

# World Energy Outlook 2017

## Climate change and the global energy transition

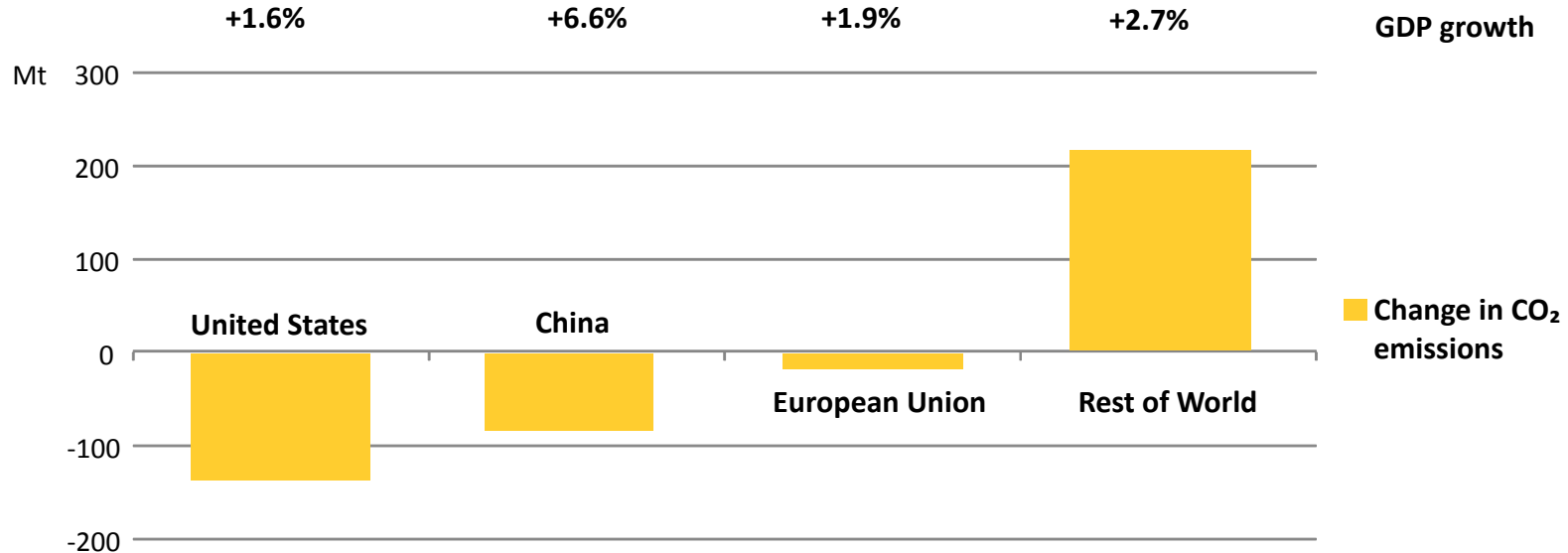
Dave Turk

Acting Director

Directorate of Sustainability, Technology and Outlooks

# Global emissions stagnate, but there are regional variations

Change in annual energy-related CO<sub>2</sub> emissions, 2016

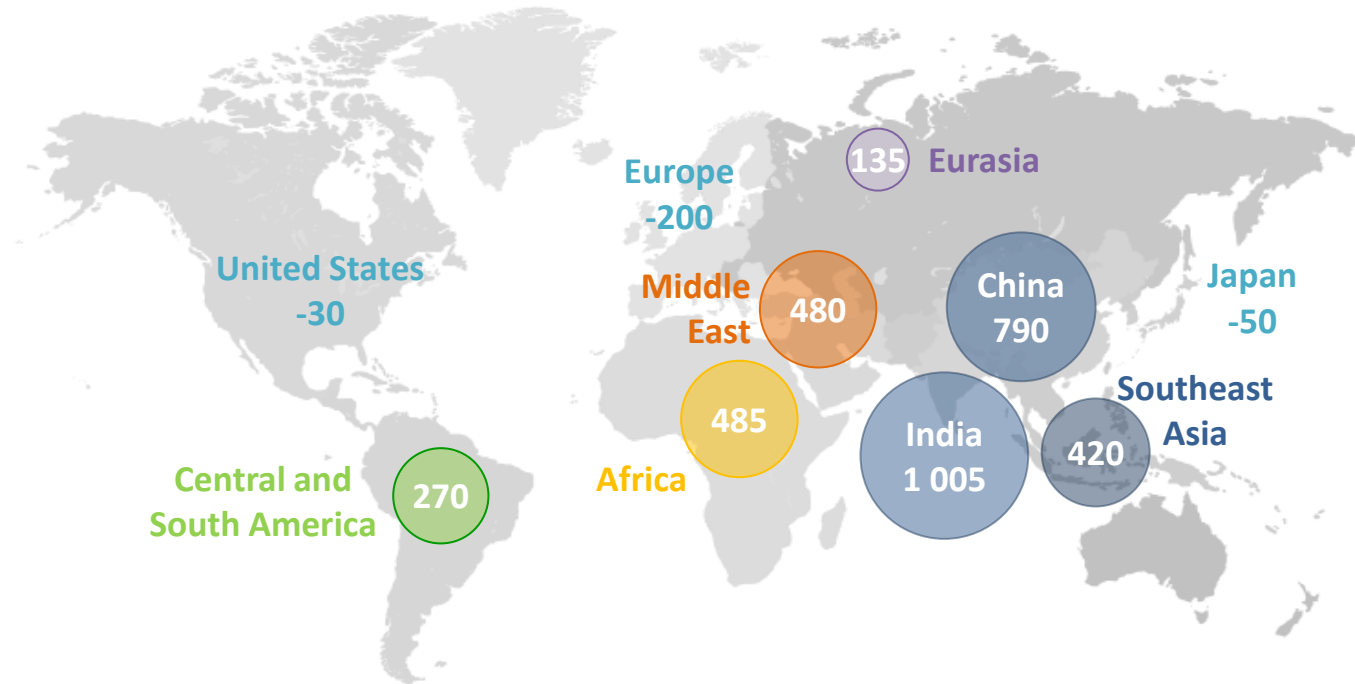


*CO<sub>2</sub> emissions declined in the US, China & EU...  
offsetting an increase in most of the rest of the world*

