



Energy and Air Pollution

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World Energy Outlook Special Report

Context

■ Air pollution is the fourth largest human health risk

- *3.5 million premature deaths are linked to energy poverty due to the use of biomass for cooking and kerosene for lighting*
- *3 million premature deaths are linked to outdoor air pollution, mostly in cities*

■ Many of its root causes – and cures – are in the energy sector

- *The majority of air pollutant emissions comes from the energy sector, mainly from fuel combustion*
- *Currently only 8% of global energy production is combustion free: more than half of the rest has no effective technology in place to control emissions*
- *No country in the world has solved the air pollution problem completely, but many are taking important policy steps*

■ Can the energy sector step up efforts to combat this global public health crisis?

Energy Modelling to Policy Insights

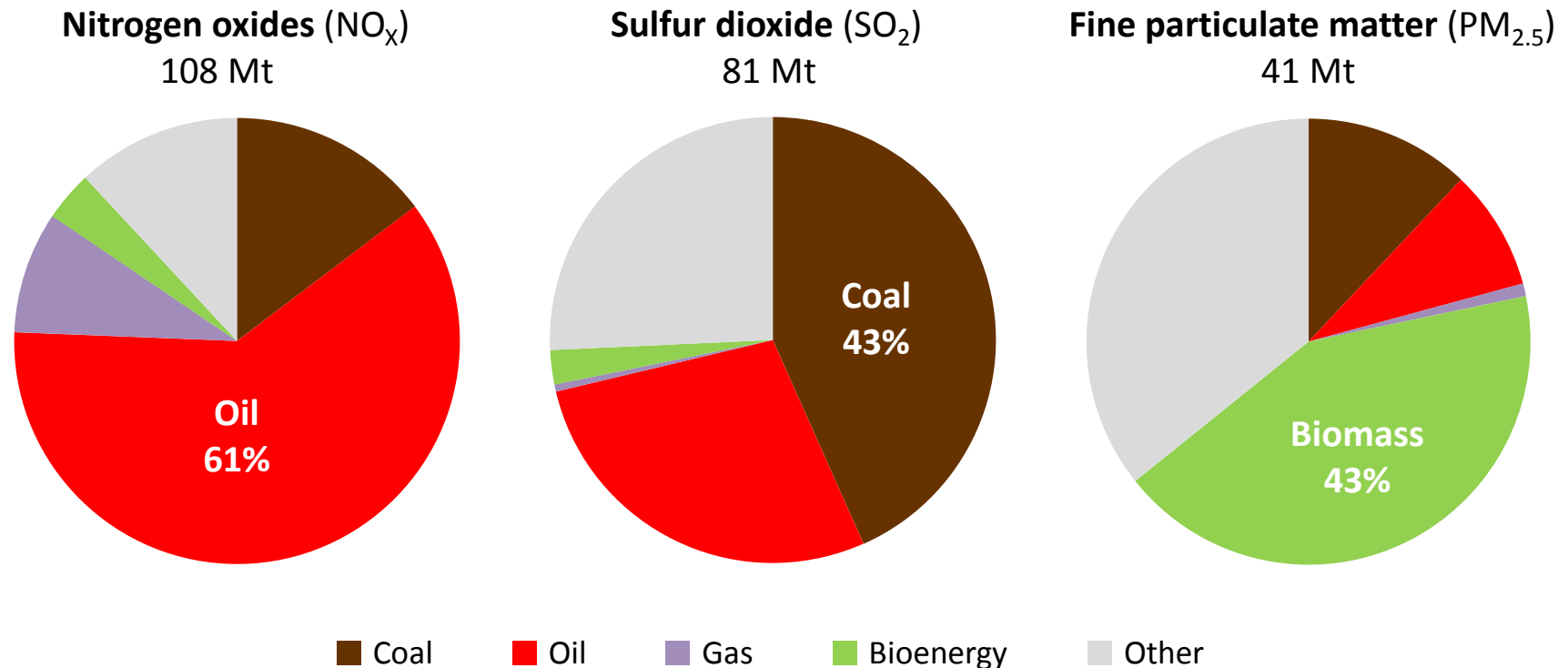
1. Detailed country-by-country review of energy-related policies that effect the outlook for air quality
2. Calculate the pollutant and health impacts of energy, now and in the future under current & planned policies, by coupling the World Energy Model with GAINS



