

EMPOWERING LIVES THROUGH KNOWLEDGE AND IMAGINATION

MILANO | ITALY

Sustainable finance for growth or finance for sustainable growth

Workshop on Finance, Environment and Sustainability, University of Siena

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Foreword

“Climate change is a tragedy of the horizon which imposes a cost on future generations that the current one has no direct incentive to fix.”

(Mark Carney, Governor of the Bank of England, September 2016)

“Morality represents the way that people would like the world to work, whereas economics represents how it actually works”.

(Freakonomics, 2006)

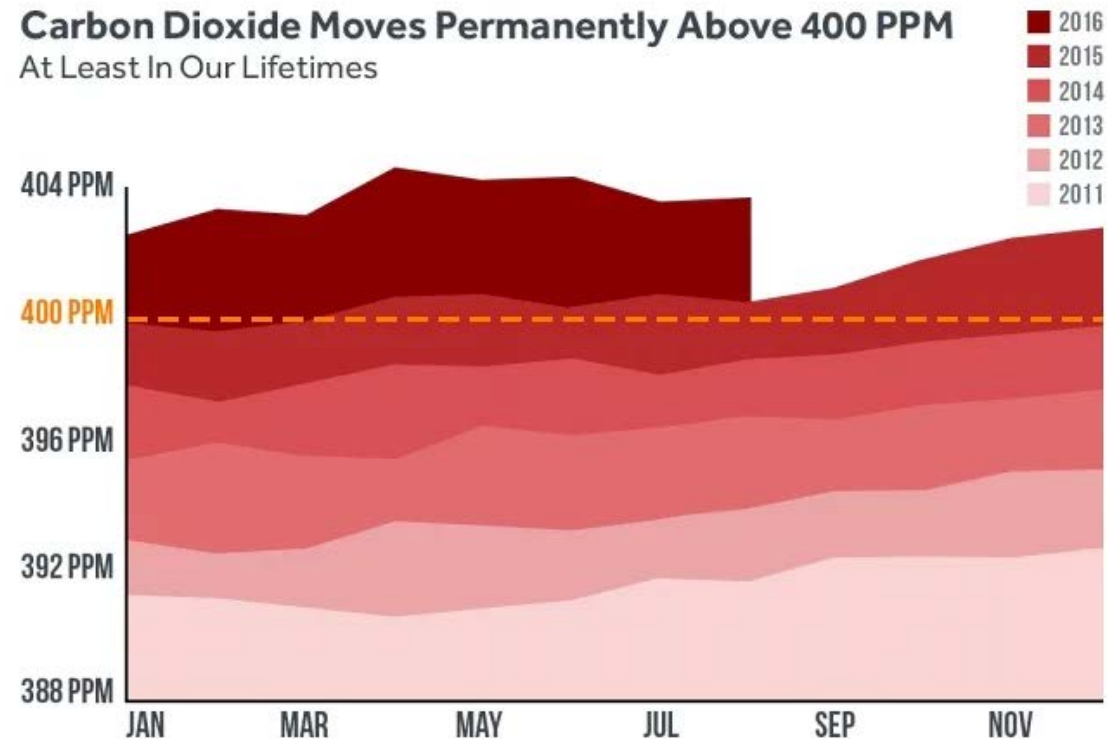
An update on climate change developments

Where is the world now? Beyond 400ppm!

In September 2016 the world has passed the **400ppm** CO₂ threshold.....**permanently**.

Indeed September is usually the month when CO₂ is at its lowest level, after a summer of plants growing and absorbing it in the northern hemisphere.

July 2016 was the single warmest month since modern record keeping began in 1880; this year is also set to be the **hottest year** on record.



Source: Scripps Institute of Oceanography, Mauna Loa Observatory

CLIMATE CO₂ CENTRAL

Where is the world now?

GHG Emissions

According to IEA, **in 2015 global energy-related carbon dioxide emissions** – the largest source of man-made greenhouse gas emissions – **stayed flat for the second year in a row.**

2014 had been the **first time in 40 years** in which there was a halt or reduction carbon emissions that was **not tied to an economic downturn.**

Global emissions of carbon dioxide stood at 32.1 billion tonnes in 2015, having remained essentially flat since 2013.

The two largest emitters, **China and the United States**, both registered a decline in energy-related CO₂ in 2015.

The data suggests that the growth of **renewables**, especially wind, and improvements in **energy efficiency** were key to keeping emissions flat for two years in a row.

Where is the world now?

Energy Efficiency

According to IEA, **energy intensity**, (=the amount of energy used per unit of GDP) improved by **1.8% in 2015**, i.e. the world economy needed less energy to grow.

The improvement exceeded the 1.5% gain of 2014 and was triple the average rate seen over the past decade.

Intensity gains in 2015 were **higher in non-OECD countries**, which is a trend that is expected to continue

- **China's** energy intensity improved by 5.6%.

Most importantly, last year's gains were obtained **in spite of lower energy prices**, which generally worsen attempts to improve energy efficiency.

Efficiency gains have been driven by **the expansion of policy**.

- Vehicle fuel economy standards have helped to mitigate the impact of energy price falls.

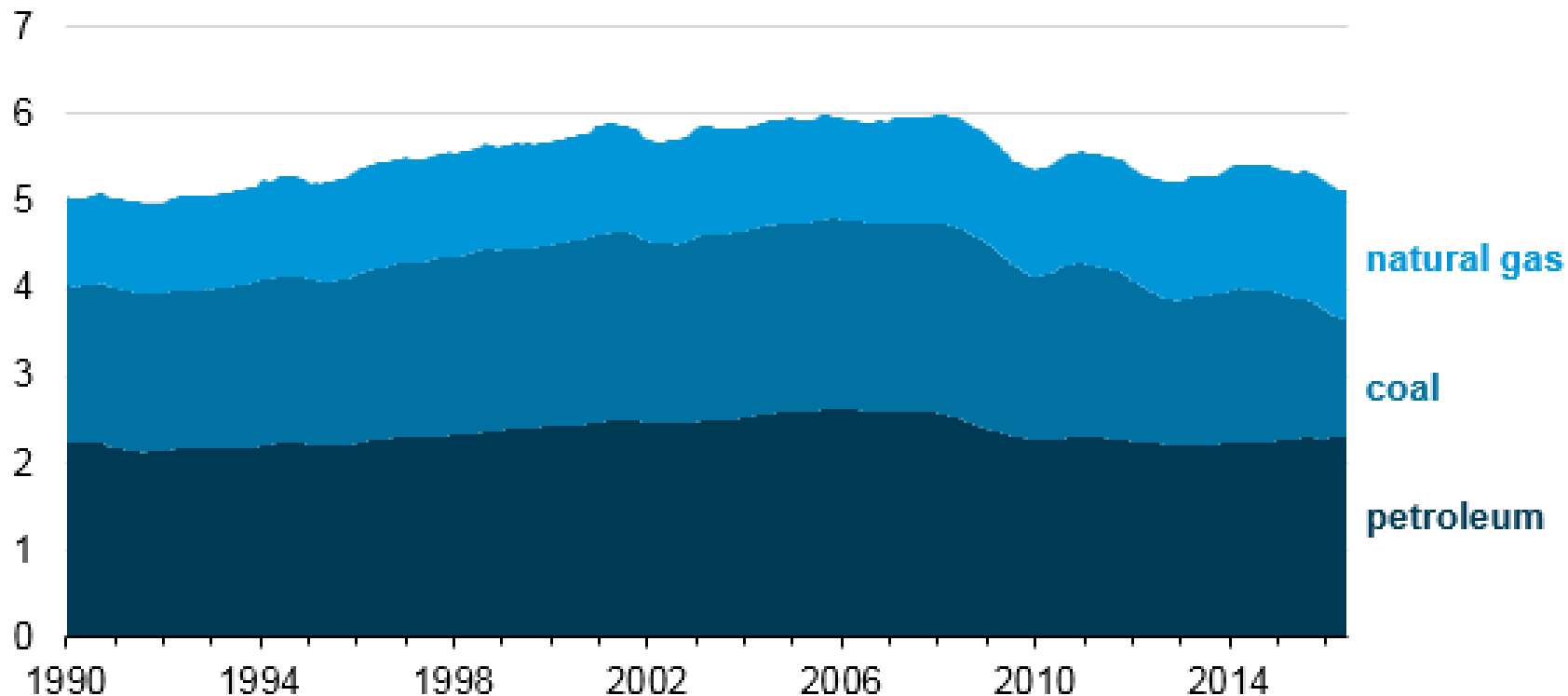
In 2015 **investments** in energy efficiency measures reached **\$221 billion**, i.e. 66% more than was spent on conventional power generation.

