

# Status and Outlook for Vehicle Efficiency and Emissions Standards in China

Vehicle Emission Control Center, MEE

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# Outline

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/01

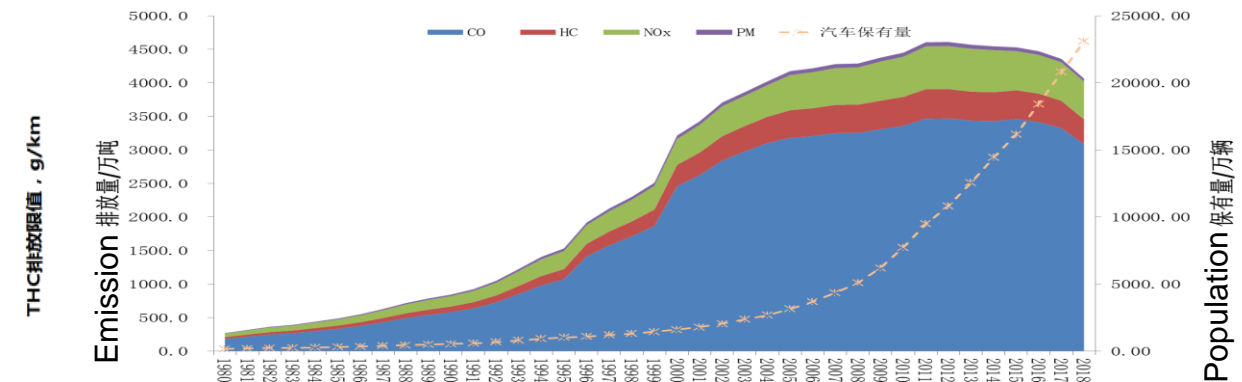
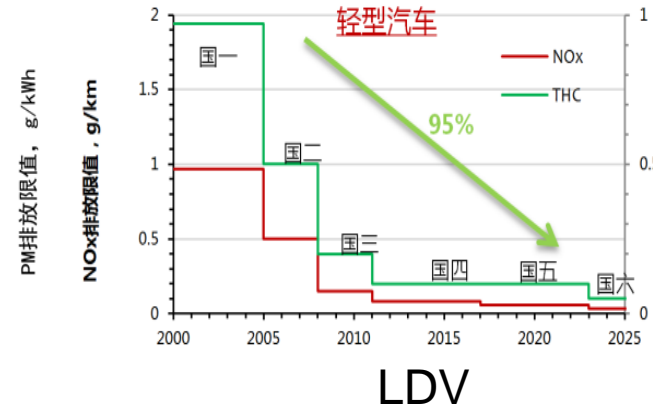
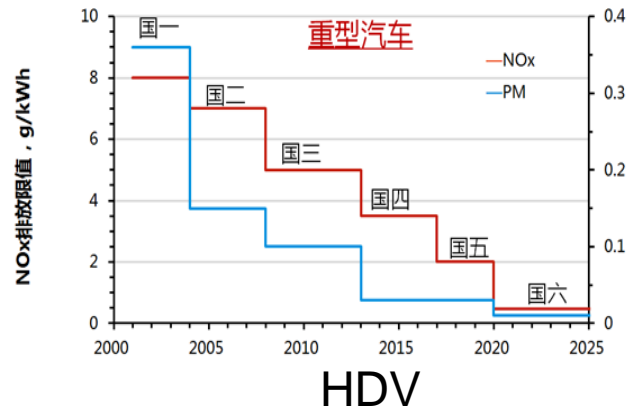
## Status

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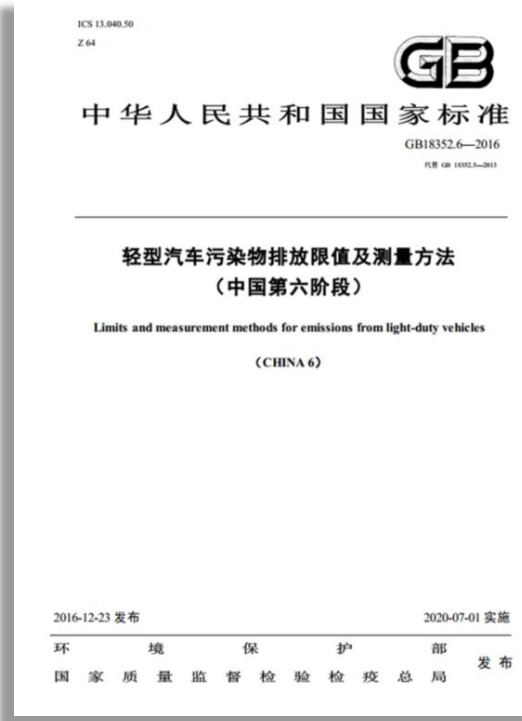
# Emission standards is an effective way of emission control