3. Propose a major new scenario, the Clean Air Scenario, tailored to each region, to show policymakers a pragmatic pathway to cutting the harmful health impacts of energy

Air pollution is an energy problem

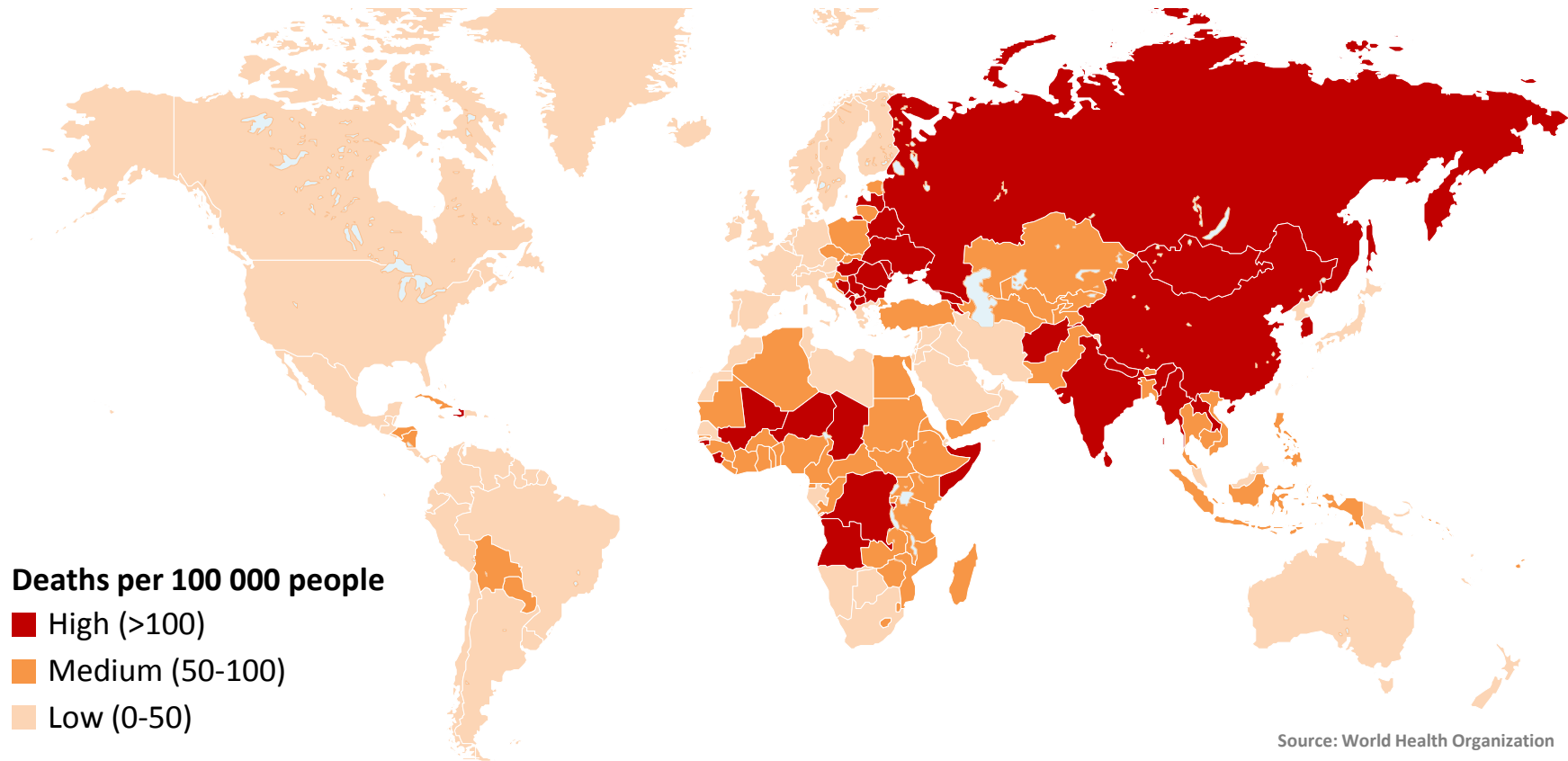
Pollutant emissions, 2015



Energy is the single most important cause of emissions of all main pollutants

