



World Energy Outlook 2017

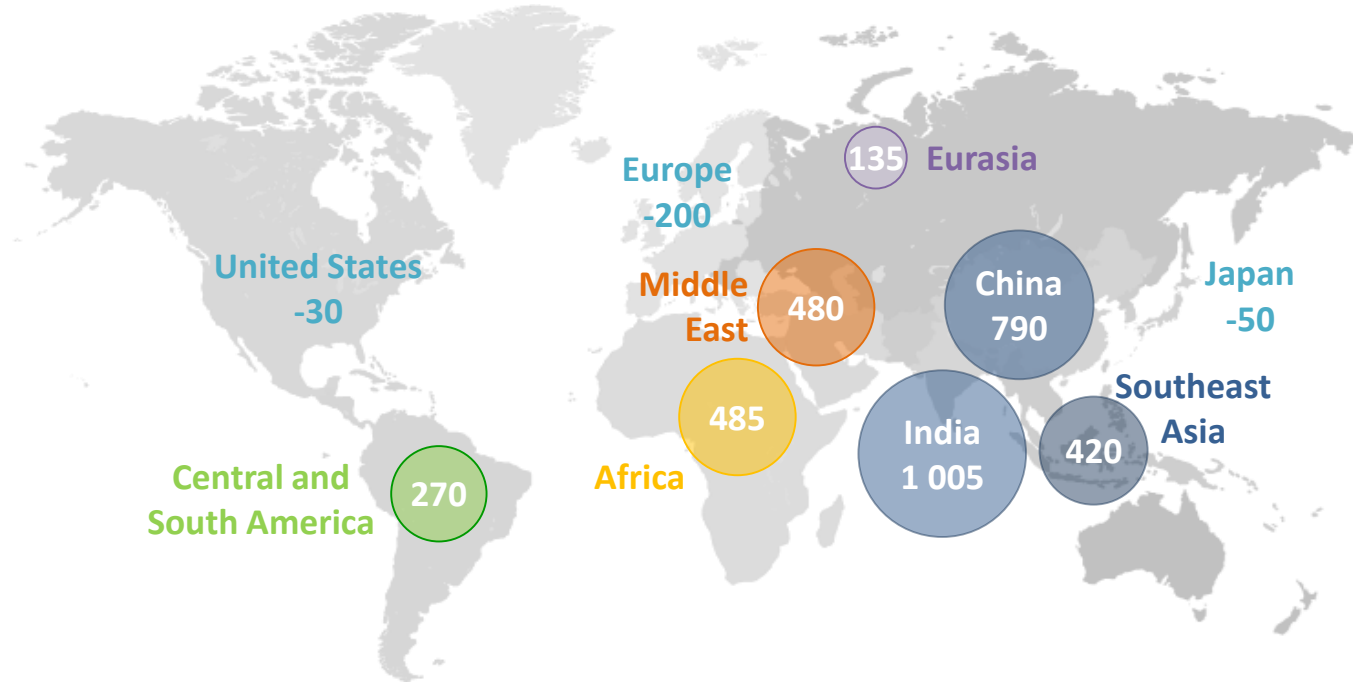
**Integrating climate, air pollution & universal
access: The Sustainable Development Scenario**

Dr. Timur Gül, IEA
COP23, Bonn, 16 November 2017

- The SDGs recognise climate change, air pollution and universal energy access as central for human development, economic growth & sustainability
- Progress has been made, but the problems are far from solved:
 - *CO₂ emissions at the same level for three consecutive years, but energy remains the largest emitter*
 - *Air pollution causes around 6 million premature deaths per year*
 - *1.1 billion people still lack access to electricity & 2.8 billion people do not have access to clean cooking*
- Many signs of political & technology progress, but is it enough to achieve Sustainable Development Goals?

