.4	5.7
Indonesia	6.2	6.4	6.6
Malaysia	5.6	5.3	5.5
Philippines	6.6	6.0	5.9
Singapore	1.3	2.6	3.7
Thailand	6.4	4.9	5.0
Viet Nam	5.0	5.2	5.6

	2012	2013 ^f	2014 ^f
Central Asia	5.6	5.5	6.0
Azerbaijan	2.2	3.1	4.8
Kazakhstan	5.0	5.2	5.6
East Asia	6.5	7.1	7.1
China, People's Rep. of	7.8	8.2	8.0
Hong Kong, China	1.4	3.5	3.8
Korea, Rep. of	2.0	2.8	3.7
Taipei, China	1.3	3.5	3.9
The Pacific	7.3	5.2	5.5
Fiji	2.5	2.0	2.3
Papua New Guinea	9.2	5.5	6.0

f: forecast

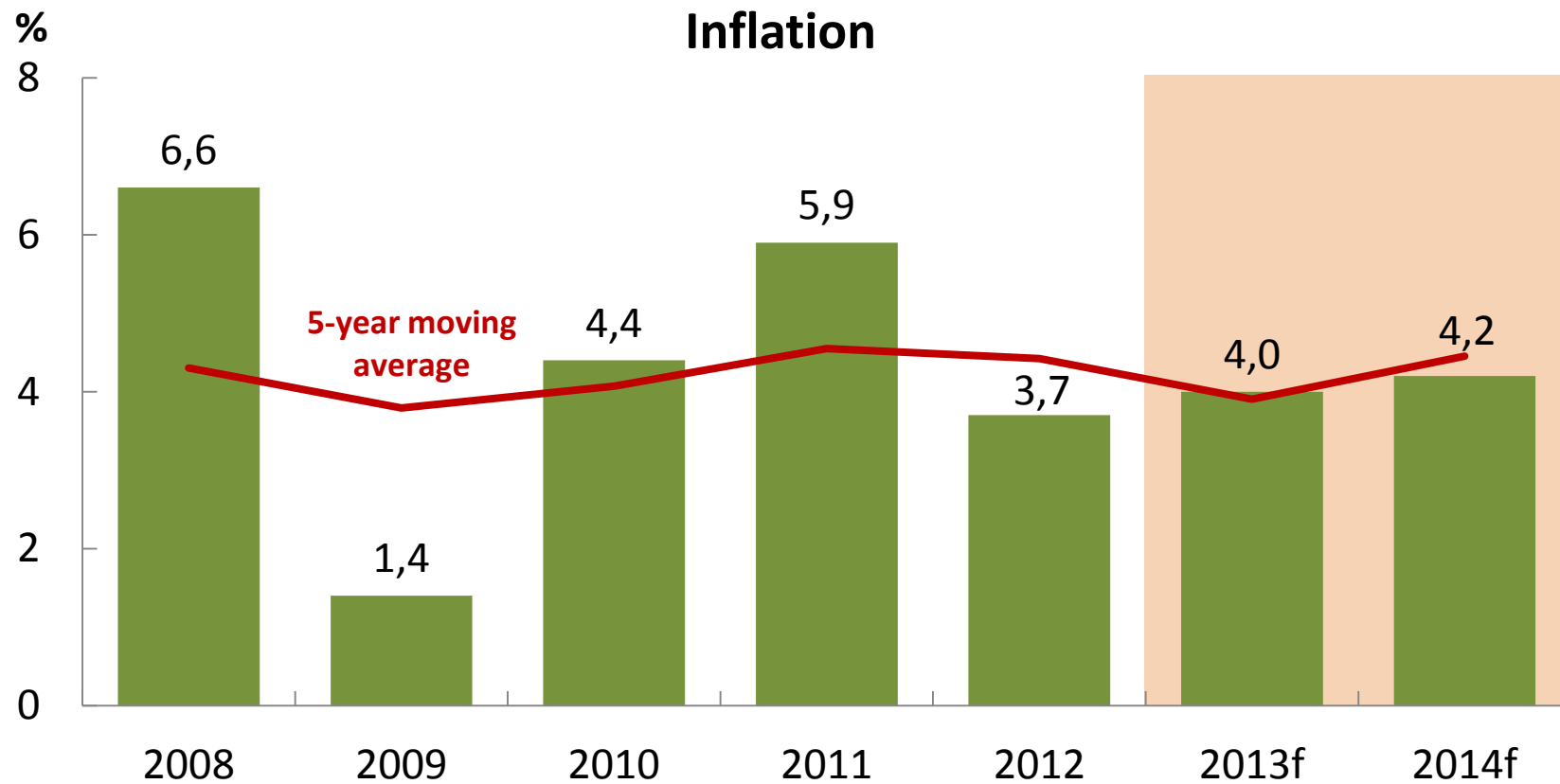
...and ASEAN maintains resilient growth



f: forecast

⇒ ***Robust domestic demand and deeper integration key to ASEAN resilience***

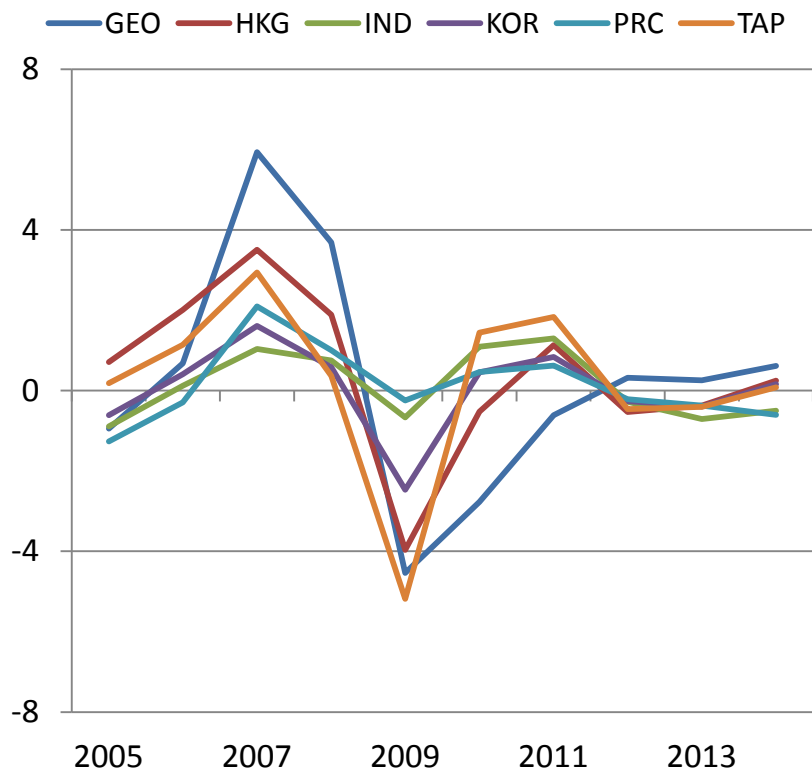
Inflation remains in check ...



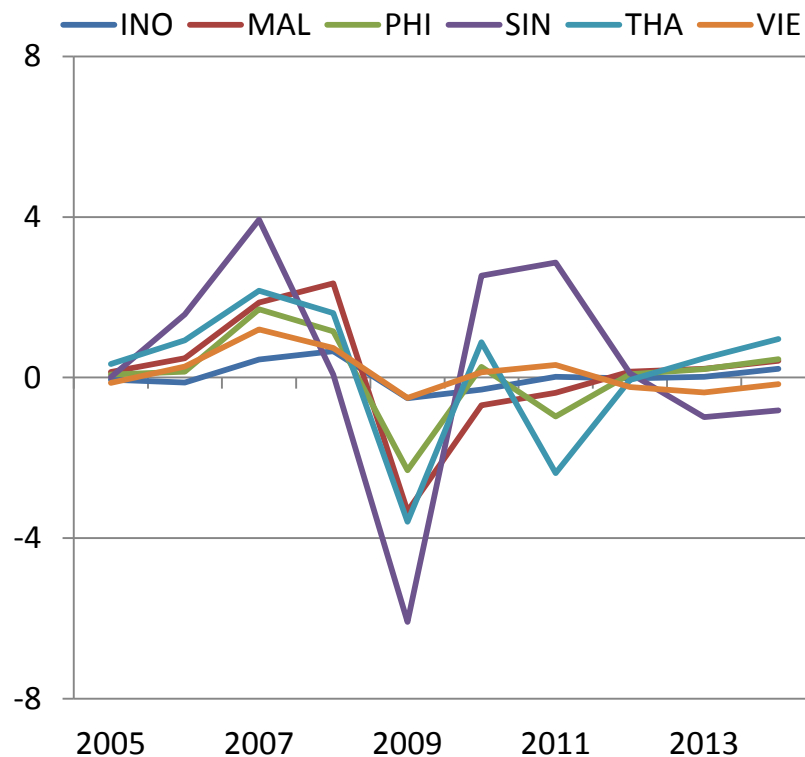
f: forecast

...but inflation pressures may build...