- Energy sector changes brighten the prospects for affordable, sustainable energy & require a reappraisal of approaches to energy security:
  - **Solar PV** is on track to be the cheapest source of new electricity in many countries
  - **China** is switching to a new economic model & a cleaner energy mix
  - **Electricity** is broadening its horizon, spurred by cooling, electric vehicles & digitalisation
- Yet many problems remain unresolved – climate change, energy access and air pollution

# China energy growth slows

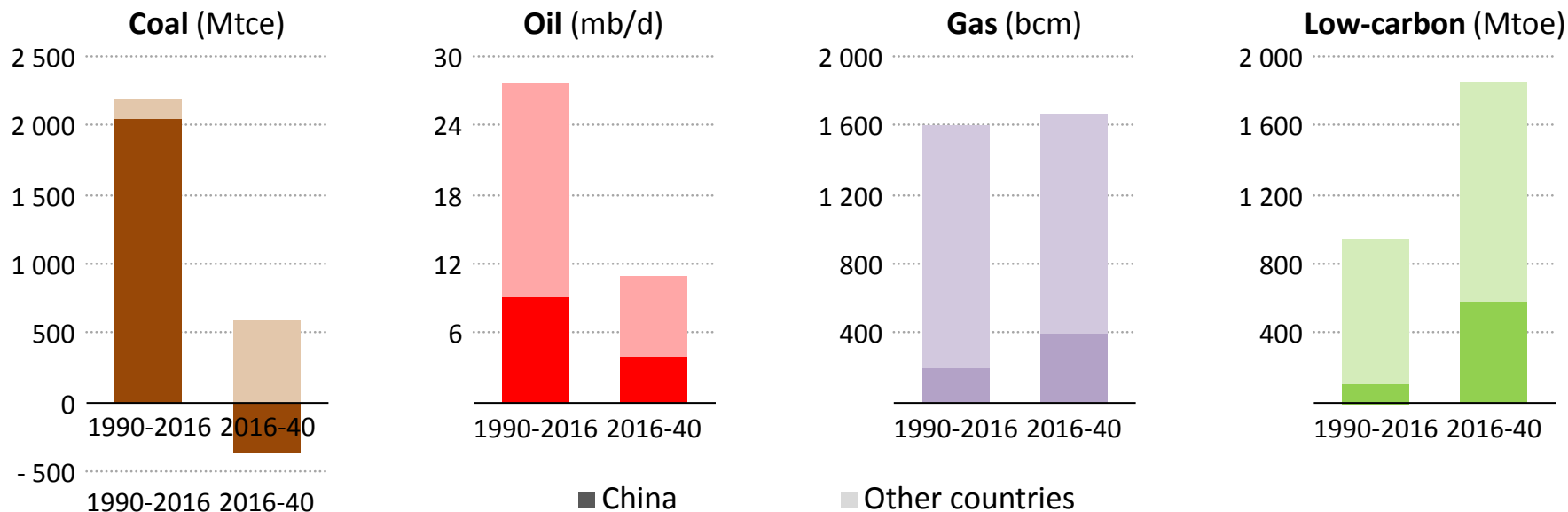
Change in energy demand, 2016-40 (Mtoe)