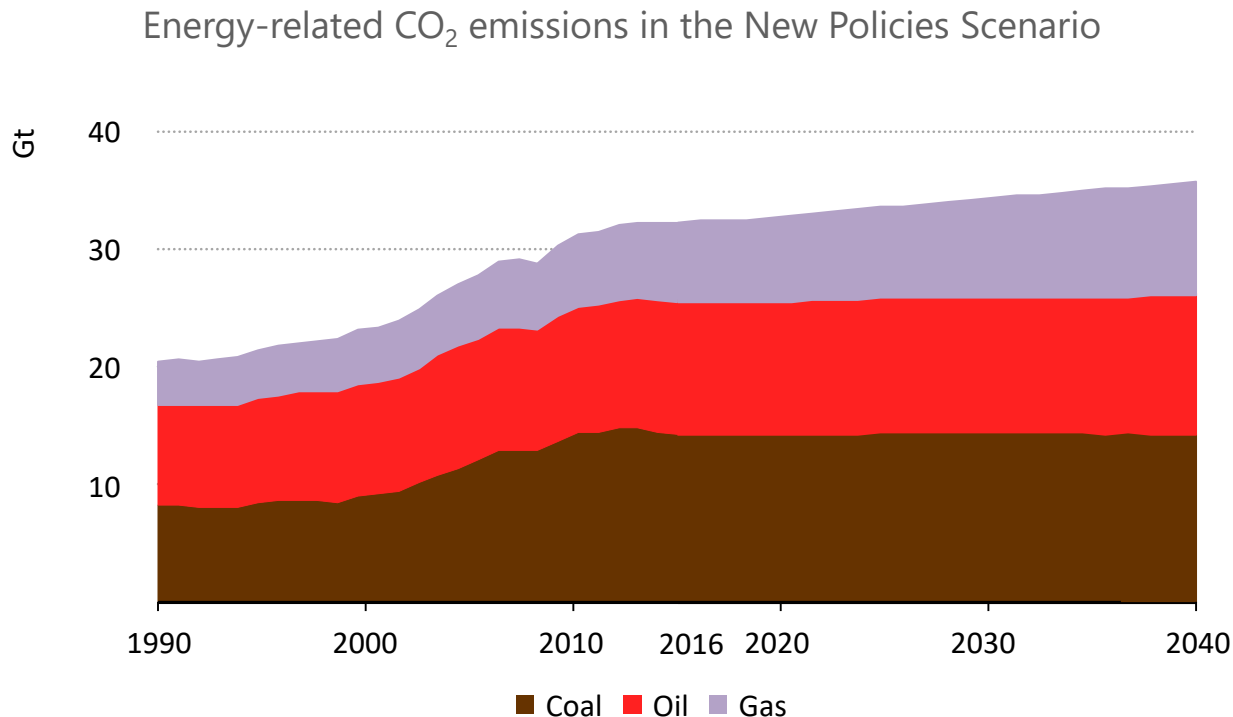
India takes the lead, as China energy growth slows