East Asia, India and Georgia



Southeast Asia



GEO=Georgia, HKG=Hong Kong, China, IND=India, KOR=Republic of Korea, PRC=People's Rep. of China; TAP=Taipei, China, INO=Indonesia, MAL=Malaysia, PHI=Philippines, SIN=Singapore, THA=Thailand, VIE=Viet Nam.

...so macroeconomic policy must maintain stability

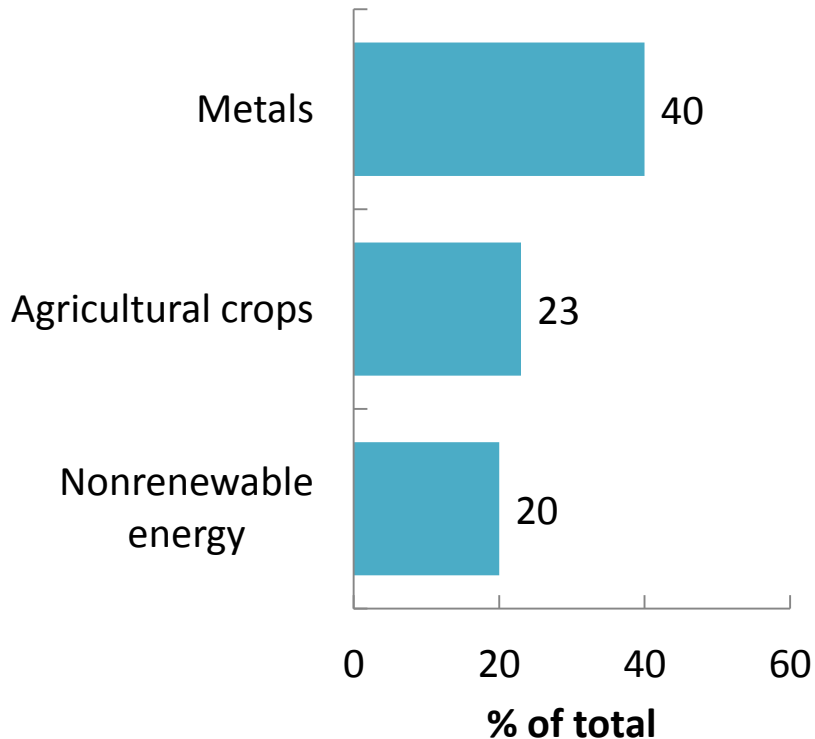
- Watch out for price pressures
- Monitor cross-border flows to protect banking sector soundness
- Shift fiscal policy toward supporting long-term structural change for inclusive growth

Political risk in many forms has emerged as the main threat

- Political wrangling over raising the US debt ceiling
- Austerity fatigue in the euro area
- Border disputes in Asia
- Geopolitical risks in oil-producing countries

Developing Asia has become a heavyweight in commodity markets

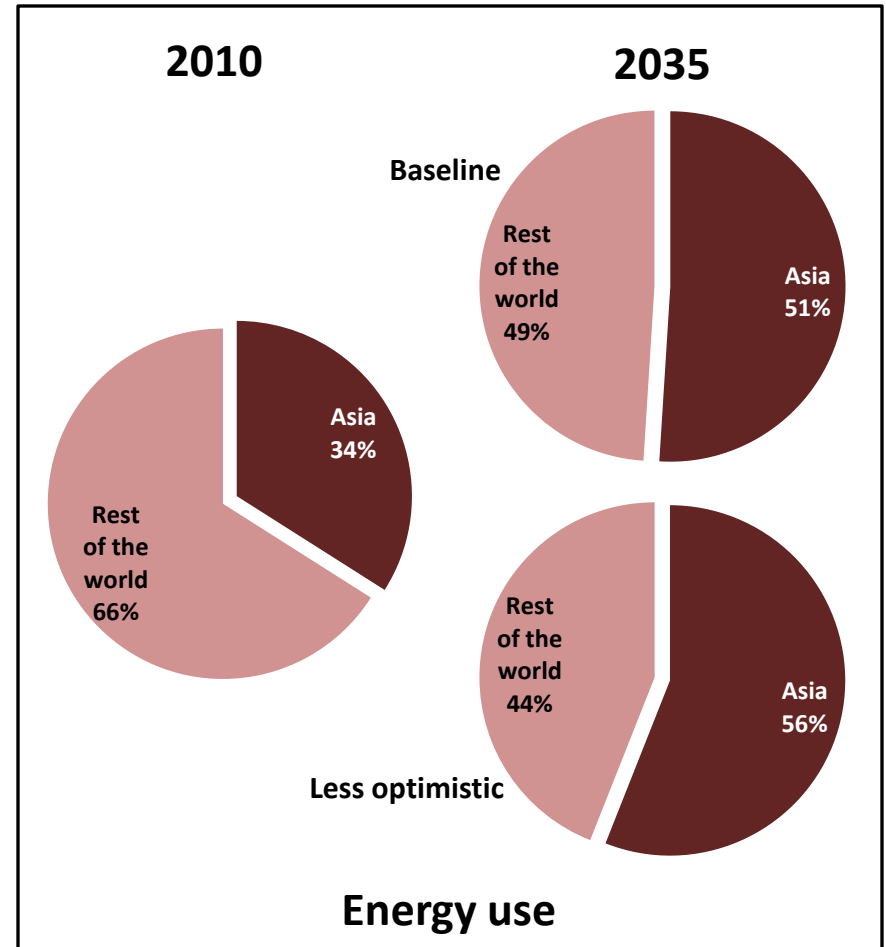
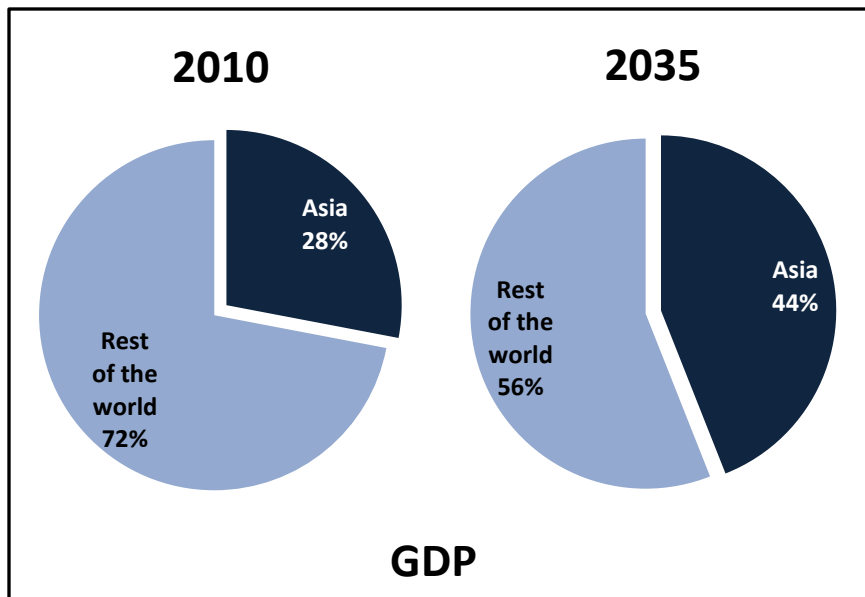
PRC's consumption of global commodities



- **Big and fast-growing appetite for commodities**
- **Energy needs have risen alongside growth**

Asia's energy challenge

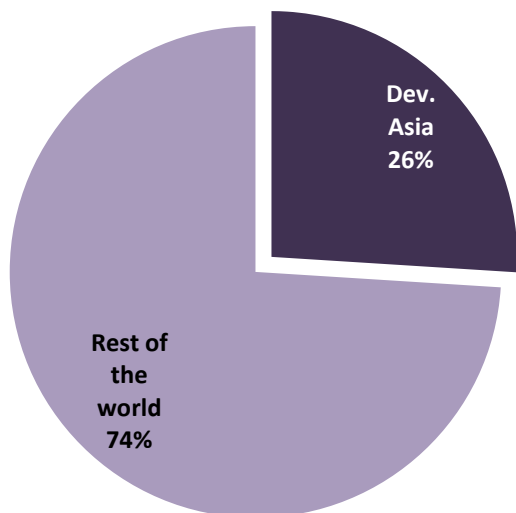
Energy needs for the Asian century are critical