However the IEA argues that energy intensity improvements need to reach at least 2.6% per year, in order to put the world on a sustained pathway.

Where is the US now? GHG Emissions

U.S. energy-related CO₂ emissions totaled 2,530 million metric tons in the first six months of 2016. This was the **lowest emissions level for the first six months of the year since 1991**, as **mild weather and changes in the fuels** (coal -18%, gas -1% and renewables +9%) used to generate electricity contributed to the decline in energy-related emissions. (EIA, October 12th 2016) .

Energy-related carbon dioxide emissions by source (Jan 1990 - Jun 2016)
12-month moving total, billion metric tons



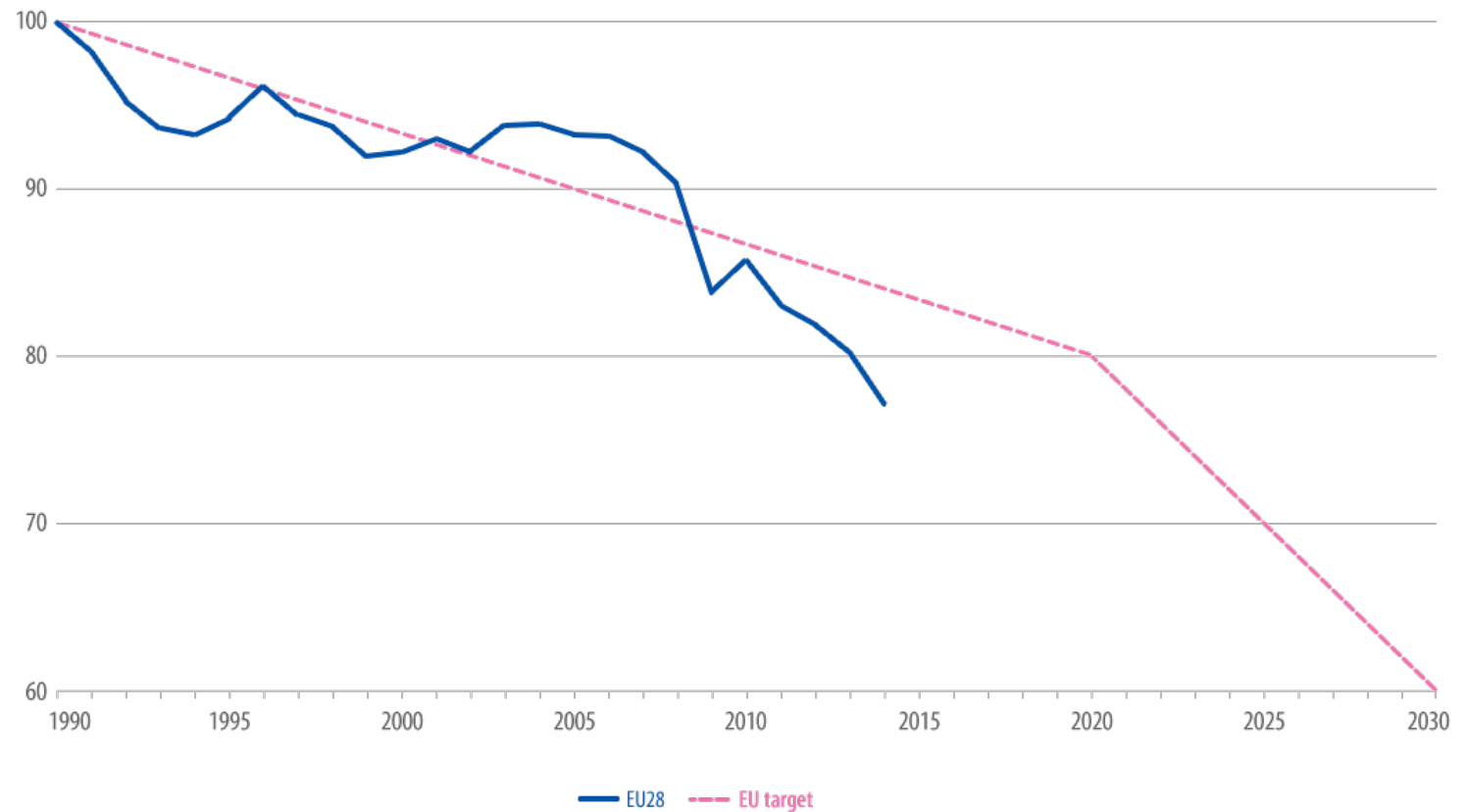
Historical GHG emissions in the EU

EU GHG emissions have been declining continuously since 2006, due to:

- Energy efficiency
- Renewable energy
- Less carbon intensive fuels
- Weak economic growth.

In 2014, GHG emissions were down by 22.9% compared with 1990 levels, thus surpassing the 2020 target.

