Tackling Lahore's Air Pollution: Transitioning to a Green Economy

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AQA: Parliamentary Campaign to implement Clean Air SDGs and the Paris Agreement

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- AQA convenes parliamentarians, city officials, UN and development agencies, green finance and NGOs working on different segments of Air-Quality with initial focus on Asia.
- Right to Clean Air proposed at IPU meeting November 2013 by Chairman Senate of Pakistan with Parliamentary Working Group on CA, clean air language negotiated in SDGs 2030 with strong targets. These SDGs adopted by all governments September 2015.

SDG 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
SDG 11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.
SDG 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

No.of asthma patients presenting to pediatric pulomonology department, Children's Hospital, Lahore

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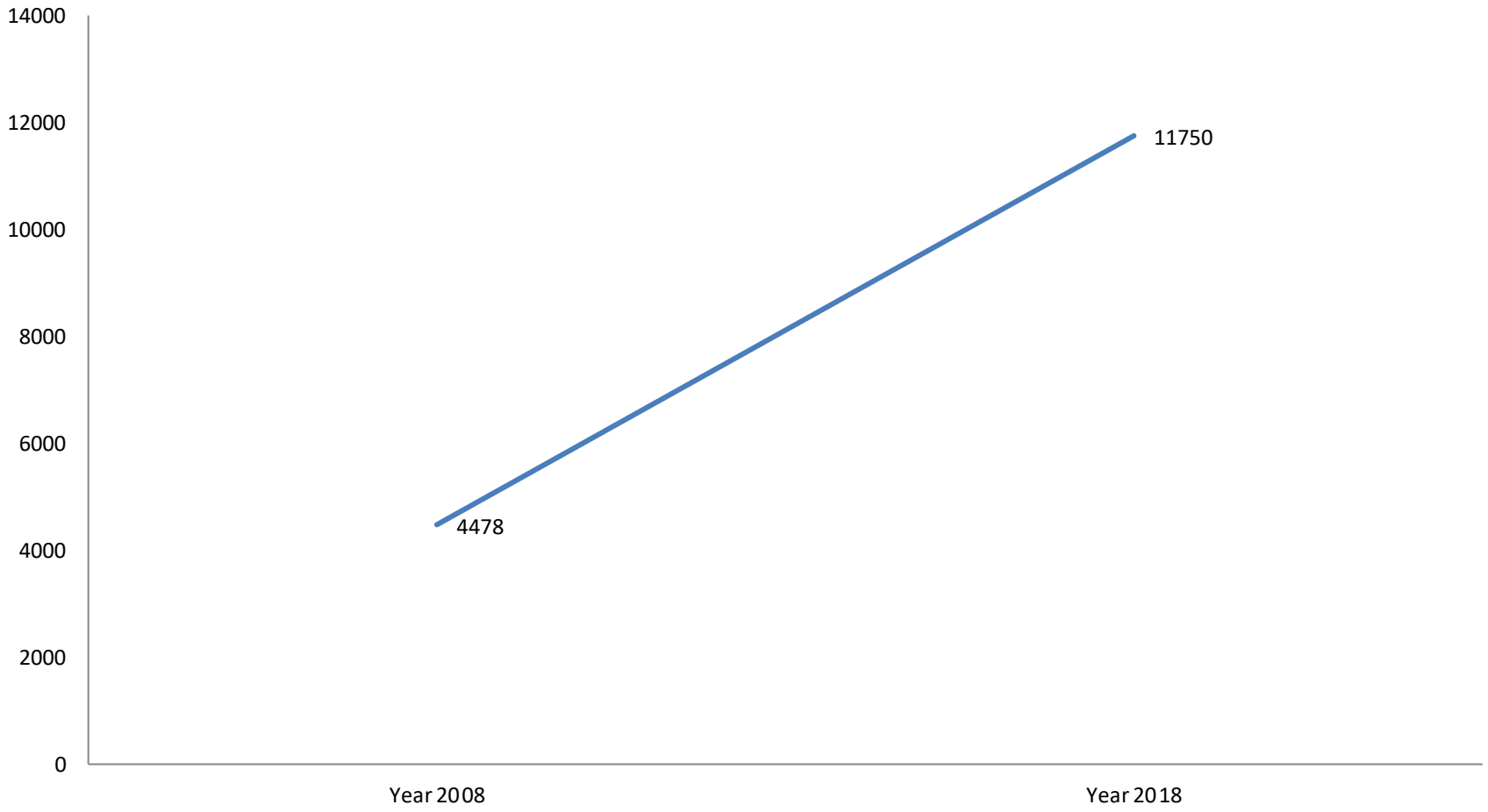

