

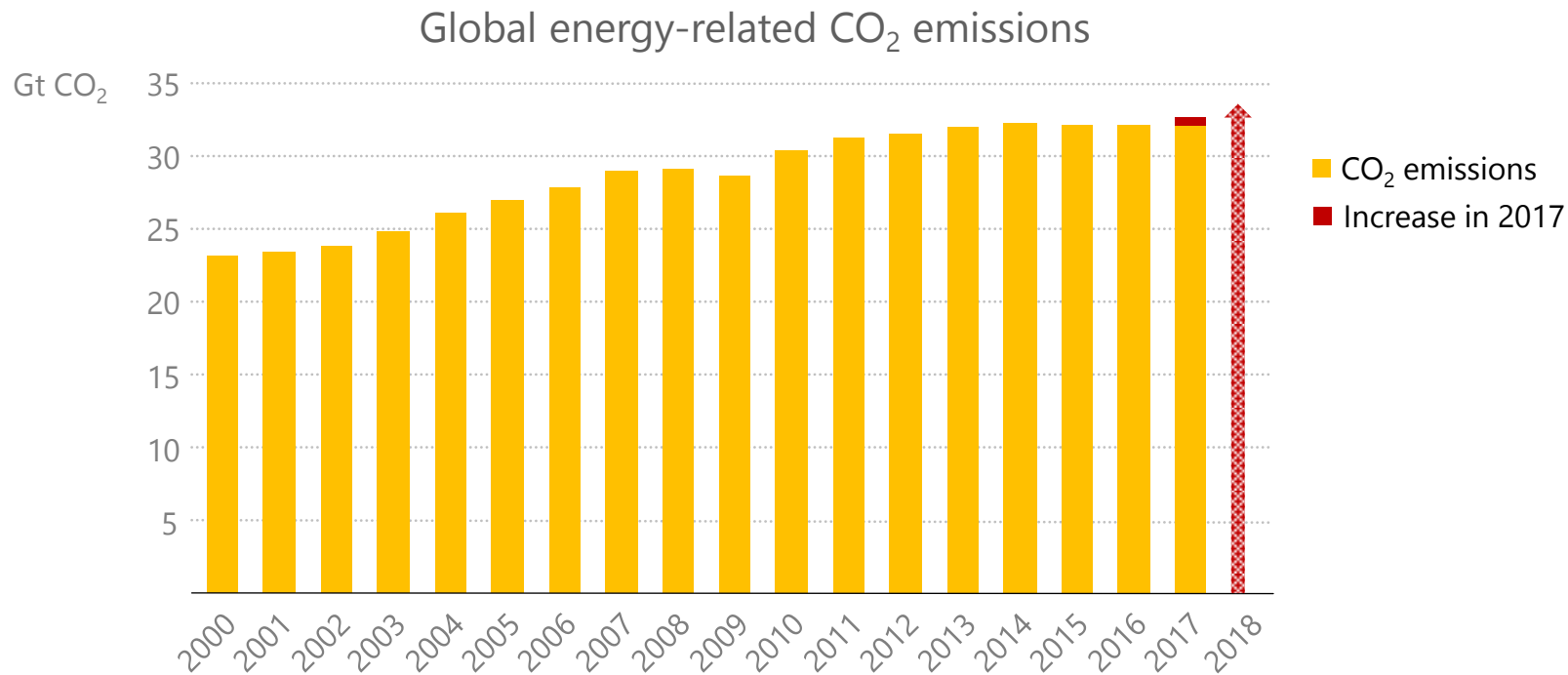
World Energy Outlook 2018



Dr Fatih Birol
IEA Executive Director
10 December 2018
Katowice

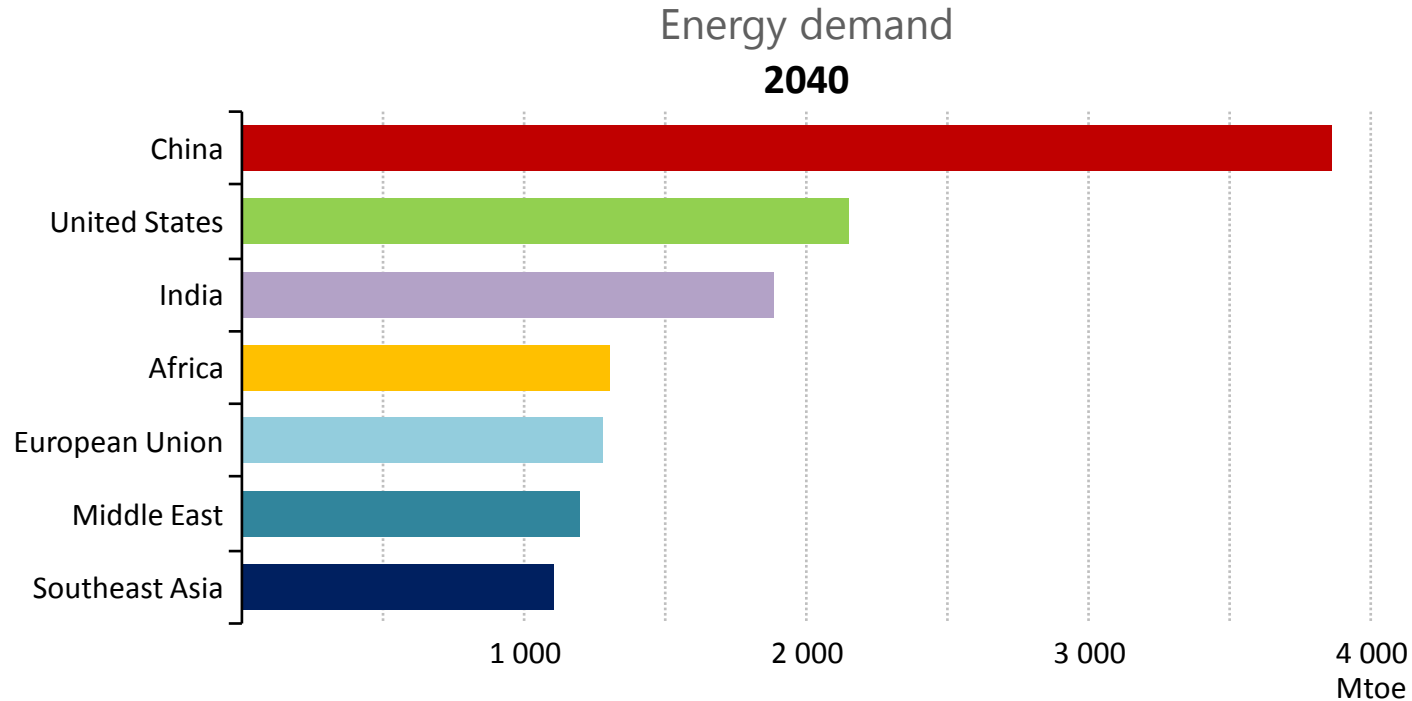
- Mixed signals about the pace & direction of change in global energy:
 - Oil markets are entering a period of **renewed uncertainty & volatility**
 - **Natural gas is on the rise**: China's rapid demand growth is erasing talk of a 'gas glut'
 - **Solar PV has the momentum** while other key technologies & efficiency policies need a push
 - **Growing disconnect** between climate goals and energy-market trends
 - For the first time, the global **population without access to electricity fell below 1 billion**
- **Electricity** is carrying great expectations, but questions remain over the extent of its reach in meeting demand & how the power systems of the future will operate
- Policy makers need well-grounded insights about different possible futures & how they come about. The *WEO* provides two key scenarios:
 - New Policies Scenario
 - Sustainable Development Scenario

Global emissions are on the rise again



Global CO₂ emissions are on the rise in 2018; Even in advanced economies – where they had been flat for 5 years – emissions are set to increase in 2018

