

# Global Energy Outlook

## Smooth Sailing or «Sturm und Drang»?

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# Global Energy Outlook

## Smooth Sailing or «Sturm und Drang»?

- Slowing global economy
- Fragile energy system
- Scorned climate challenge
- Disturbing oil price shock



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## Uneven and sluggish economic recovery

Downside risks on the rise

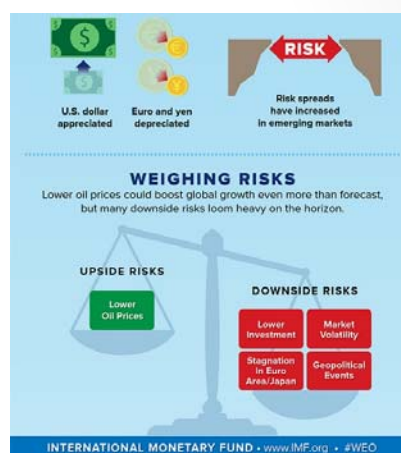
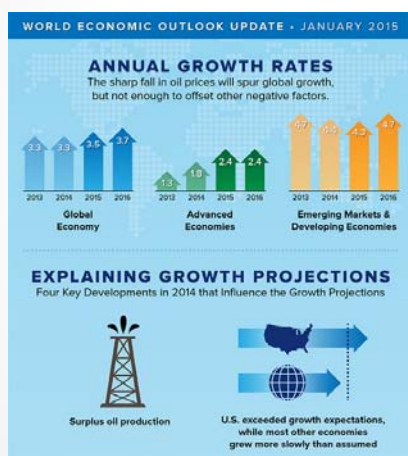


- GDP forecast downgraded
  - China, Russia, Euro area, Japan
  - Major oil exporters
- Recovery suspended - again
  - A classical post-crisis pattern
- Risks have a downward bias
  - Financial market risk
  - Secular stagnation
  - Boost from lower oil prices

Source: International Monetary Fund.

## IMF's World Economic Outlook

"Uneven global recovery continues, downside risks have increased"



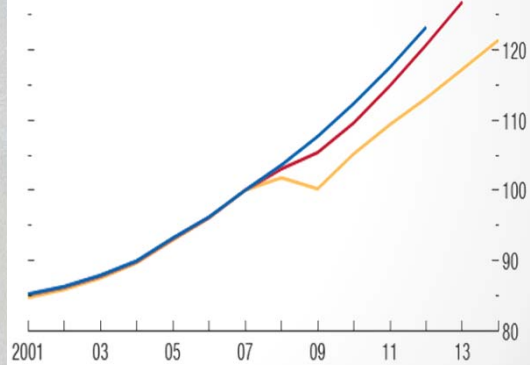
Source: International Monetary Fund.

# Performance versus perception

Actual developments fall short of expectations



Global economic output  
Forecasts have been sliding



Source: International Monetary Fund.

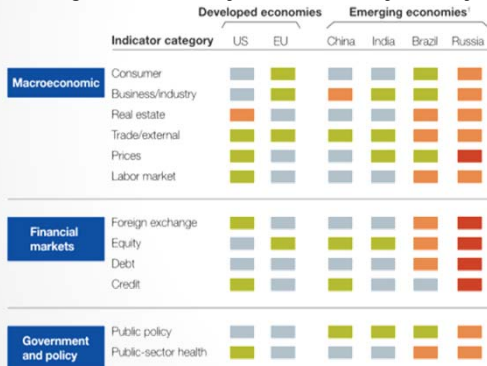
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# Slowdown looming for emerging economies

Late news suggest further revision of growth outlook

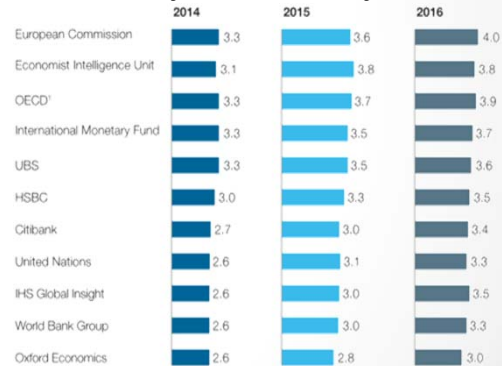
## Shifting sentiments

Changes in business cycle indicators by country



## Global economic growth

Forecasts by institution, January 2015



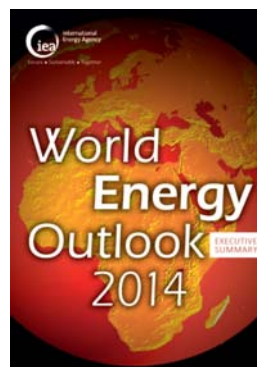
Source: McKinsey.