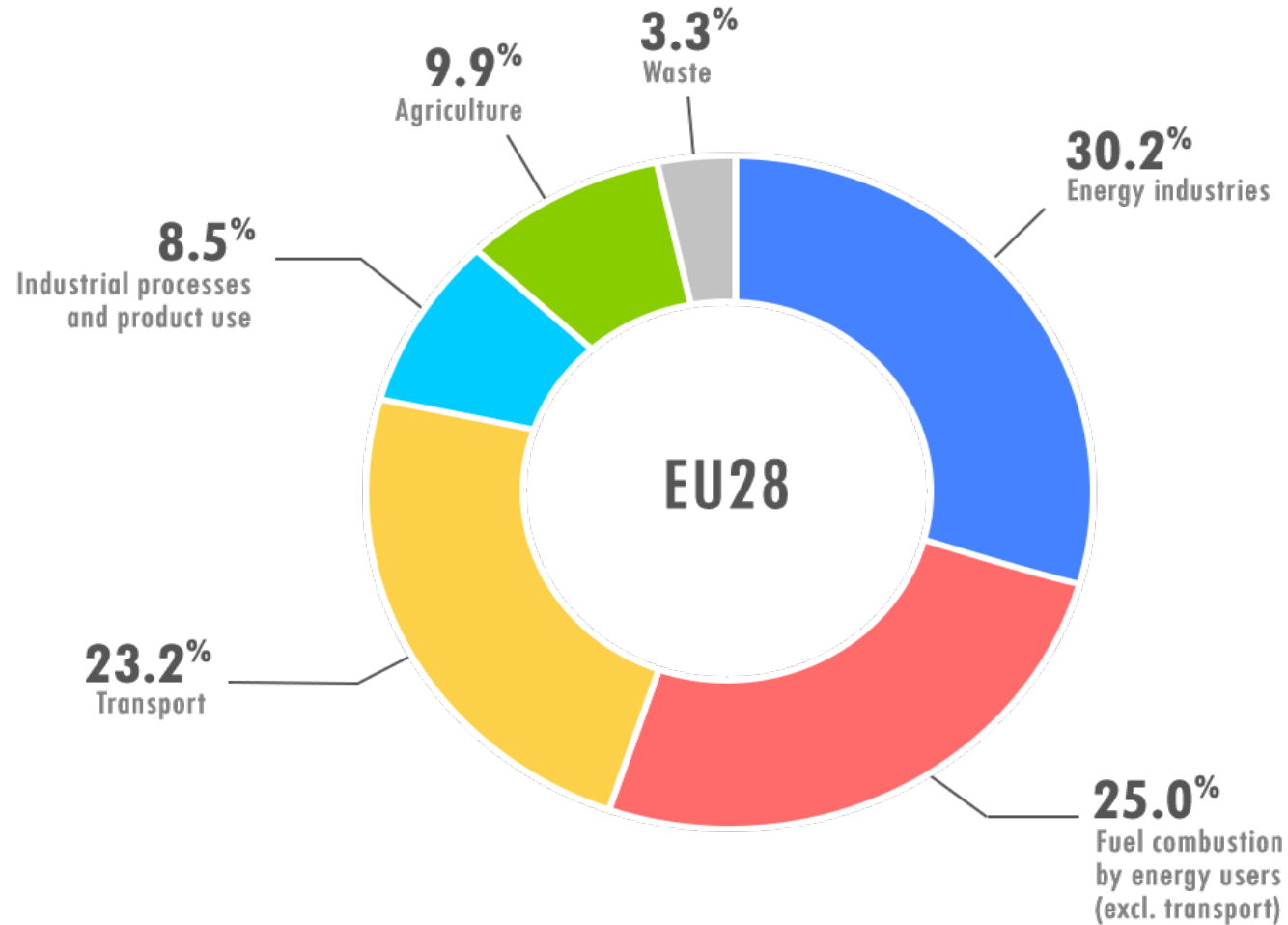
Greenhouse gas emissions, 1990-2014 (%)
(index 1990 = 100)



Source: European Environment Agency
Data including international aviation and indirect CO₂ emissions, excluding land use, land use change and forestry

Share of GHG emissions by source in the EU

Share of greenhouse gas emissions by source, 2014 (%)



Where does the world want to go? The COP 21 Agreement in Paris

On December 12, 2015 the Paris agreement had been adopted by virtually every country in the world.

The aim is to hold the rise in global temperatures to “**well below**” **2C** from levels before the industrial revolution and pursue efforts to limit temperature increase to 1.5C.

The UN deal to curb global GHG responsible for climate change can only take effect after **55 countries**, accounting for **55% of global emissions** formally ratify it.

The accord came into effect on **4 November 2016**; ratification gives full legal standing to the document.

As of November 2016, **74 Parties accounting for nearly 59% of global greenhouse gas emissions** that have joined the agreement, according to UNFCCC, including the world’s three largest carbon polluters, i.e. China, India and the US.

Where does the world want to go? The COP 21 Agreement in Paris

The UK pledged to ratify it by the end of this year.

The thresholds were crossed on **October 5**, after the EU, representing 12% of global emissions, and several of its member states (Austria, France, Germany, Hungary, Malta, Portugal and Slovakia) as well as Bolivia, Canada and Nepal ratified the agreement.

The largest emitters who have **not ratified yet** are Russia, Japan, South Korea, Indonesia, South Africa and Australia.

The 1997 Kyoto Protocol, which became legal only in **2005**, actually placed **quantified commitments** on all developed countries to reduce their greenhouse gas emissions.

Instead in the Paris Agreement **the only legally binding commitment** is to limit global warming to no more than 2C above pre-industrial levels.

Almost all of the world's countries, both developed and developing, submitted GHG plans before the Paris conference. However, **those plans are not legally binding** and will not be even when the accord enters into force!

No international treaty, either legally binding or not, can force countries to limit GHG emissions if they are not willing to do so. Thus **it very much depends on internal politics**.

Where does the EU want to go?

The 2030 Energy and Climate Policy Package

The decarbonisation of the electricity sector by 2050 has been shown by most analysis to be essential to meet European longer-term climate targets while minimising the costs of doing so.

On 23rd October 2014 the European Council adopted the **2030 Energy and Climate Policy Framework**, with the following 2030 targets:

- 40% **GHG emissions** reduction relative to 1990 (binding)
- 27% energy consumption supplied by **renewable energy** (binding), with no national targets
- 27% increase in **energy efficiency** (not binding).

The 40% GHG emissions target is set to be made up of a 43% reduction from sectors covered by the EU ETS and a 30% cut in non-ETS sectors such as buildings, agriculture, waste, and transport.

A financial perspective

Do financial institutions seriously care about climate change?



FINANCIAL
TIMES



Do financial institutions seriously care about climate change?

Did you know that....?

The **Financial Stability Board (FSB)** established an industry-led disclosure task force on climate-related financial risks.

