



**Report launch**

# **Air quality and climate policy integration in India**

30 June 2021

International  
Energy Agency



# **Air quality and climate policy integration in India**

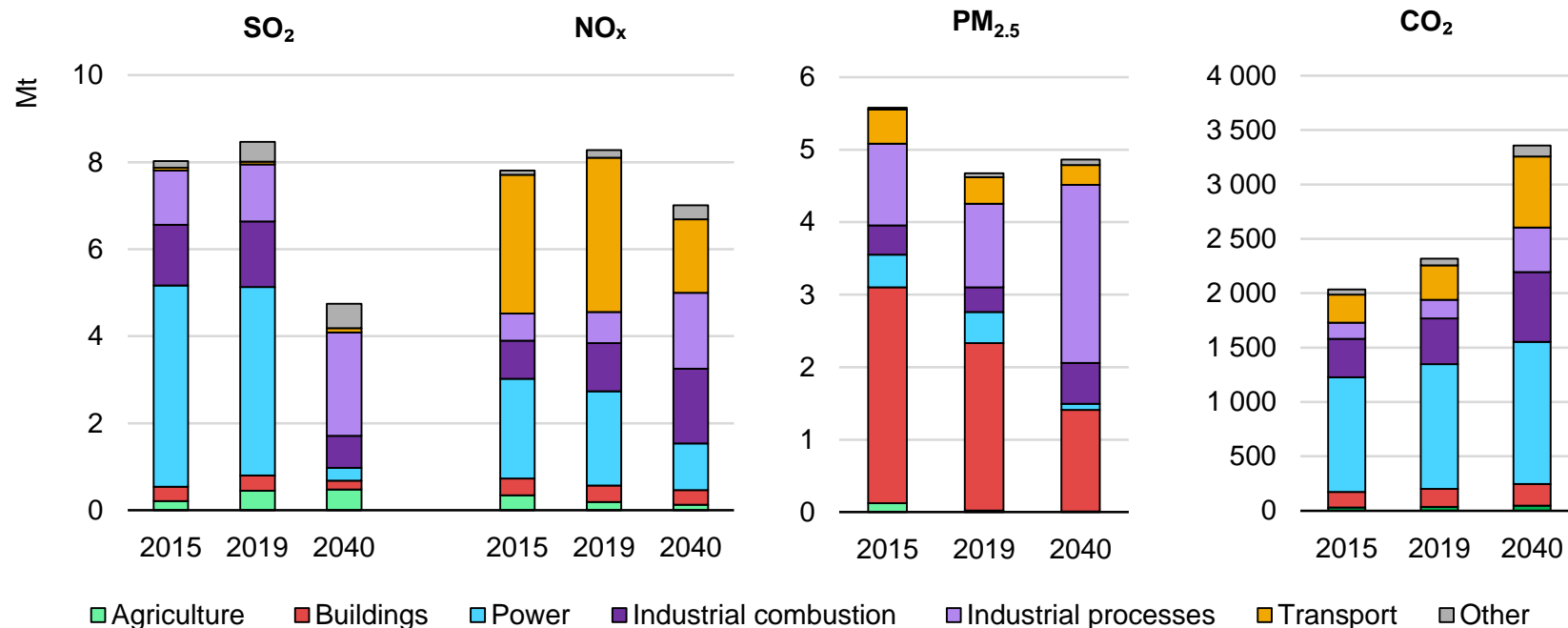
## **Frameworks to deliver co-benefits**