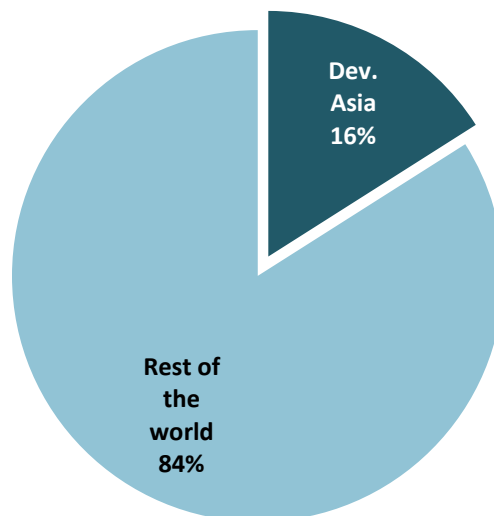
⇒ *Is this energy future realistic?*

Asia's endowment is not enough

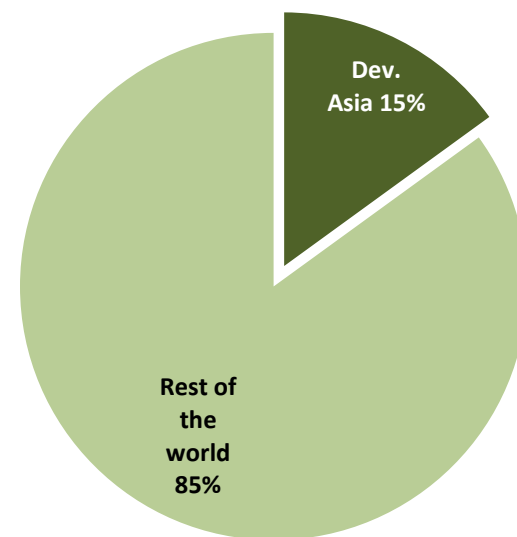
Proven reserves of coal, 2011



Conventional natural gas reserves

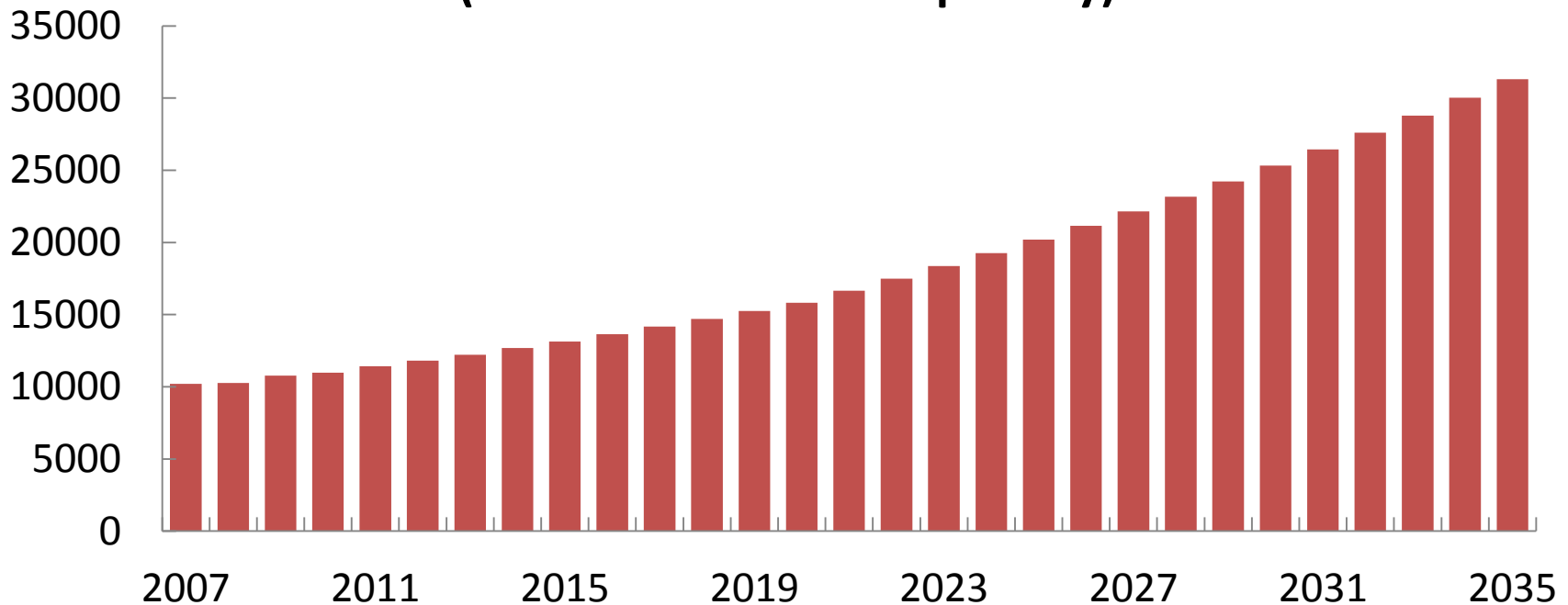


Technically recoverable oil and natural gas liquids



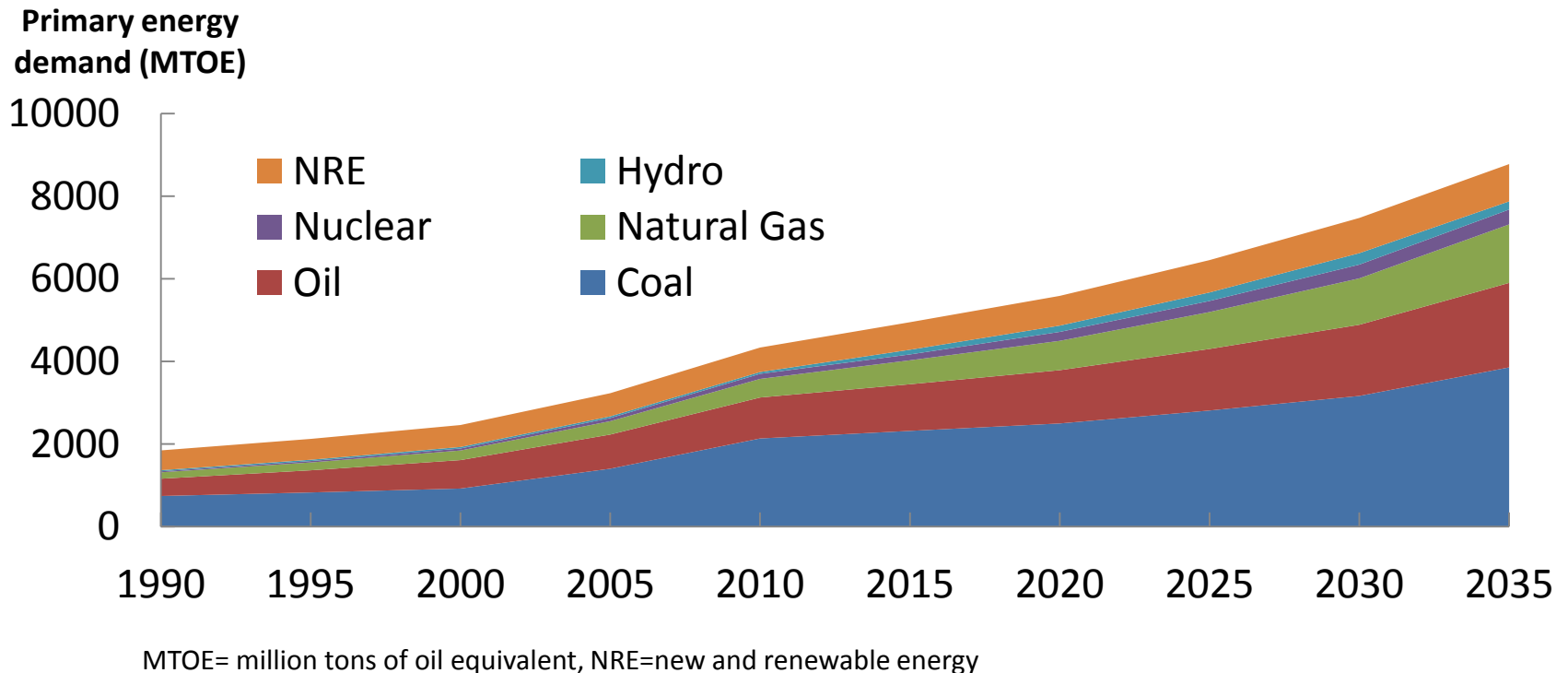
With business as usual, oil imports will triple by 2035

Projected oil import requirements
(thousands of barrels per day)



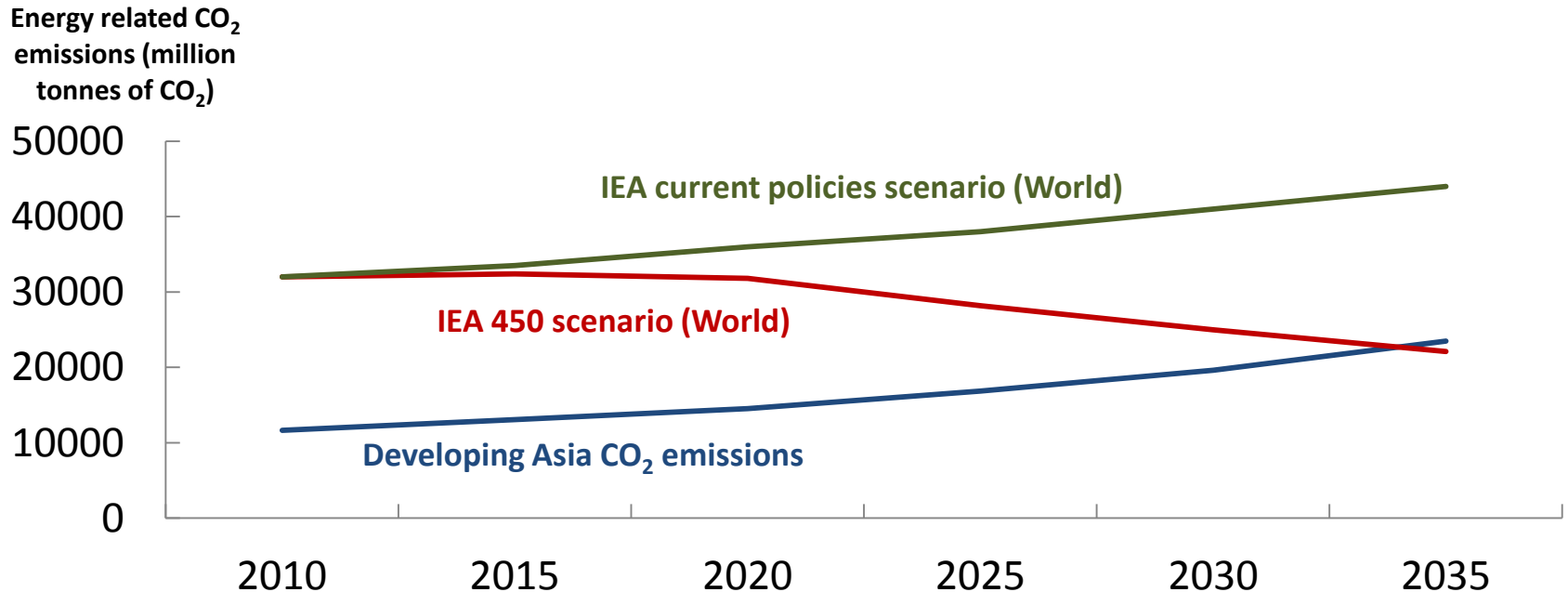
⇒ *Reliance on Middle East suppliers will increase*