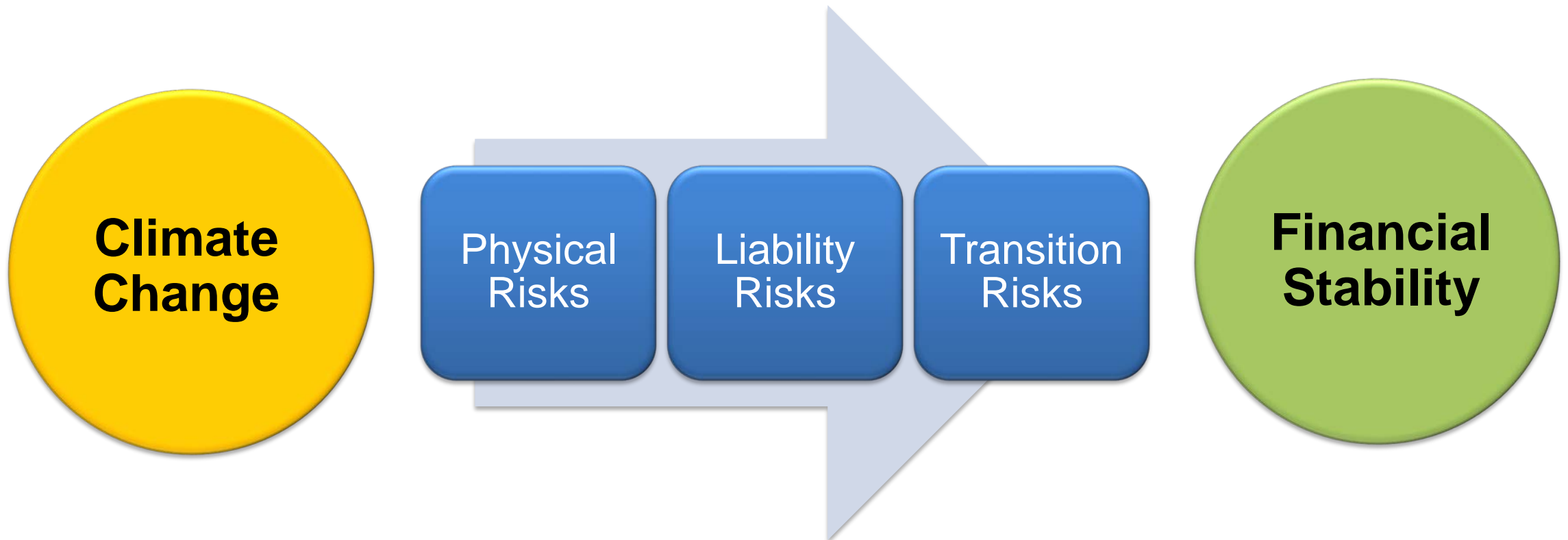
A recent **IMF** paper estimated that subsidies for fossil fuel energy sources reached \$5.3 trillion worldwide in 2015, including both direct fiscal costs and implicit subsidies from the failure to charge for environmental damages or tax energy at the same rate as other consumption products.

BlackRock, the fund manager, recently published a paper warning that “investors can no longer ignore climate change.” Even those who personally reject the science, the paper argues, cannot ignore the weight of government regulations intended to address the threat, or the technological changes that could disrupt the energy industry.

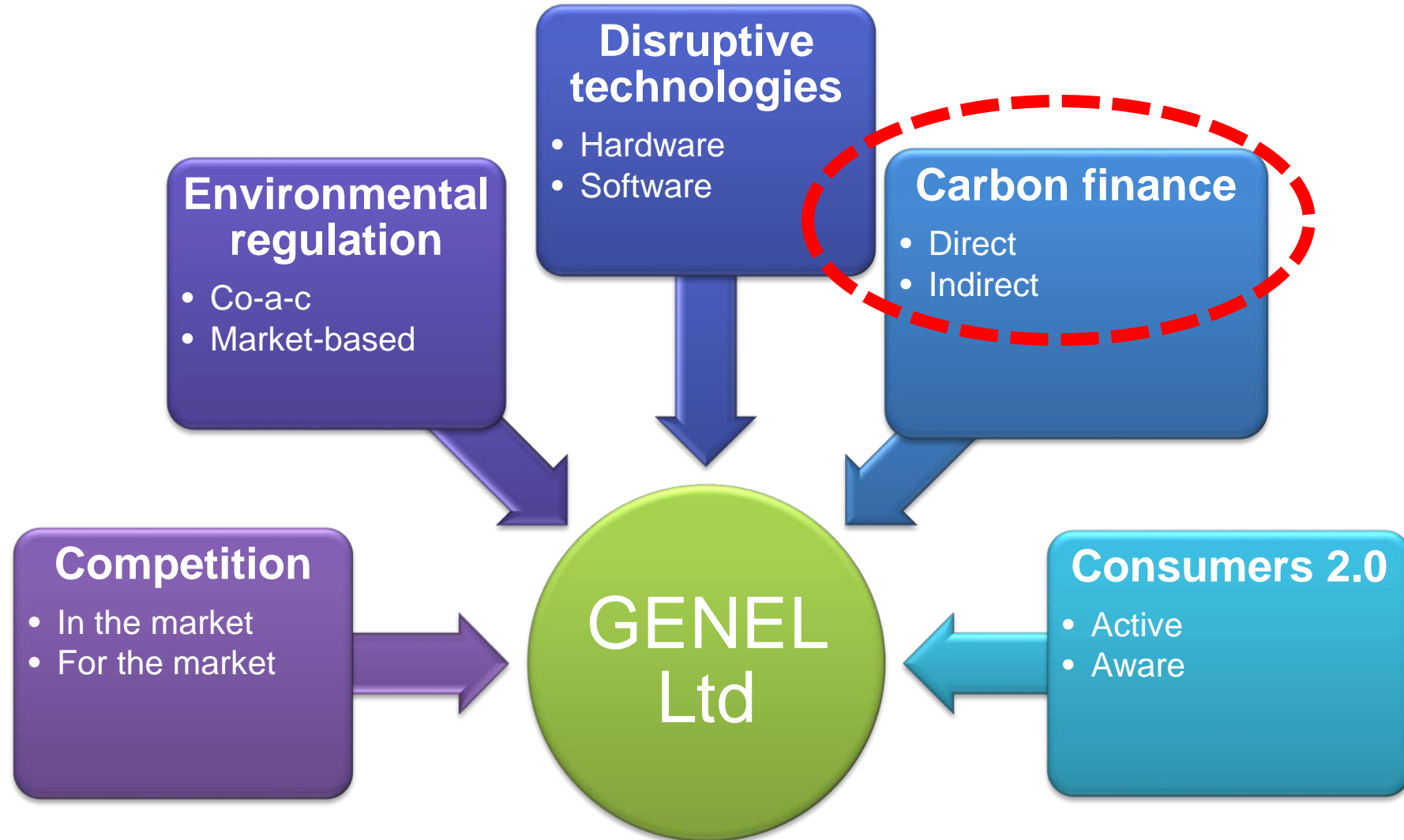
Why should financial institution care about climate change?

