

Governance for Co-Control in China and Beyond: Steps Toward a One Atmosphere Approach

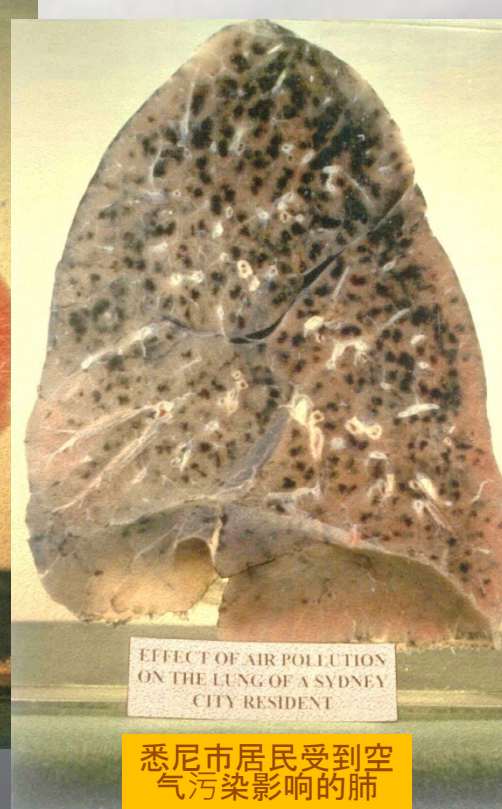
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Air pollution Impacts

空气污染的影响



健康农村居民的正常的肺



悉尼市居民受到空
气污染影响的肺

(Source: Residents Against Polluting Stacks, 2001)

(Source :China Baidu)

What are co-benefits?

什么是协同效益？

Some define co-benefits broadly: Benefits that accrue as a side effect of targeted policies are known as *secondary benefits*, *policy spillover effects*, '*co-benefits*' or *ancillary benefits*. (Pearce 2000)

广泛的定义：目标政策的副作用产生的效益，也称为次级效益、政策溢出效益、协同效益或辅助作用。

Others look mostly at synergies between mitigating climate change and controlling air pollution: In the process of controlling GHGs, the benefits from other pollutants that are also abated e.g. SO₂, NO_x, PM. In the process of abating air pollution, the benefits from CO₂ and other GHGs that are also mitigated. (PRCEE)

侧重于气候变化减缓与空气污染控制的协同作用：在控制温室气体的过程中，产生了其他污染物，如二氧化硫、氮氧化物、颗粒物的减缓效益。在减缓空气污染的过程中，产生了二氧化碳和其他温室气体减缓的效益。

Yet others focus on the link between climate mitigation and sustainable development: The benefits of policies that are implemented for various reasons at the same time – incl. climate change mitigation – acknowledging that most policies designed to address GHG mitigation also have other, often at least equally, important rationales e.g. related to objectives of development, sustainability and equity. (IPCC 2001 TAR)

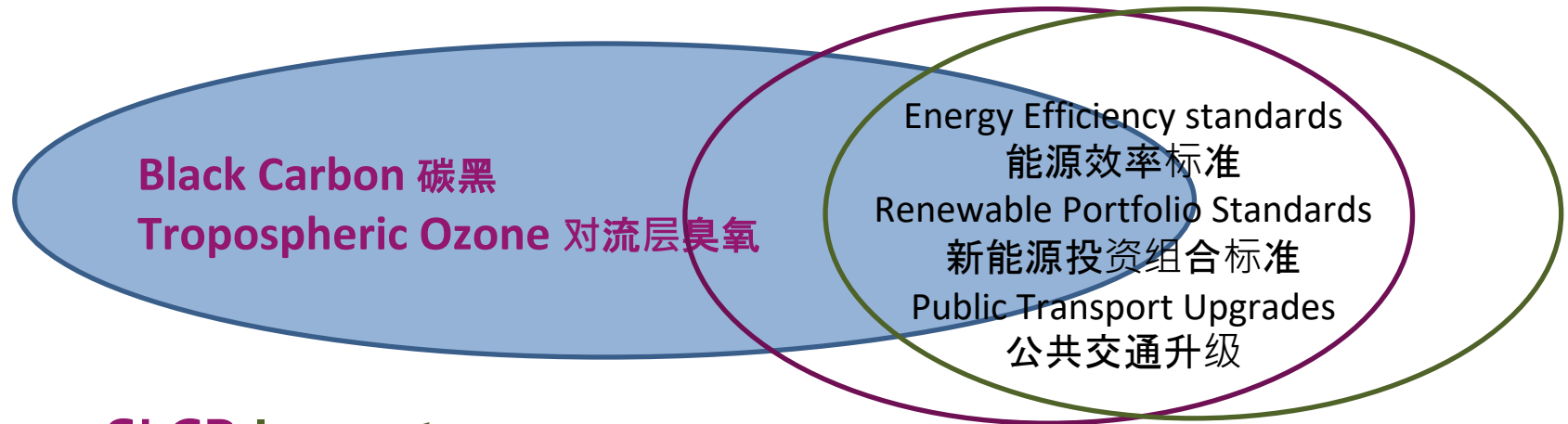
侧重于气候变化减缓与可持续发展的联系：在同一时间因为不同原因执行不同政策时产生的效益，包括气候变化减缓政策，是为解决温室气体排放制定，但是在其他方面也有同等重要意义，例如发展、可持续与平等的目标。