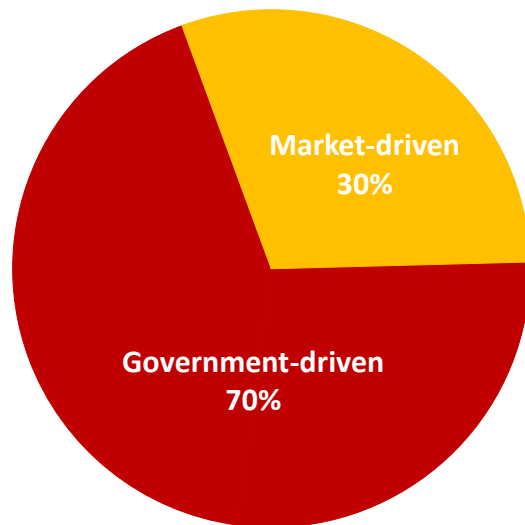
The new geography of energy



In 2000, more than 40% of global demand was in Europe & North America and some 20% in developing economies in Asia. By 2040, this situation is completely reversed.

Our energy destiny rests with governments

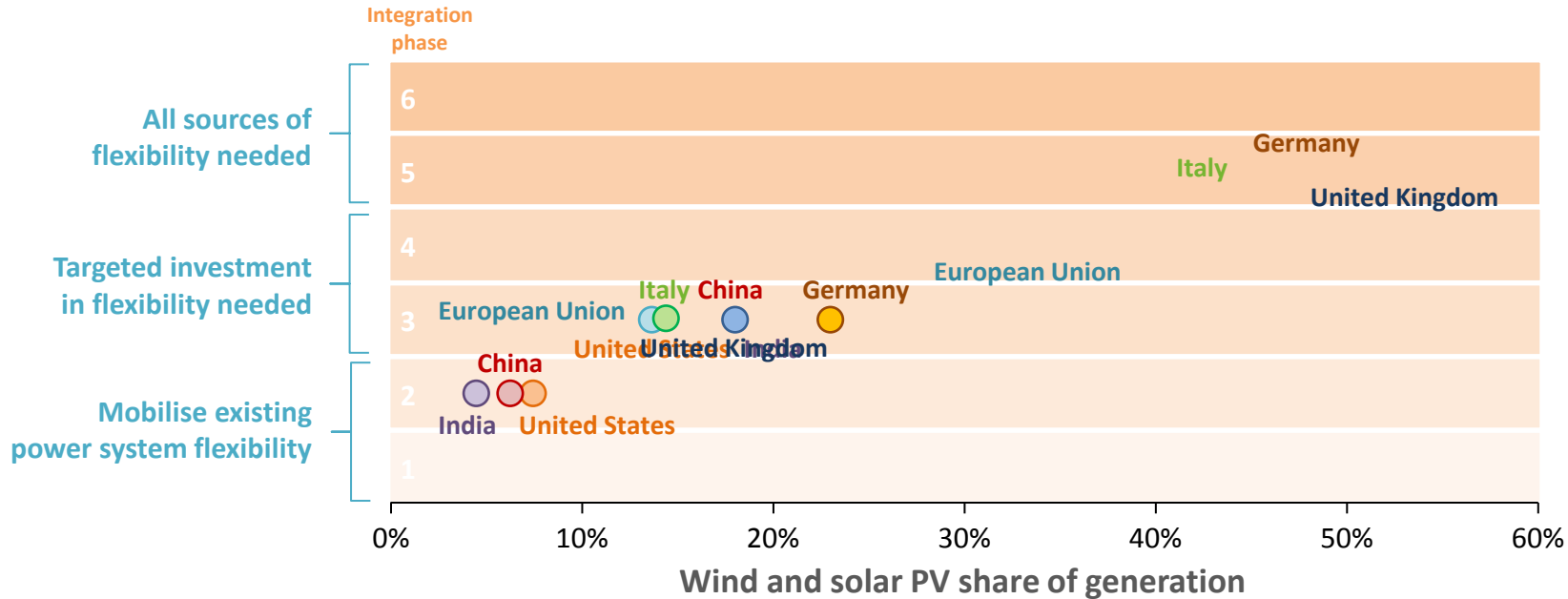
Total investment in energy supply to 2040:
\$42.3 trillion



More than 70% of the \$2 trillion required each year in energy supply investment either comes from state-directed entities or receives a full or partial revenue guarantee