Insa Handschuch, Environment and Climate Change Unit

Paris, 30 June 2021

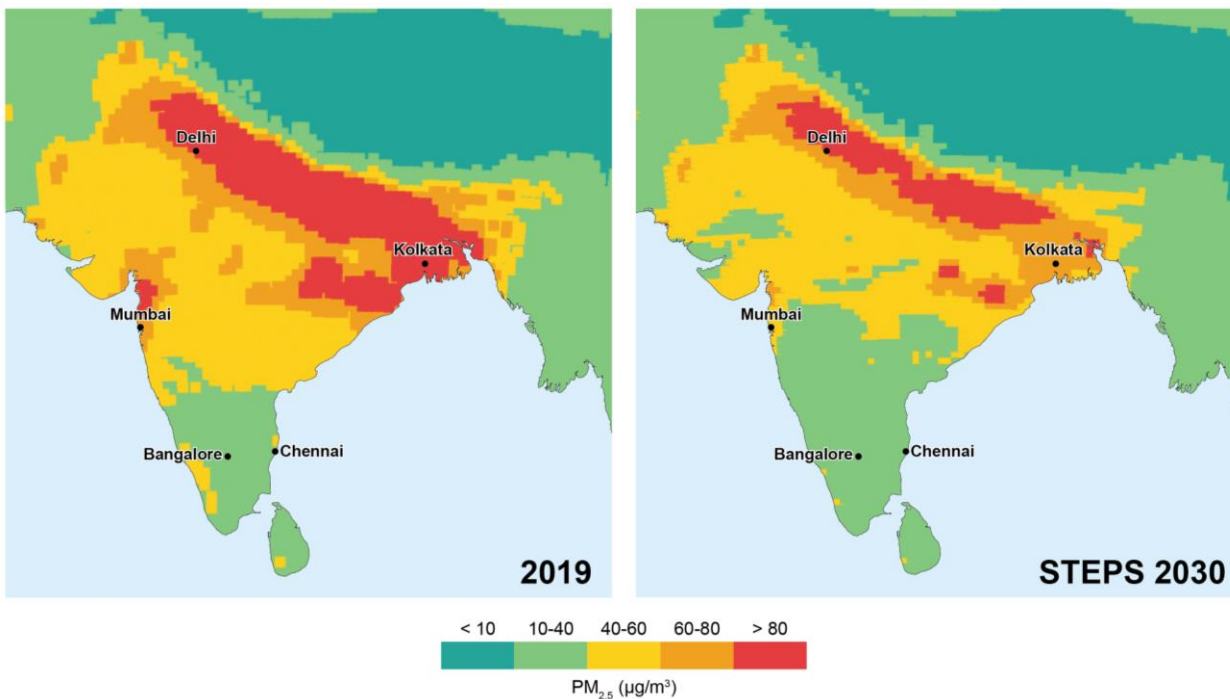
# Air pollutant and CO<sub>2</sub> emissions stem from the same sources

Sectoral contributions to India's air pollutant and CO<sub>2</sub> emissions in 2015, 2019 and 2040, STEPS