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

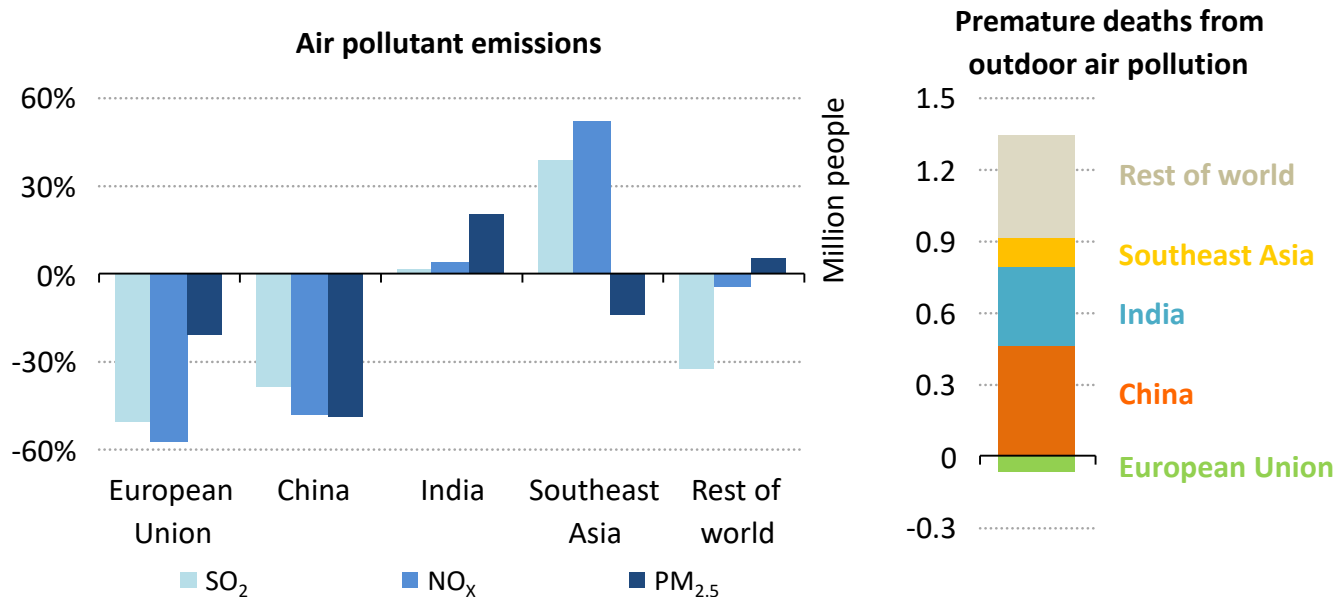
CO₂ emissions growth slows



Emissions growth slows as China moves away from coal and the use of low-carbon technologies, in particular solar PV and wind, rises

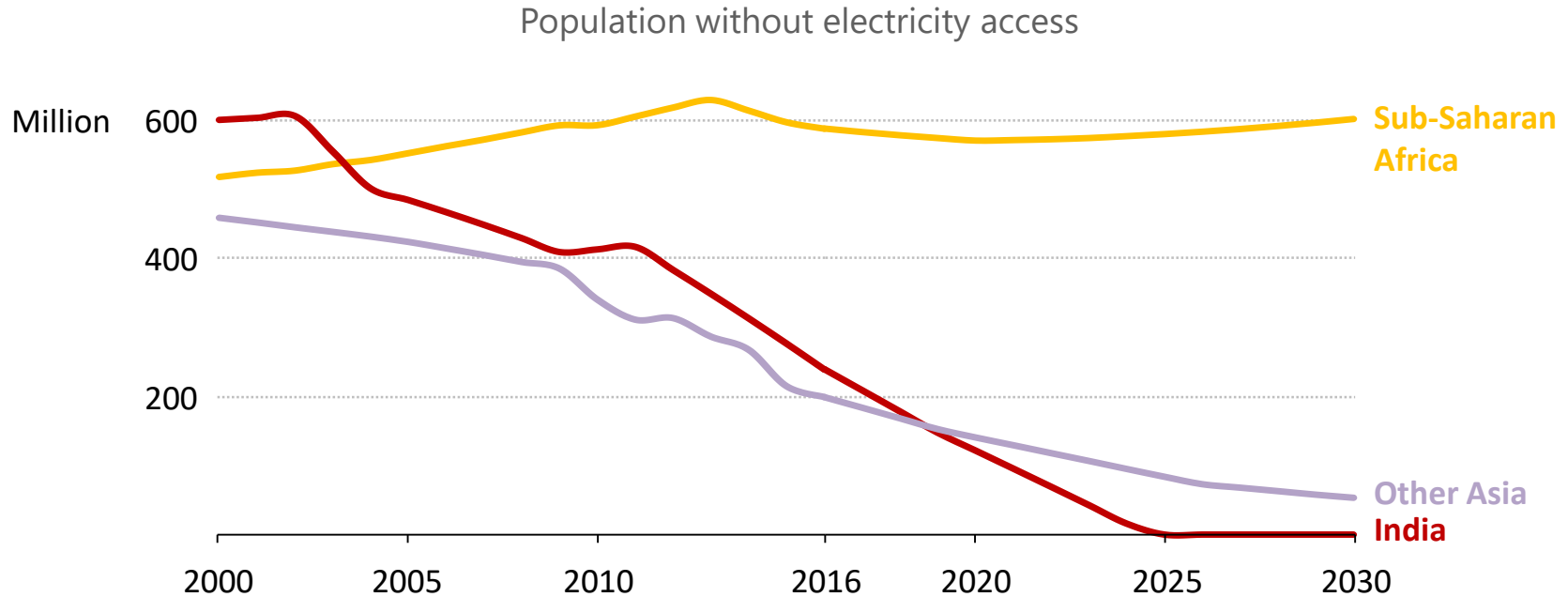
Air pollution is an energy problem

Change in air pollutant emissions (left) and premature deaths (right) 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