Dependence on fossil fuels will grow



⇒ ***Without changes to its energy mix, coal use will increase by 81%, oil consumption will double, and natural gas use will more than triple***

By 2035, Asia's emissions alone will swamp global limits

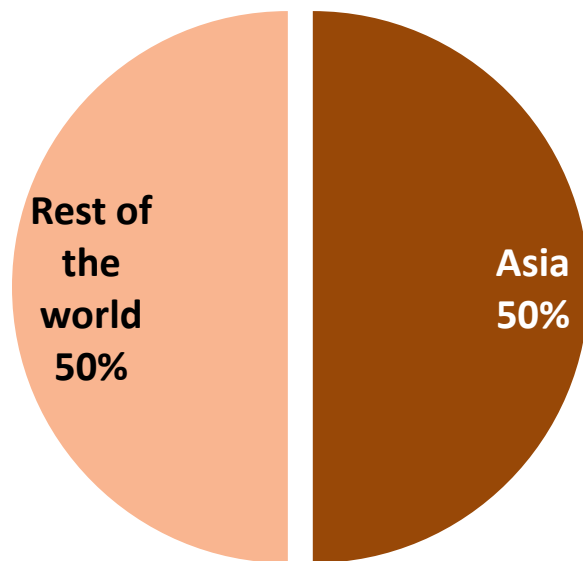


Note: IEA 450 scenario calls for limiting CO₂ emissions to 450 parts per million, which is the threshold for preventing dangerous climate change.

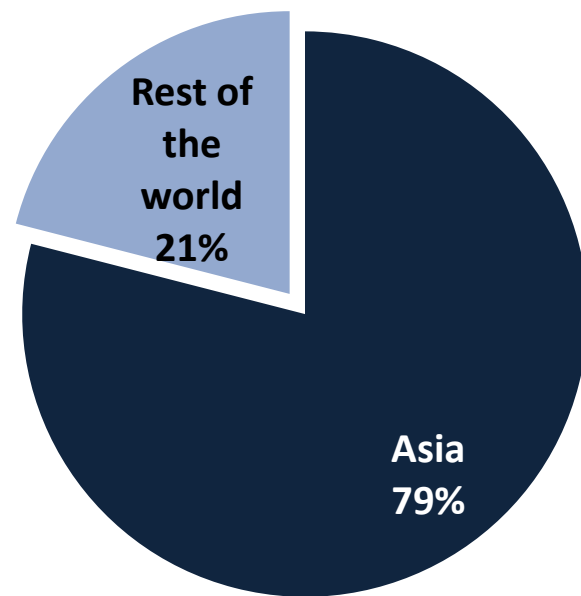
⇒ ***Continued reliance on fossil fuels will double CO₂ emissions to over 20 billion tons by 2035***

Asia is home to most of the world's energy poor

Without access to electricity



Dependent on traditional fuels

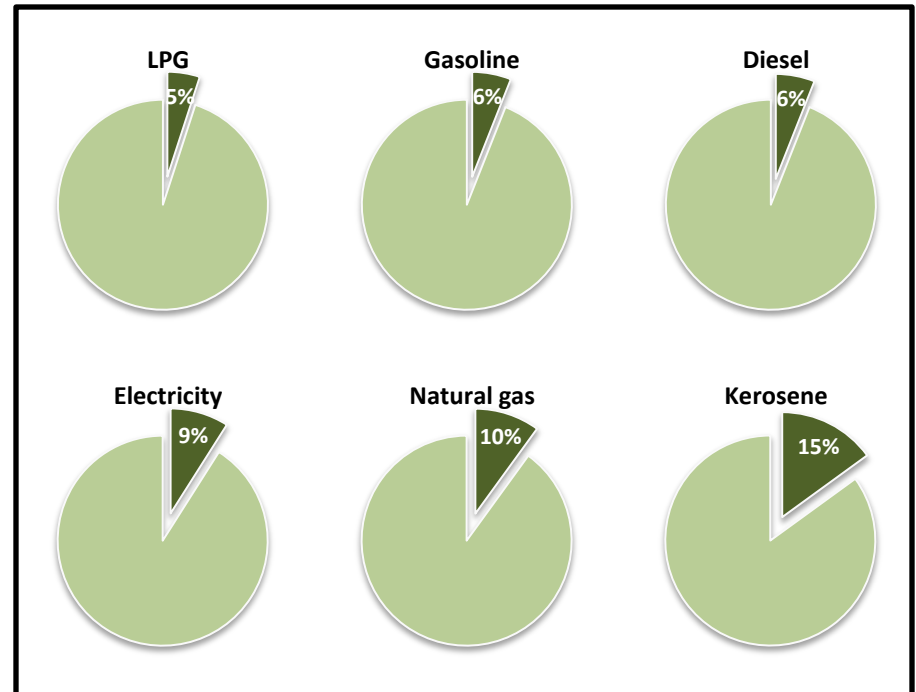


⇒ *Affordable energy is key to inclusive growth*

Curbing demand growth is necessary

- **Fossil fuel subsidies in Asia are large**
 - over 2% of GDP in India, Indonesia, and Viet Nam
 - 4% of GDP in Bangladesh and Pakistan
- **Yet the main beneficiaries are not poor**

Share of fossil-fuel subsidies received by the poorest 20th percentile, 2010



⇒ *Encourage behavioral change to reap energy efficiency benefits*

Harness renewable energy supplies such as solar and wind...

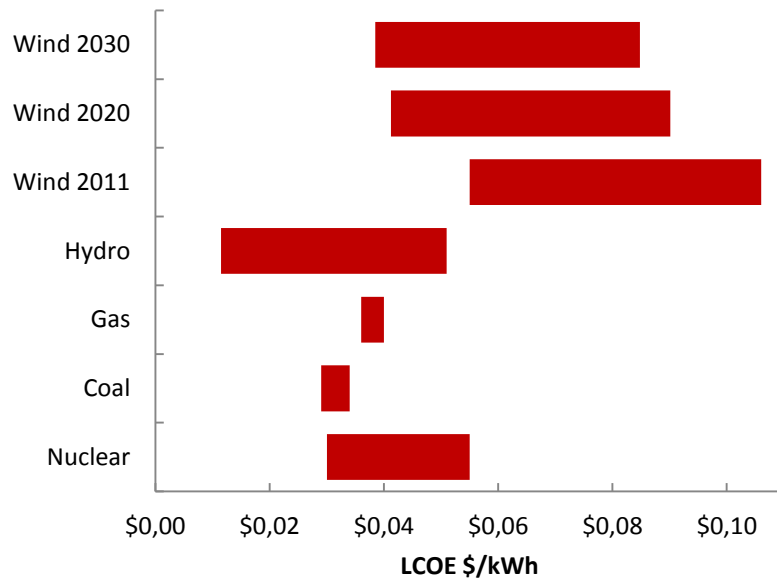
- Capacity has grown from negligible to 82GW for wind and 20GW for solar
- Great potential for further expansion
- Asian countries among world leaders in the manufacture of solar power equipment
- Wind and solar are cost competitive in some remote Asian communities