Visualising Co-benefits 协同效益



Visualising Co-benefits with SLCP

协同效益与短寿命气候污染物

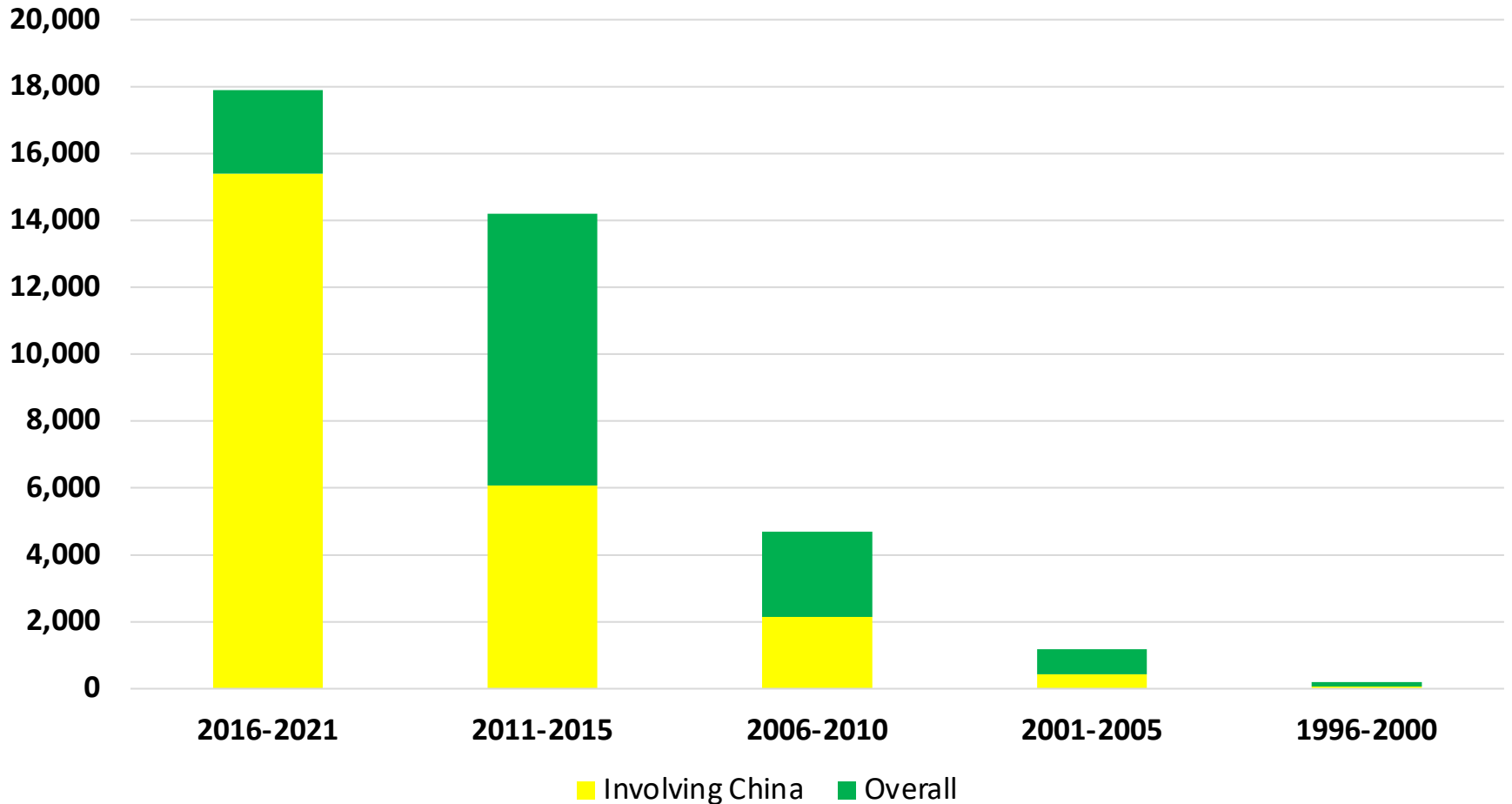


SLCP Impacts

短寿命气候污染物的影响