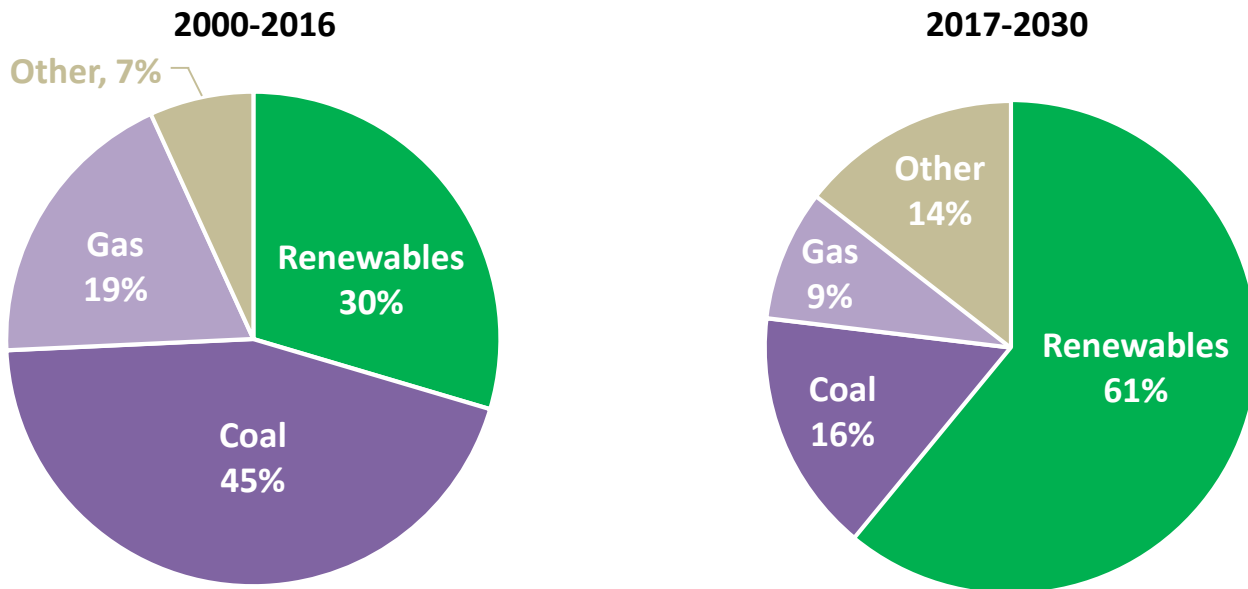
Electricity access makes progress in all regions, but sub-Saharan Africa lags behind



Many countries, led by India, are on track to achieving full electrification by 2030, but – despite recent progress – efforts in sub-Saharan Africa need to redouble