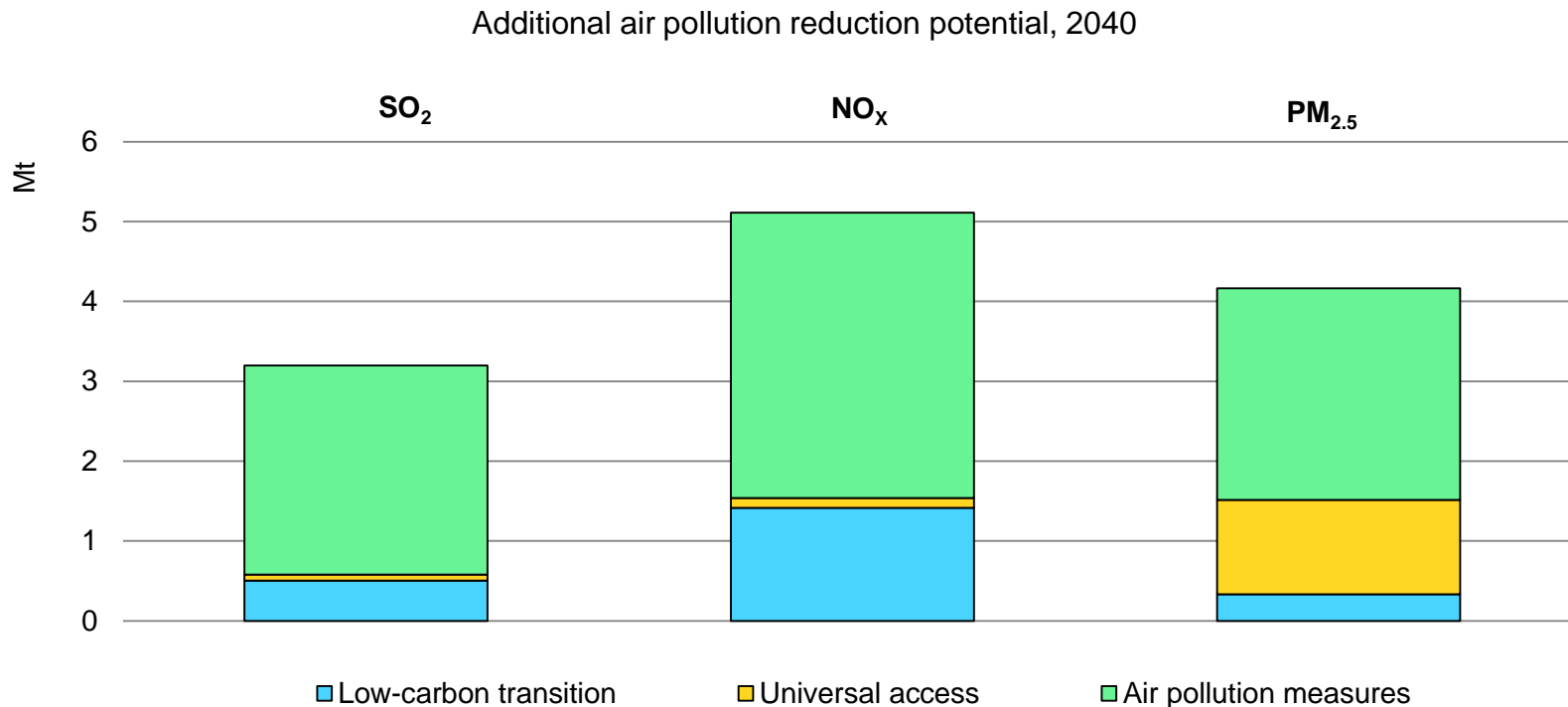
**Air pollutant emissions remain substantial and CO<sub>2</sub> emissions are set to increase until 2040**  
**Contributions to air pollutants from power, transport and residential decline, but industrial emissions grow**

Average annual PM<sub>2.5</sub> concentration levels in India in 2019 and 2030, Stated Policies Scenario (STEPS)



**Locations in which levels exceed 80 µg/m<sup>3</sup> would halve to less than 10%,  
but more than 50% of India could remain on average above the recommended 40 µg/m<sup>3</sup> by 2030**