The view of the Bank of England

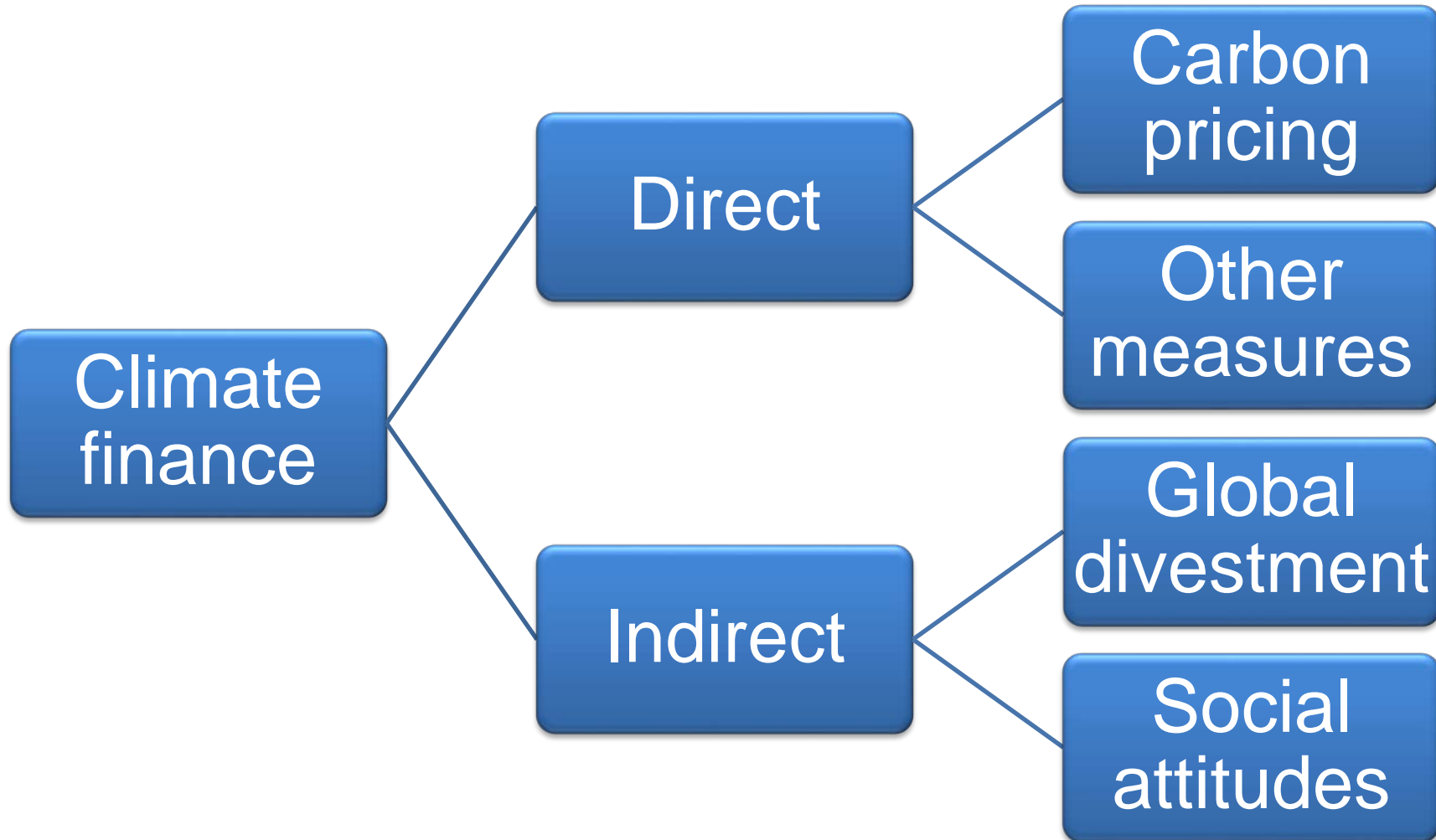
Climate change can affect financial stability through these three channels. The transition risk, which results from decarbonization, is the most important one. Indeed changes in policy, technology and physical risks could lead to a reassessment of asset values as costs and opportunities become apparent (Governor of the Bank of England, September 2016).



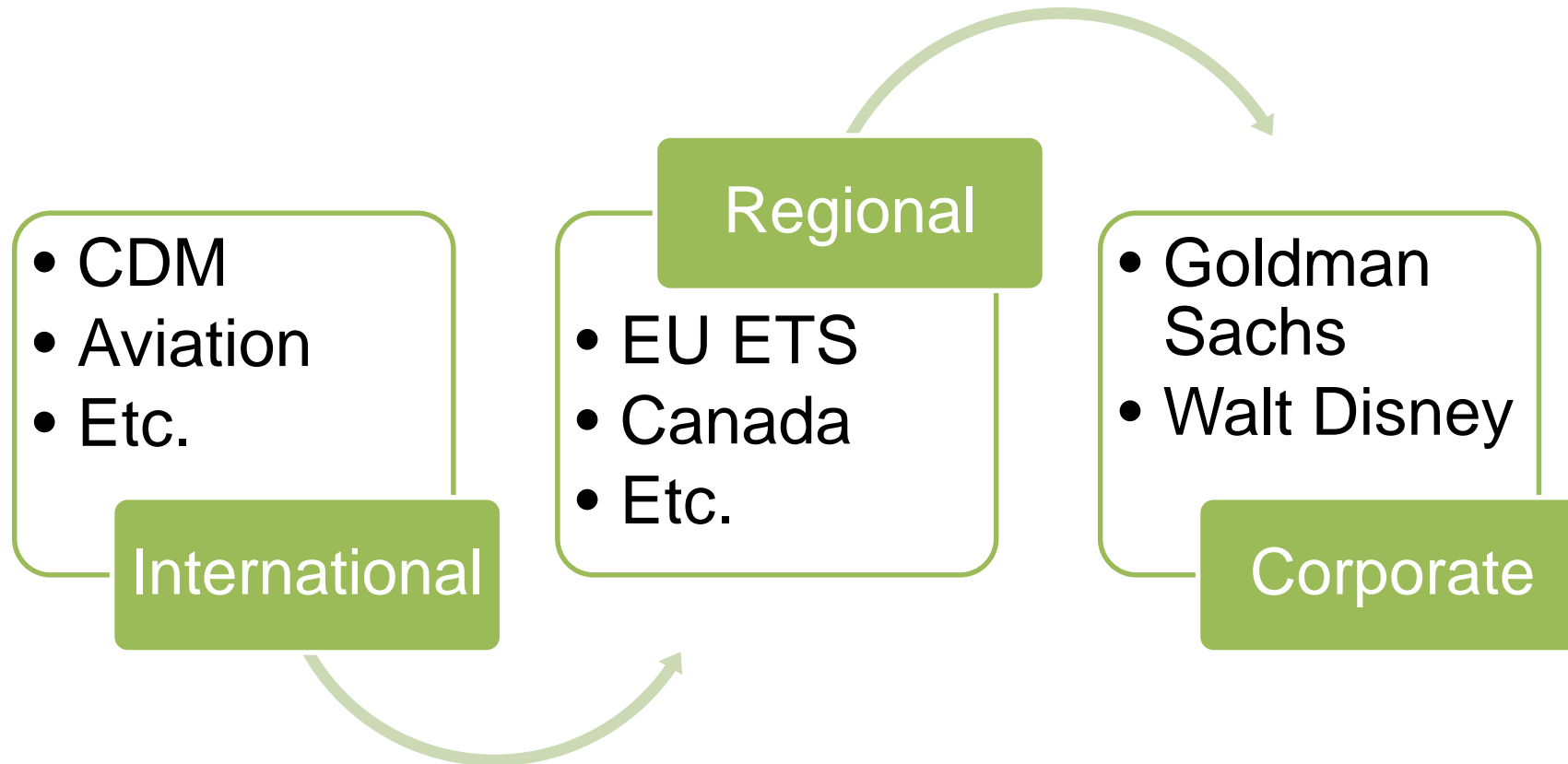
GENEL Ltd under pressure.....in a carbon-constrained world