High risk air pollution areas

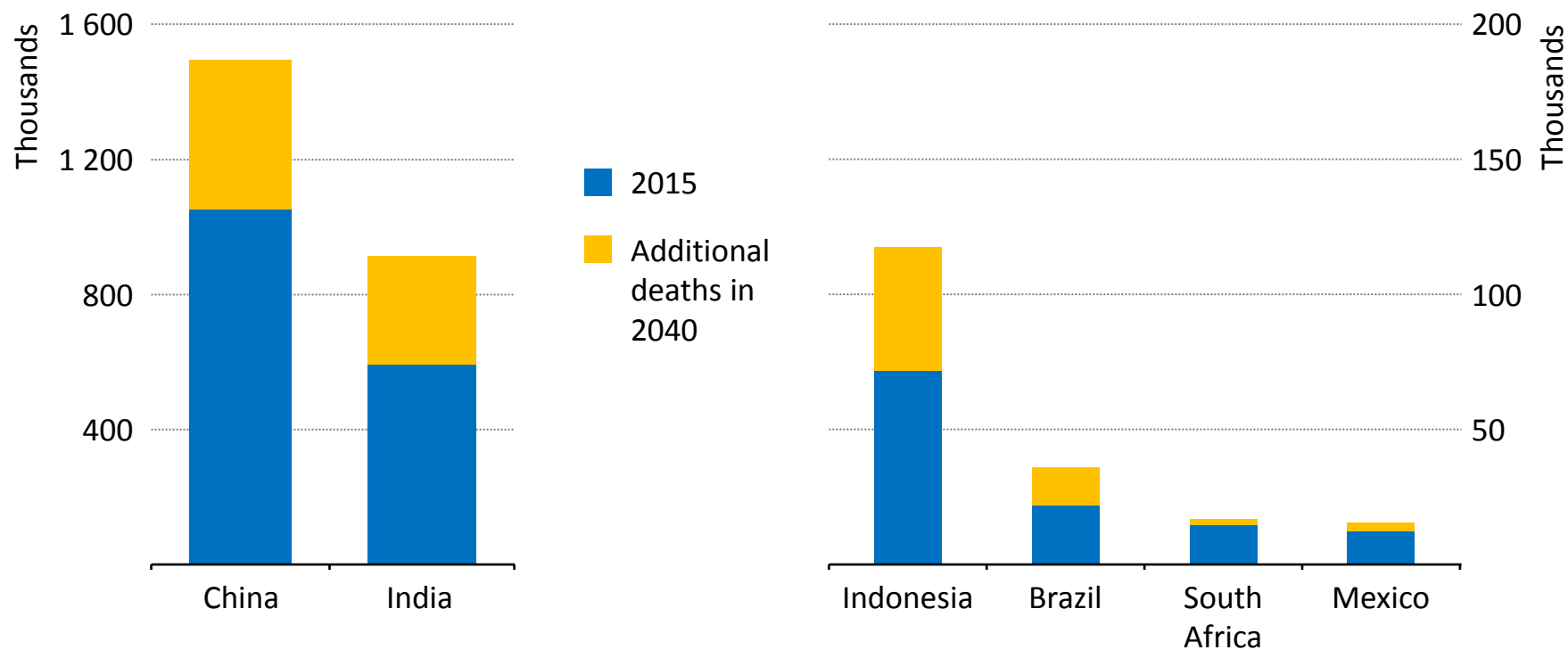
Mortality rate due to air pollution, 2012



Countries with the largest death toll are China and India, but on a per capita basis many countries across Africa, Asia and Eastern Europe are affected

The death toll keeps rising...