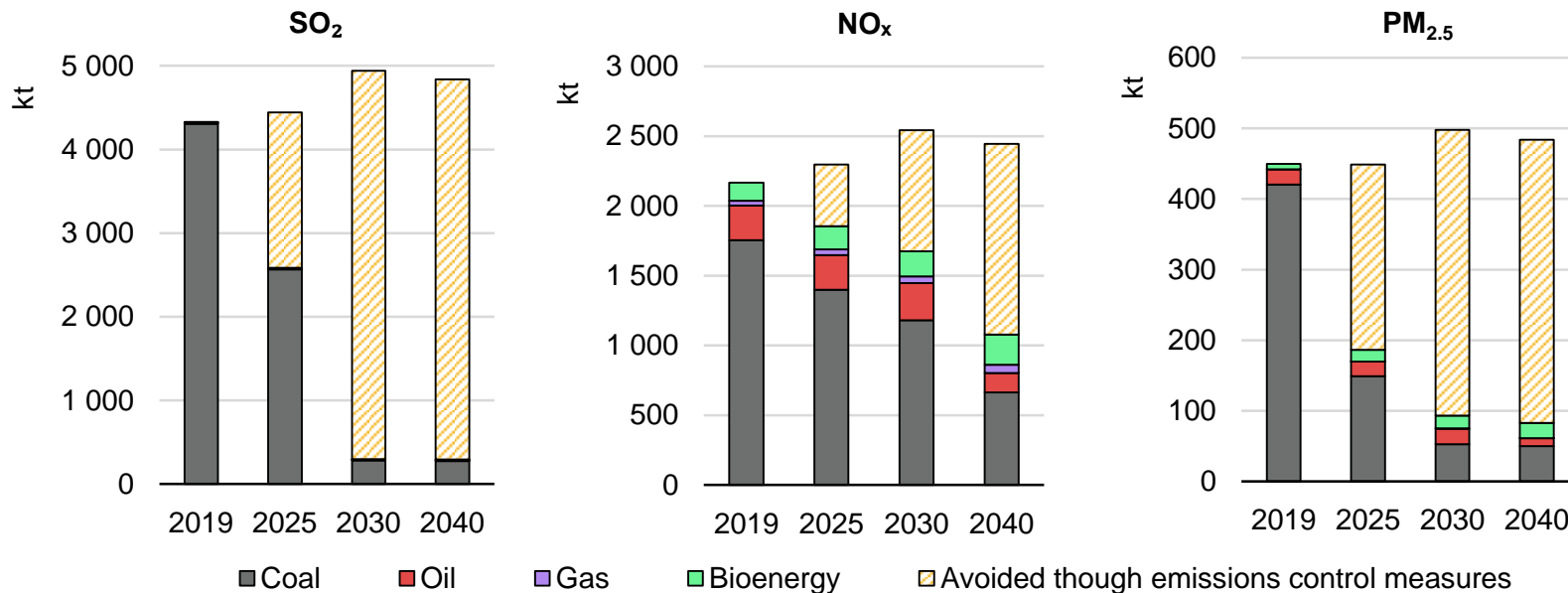
... but a more ambitious and integrated approach could further reduce emissions



**Great potential for air pollutant reductions remain in 2040 beyond the current policy framework**

# Air pollution can be strongly reduced by implementation of control measures in the power sector

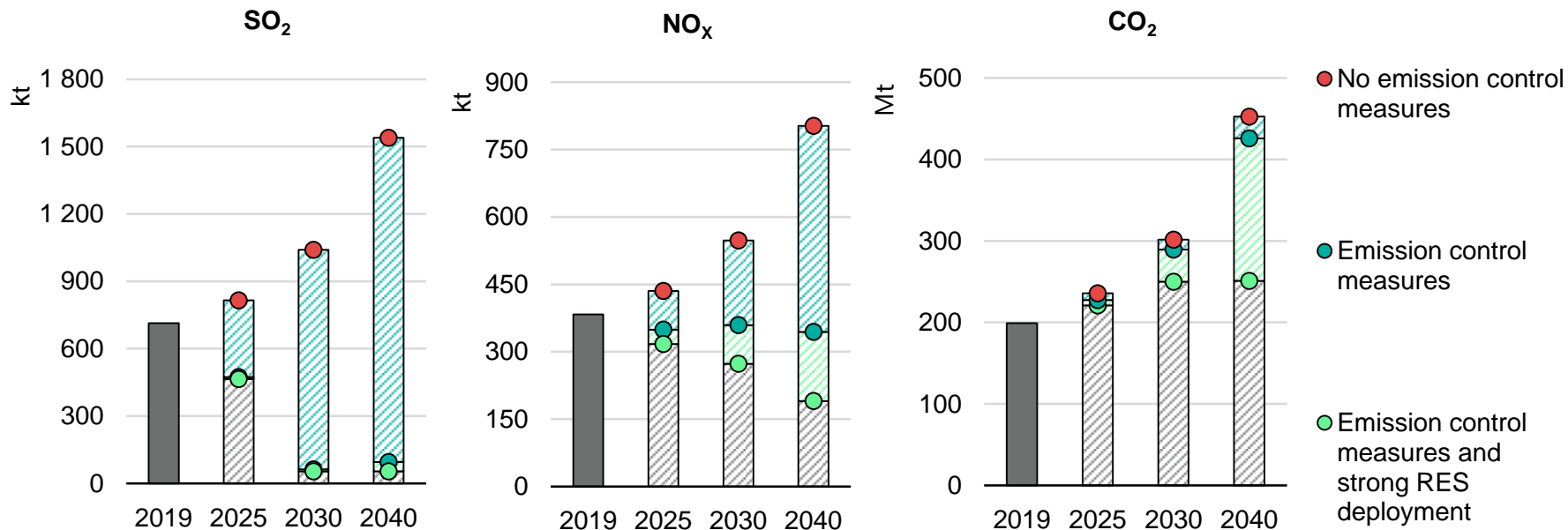
Air pollution emissions from India's entire power sector by energy sources, 2019-2040