Pollution Deaths by Country Income

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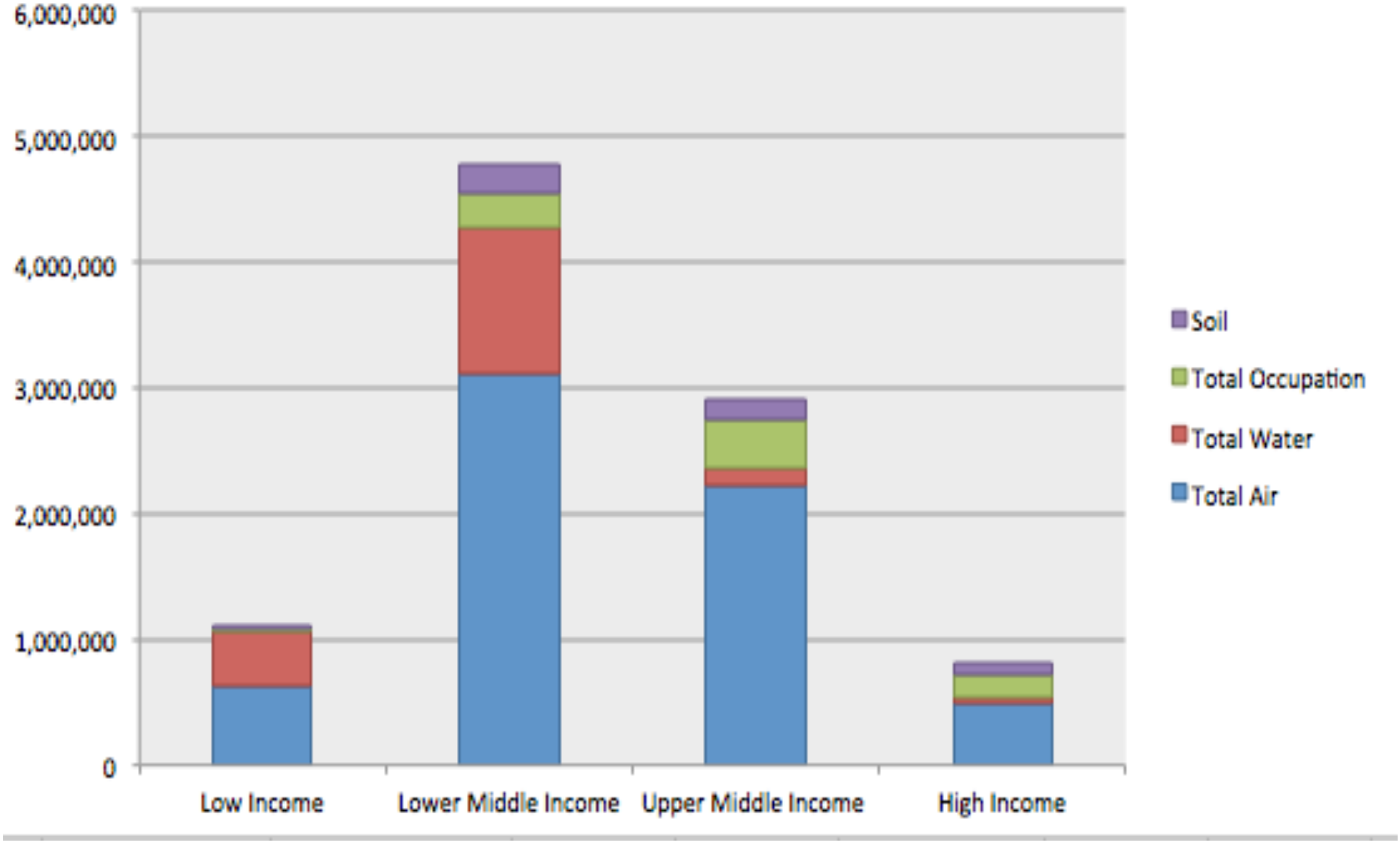