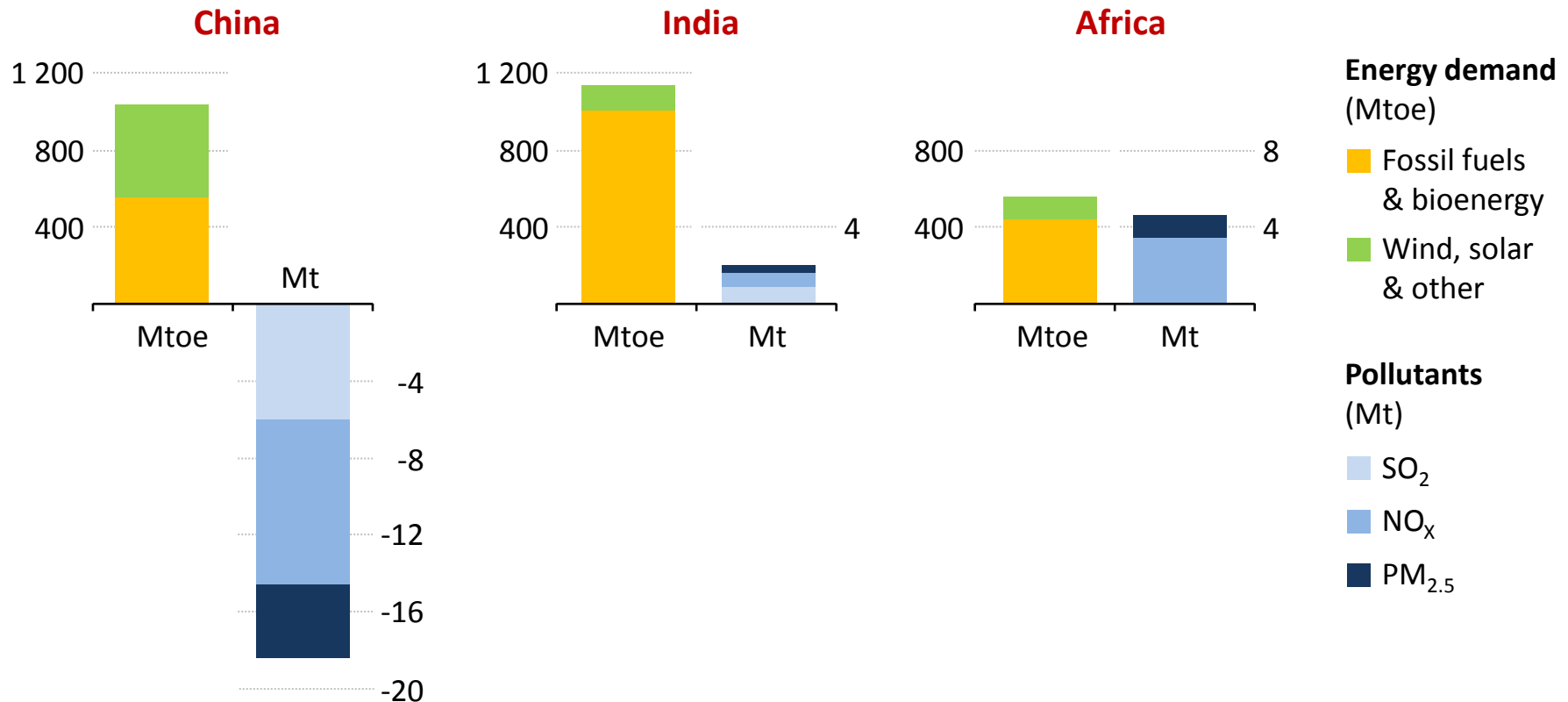
Premature deaths due to outdoor pollution in selected regions