**The full implementation of air pollution control measures by 2030 could substantially reduce NO<sub>x</sub> and PM pollution and nearly abate SO<sub>2</sub> emissions.**

# Captive power plants may be a “blind spot” within the electricity generation sector

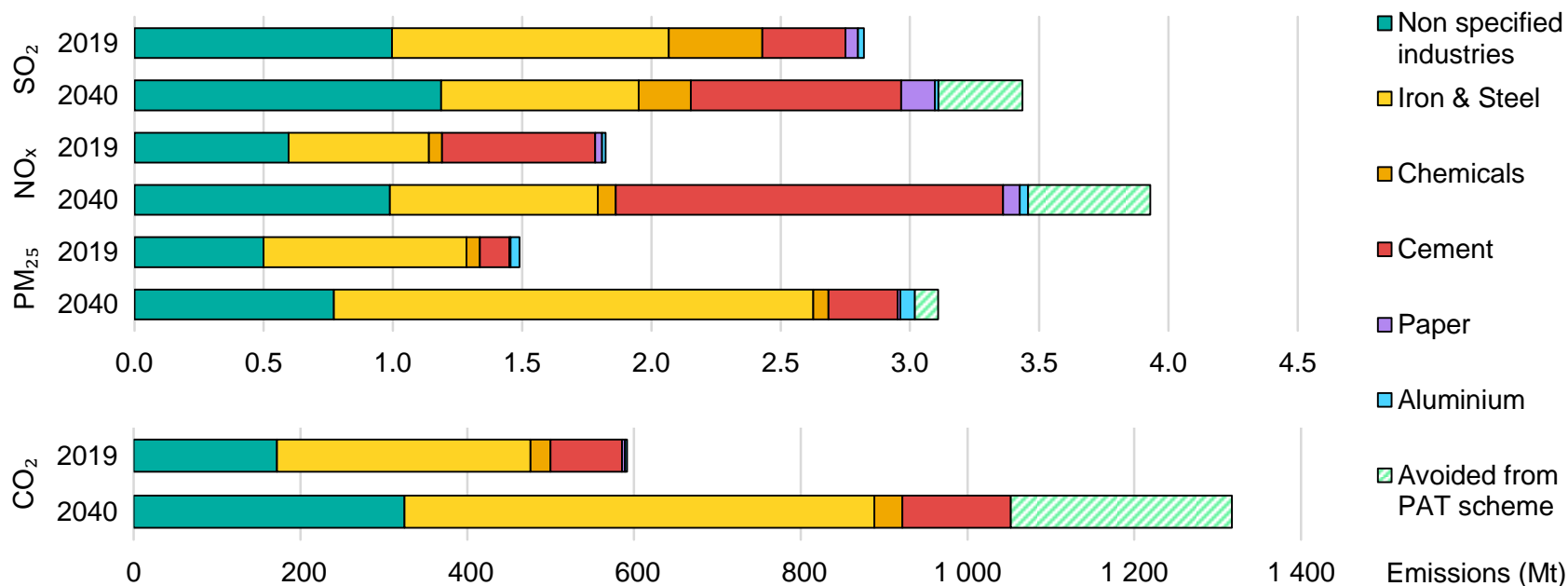
Air pollutant and CO<sub>2</sub> emissions from the captive power segment in 2019 and potential development until 2040