车型	年份	年份																			
		1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
LDV 轻型汽车	柴油车	无控制要求	国 I				国 II				国 III				国 IV				国 V		国 VI
	汽油车	无控制要求	国 I				国 II				国 III				国 IV				国 V		国 VI
	气体燃料车	无控制要求	国 I				国 II				国 III				国 IV				国 V		国 VI
HDV 重型汽车	柴油车	无控制要求		国 I		国 II				国 III				国 IV				国 V		国 VI	
	汽油车	无控制要求				国 I		国 II				国 III				国 IV					
	气体燃料车	无控制要求		国 I		国 II				国 III		国 IV		国 V				国 VI			
Motor Bike	两轮和轻便 摩托车	无控制要求				国 I		国 II				国 III				国 IV					
	三轮摩托车	无控制要求		国 I		国 II				国 III				国 IV							
	三轮汽车	无控制要求							国 I		国 II										
低速货车	无控制要求							国 I		国 II				无此类车							



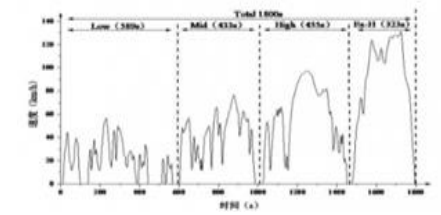
- Since the implementation of the China I standard in 2000, the pollutants of single vehicle has reduced by more than 95 percent, and the total vehicle emission has been effectively controlled while the vehicle population has grown rapidly.

# Major breakthroughs were made in China VI standards



LDV emission standard of China VI

- 工况排放**
  - WLTC (L+M+H+ExH) 1、CN6a: EU6C限值 (CO: 700mg/km)
  - 燃油中性, 不分汽柴油 2、CN6b: PN不变, PM加严1/3, 气态加严50%
- RDE**
  - 参考EU的RDE的PEMS测试要求, 采用移动平均窗口法评价。
  - 2023年强制引入NTE限值要求 (PN、NOx的CF值为2.1)
- 蒸发排放**
  - 密闭室蒸发排放 (加严测试规程) — LEV II
  - 增加加油蒸发排放 (ORVR) — LEV III
- 7°C低温排放**
  - CO, THC: 相当于国5的2/3
  - 新增NOx限值 0.25g/km
- OBD**
  - 参考CARB OBDII 2013版
  - OBD阈值统一采用EU6-2汽油车限值, 将NMHC+NOx进行组合
- 耐久性**
  - 16万公里规定了乘法老化和加法老化因子
  - 另增加蒸发和加油排放劣化因子规定
- 生产一致性**
  - 可检查I型、II型、III型、IV型、VI型和OBD系统
- 在用车符合性**
  - 可检查排气污染、OBD系统、蒸发污染物及加油污染物符合性要求