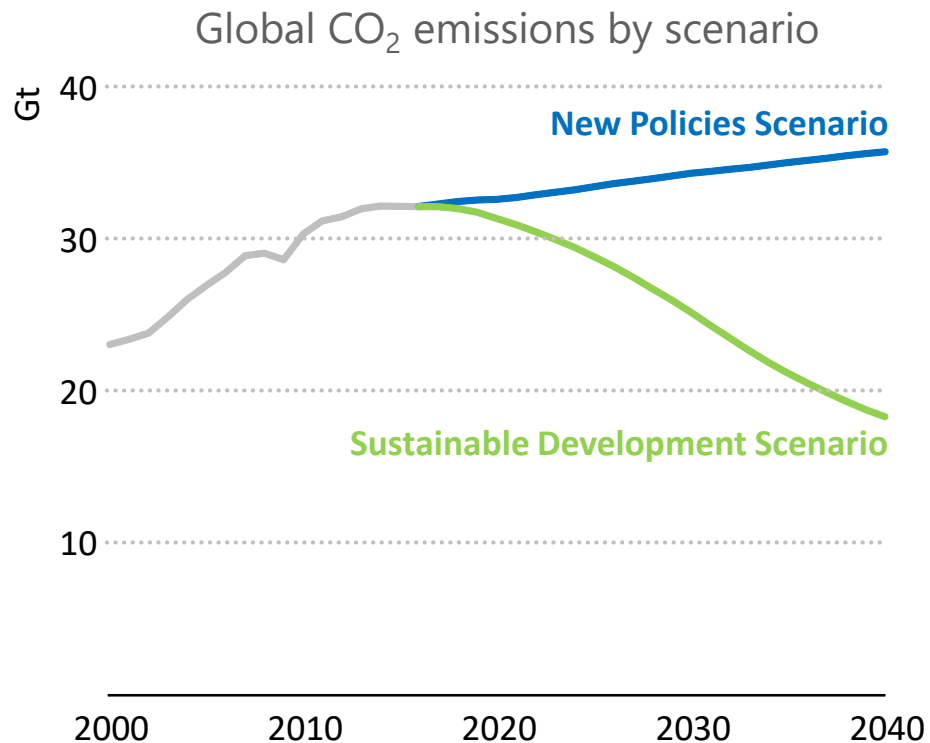
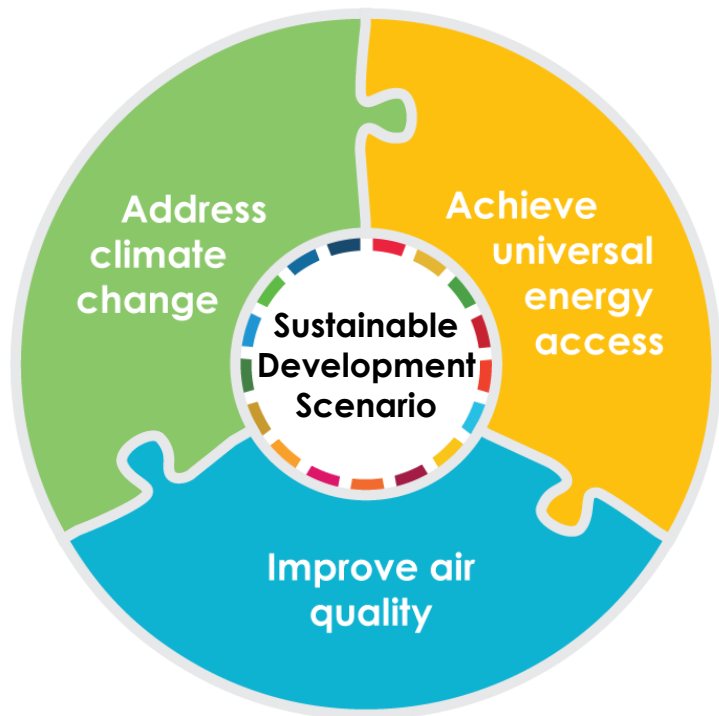
A shift in the electricity access paradigm

Population gaining access by source



Declining cost of renewables and innovative off-grid business models are transforming the way access is delivered, especially in rural areas

A new strategy for energy & sustainable development



The Sustainable Development Scenario reduces CO₂ 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_{GW}

