The IEA
Sustainable Development Scenario

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The IEA works around the world to support accelerated clean energy transitions that are enabled by real-world SOLUTIONS supported by ANALYSIS and built on DATA.

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Today’s energy context

- 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
  - Our assessment points to energy-related CO₂ emissions reaching a historic high in 2018
  - 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
The Sustainable Development Scenario reduces CO₂ emissions while also tackling air pollution, achieving universal energy access, and assessing implications for water.
In an integrated approach, universal energy access can be reached while also achieving climate goals and reducing air pollutant emissions, at little extra cost.
The world population without electricity access fell below 1 billion in 2017, led by India; but despite recent progress, efforts in sub-Saharan Africa need to redouble.
Clean cooking access is best achieved through LPG and improved biomass cookstoves, and could significantly lower annual premature deaths related to household air pollution.
Higher CO₂ emissions from increased fossil fuel consumption for access are more than offset by a reduction in other GHGs from avoided traditional use of biomass.
The SDS is fully in line with the Paris agreement.

CO₂ emissions in the Sustainable Development Scenario and other “well below 2 °C” scenarios.

*The CO₂ emissions trajectory to 2040 in the SDS is at the lower end of a range of scenarios projecting a global temperature rise of 1.7-1.8 °C in 2100.*
Energy efficiency and renewables remain key to achieving the emissions reductions needed in the SDS.
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.
Synergies: low-carbon measures reduce air pollution

Low-carbon measures rather than measures specific to air pollution account for 57% of NO\textsubscript{X} and 40% of SO\textsubscript{2} emissions reductions.
Energy Sector Transformation in the SDS

Delivering the energy transformation in the SDS requires 13% more energy sector investment than the NPS, due particularly to ramped up demand-side investment.
The energy sector requires water

A focus on an integrated approach rather than just a decarbonisation approach results in the lowest level of water withdrawals in 2030.
Conclusions

- Energy-related CO₂ emissions continue to rise and will hit record highs in 2018
- Progress is being made towards the SDGs, but under current trends goals on climate change, air pollution and universal access will not be met
- Our strategy for sustainable energy shows that concerted action to address climate change is fully compatible with global goals on universal access & air quality
- There is no single solution to turn emissions around: renewables, efficiency & a host of innovative technologies, including storage, CCUS & hydrogen, are all required
- Our global scenario can be drilled down into regional and country trends to provide a benchmark for companies seeking to align with SDG outcomes
Greenhouse gas reductions: mixed progress on key cost-effective measures

Progress on Bridge Scenario measures for an early peak

<table>
<thead>
<tr>
<th>Measure</th>
<th>2015 start</th>
<th>2017 intended progress</th>
<th>2030 level in Bridge Scenario</th>
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<tbody>
<tr>
<td>Enhancing energy efficiency</td>
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<td>Reducing inefficient fossil fuel subsidies</td>
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<td>Investing in renewables</td>
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<td>Reducing least-efficient coal-fired power</td>
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<td>Reducing upstream oil and gas methane</td>
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Investment in renewables in power generation is on track with the Bridge Scenario, but more efforts on other measures are required.