...and hydro and biofuels

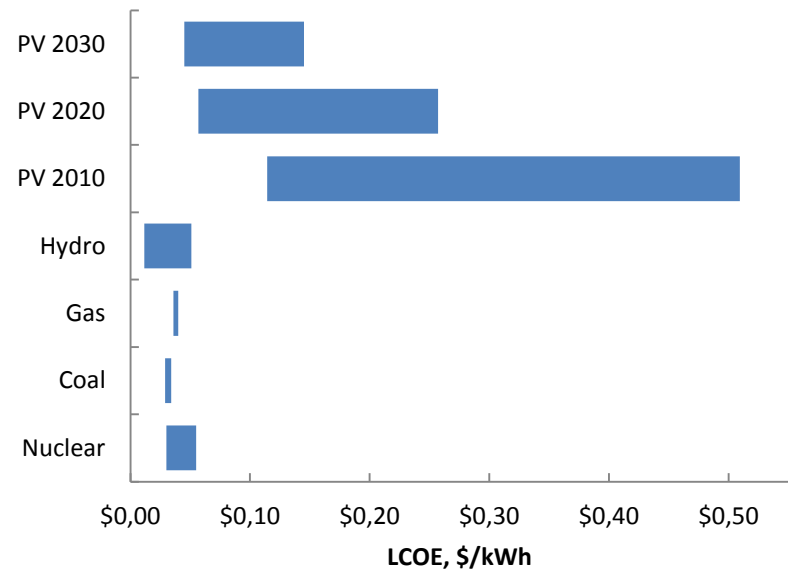
- Hydropower is well-established, but only 20% of resources have been developed
- Address community displacement, loss of agricultural land, and environmental concerns
- Asia is not a major biofuel producer, but new technologies that do not compete with food raise expectations

Renewable energy sources alone are not enough

Relative cost of electricity generation, People's Republic of China



Relative cost of electricity generation, People's Republic of China



kWh = kilowatt hour; lcoe = levelized cost of energy; PV = photovoltaic

⇒ **Renewable energy sources not yet cost competitive, but we can't wait. Conventional energy has to be made cleaner and more efficient!**

Shale gas could offset coal use

- PRC has largest shale gas resources in the world at nearly 20% of total
- Technical uncertainties like leakages and water contamination make extraction difficult
- Development on densely populated land would be challenging

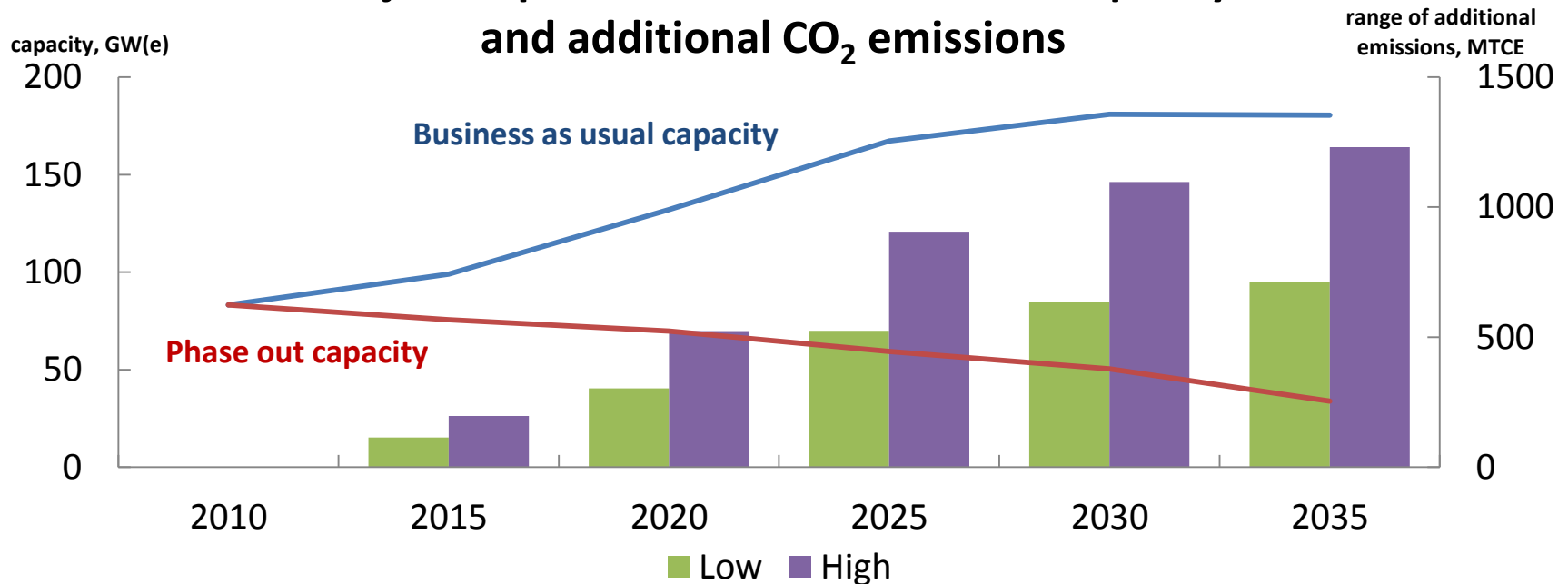
Top shale gas resource locations

Rank		Rank	
PRC	1	Poland	11
United States	2	France	12
Argentina	3	Norway	13
Mexico	4	Chile	14
South Africa	5	India	15
Australia	6	Paraguay	16
Canada	7	Pakistan	17
Libya	8	Bolivia	18
Algeria	9	Ukraine	19
Brazil	10	Sweden	20

⇒ ***Unconventional gas could provide a cleaner bridge to a future that is less dependent on fossil fuels***

Nuclear power reduces CO₂ emissions

Projected phase out of Asia's nuclear capacity and additional CO₂ emissions



GW(e)=gigawatts of electric output; MTCE=metric tons of carbon equivalent

⇒ **Phasing out nuclear will increase the Asian power sector's CO₂ emissions by 8%–13% in 2035**

Regional integration multiplies the benefits

- Connecting electricity and gas grids can create economies of scale that improve efficiency
- Integrating power transmission in GMS would:
 - save \$14 billion over 20 years by substituting hydropower for fossil fuels
 - reduce CO₂ emissions by 14 million tons per year by 2020
- But political and regulatory barriers inhibit market integration

Policy recommendations

- Establish a pan-Asian energy market by 2030
 - Set up ministerial level task force to study European experience
- Every watt counts
 - Based on country circumstances, curb demand and expand supply of clean, affordable energy
- R&D is key to modernizing the energy sector
- Support energy affordability and extend power to the poorest

Key findings

- Developing Asia's growth is picking up to 6.6% in 2013 and 6.7% in 2014
- PRC's rebound and ASEAN's resilience drive the region's pick up
- Inflation will remain in check at about 4% but price pressures are building
- Risks to the outlook go beyond economics in the US, euro area, and Asia
- Sustaining Asia's growth requires diversification of its energy mix, making it cleaner and more affordable