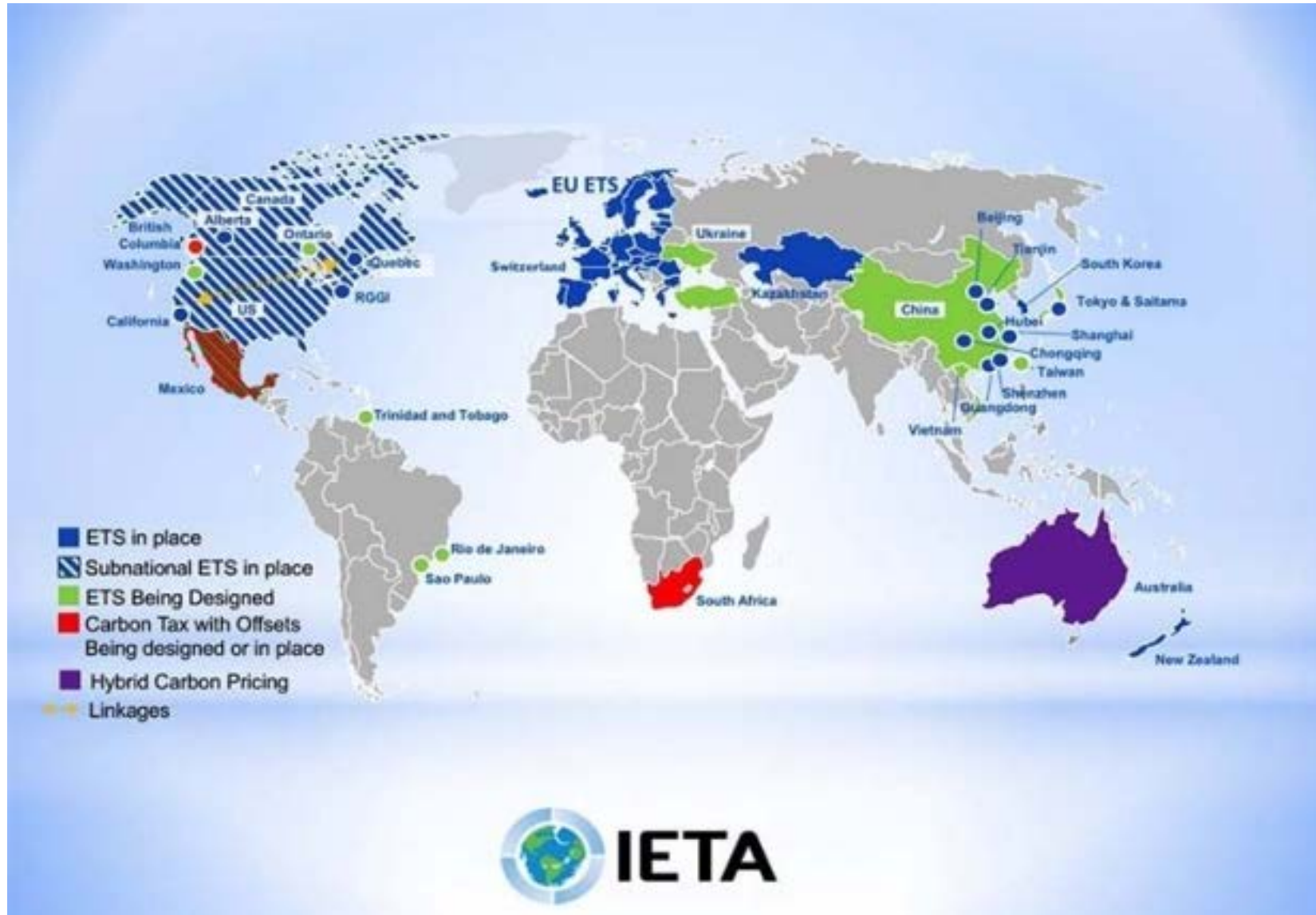
How can climate finance affect EXPO Ltd?



How does carbon pricing work in practice?



Regional carbon pricing worldwide



Regional carbon pricing

Regional carbon pricing is slowly gaining momentum, with the number of schemes **more than tripling since 2012**.

At present, there are about 40 national jurisdictions and more than 20 cities, states, and regions who have introduced a form of carbon pricing.

China, Canada and Mexico are set to launch their cap-and-trade systems in upcoming months while Turkey, Ukraine and Washington State are currently designing schemes.

COP 21 saw emissions trading put back on the global agenda after being discredited due to the ETS's failures.

The Paris conference emphasized market-based approaches to emissions reductions, such as cap-and-trade.

Regional carbon pricing: the EU ETS

According to several experts, the way the ETS is working now, it's not bringing emissions reductions.

Carbon prices, currently 4-5 €/ton, are supposed to be around 30-40 €/ton to really incentivize a low-carbon transition.

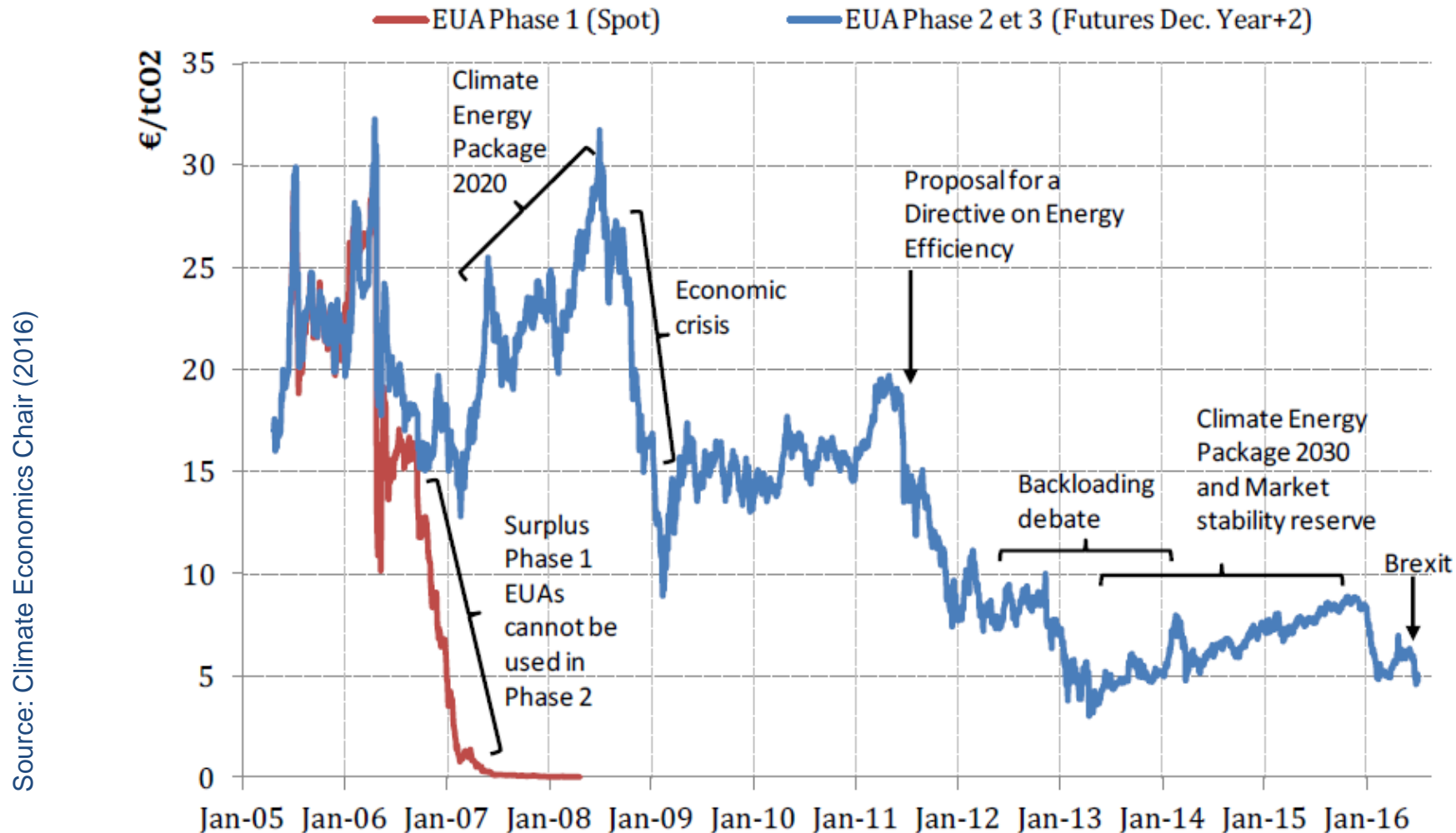
Last year, the EU met its 2020 emissions targets, but many experts (Grubb, UCL) believe other policies have likely helped cut emissions.