*Old ways of understanding the world of energy are losing value as countries change roles: the Middle East is fast becoming a major energy consumer & the United States a major exporter*

# A world in transition: global energy markets, again

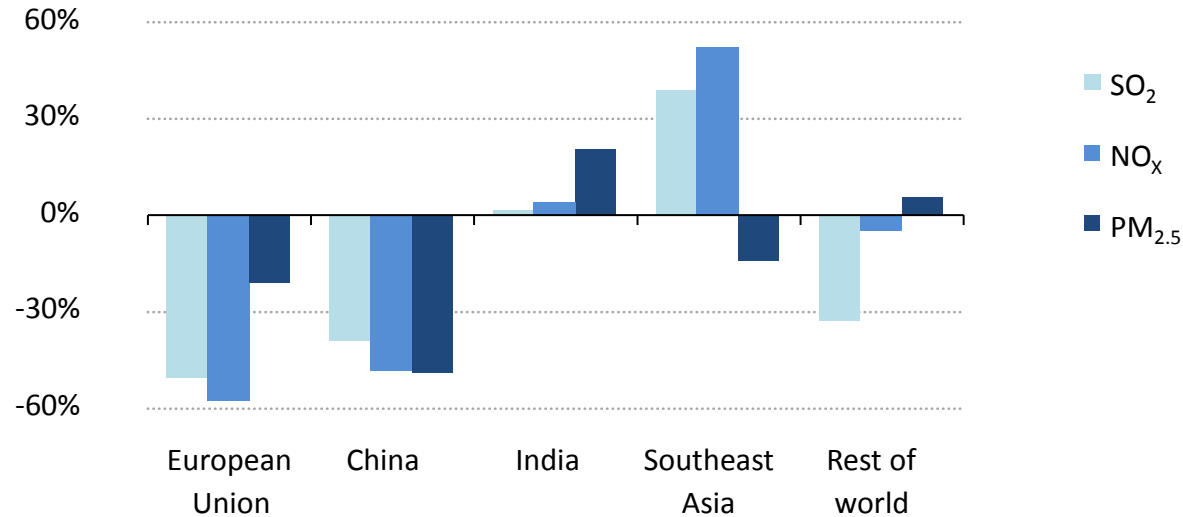
Change in world energy demand by fuel



*Low-carbon sources & natural gas meet 85% of the increase in global demand: China's switch to a new economic model & a cleaner energy mix drives global trends*

