

WORLD ENERGY OUTLOOK 2015 FACTSHEET

Global energy trends to 2040

- ▶ **World energy demand grows in all WEO scenarios, but government policies play a powerful role in dictating the pace of the growth and the degree to which greenhouse-gas emissions follow the same path.** In the New Policies Scenario (the central scenario), energy demand grows by nearly one-third between 2013 and 2040, with all of the net growth coming from non-OECD countries and OECD demand ending 3% lower. The links between global economic growth, energy demand and energy-related emissions weaken: some markets (such as China) undergo structural change in their economies, others reach a saturation point in demand for energy services, and all adopt more energy efficient technologies. As the largest source of global GHG emissions, the energy sector must be central to efforts to tackle climate change but, despite signs that a low-carbon transition is underway, energy-related CO₂ emissions are projected to be 16% higher by 2040.
- ▶ **The single largest energy demand growth story of recent decades is near its end; coal use in China reaches a plateau, close to today's levels, as the country's economy rebalances and industrial coal demand falls.** The largest oil consumer – the United States – experiences one of the world's largest reductions in demand from 2013 to 2040 (along with the European Union), declining by around 4 million barrels per day (mb/d), and returning to levels last observed in the 1960s. Broad-based growth in global natural gas demand (up 47%) is led by China and the Middle East. By 2040, oil and coal collectively relinquish 9% of the global energy mix, with renewables growing by five percentage points and gas and nuclear each growing by two.
- ▶ **The world's appetite for electricity lifts demand by more than 70% by 2040, and there is a concerted effort to reduce the environmental consequences of power generation.** Renewables overtake coal as the largest source of electricity by the early-2030s and account for more than half of all growth over the period to 2040. Renewables-based generation reaches 50% in the European Union by 2040, around 30% in China and Japan, and above 25% in the United States and India. Coal's share of total electricity generation drops to 30% in 2040, and the output from inefficient sub-critical plants declines by 45%. Around 550 million people in the world remain without any access to electricity in 2040 – the majority of them in sub-Saharan Africa.
- ▶ **The oil market is in unfamiliar territory: facing a well-supplied market and lower prices, producers have cut operating costs and investment plans.** The absence of an OPEC production cut in response to lower oil prices shifted the onus of finding demand-supply equilibrium onto the broader market. In the New Policies Scenario, oil production grows by 12% from 2014, to over 100 mb/d in 2040, led by non-OPEC countries initially (to around 2020) and OPEC later on. Coal supply grew faster than any other major fuel in the last decade, but is the slowest-growing fuel in the decades to come, with global production increasing by around 10% by 2040. Lower natural gas prices are making it more challenging for those planning long-term investments in new capital-intensive projects. However, world natural gas production is not derailed in the longer term, and reaches nearly 5.2 trillion cubic metres (tcm) by 2040.
- ▶ **Energy trade relationships continue to be rewritten, with Asia the final destination for 80% of regionally traded coal, 75% of oil and 60% of natural gas in 2040.** China becomes the world's largest oil importer before 2020 and India the second-largest oil importer around 2035. Middle East oil exports accelerate after 2020 and natural gas exports rebound after 2025. North American natural gas exports are around 85 billion cubic metres (bcm) by 2025 and the region is self-sufficient in oil by the mid-2020s. Natural gas imports into the European Union grow by 30%, but sources of supply also diversify.
- ▶ **World energy sector investment totals \$68 trillion from 2015 to 2040, of which 37% is in oil and gas supply, 29% in power supply and 32% in end-use efficiency.** Of the power generation capacity investment in the New Policies Scenario, more than 60% goes to renewables, led by China, the European Union, the United States and India. While often less prominently discussed, energy efficiency investment (led by transport and the buildings sectors) is no less important in scale than other parts of the energy system.
- ▶ **Fossil-fuel subsidies were around \$490 billion in 2014, but would have been \$610 billion without reforms that have been enacted since 2009.** Recent changes prove that fossil-fuel subsidy reform is possible: low oil prices give net importers the room to reform, and reinforce the need for exporters to do so.