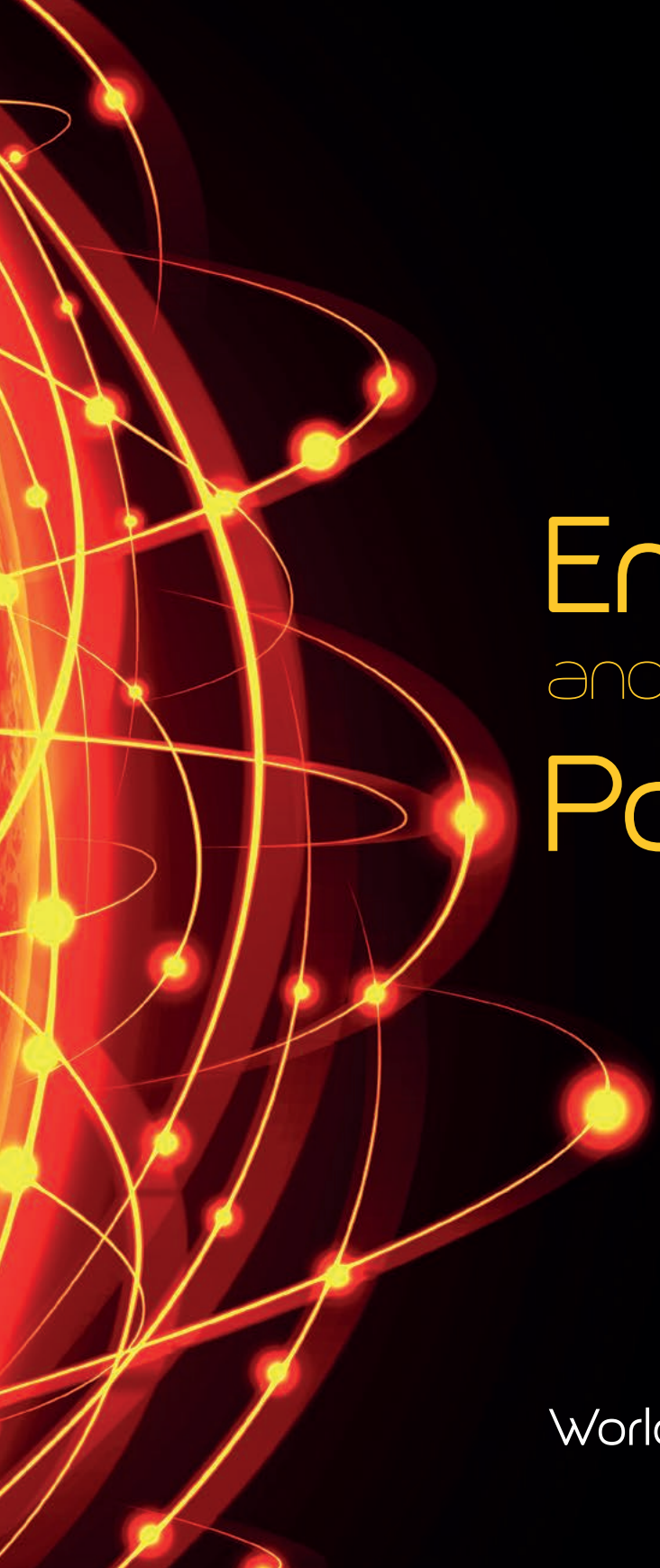

International Energy Agency
Secure Sustainable Together

Energy and Air Pollution

World Energy Outlook
Special Report

Energy and air pollution

How are they linked?

Highlights

- Air pollution is the fourth greatest overall risk factor for human health worldwide, after high blood pressure, dietary risks and smoking. Latest estimates attribute 6.5 million premature deaths to air pollution. Among the major air pollutants, fine particulate matter is the most damaging to human health, and sulfur oxides, nitrogen oxides and ozone are associated with a range of illnesses. In addition to human health, air pollution poses risks to the environment, the economy and food security.
- Air pollutants arising from human activity overwhelmingly derive from energy production and use, mainly the combustion of fossil fuels and biomass. Three key pollutants are examined in detail in this report. Almost all sulfur dioxide and nitrogen oxides emissions to the atmosphere are energy-related, as are some 85% of emissions of particulate matter. Within the energy sector, power generation and industry are the main sources of sulfur dioxide, mostly from coal use. Oil use in vehicles and power generation are the leading emitters of nitrogen oxides. Consumption of biomass, kerosene and coal in the buildings sector, along with industrial use, are responsible for the bulk of the particulate matter reaching the atmosphere.
- The concentration of people, economic activity and energy demand in the world's growing cities means that poor air quality is often regarded as an urban problem. Yet poor air quality also affects many rural communities, particularly where households continue to rely on solid biomass for cooking and kerosene for lighting. Moreover, the major pollutants – including secondary pollutants formed by chemical reactions in the atmosphere – can be transported large distances from their sources.
- As the predominant source of air pollution, the energy sector must be at the forefront of action to improve air quality around the world. A range of proven policies and technologies are available to do so. In the United States, European Union and Japan, regulations have helped to achieve a major drop in emissions in some sectors, although challenges remain. In developing Asia, less stringent regulations relating to fuel quality, energy efficiency and post-combustion treatment technologies generally mean that pollutant emissions have risen in line with very rapid growth in energy demand seen in recent years, though improvements in air quality are becoming an increasingly urgent policy priority in many Asian countries. No jurisdiction can claim that the task of tackling air pollution is complete.