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## Signs of stress in the global energy system

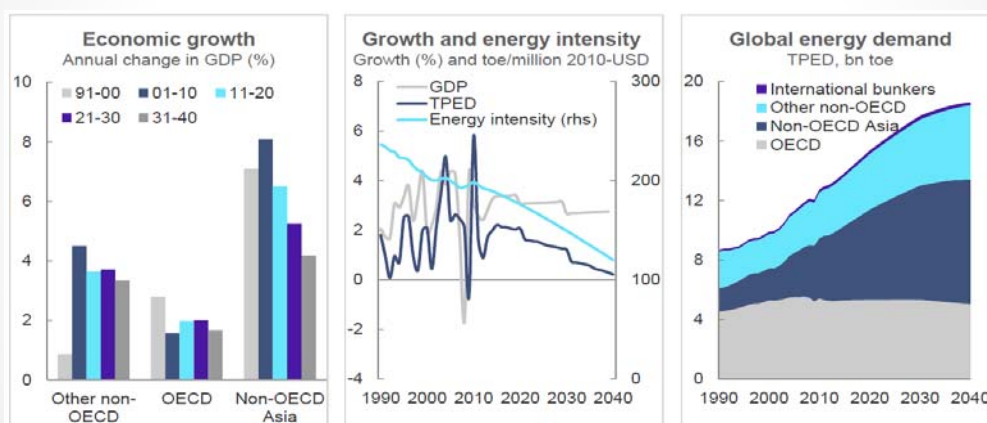
"If we don't change direction, we will end up where we are heading"

- Energy prices are volatile
  - Geostrategic concerns
  - Cycles in investment and production
- The energy landscape is changing
  - Unconventional oil and gas
  - Setback for nuclear energy
  - Focus on energy efficiency
- The system is short on sustainability
  - GHG emissions are yet to peak
  - 1.3 bn people still lack electricity
  - Water is increasingly scarce



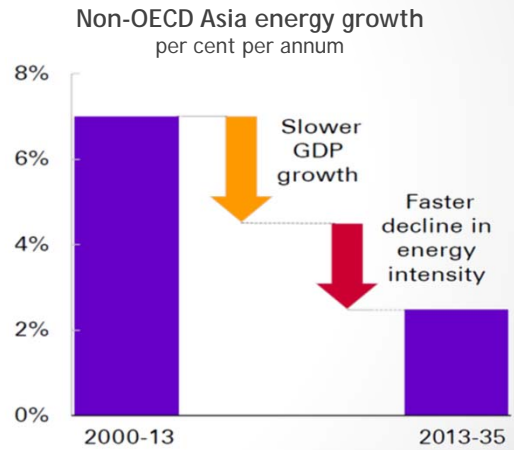
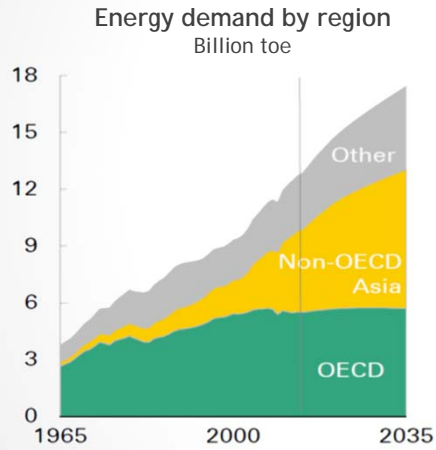
## From economic growth to energy demand