SOURCE: GAHP

Sector Contribution to Total Airborne Emissions in Punjab 2018

Source: Food and Agriculture Organisation [FAO]

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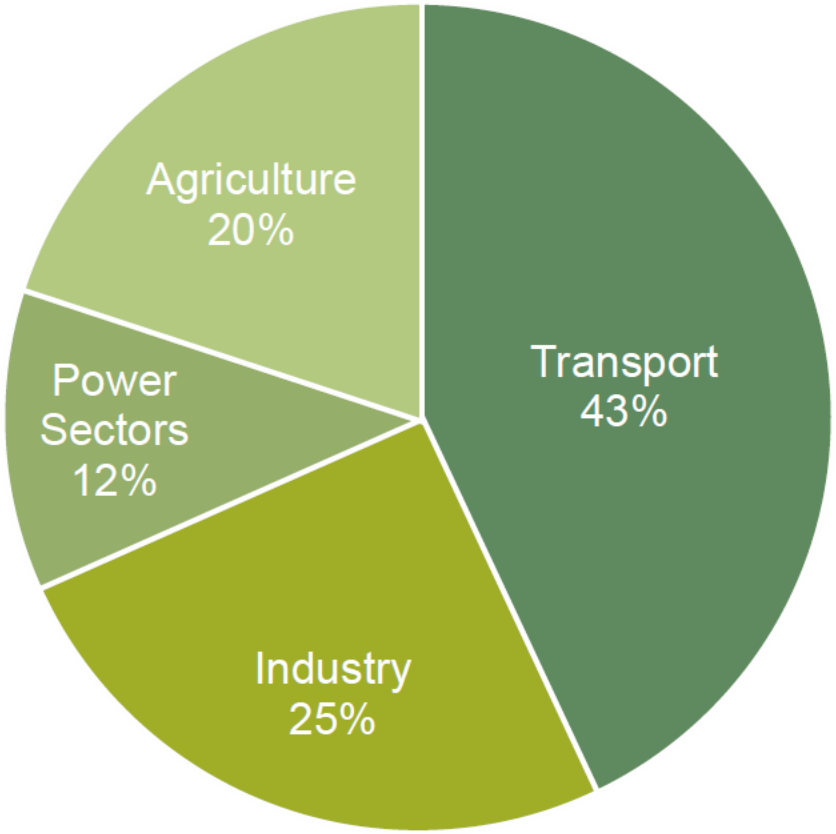

Transport fuel emissions comparison

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Bottles of Diesel Soot Collected in One Hour by Beijing Environmental Protection Bureau

- Four heavy-duty diesel trucks tested for one hour.
- Trucks compliant with different emission standards (Euro II, III, IV and V).
- Largest improvement from Euro III to IV (75%, see next slide).