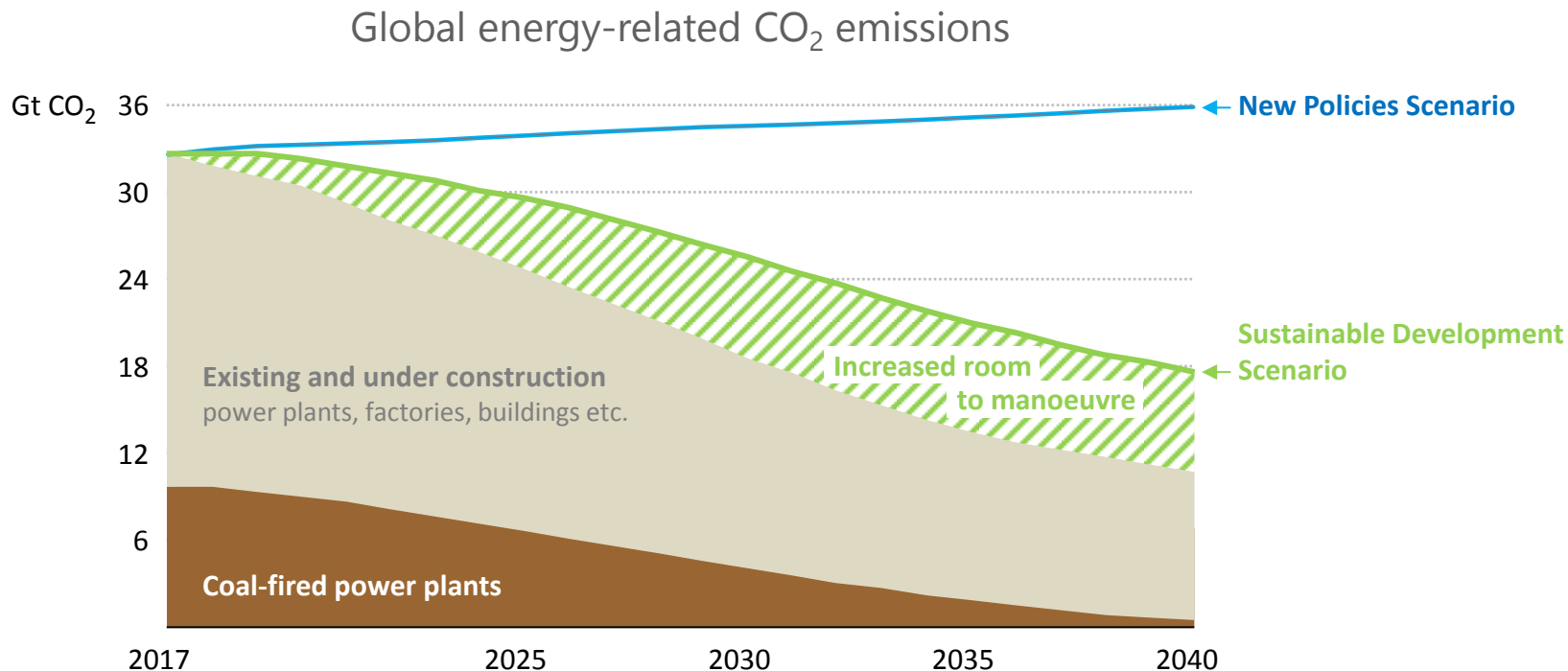
Flexibility: the cornerstone of tomorrow's power systems

Phases of integration with variable renewables share, 2030



Higher shares of variable renewables raise flexibility needs and call for reforms to deliver investment in power plants, grids & energy storage, and unlock demand-side response

Can we unlock a different energy future?



Coal plants make up one-third of CO₂ emissions today and half are less than 15 years old; policies are needed to support CCUS, efficient operations and technology innovation

- The links between energy & geopolitics are strengthening & becoming more complex, a major factor in the outlook for energy security
- The rapid growth of electricity brings huge opportunities; but market designs need to deliver both electricity *and* flexibility to keep the lights on
- There is no single solution to turn emissions around: renewables, efficiency & a host of innovative technologies, including storage, CCUS & hydrogen, are all required
- The future pathway for energy is open: governments will determine where our energy destiny lies
- The IEA supports energy transitions around the world with data, analysis and real world solutions

World Energy Outlook 2018



iea.org/weo