Despite planned policies premature deaths increase from 3 to 4.5 million in 2040

...but global trends mask significant regional differences

Change in energy demand and pollutants to 2040



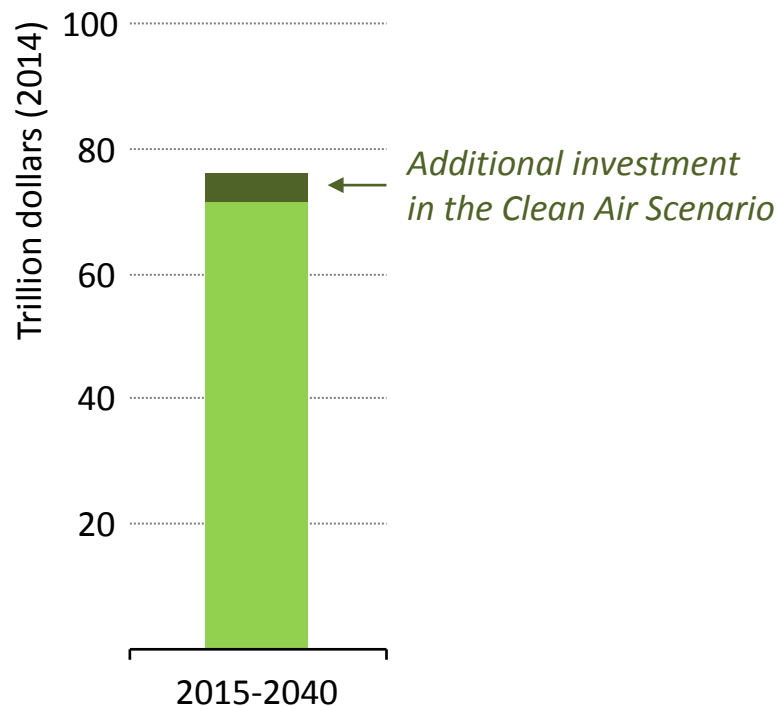
Policies are successful to decouple pollutant emissions from energy demand growth to 2040; but the air pollution problem remains far from being solved

What should the energy sector do?

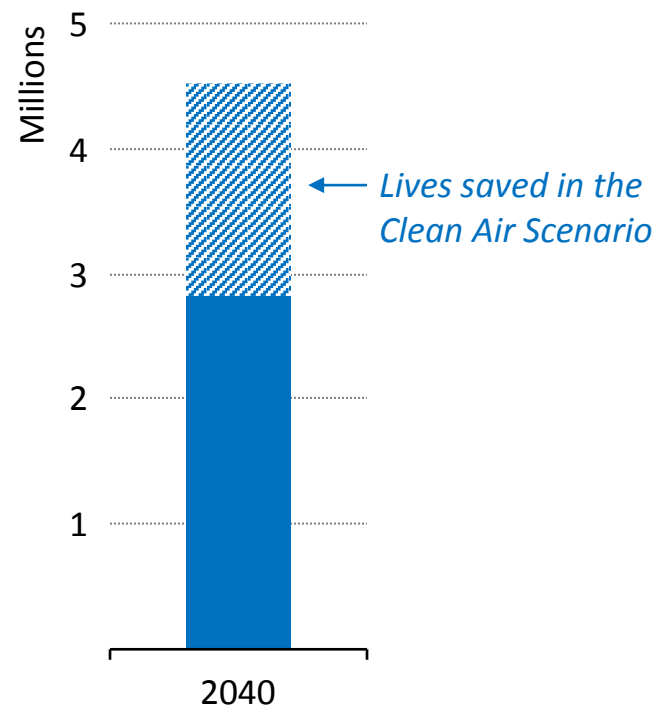
- The IEA proposes a pragmatic strategy to cut pollutant emissions & deaths by around 50%, compared with our main scenario
- A Clean Air Scenario, based on existing technologies & tailored to local conditions, relies on actions in three areas:
 1. *A long-term air quality goal*
 2. *A package of clean air measures for the energy sector:*
 - An **accelerated energy transition**: more efficiency & more renewables
 - More widespread use of **advanced pollution controls**
 3. *Strict monitoring & enforcement and effective communication*