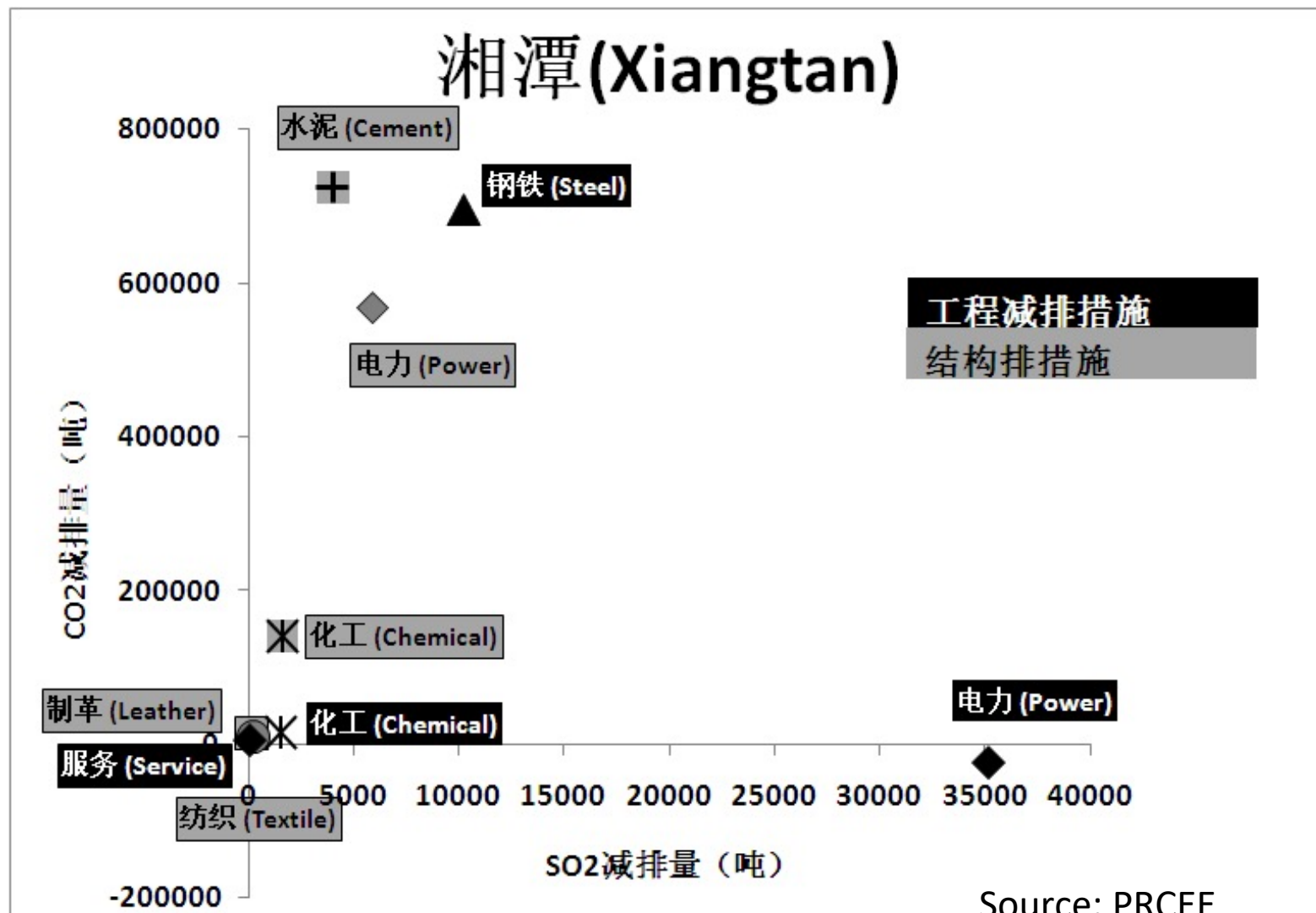


Growing interest in co-benefits/co-control



Co-control in Xiangtan

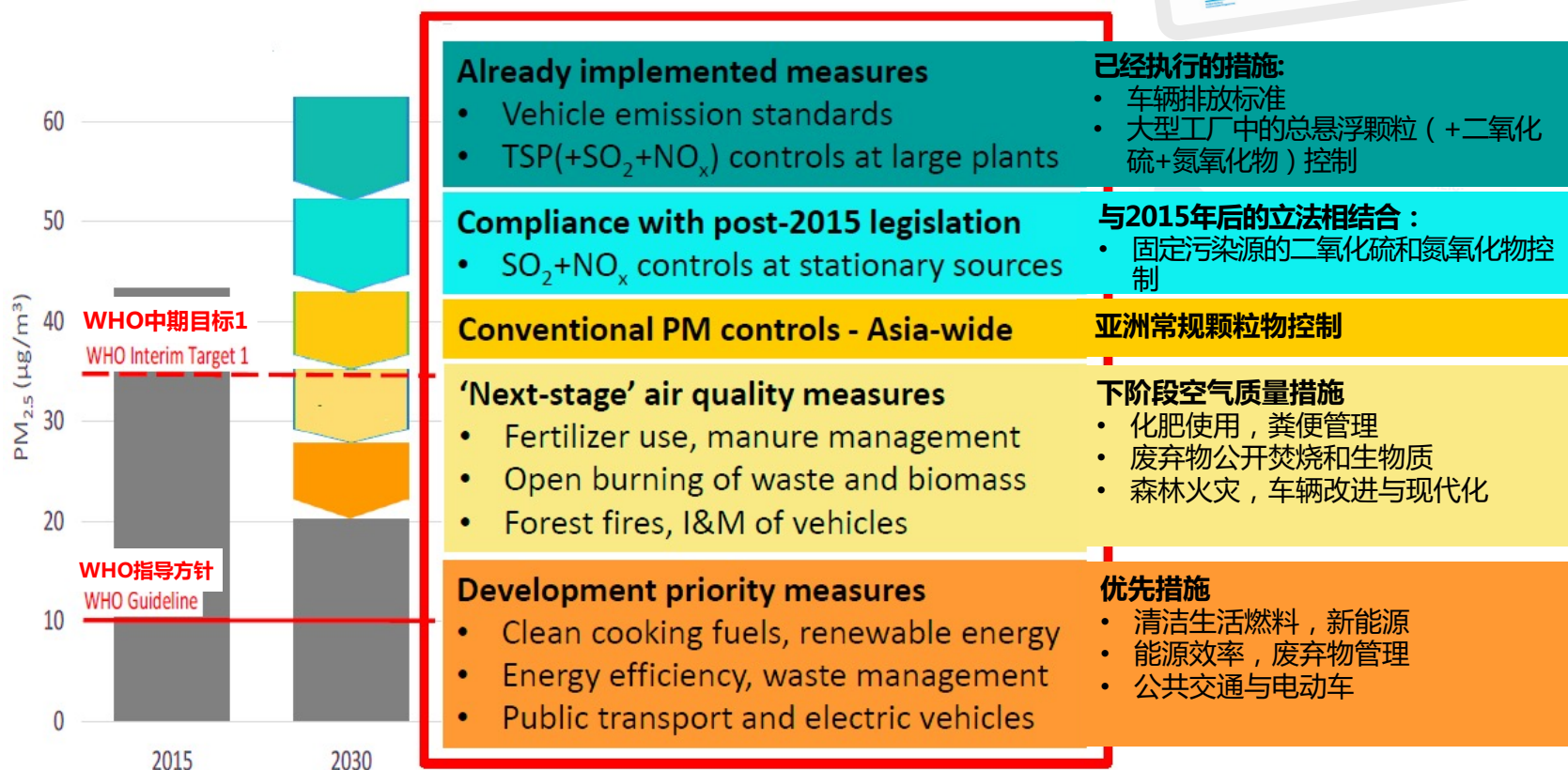