icct THE INTERNATIONAL COUNCIL ON Clean Transportation

Electric Vehicle Global Growth Forecast 2017

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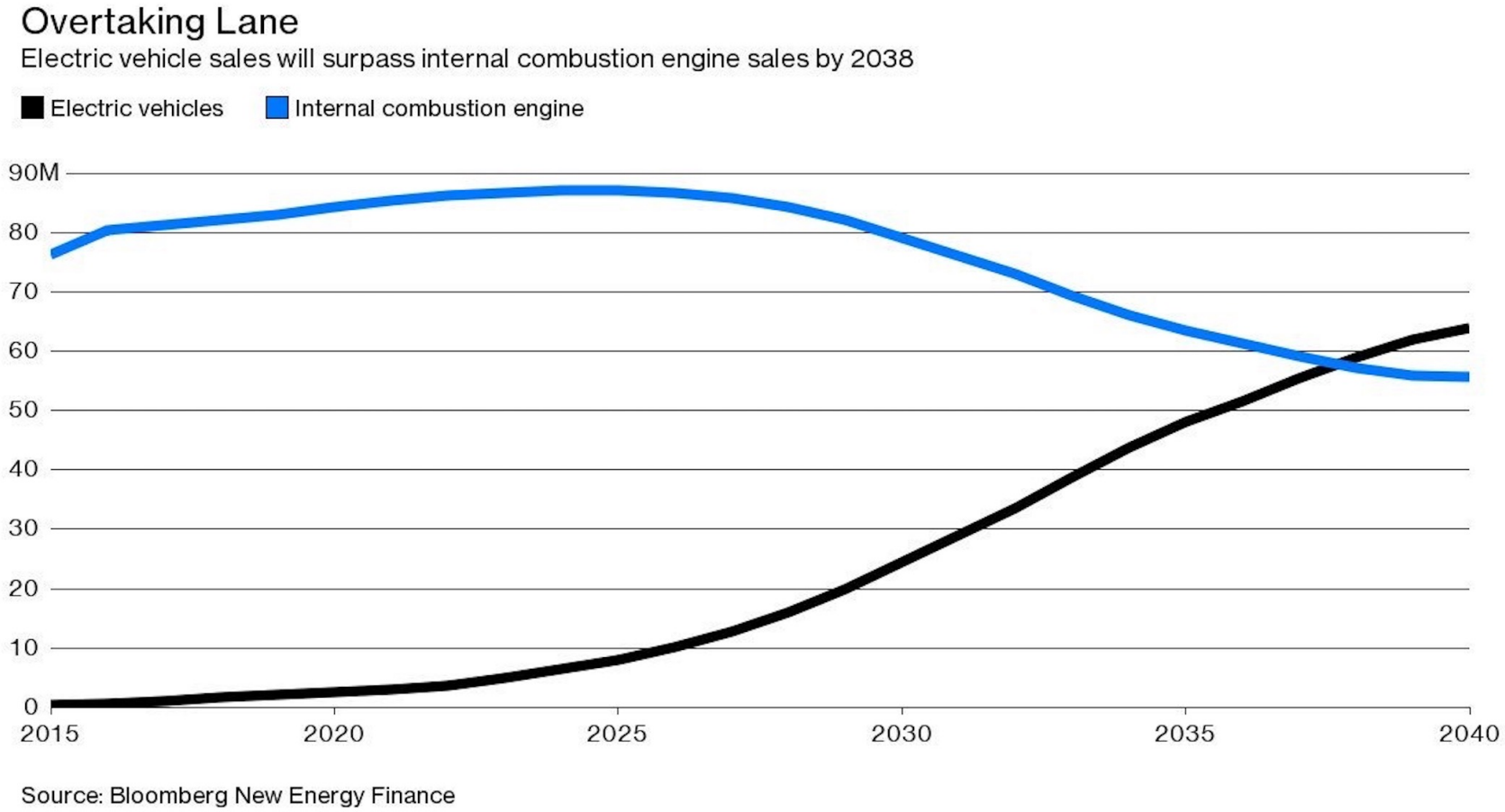