The IEA Clean Air Strategy

Cumulative investment



Premature deaths from outdoor air pollution

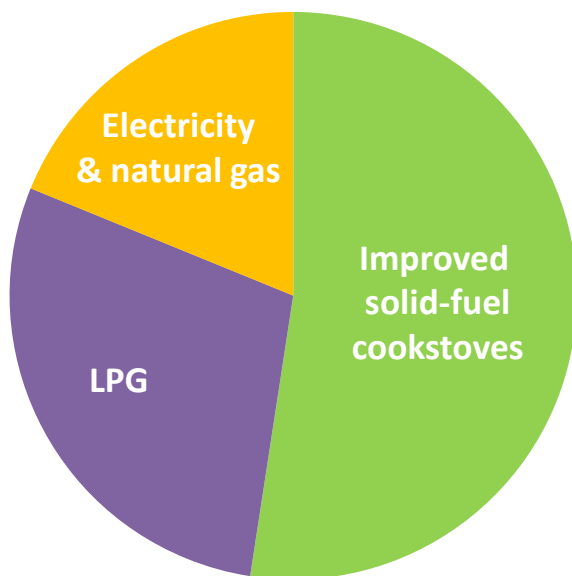


A 7% increase in investment can save over 3 million lives in 2040, while providing energy access for all, lower energy import bills and leading to a peak in CO₂ by 2020

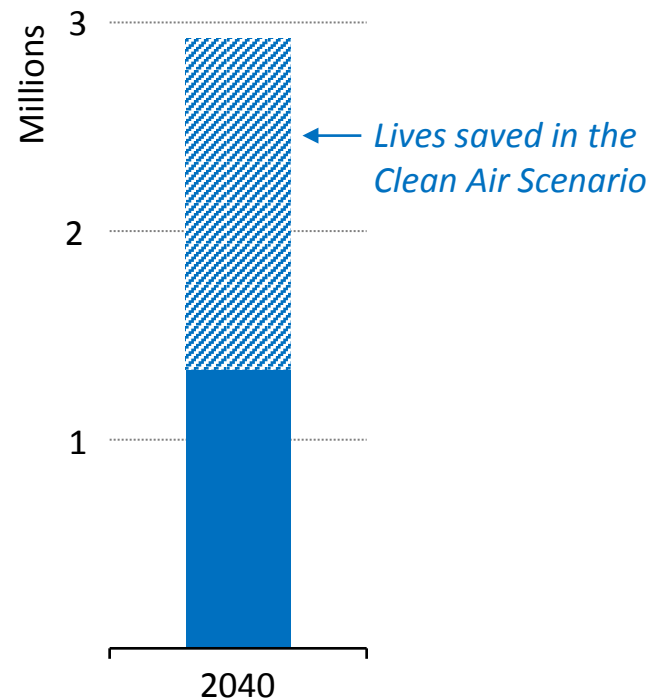
The IEA Clean Air Strategy

Improvement in
cooking methods, 2040

715 million households



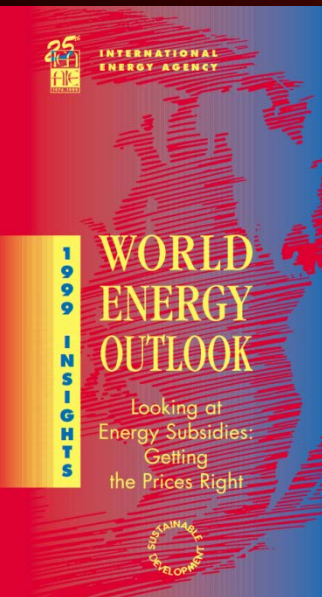
Premature deaths from
indoor air pollution