协同效益举例：湘潭



25 Clean Air Measures by UNEP in 2019

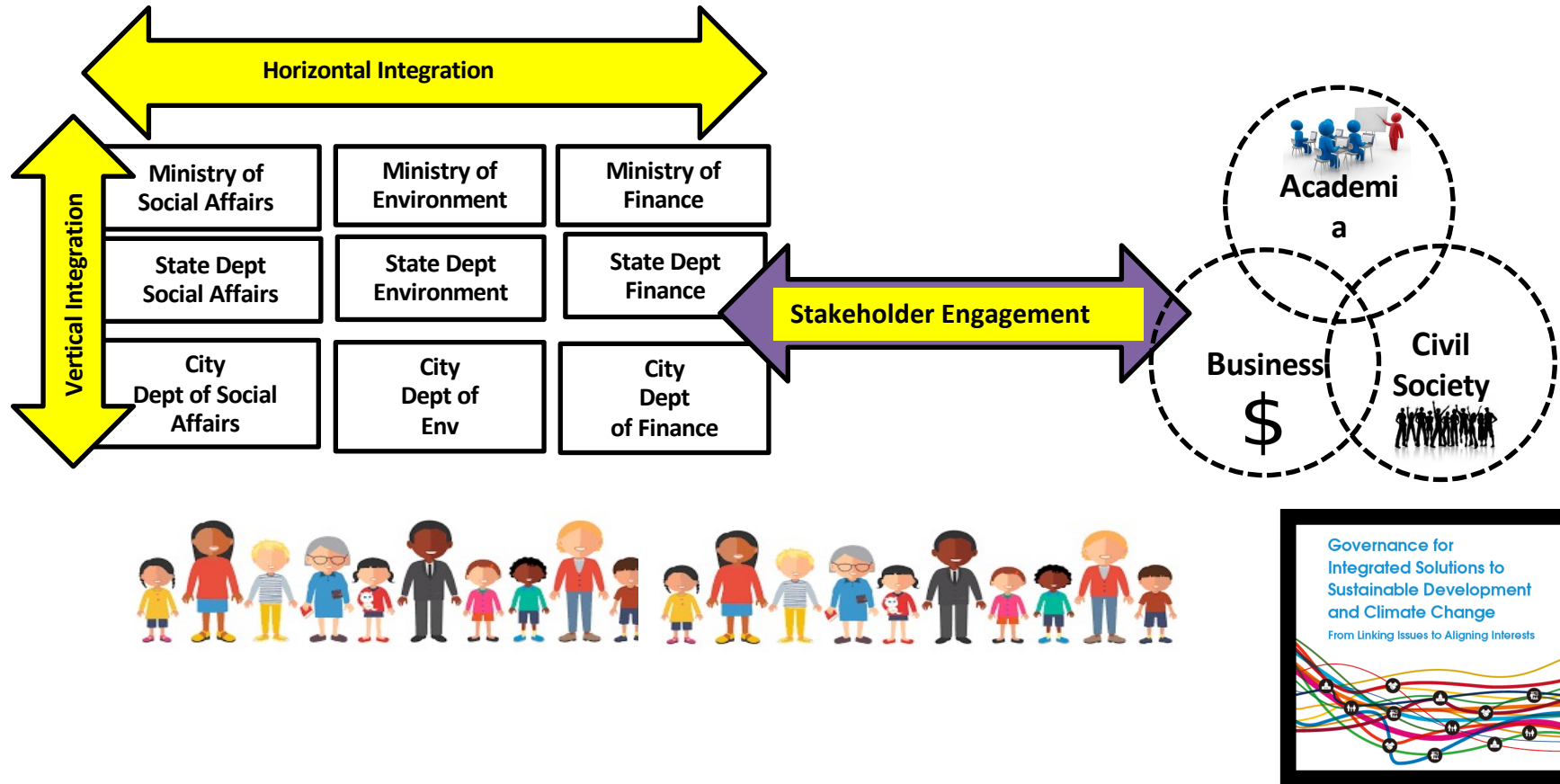
2019年联合国环境署的25个清洁空气措施

Potential Contributions of the Measures to