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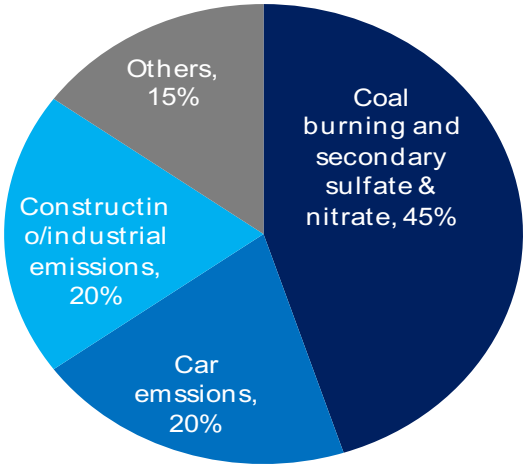
China Sources PM2.5



Simulation results of PM2.5 reduction model

New projection from recent GOC measures

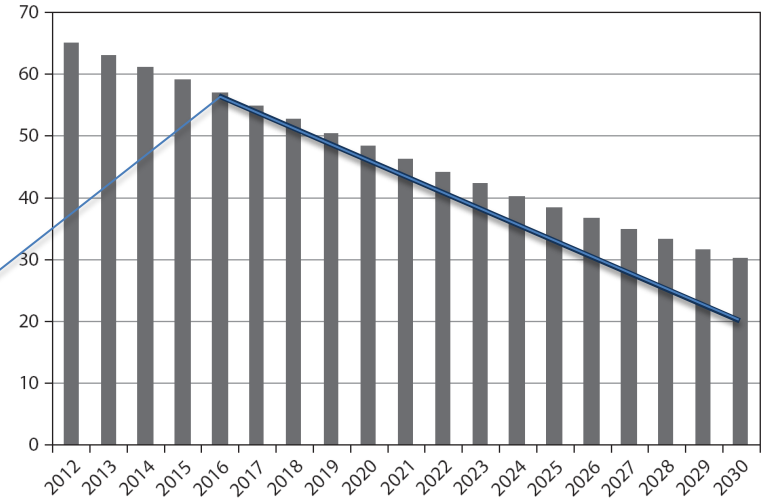
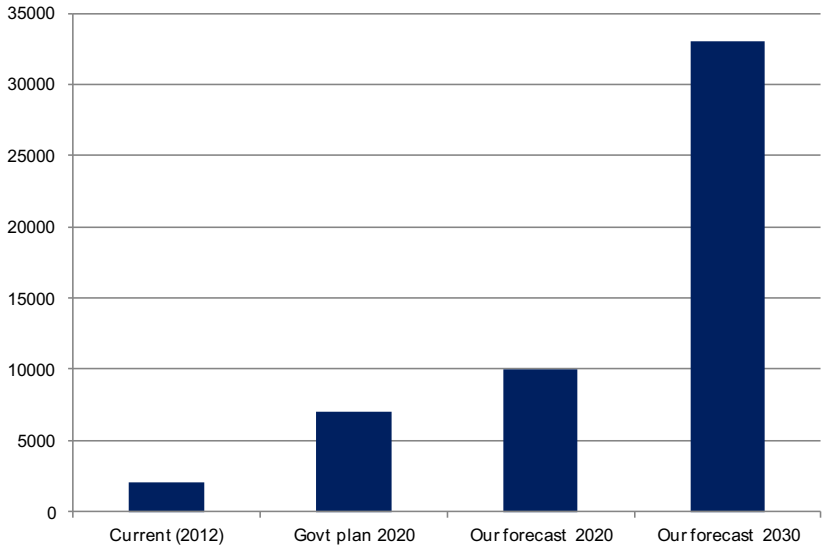