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Conclusions

- **The impacts of air pollution are concentrated in fast-growing Asia & in Africa, but no country has solved the problem entirely**
- **The overall death toll still rises, despite post-COP decarbonisation policies & targeted pollution measures that mitigate pollution trends**
- **IEA's Clean Air Strategy cuts 2040 pollutant emissions & premature deaths by around half, with only a 7% increase in investment**
- **A well-designed air quality strategy will have major co-benefits for other policy goals, including energy access & climate change**
- **IEA will continue to promote integrated policy approaches as it strengthens its role as a global hub for clean & efficient energy**



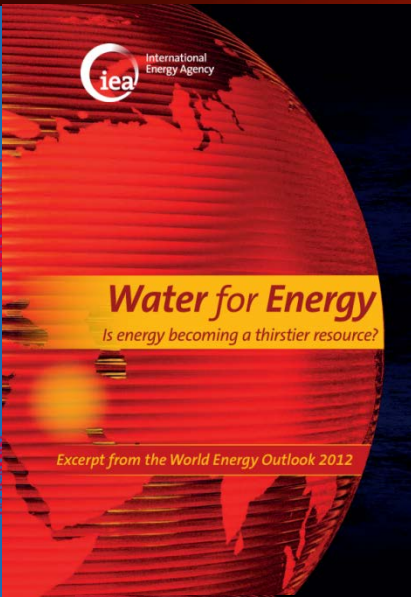
25th Anniversary
INTERNATIONAL ENERGY AGENCY

1999 INSIGHTS

WORLD ENERGY OUTLOOK

Looking at Energy Subsidies: Getting the Prices Right

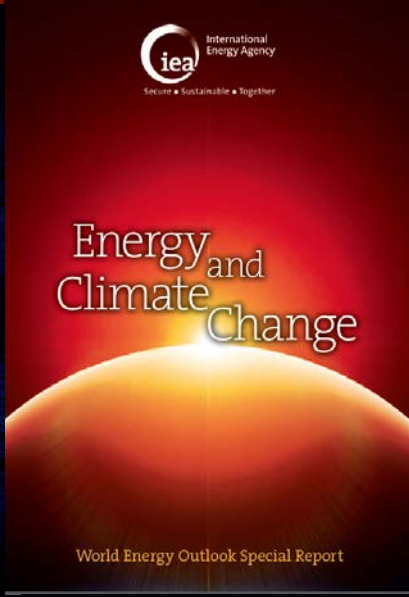
SUSTAINABLE DEVELOPMENT



International Energy Agency

Water for Energy
Is energy becoming a thirstier resource?

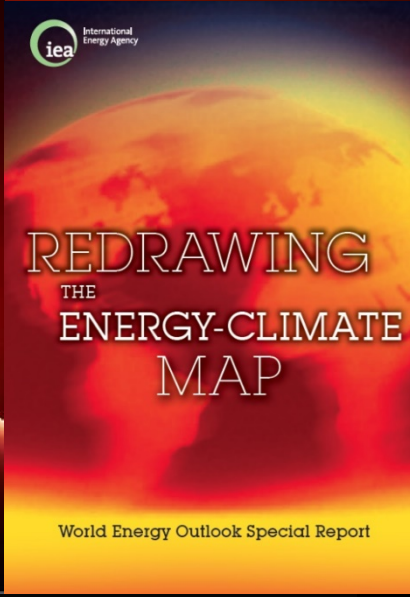
Excerpt from the World Energy Outlook 2012