global solar PV capacity

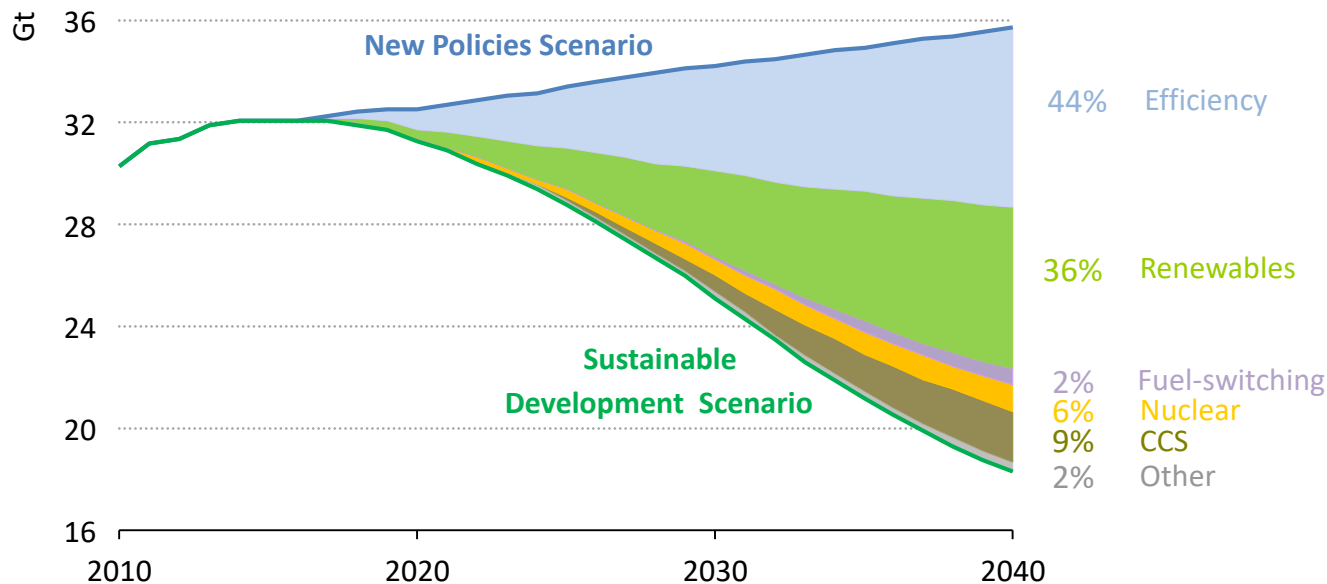
580_{bcm}

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

Changing the way energy is used and produced

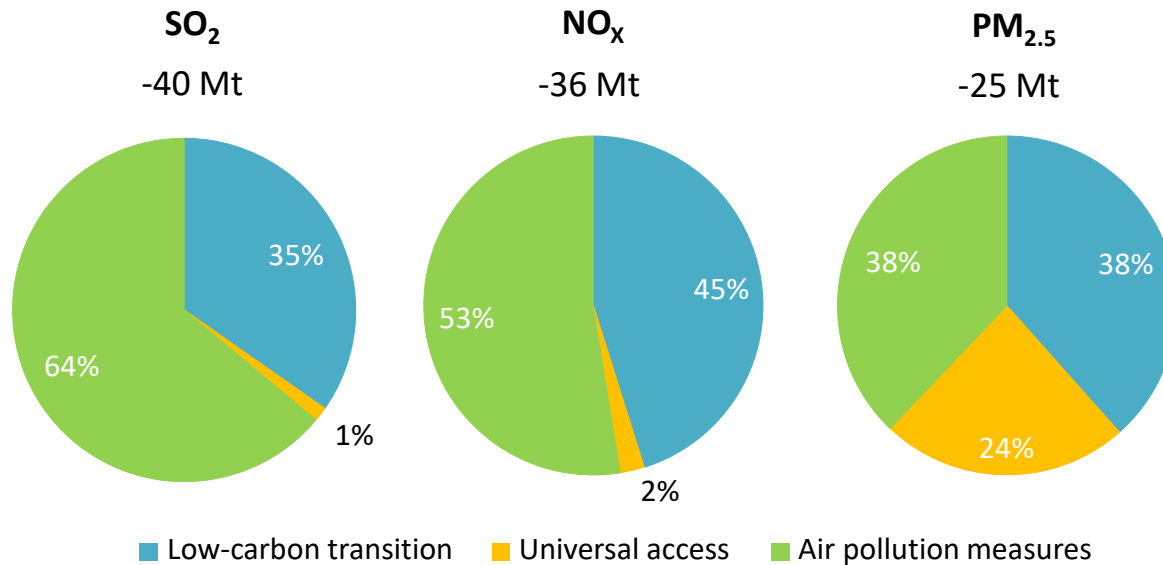
Global CO₂ emissions in the New Policies and Sustainable Development Scenarios



Energy efficiency and renewables account for 80% of the cumulative CO₂ emissions savings in the Sustainable Development Scenario

Addressing air pollution has a variety of angles

Change in air pollutant emissions in the Sustainable Development Scenario, relative to the New Policies Scenario, 2040



Air pollution control is the main contributor to reducing outdoor air pollution; achieving universal access to modern energy is important for PM_{2.5} emissions

- The energy sector makes progress towards sustainable development goals climate change, air pollution and universal access; but more is required for their achievement
- The energy sector is in transition towards the use of cleaner energy, but CO₂ emissions keep rising; air pollutant emissions fall in many countries but health impacts rise
- Many countries, led by India, are on track for universal access by 2030; sub-Saharan Africa lags behind so that 9 out of 10 people without access in 2030 are in this region
- Our strategy for sustainable energy shows that concerted action to address climate change is fully compatible with global goals on universal access & air quality
- The Sustainable Development Scenario requires profound changes in energy production & use, but the goals are not contradicting each other



World Energy Outlook 2017

iea.org/weo