Population-weighted mean exposure to PM_{2.5}
这些措施对人口加权平均PM_{2.5}暴露的潜在贡献



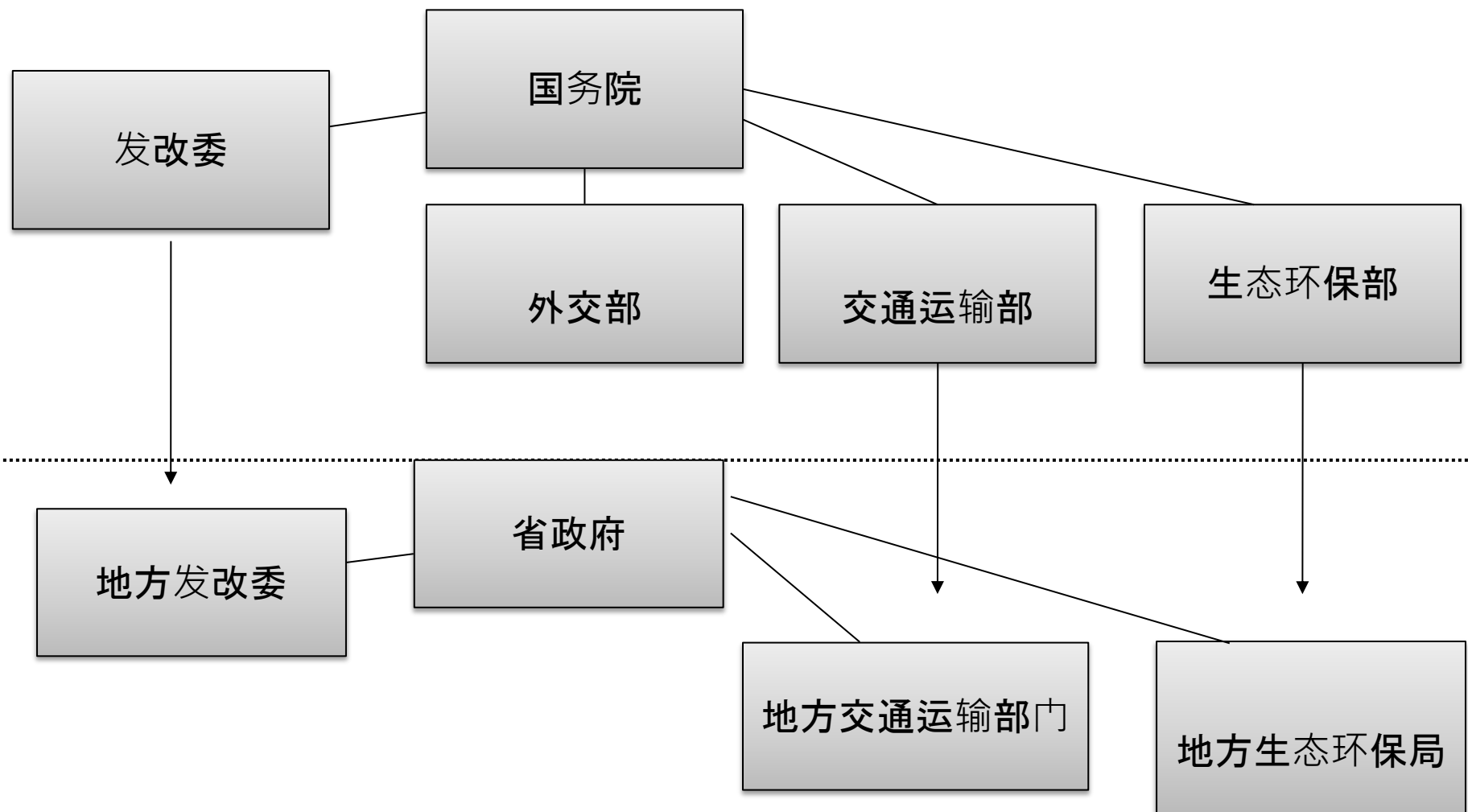
(Source: IIASA 2019)