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Energy and Climate Change

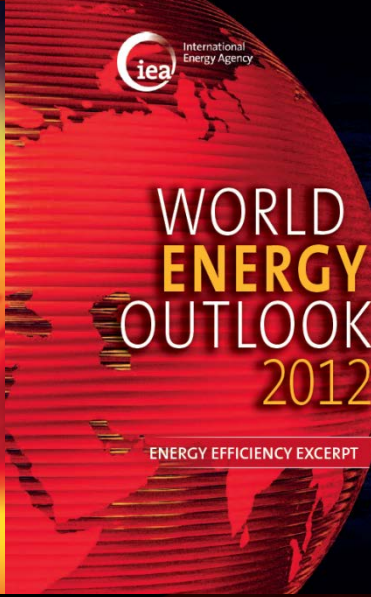
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International Energy Agency

REDRAWING THE ENERGY-CLIMATE MAP

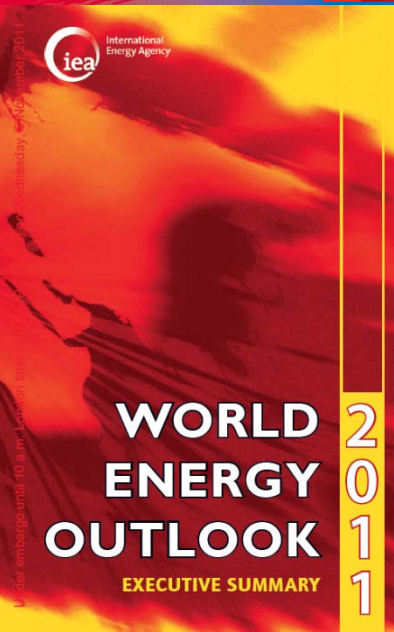
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WORLD ENERGY OUTLOOK 2012

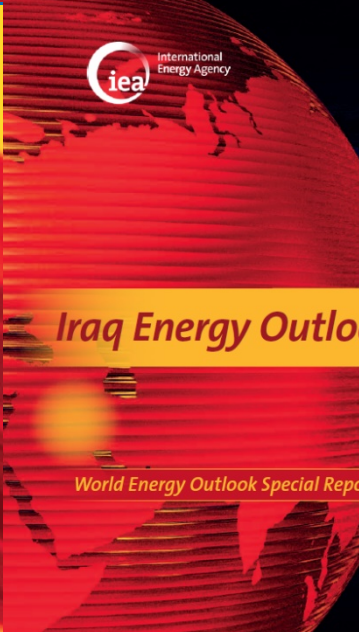
ENERGY EFFICIENCY EXCERPT



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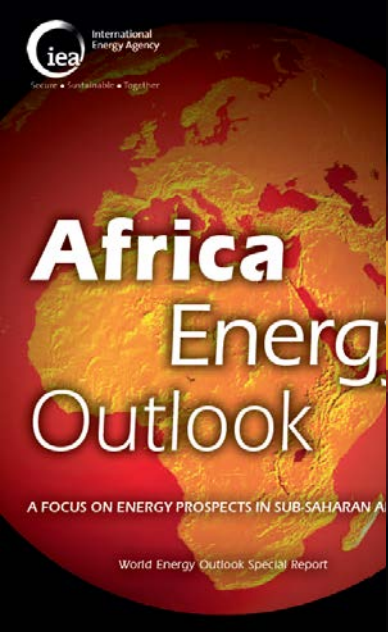
EXECUTIVE SUMMARY



International Energy Agency

Iraq Energy Outlook

World Energy Outlook Special Report



International Energy Agency
Secure • Sustainable • Together

Africa Energy Outlook

A FOCUS ON ENERGY PROSPECTS IN SUB-SAHARAN AFRICA

World Energy Outlook Special Report



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India Energy Outlook

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Southeast Asia Energy Outlook 2015

World Energy Outlook Special Report