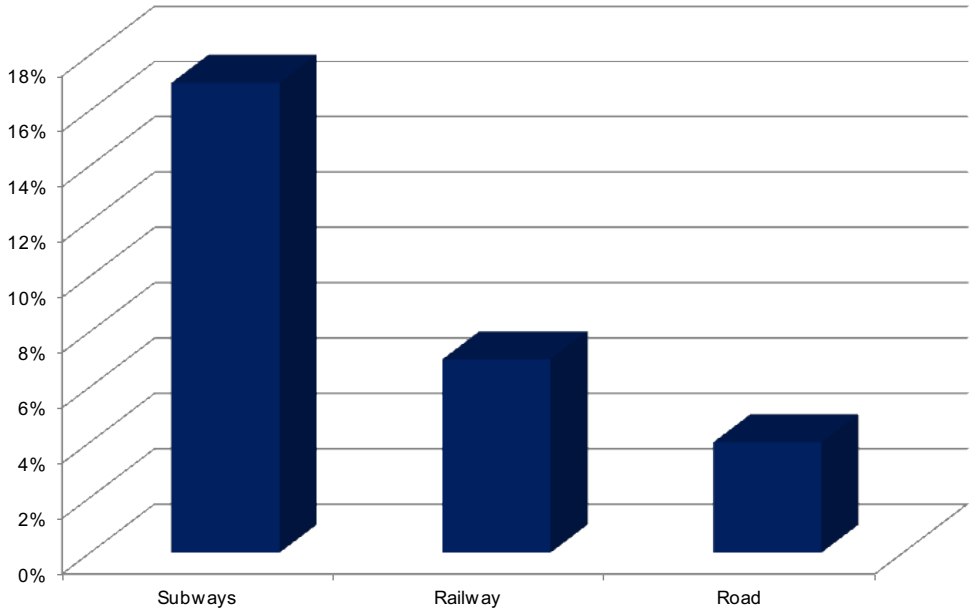
Figure 1.8 Annual PM2.5 reductions under recommended actions through 2030 (μg/m³). *Source:* PM2.5 control model.

Increase subway length



Source: China City Rail Transit Association

Reduce 2030 target of car ownership to 250mn from forecast of 400mn



Source: Dr. Ma Jun

Independent Power Producers
Renewable Energy

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- ACT Wind (Pvt) Limited
- ACT2 DIN Wind (Pvt) Ltd
- Altern Energy Ltd
- Appolo Solar Development Pakistan Limited
- Artistic Wind Power (Pvt) Ltd
- Best Green Energy Pakistan Limited
- Foundation Wind Energy-I Limited
- Foundation Wind Energy-II (Pvt) Limited
- Gul Ahmed Wind Power Ltd
- Harapa Solar (Pvt) Limited
- Hawa Energy (Private) Limited
- Indus Wind Energy Ltd
- Liberty Wind Power-I Ltd
- Liberty Wind Power-II (Pvt) Ltd
- Lucky Renewables Pvt Ltd
- Master Green Energy Limited
- Master Wind Energy Limited
- Metro Wind Power Limited
- NASDA Green Energy Limited
- Neelum Jhelum Hydropower Company (Pvt) Ltd
- Quaid E Azam Solar Power Pvt Ltd
- Sapphire Wind Power Company Limited
- Star Hydro Power Limited
- Three Gorges First Wind Farm Pakistan (Private) Limited
- Three Gorges Second Wind Farm Pakistan Limited
- Three Gorges Third Wind Farm Pakistan (Private) Limited
- UEP Wind Power (Pvt) Ltd

Table 6.1. Annual cost of health effects from ambient PM2.5 by region and country, % equivalent of GDP in 2016

Region	Country	Cost	Region	Country	Cost
EAP	China	7.6%	NA	United States	3.4%
	Mongolia	4.5%		Canada	2.1%
	Myanmar	4.3%	SA	India	7.8%
ECA	Bulgaria	12.4%		Pakistan	5.8%
	Ukraine	10.4%		Nepal	5.3%
	Hungary	9.9%	SSA	Cameroon	4.8%
LAC	Cuba	4.3%		Central African Republic	4.4%
	Trinidad and Tobago	3.6%		Chad	4.1%
	Barbados	3.5%			
MNA	Egypt	6.4%			
	Iraq	4.8%			
	Tunisia	4.1%			

Source: Produced from http://www.healthdata.org/ and valuation methods in World Bank and IHME (2016).