**Captive plants contributed 16-18% to total power-related emissions in 2019**  
**Future pollution levels will depend on emission controls and the deployment rate renewables**

# The PAT scheme curbs industrial emissions growth

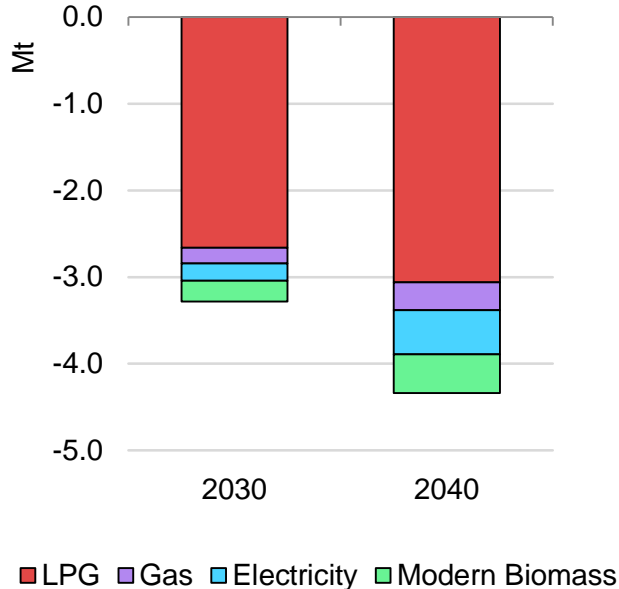
Air pollutant and CO<sub>2</sub> emissions by industrial sub-sectors in 2019 and 2040



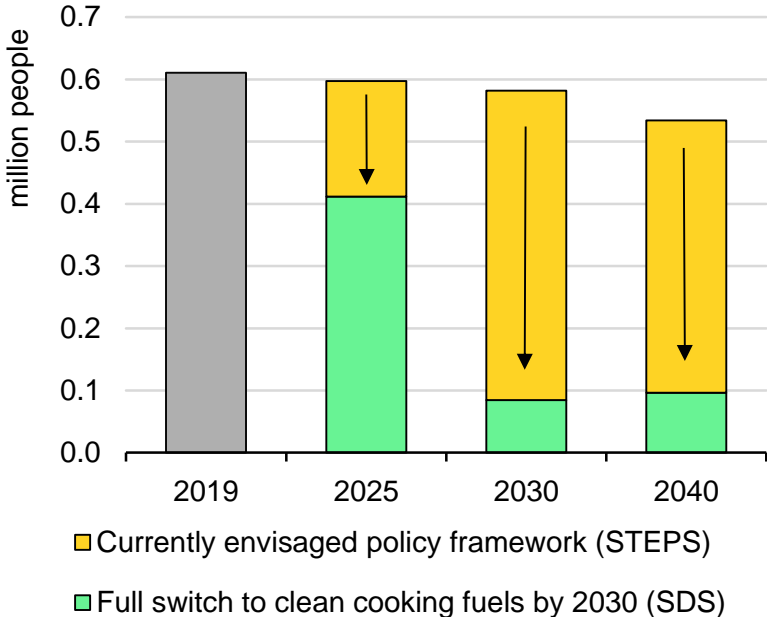
**By 2040, a continued and expanded PAT scheme could avoid 14% of potential SO<sub>2</sub> and NO<sub>x</sub> pollution from large industry and 265 Mt CO<sub>2</sub>, one-fifth of total potential industrial CO<sub>2</sub> emissions**