GDP, energy intensity, geographical distribution



## Gradual slowdown is building...

...due to dampened GDP growth and efficiency improvement

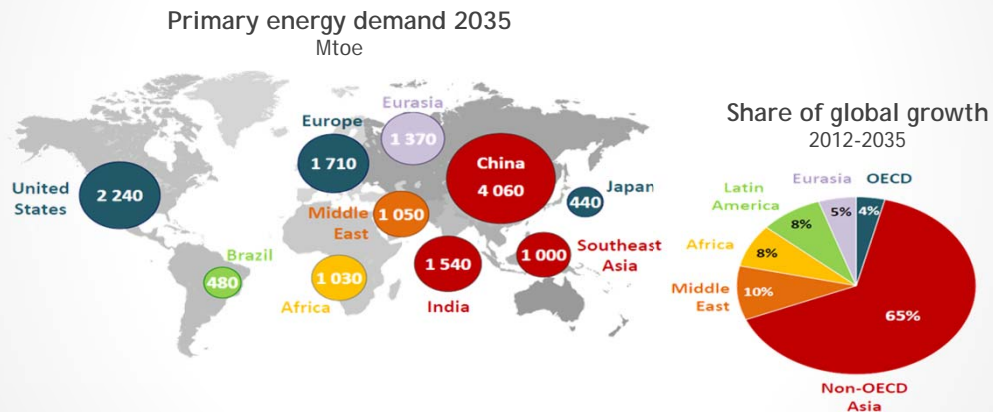


Source: BP Energy Outlook 2035, February 2015 (<http://www.bp.com/energyoutlook>).

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## Engine of energy demand: Eastward bound

South Asia the key driver of energy growth towards 2035

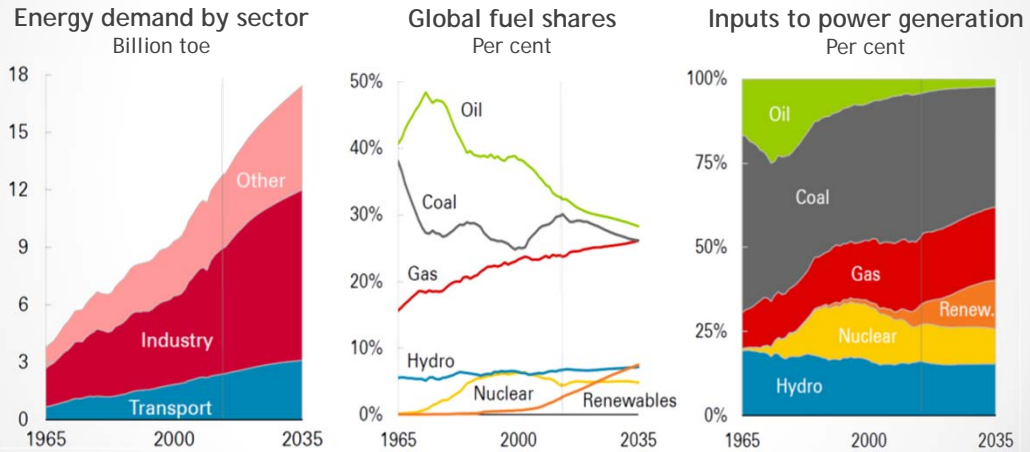


Source: International Energy Agency (World Energy Outlook 2013).

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## Gradual greening of global energy supply

Significant resistance against reversal of fossil fuel dependence

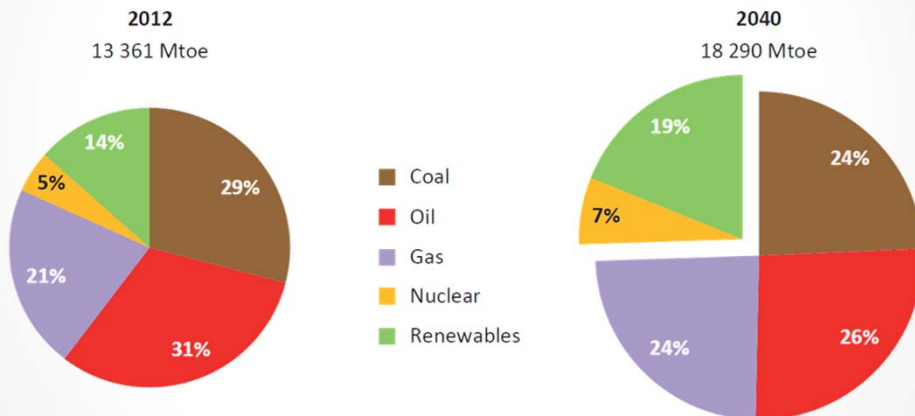


Source: BP Energy Outlook 2035, February 2015 (<http://www.bp.com/energyoutlook>).

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## Fossil fuels lose market share,...