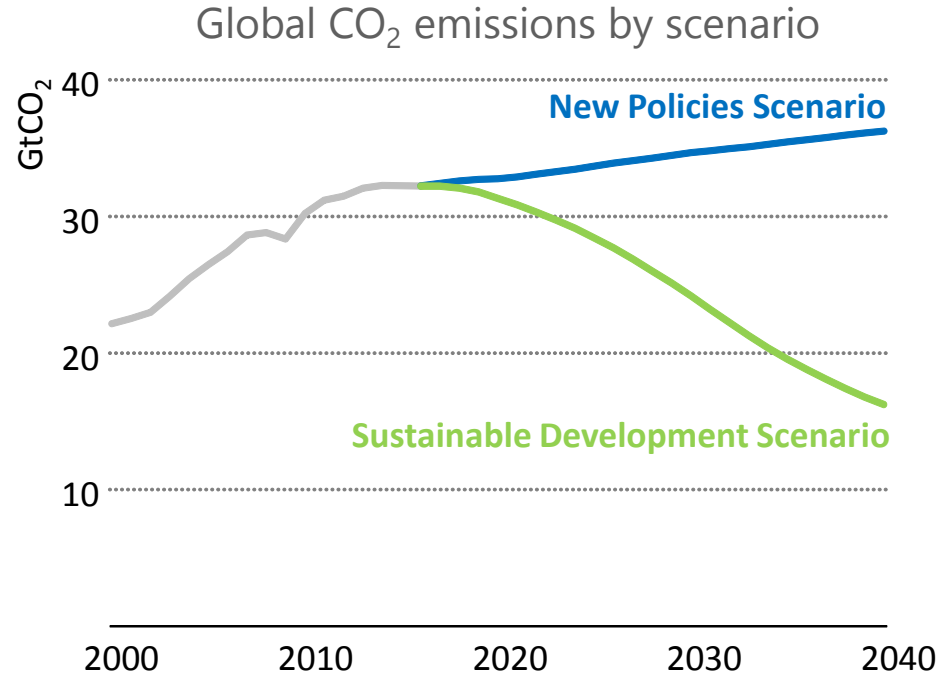
# Air pollution is an energy problem

Change in air pollutant emissions in the New Policies Scenario, 2016-2040



*Emissions of the main air pollutants fall in many regions, but ageing populations and urbanisation increase related health impacts*

# A new strategy for energy & sustainable development



*The Sustainable Development Scenario reduces CO<sub>2</sub> emissions in line with the objectives of the Paris Agreement, while also tackling air pollution and achieving universal energy access*

# Stronger policies for a more sustainable world

The Sustainable Development Scenario in 2040

875

million electric  
vehicles

2 times  
more efficient  
than today

3 250<sub>GW</sub>

global solar PV capacity

580<sub>bcm</sub>

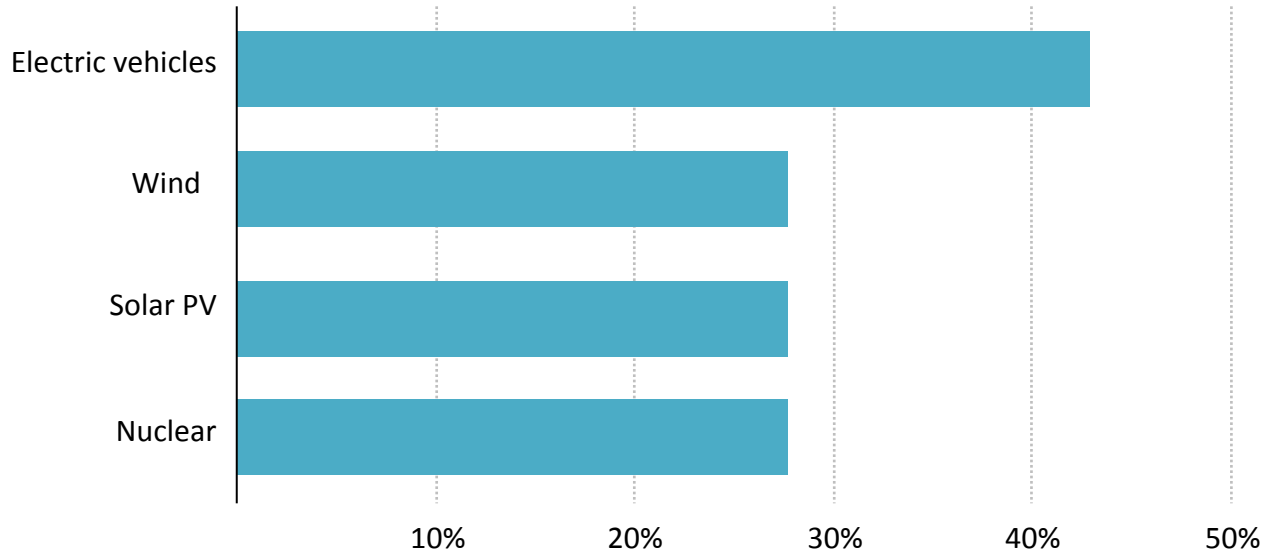
additional gas demand

*Only 15% additional investment is required to 2040 to achieve the Sustainable Development Scenario, with two-thirds of energy supply investment going to electricity generation & networks*



# China leads the push for new energy technologies

China's share of cumulative global investment in low-carbon technologies, 2017-2040



*The effects of the energy transition are reflected in its high shares of global investment in a range of low-carbon technologies*

- China continues to shape global trends, but in new ways as its “energy revolution” drives cost reductions for a wide range of clean energy technologies
- The IEA strategy for sustainable development shows that concerted action to address climate change is fully compatible with global goals on universal access & air quality
- Achieving the combined sustainable development goals requires a step change in policy efforts, but can be done at relatively little extra cost
- China is making big steps to achieve such a cleaner energy future; the wider policy goals, including the “Energy Revolution” strategy, are important signposts for China’s future travel; need for integrated policy packages and systems integration



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