Co-benefits and Multi-level Governance



Source: Zusman and Amanuma, 2018

如何有效协调相关部门成为最大的挑战



Case Study 3: California Global Warming

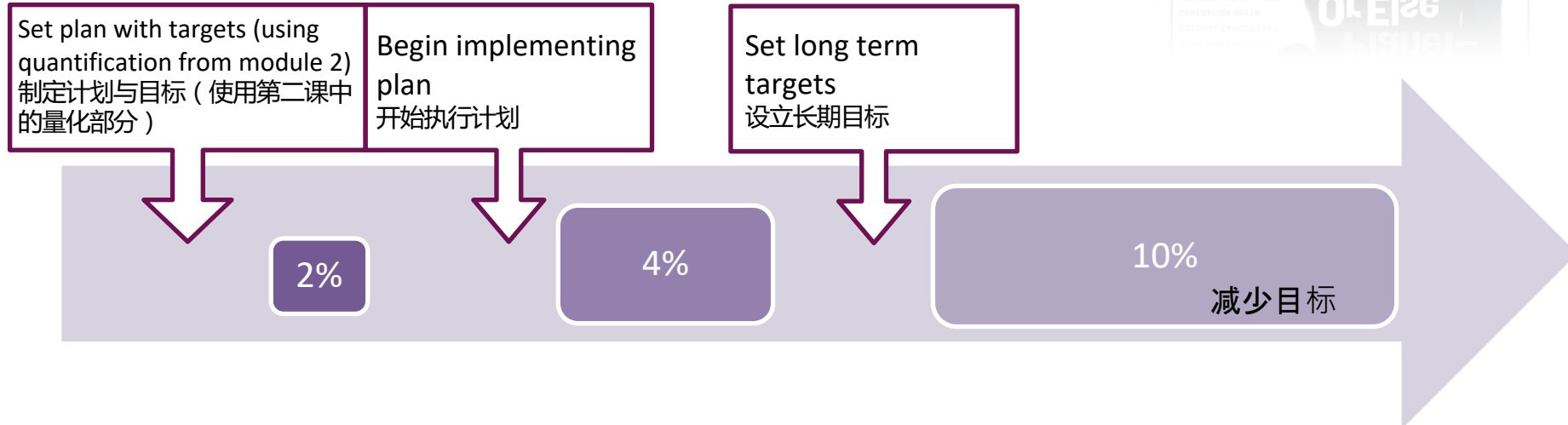
Solutions Act, Assembly Bill (AB) 32

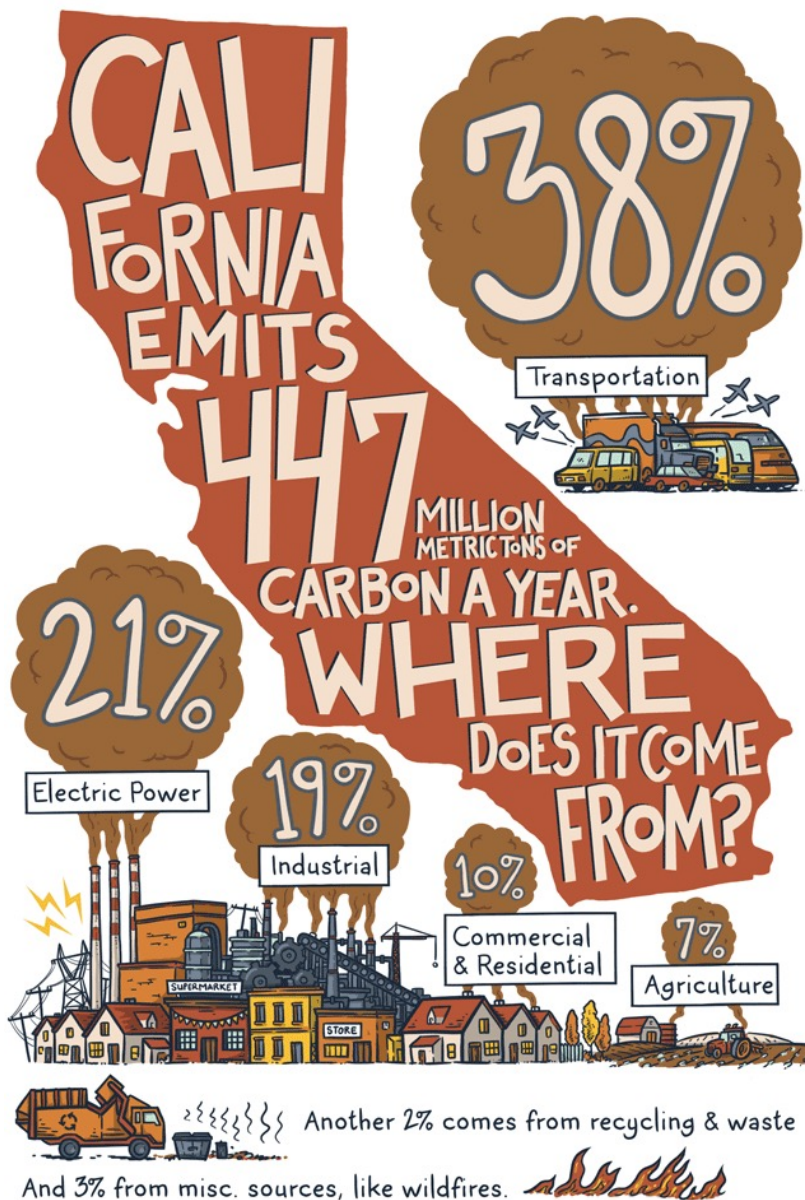
案例3：加利福尼亚全球变暖解决方案行动，议会法案32条

Lets start by thinking about INSTITUTIONS 从制度开始思考



Lets continue by thinking about PROCESS 接下来思考过程





Objective of AB 32