# Policies reduce residential air pollutants, but great technological potential remains

Net PM<sub>2.5</sub> savings from clean cooking fuel use



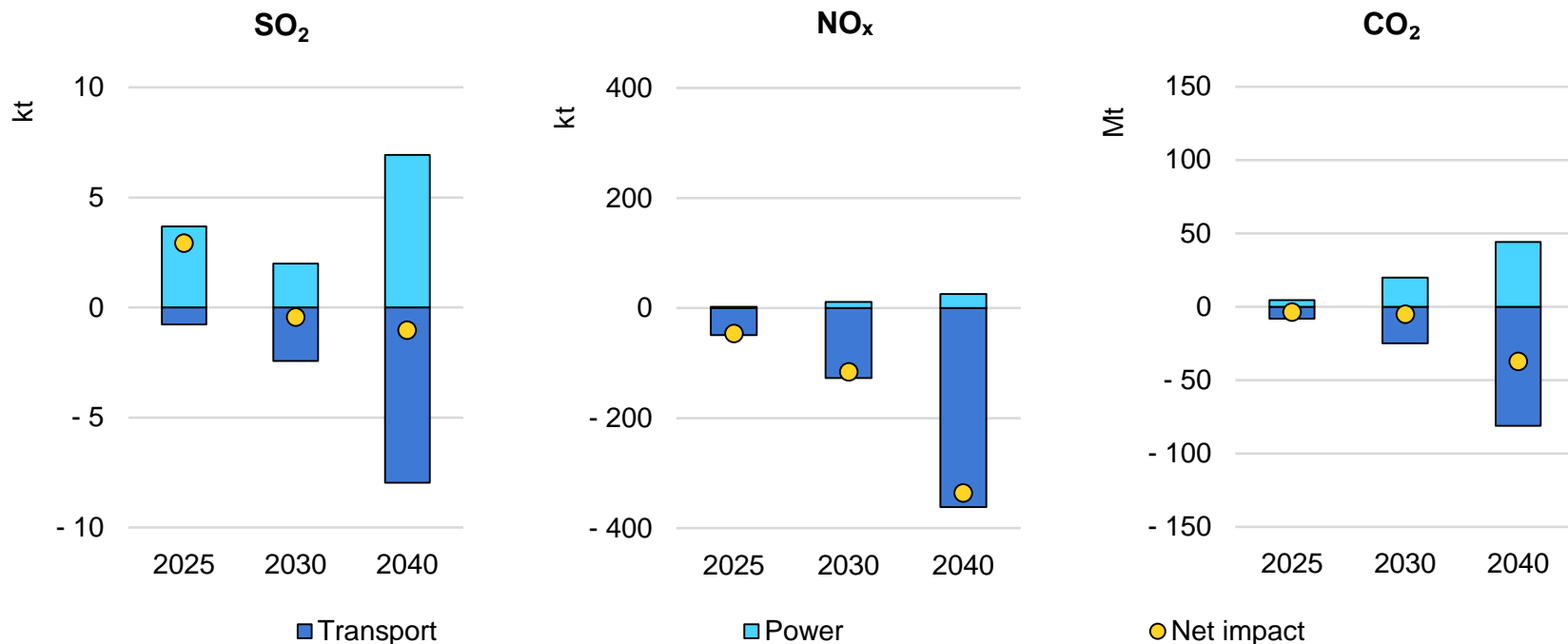
Indoor air pollution related premature deaths



**Switching to clean cooking fuels could save 4.3 Mt PM<sub>2.5</sub> annually in 2040 and reduce premature deaths by 85% to fewer than 0.1 million cases**