... but ground is gained in absolute terms (+25%)



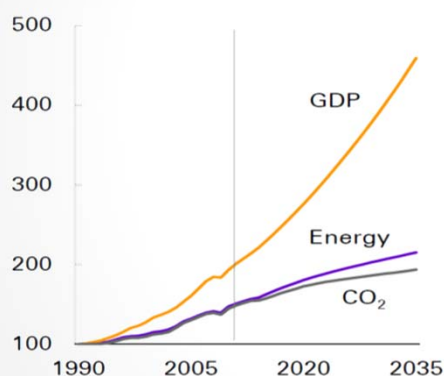
Source: International Energy Agency, 2014, *World Energy Outlook 2014*, IEA, Paris.

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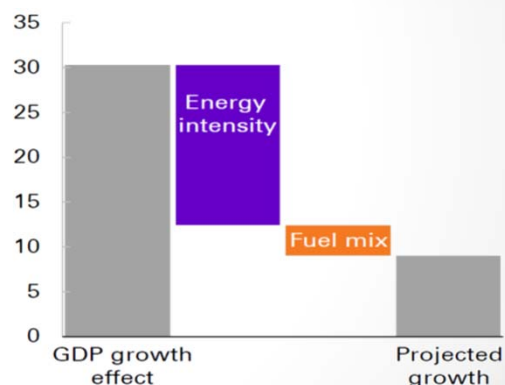
## Emissions dampened by efficiency

Climate policies: Requirements, policies, and measures

GDP, energy, and CO<sub>2</sub> emissions  
Index: 1990 = 100



Emissions growth  
2013-2035, bn tonnes of CO<sub>2</sub>



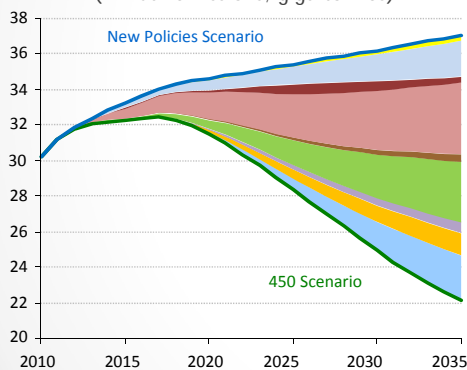
Source: BP Energy Outlook 2035, February 2015 (<http://www.bp.com/energyoutlook>).

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## The policy challenge of our time

Climate policies: Requirements, policies, and measures

Global CO<sub>2</sub> emissions 2010-2035  
NP scenario and 450 scenario compared  
(Annual emissions; giga tonnes)



Source: International Energy Agency, 2013. *World Energy Outlook 2013*. IEA, Paris.

What will it take?

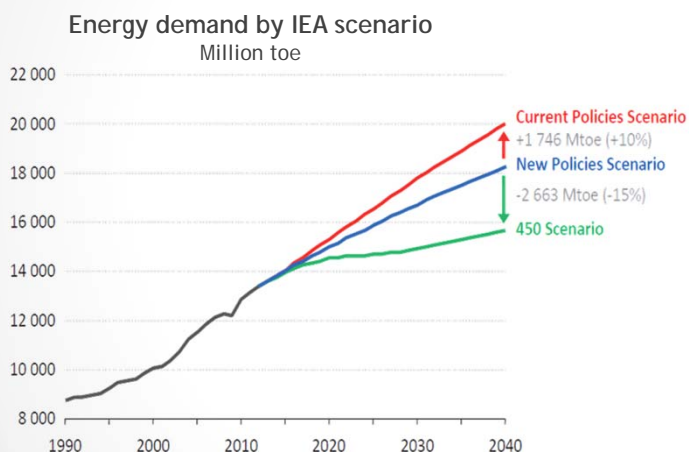
CO<sub>2</sub> abatement efforts and potential by source (%)

	2020	2035
Activity	2%	2%
End-use efficiency	18%	13%
Power plant efficiency	3%	2%
Electricity savings	50%	27%
Fuel and technology switching in end-uses	2%	3%
Renewables	15%	23%
Biofuels	2%	4%
Nuclear	5%	8%
CCS	4%	17%
<b>Total (Gt CO<sub>2</sub>)</b>	<b>3.1</b>	<b>15.0</b>

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## Don' underestimate the uncertainty

...due to dampened GDP growth and efficiency improvement



- Technology
  - Demand-side innovation
  - New production technologies
- Economics
  - Economic activity
  - Price effects
- Policies
  - Energy-saving
  - Environment and climate

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