Thus the ETS has not been the "cornerstone" of European climate policy, although it could still be.

As a market-based approach, cap-and-trade is seen as easier and cheaper to implement than carbon tax, which has been politically controversial in the EU.

Regional carbon pricing: the EU ETS

Since 2008, Europe's carbon market has shown symptoms of **constant decline**. Rock bottom prices for allowances have given industry little incentive to diversify away from fossil fuels. Similarly, power generators have had **little incentive to switch from coal to cleaner gas**.



Regional carbon pricing: China

China, the world's largest polluter, which ratified the Paris climate accord last month, is expected to launch its **national cap-and-trade system in early 2017**, with a three-year first phase.

It will be an **ETS with Chinese features**, i.e. more state involvement in monitoring the cap and the carbon price.

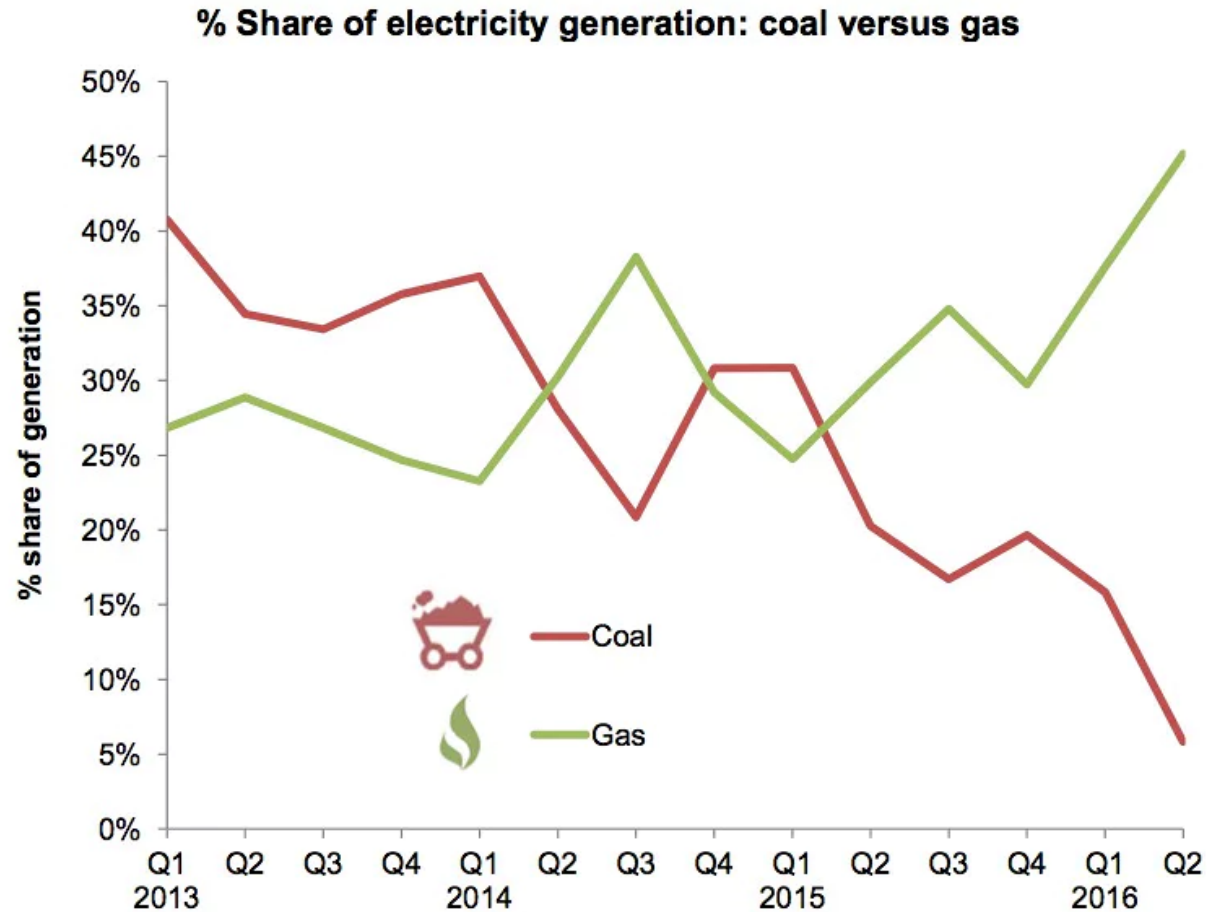
The Chinese ETS is expected to cover about **70% of emissions**, compared to the EU's 45%, but **will include similar businesses**, e.g. electricity generation and heavy industry.

This initiative indicates a "fundamental shift" in China's attitude towards tackling climate change.

Other countries could be encouraged to develop such systems nationally while the Paris agreement could help facilitate them at the international level, even potentially linking them in the future.

Regional carbon pricing: UK and the carbon price floor (CPF)

This spring the share of coal in the power mix fell to 6% from 20% in the same period last year. The gap left by coal was filled by gas, which generated 45% of the UK's electricity this spring – up from 30% the previous year. The doubling of the CPF from £9 to £18/tCO₂ in April 2015 has been a major factor in driving coal out of the UK electricity mix.



Corporate carbon pricing

Corporate carbon pricing is now becoming a widely used tool for **corporate strategic investment decisions**, supporting companies shift to lower-carbon business models.

According to CDP, in 2016 there are **more than 1,200 companies** (+23% wrt. 2015) that have an internal carbon price or plan to adopt one soon.

Indeed companies can voluntarily set an internal carbon price for each tonne of carbon they emit, **regardless** of whether they are in a region where there is a mandatory carbon trading system (e.g. the EU).

Less than one-third of the companies revealed the actual prices they were using, which in some cases were higher than the ETS's one (e.g. Novartis is using a €100/ton).

The global divestment movement

As of September 2015 236 institutions and 2,040 individuals from 43 countries representing \$2,6 trillion in assets have committed to divest from fossil fuels.