ASIAN DEVELOPMENT

Outlook 2013

Asia's Energy Challenge



Asian Development Bank



CONCITO



Confederation of Danish Industry



CLEAN ASIAN CENTURY

CONCITO – LAUNCH OF THE ADB OUTLOOK 2013

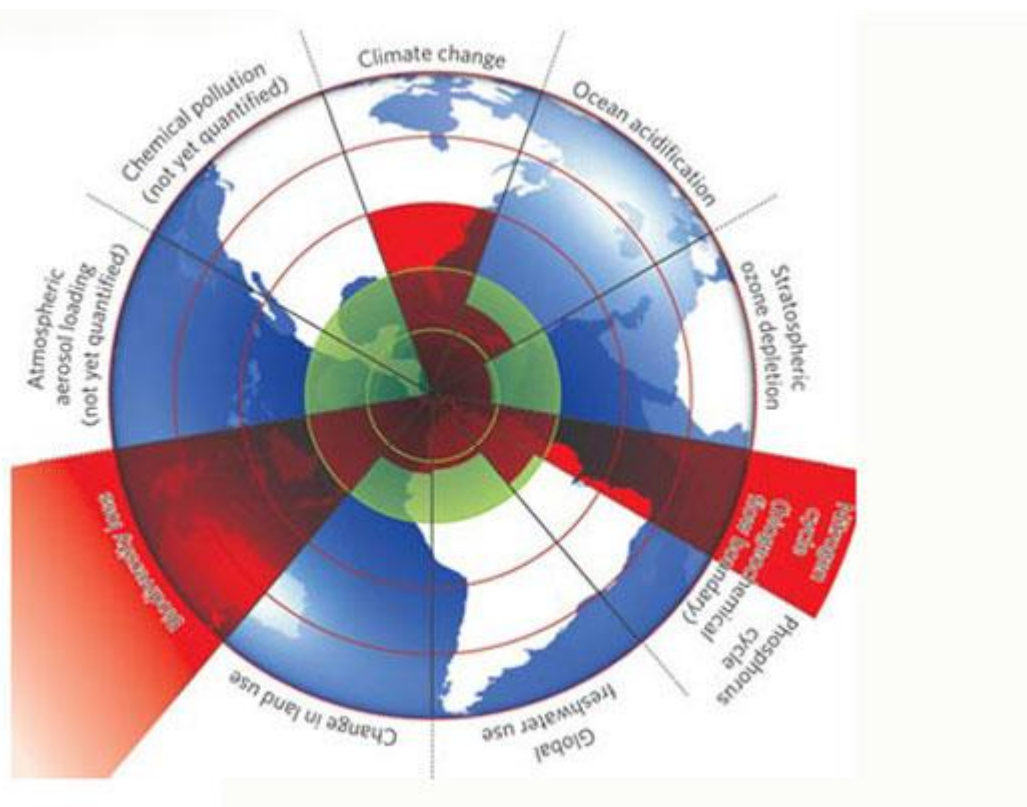


CLEAN ASIAN CENTURY

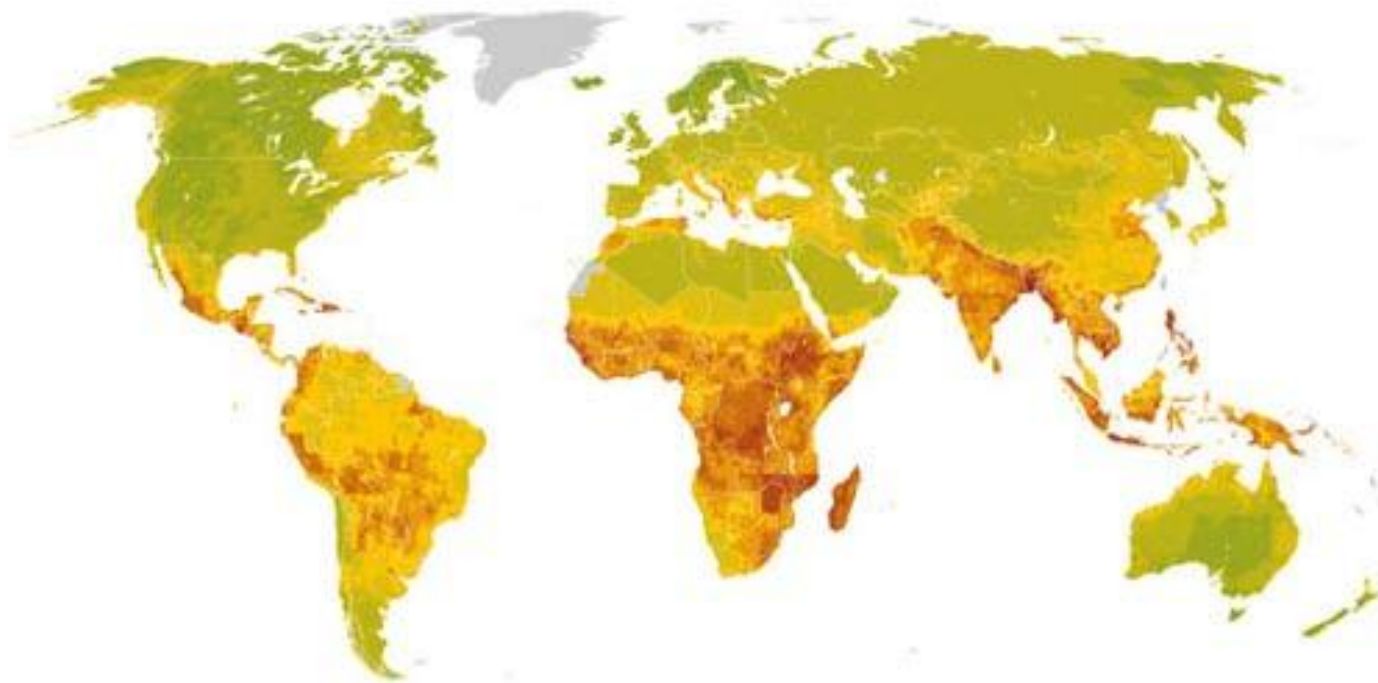
- Setting the scene – challenges ahead
- Elements of the way forward:
 - Global governance/New alliances for green growth
 - Markets and prices
 - Finance
 - Consumers and sustainable growth