2006全球变暖解决方案法案 (AB32) 目标

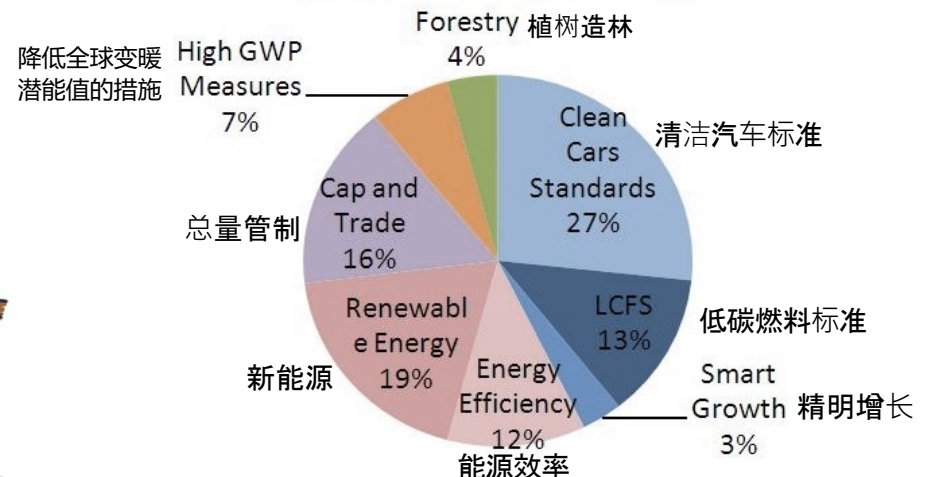
Mandates development of rules and regulations to return California's GHG emissions to 1990 levels by 2020 (Reduction of ~43 MMTCO₂E by 2020).

强制执行法律法规使加利福尼亚温室气体于2020回到1990年水平 (到2020年减少约4300万吨二氧化碳)

AB32 Starts with 2020 targets

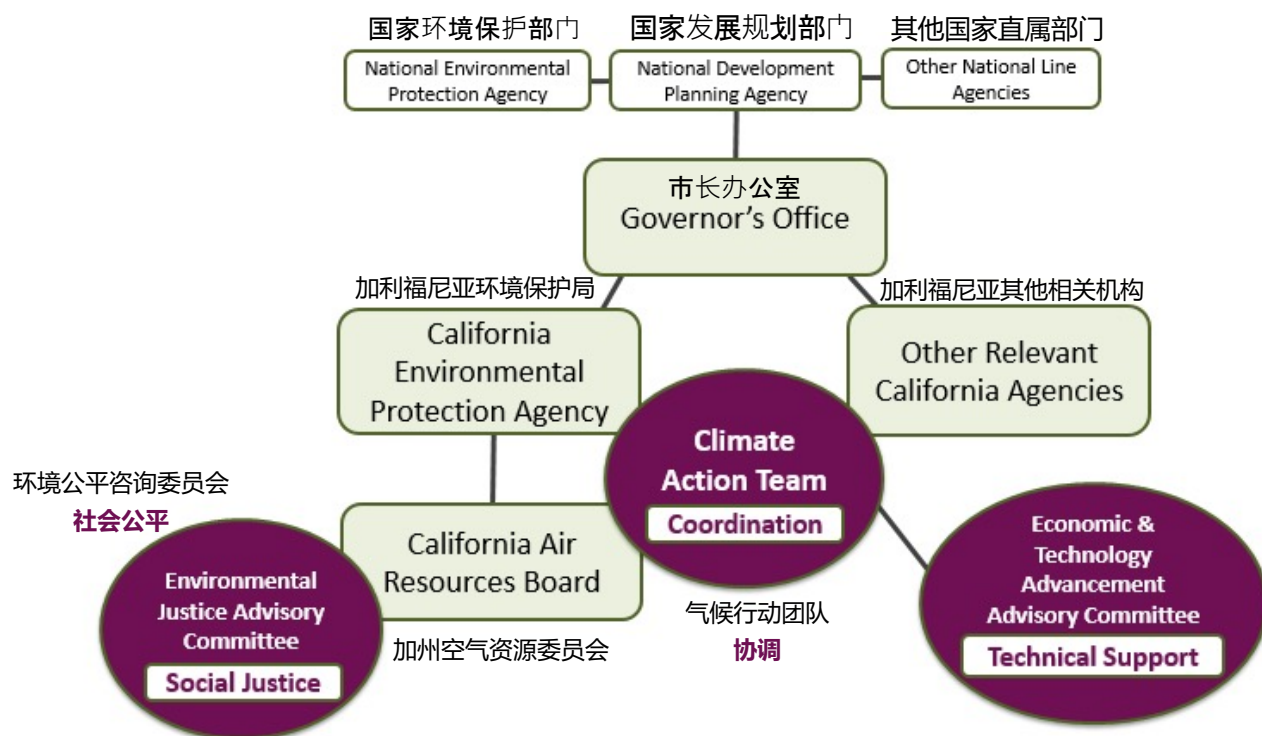
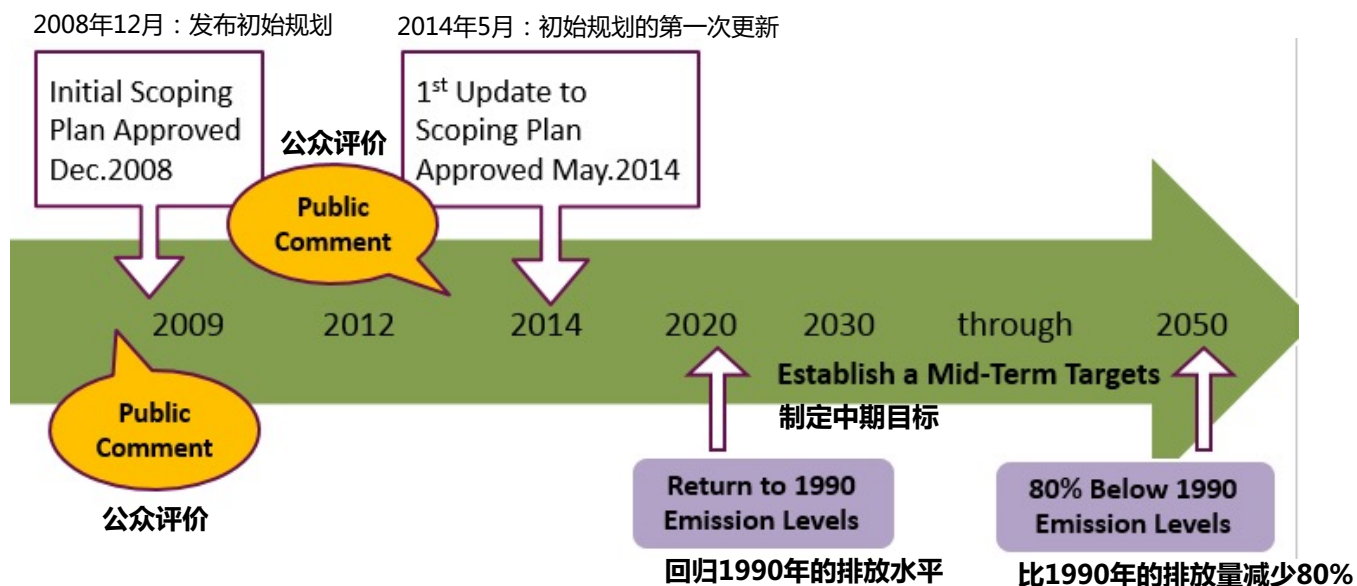
AB32 : 2020年的目标