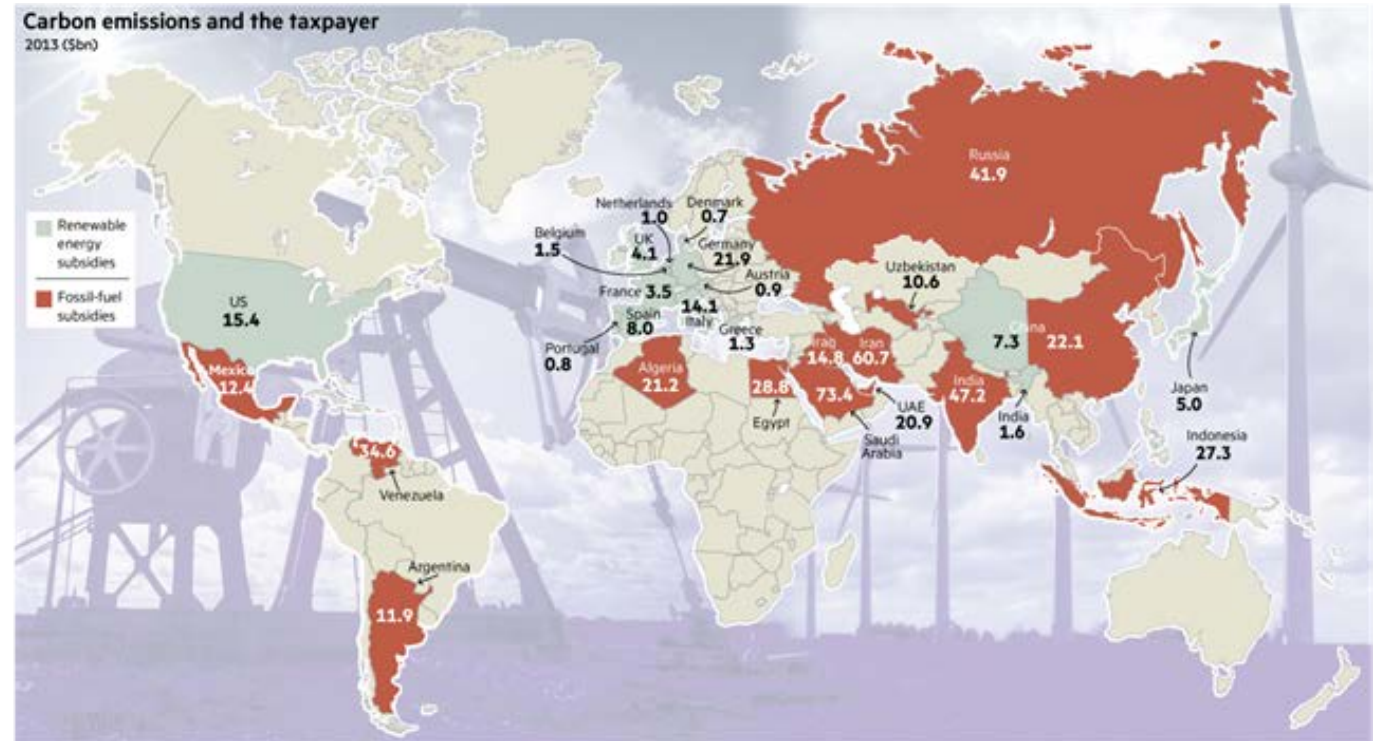


About subsidies, by the way.....

According to the IEA, in 2014 **global subsidy bill** stood at about:

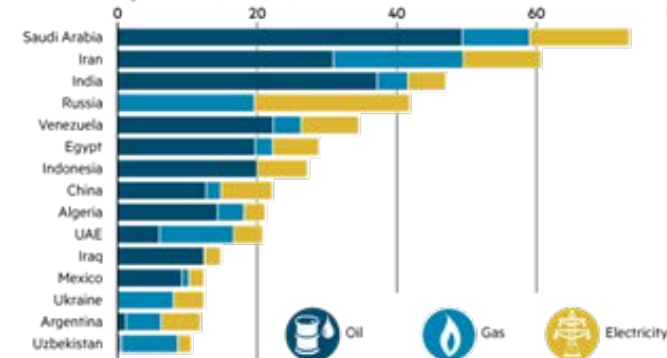
- **\$490bn for fossil fuels**
- **\$112bn for renewable energy technologies**, with another \$23bn spent on supporting biofuels.

See also the [map](#)



Fossil-fuel subsidies

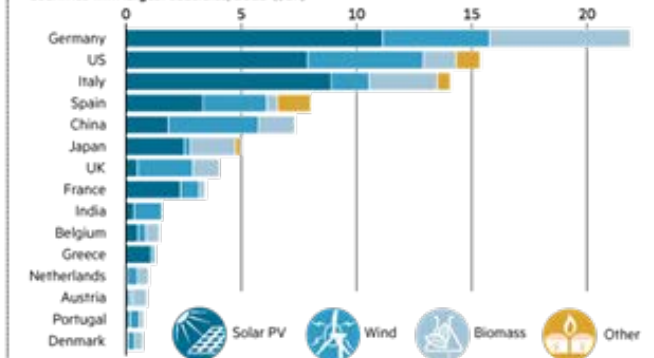
Countries with largest subsidies, 2013 (\$bn)



FT graphic. Source: IEA

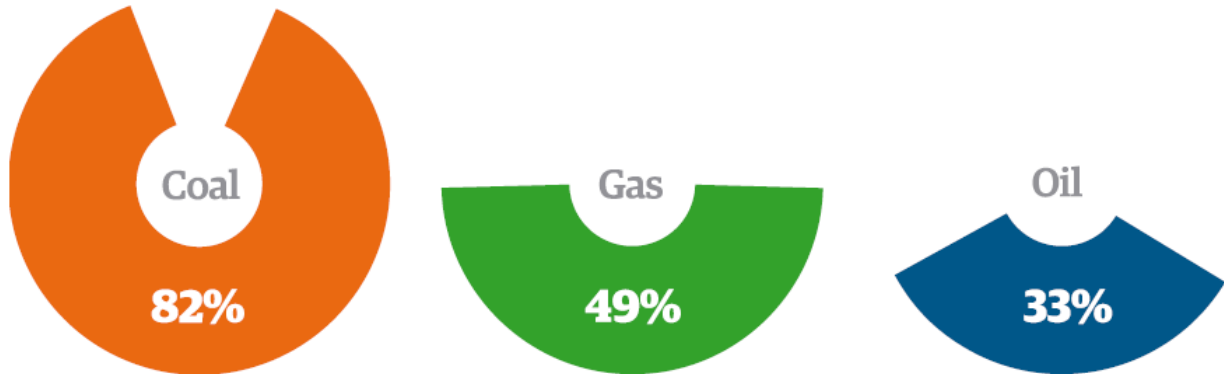
Renewable energy subsidies

Countries with largest subsidies, 2013 (\$bn)



Finally some “good” news from Nature

Known, extractable coal, oil and gas reserves that **MUST NOT BE BURNT** in order to prevent an increase of the temperature of more than 2C.



Regional reserves