PLANETARY BOUNDARIES

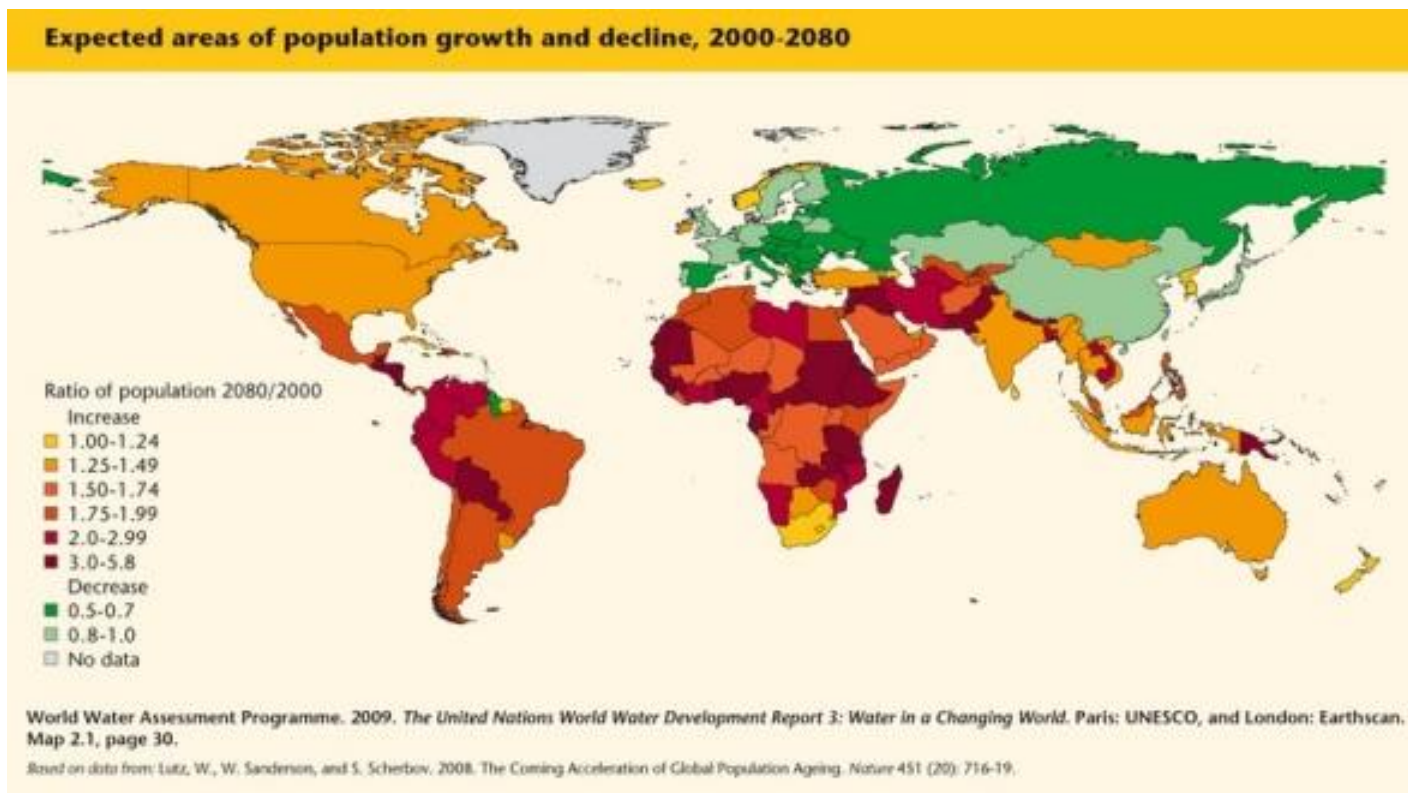


IMPACT CLIMATE CHANGE



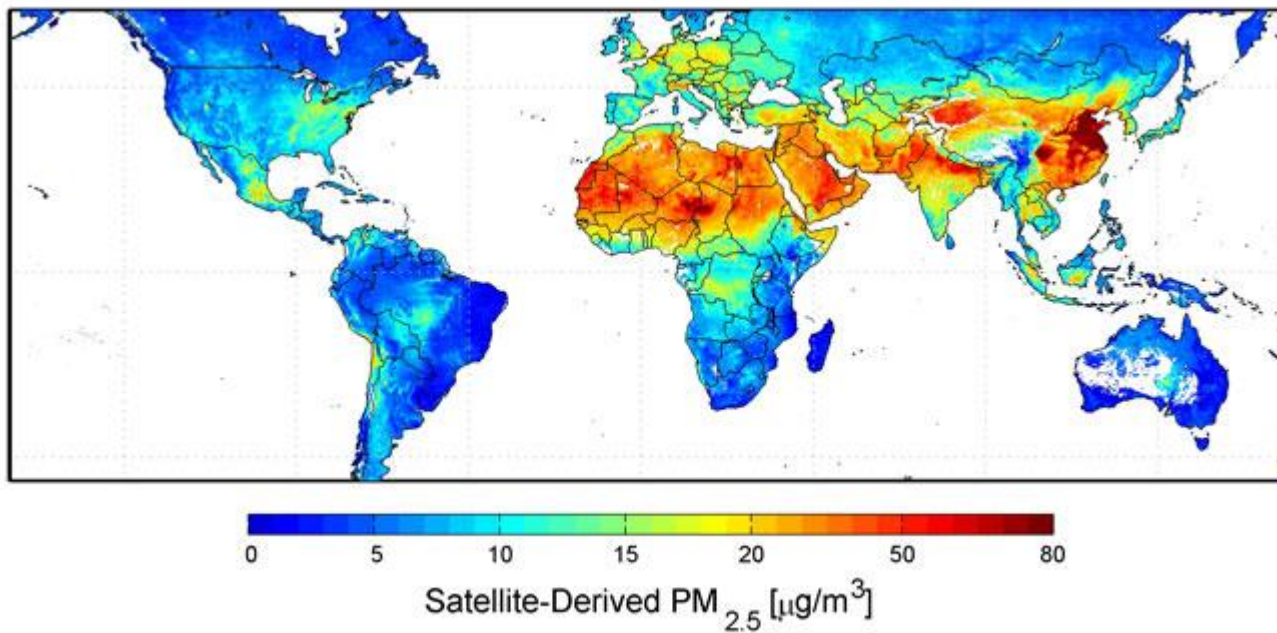


POPULATION GROWTH



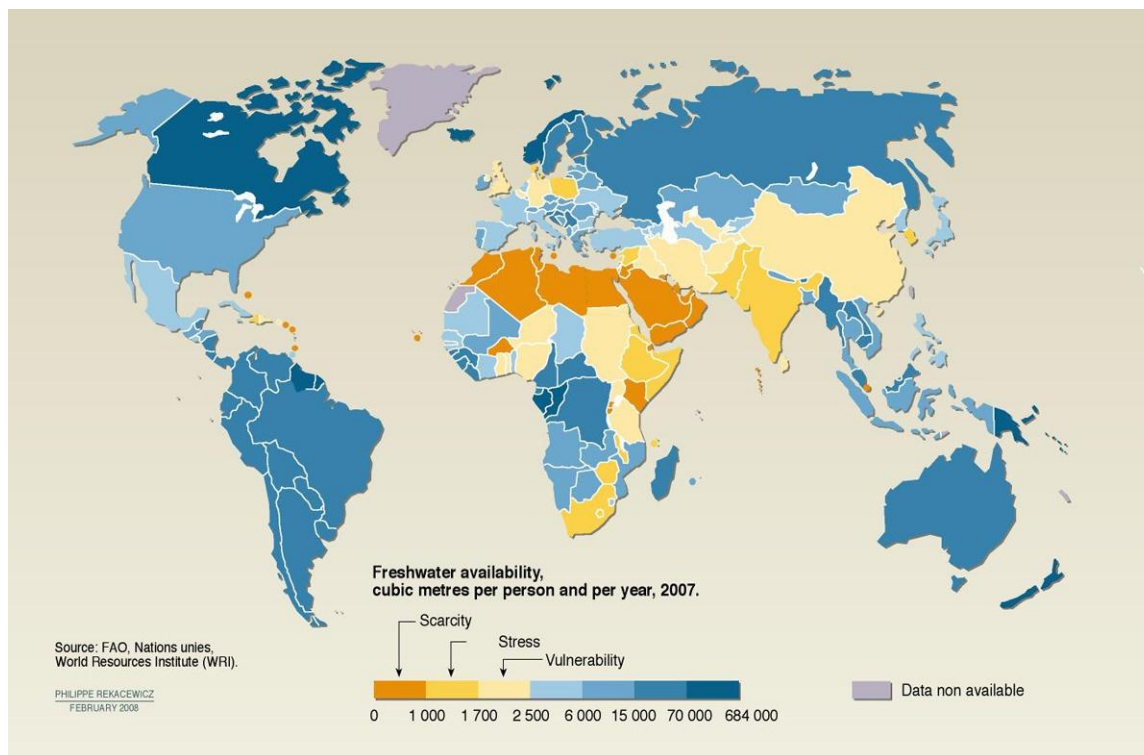


AIR POLLUTION





WATER





GLOBAL GOVERNANCE FOR SUSTAINABILITY

- Goal is there: Poverty reduction in an era of limits
- Green inclusive growth defined as the way an economy makes a transition to a sustainable growth path - both in terms of involving people and not hampering growth prospects for future generations
- The insufficiencies of the current multilateral approach



MARKETS AND PRICES

- Getting the prices "right" – essential driver for green growth
- First mover drawbacks can be turned into advantages
- ADB to take a lead on getting the prices "right" in Asia
- And Asia showing the way globally



FINANCE

- Clean more resource efficient growth requires financing
- ADB/ National Development Banks
- Private capital has to get involved at a grand scale
- Work with banks to enhance their capacity for green



CONSUMERS AND SUSTAINABLE GROWTH

- Growing middle classes
- Yin and yan
- China Dream of a “harmonious, happy lifestyle”



PHOTO: HARRON TAM/AFP/GETTY IMAGES

ASIAN DEVELOPMENT

Outlook 2013

Asia's Energy Challenge



Asian Development Bank



CONCITO



Confederation of Danish Industry



Asian Development Outlook 2013 Energy Perspectives

Remarks by Hans Peter Slente, Director
Danish Energy Industries Federation

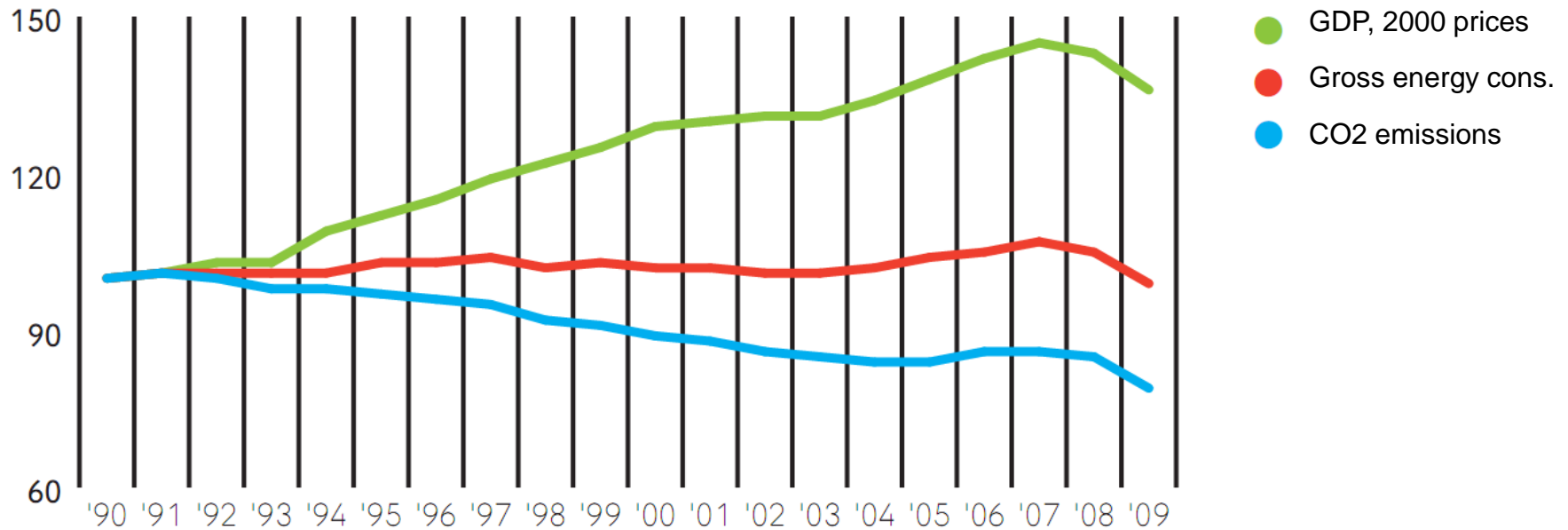
Main focus of the Danish Energy Industries Federation

The Danish Energy Industries Federation works to meet the challenges of ***competitiveness, climate change*** and ***energy security*** to create the right framework for a sustainable and long term economic growth.



GDP growth, CO2 reductions and stable energy consumption

Index 1990 = 100



Commercializing new energy competences

Renewable Energy

- Biofuel Technologies
- Biomass
- Biogas
- Fuel Cells and Hydrogen
- Geothermal Energy
- Hydropower
- Photovoltaics
- Solar Thermal Energy
- Waste Incineration
- Waste Water and Recycling
- Wind Power
- Wave Power