# Electric vehicles will only avoid SO<sub>2</sub> once the power sector installs air pollution controls

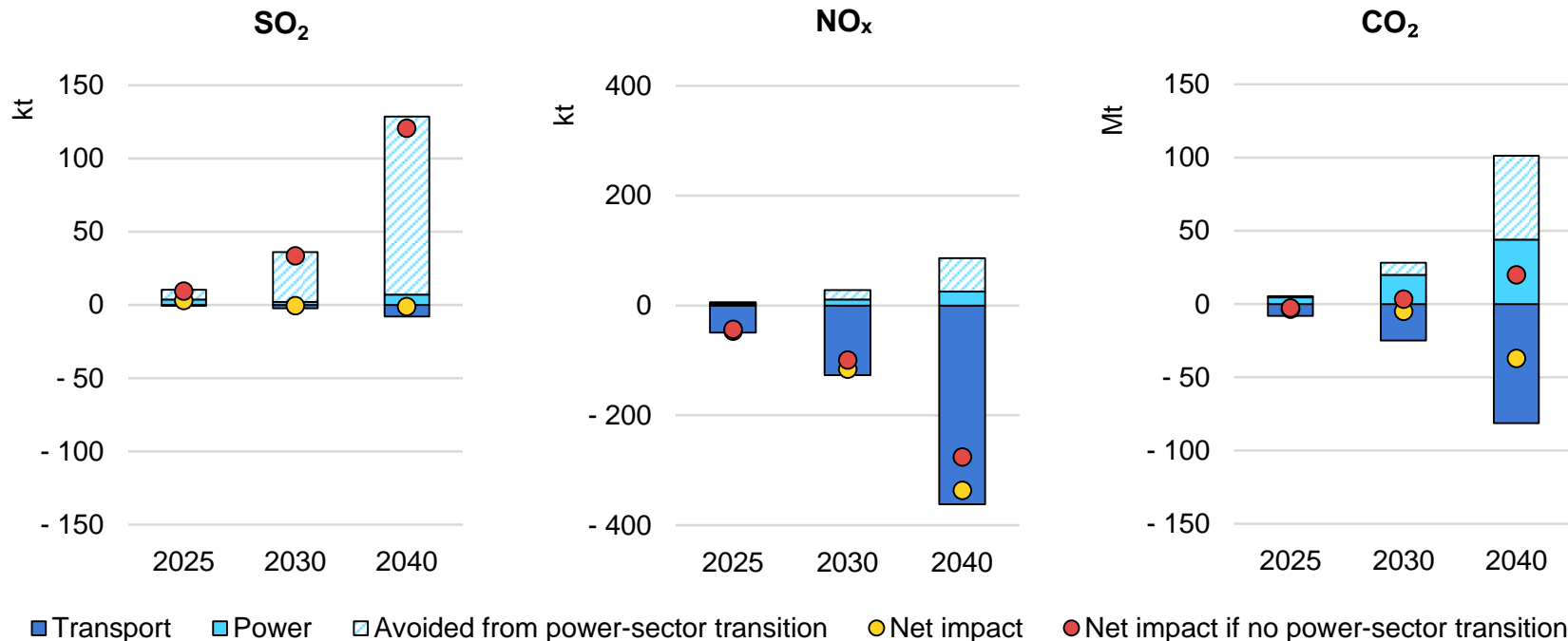
Net effects of road transport electrification on SO<sub>2</sub>, NO<sub>x</sub> and CO<sub>2</sub> emissions, STEPS



**EV deployment soon reduces NO<sub>x</sub> and CO<sub>2</sub> emissions, while indirect SO<sub>2</sub> emissions from the power sector outpace avoided emissions until desulphurisation standards are met in thermal plants**

# Delaying the power sector transition has detrimental consequences for climate and air

Net effects of road transport electrification on SO<sub>2</sub>, NO<sub>x</sub> and CO<sub>2</sub> emissions



**Delaying the power sector transition would reverse the EVs' potential positive impact on SO<sub>2</sub> and CO<sub>2</sub> emissions**

## Aligning energy policies across air and climate objectives would strengthen air pollutant and CO<sub>2</sub> emissions reduction

- Energy-related activities are at the heart of India's air pollution challenge and CO<sub>2</sub> emissions. Existing policy measures will, if properly implemented, substantially curb emissions growth but additional saving potential remains.
- The IEA estimates that India accounts for nearly one-quarter of global energy demand growth to 2040. Today's energy policy choices determine future air pollution reductions and climate change mitigation levels: an integrated approach to tackle both in tandem can deliver important co-benefits.
- This analysis shows that there are synergies between air and climate policy objectives across sectors. Acknowledging these synergies in the design of policy frameworks will provide a more impactful response to today's policy challenges and contribute to climate change mitigation.