AB32减排战略 (单位: %)
AB 32 Emission Reduction Strategies
(Measure, Percent of Total)



Source: CARB, Emissions Reductions from Scoping Plan Measures; 2020 GHG Emissions Forecast

The process introduced a path to 2020 and beyond 迈向2020年路线图



The Institutions supporting this process were important
支持此路线的制度很重要

Selected & Estimated Co-benefits 经过选择和评估的协同效益

- ✓ Method: 44 sector-specific climate strategies in 5 sectors
方法：5个行业的44个行业相关气候战略
- ✓ Estimation: The cost of mitigating a ton of GHG in 2020, The benefits of energy savings, The benefits of reduced air pollution
评估：2020年减少1吨温室气体的成本、能源节约效益、降低空气污染效益

Economic 经济

Energy Efficiency, Energy Access, Economic Development 能源效率、能源获取、经济发展

- Homeowners can save about \$200/year through energy efficiency 房屋所有者每年通过提高能效可节省约200美元
- \$76 billion increase in Gross State Product (GSP) 国家生产总值增加760亿美元
- \$48 billion increase in real household incomes 实际家庭收入增长480亿

Environmental 环境

Improved Air Quality, Land use, Ecosystem Services 提高空气质量、土地利用、生态系统

- Air Quality 空气质量
- Reduce combustion-generated soot (PM2.5): 15 tons/day 减少燃烧产生的烟煤(PM2.5)：15吨/天
- Reduction of nitrogen oxides: 61 tones/day 氮氧化物每天减少61吨

Social 社会

Public Health, Green Jobs (Job Creation) 公共卫生、绿色工作（创造新的工作岗位）

- \$4.3 billion in 2020: 770 fewer premature deaths and 76,000 fewer work days lost
 - The creation of 403,000 new efficiency and climate driven jobs
- 2010年达到43亿：夭折数量减少770，工作日增加76000个工作日
-增加403000个以能效和气候为导向的新工作岗位

CALIFORNIA'S INNOVATIVE CLIMATE LAW

Saves Drivers Money

加利福尼亚革新性气候变化法

为司机省钱



#AB32Saves

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Lets look at how those
benefits were communicated
一起看一下如何宣传这些效益



Please see our new training guide on co-benefits!

And join the Asian Co-benefits Partnership.

https://form.iges.or.jp/webapp/form/11205_zoq_161/index.do