Energy Efficiency

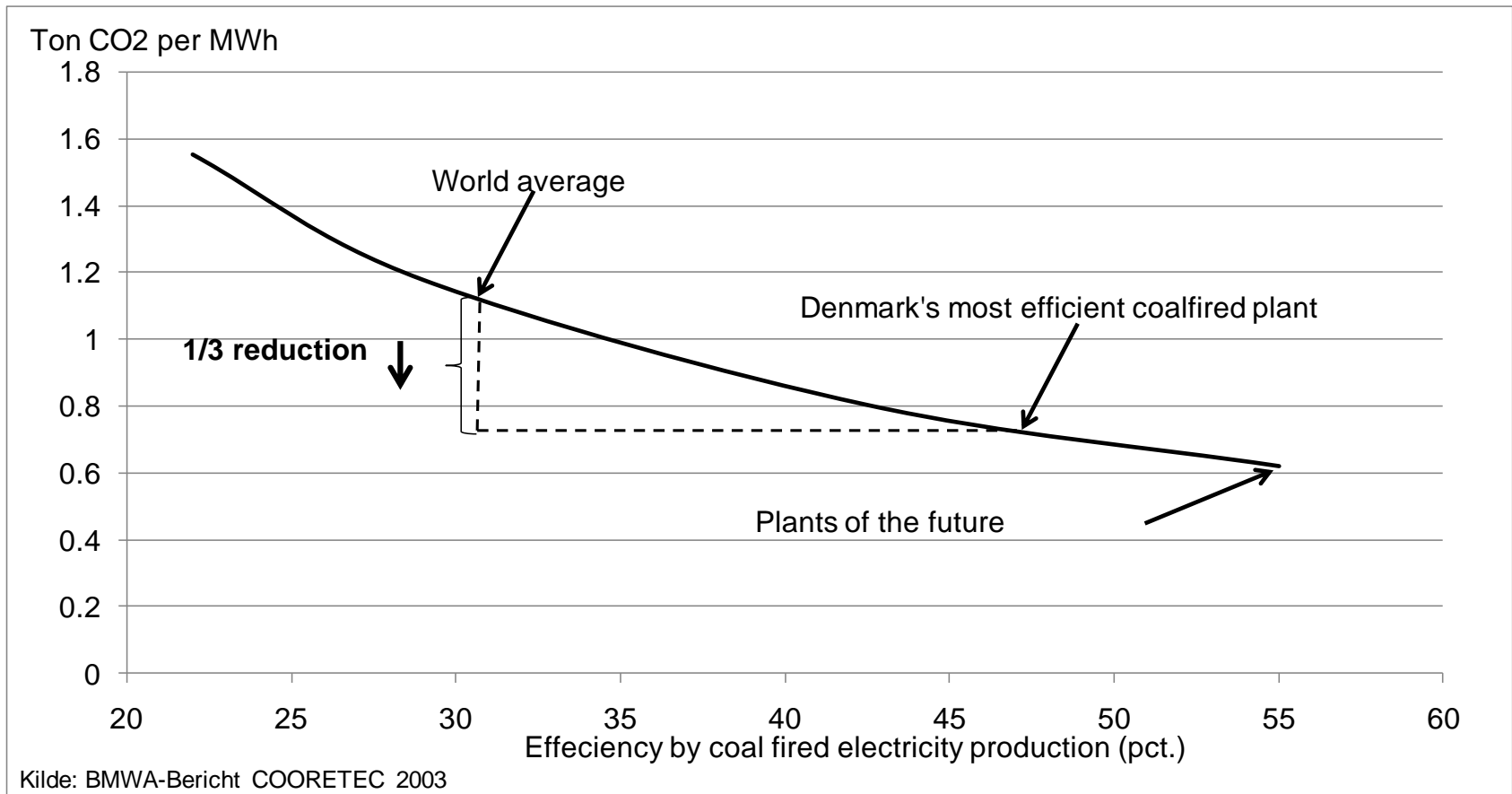
- Air and Gas Handling Equipment
- Building Materials
- Circulator Pumps
- Combined Heat and Power Plants
- District Heating and Cooling
- Energy Efficient Building Materials
- Energy Efficient Power Plants
- Fire Fighting – Marine and/or Land Application
- Flue and Waste Gas Cleaning
- Heat Pumps
- Industrial Equipment and Processes
- Lighting
- Low-Energy Water Supply
- Material Handling and Logistics
- Measurement Analysis and Control for Buildings
- Metering and Power and Control Electronics
- Micro Combined Heat and Power Plants
- Pre-Insulated Pipe Systems for District Heating and Cooling
- Ventilation and Air Conditioning/Heat Recovery
- Sewer Cleaning Technology – Mobile Units

Intelligent Energy

- Automated Meter Management
- Intelligent Buildings
- IT Systems
- Plug-in and Electric Vehicles
- Smart Grids and Meters



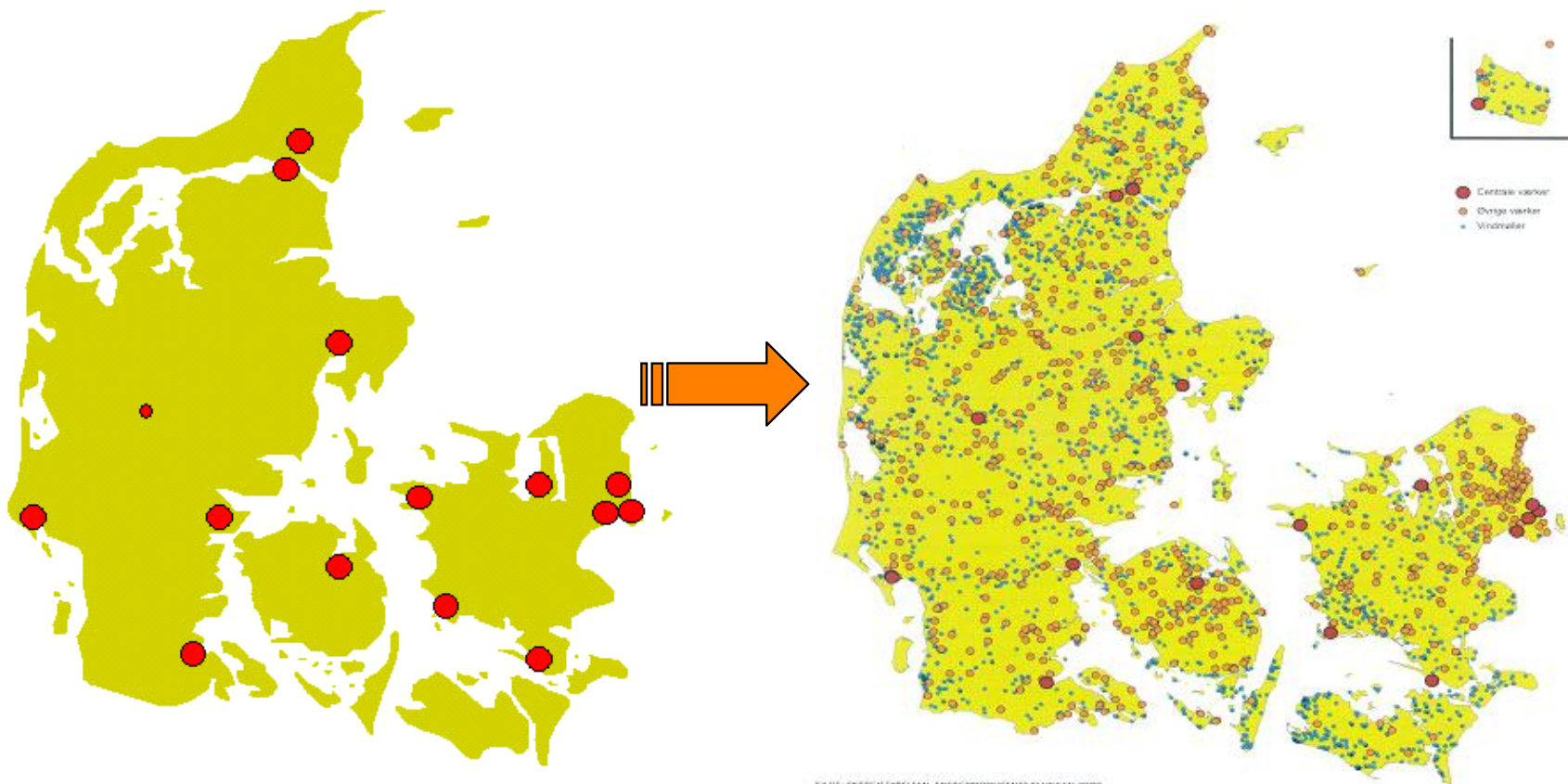
Efficiency of current thermal technology



Development of the power production structure

Centralized production in the mid 80ties

Decentralized production of today



KILDE: ENERGISTYRELSEN: ENERGIPRODUKENTFØLGEN 2000, VINDMØLLEKООORDINATER, KØBT A. MÅTRIKELSTYRELSEN 2001

Smart Grid - Smart Cities



District | Energy | Partnership

PART OF THE DANISH ENERGY INDUSTRIES FEDERATION



⌂ Back

中文

SEARCH

CONTACT PRESS NEWSROOM EVENTS TOURS ABOUT

State of Green
Join the Future. Think Denmark

Explore **solutions** that make the transition to a green economy **possible**

Read more >

Intelligent Energy

Energy Efficiency

Heating & Cooling

Water

Bioenergy

Wind Power

Solar & Other Renewables

Resources & Environment

Explore Solutions



Learn about Products



Connect with Profiles



www.stateofgreen.com



返回

English

搜索

联络我们

媒体合作

新闻中心

活动介绍

参访项目

关于我们

State of Green

绿色国度 - 参与未来. 联手丹麦

了解已经投入应用的绿色产品与服务

智能能源

能源效率

供暖与供冷

水技术

生物能源

风能

太阳能与其他
可再生能源

资源与环境

探索
解决方案



了解
产品服务咨询



联络
企业与机构





28 – 31 / 10 / 2013
AsiaWorld-Expo, Hong Kong

Brochure

Fair Review 2012

Contact

Web-sites:

- www.energi.di.dk
- www.stateofgreen.com

E-mail:

- hps@di.dk

ASIAN DEVELOPMENT

Outlook 2013

Asia's Energy Challenge



Asian Development Bank



CONCITO



Confederation of Danish Industry