WLTC



RDE



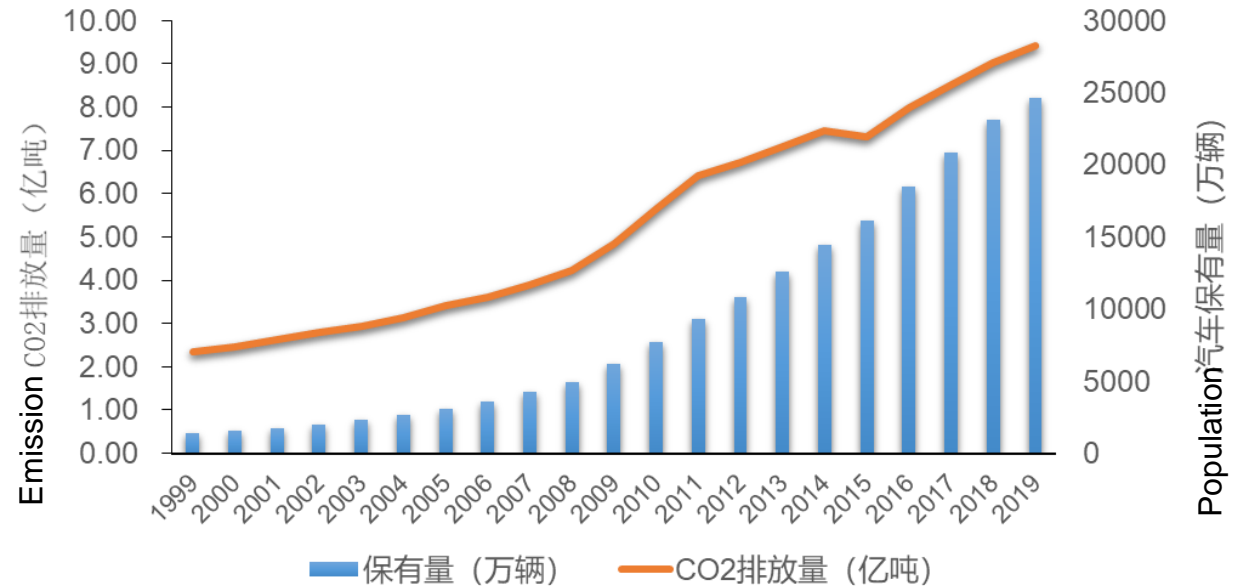
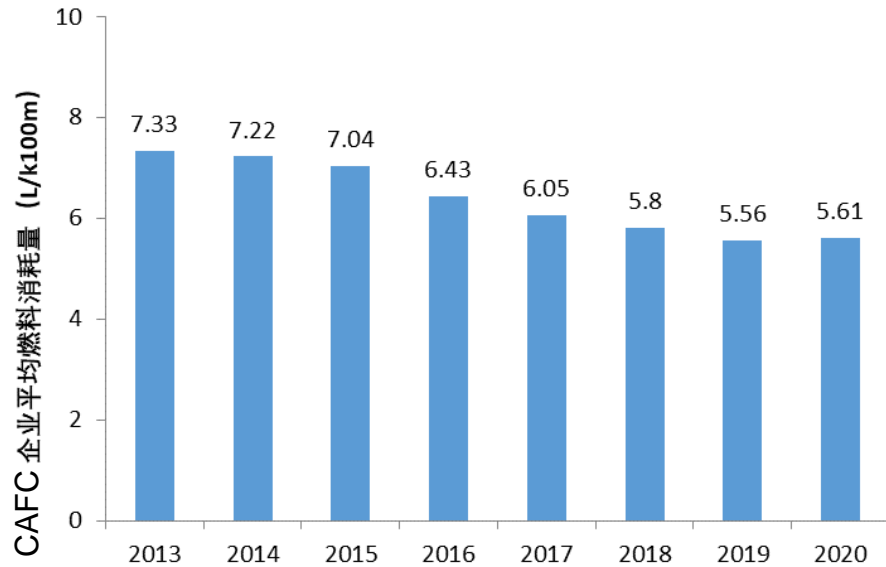
CCAC Award

- As one of the most stringent emission standards in the world, the China VI Standards has achieved major breakthroughs in testing procedures, pollutant limits, and compliance supervision. It has been awarded the 2018 Climate and Clean Air Award by the CCAC of the UNEP.

# The fuel consumption standards has effectively reduced the CO<sub>2</sub>

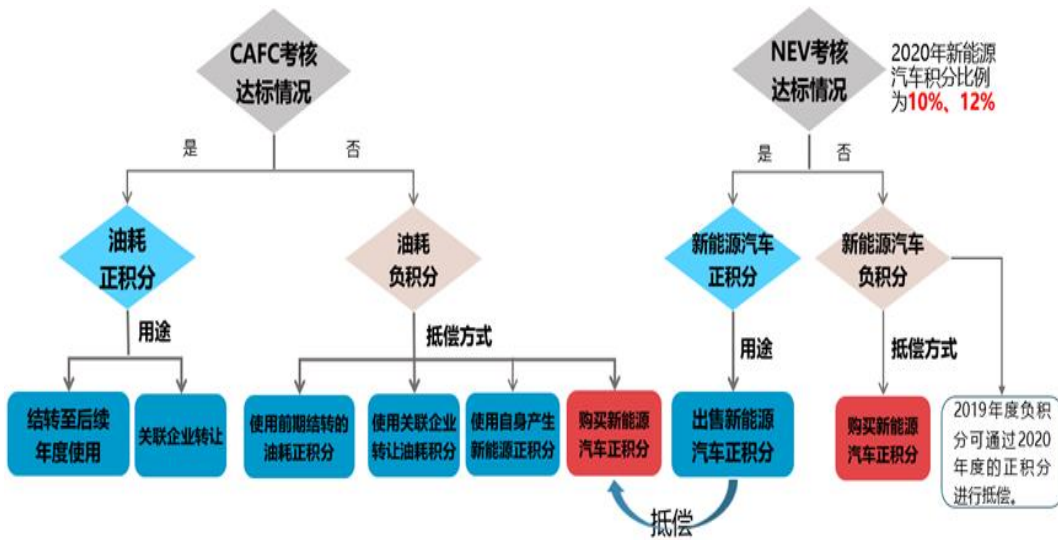
PV  
LDCV  
HDCV  
MB

车型 \ 年份	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
乘用车	无控制要求					1阶段		2阶段			3阶段			4阶段			5阶段					
轻型商用车	无控制要求								2阶段										3阶段			
重型商用车	无控制要求												1阶段		2阶段				3阶段			
摩托车	无控制要求									1阶段												2阶段

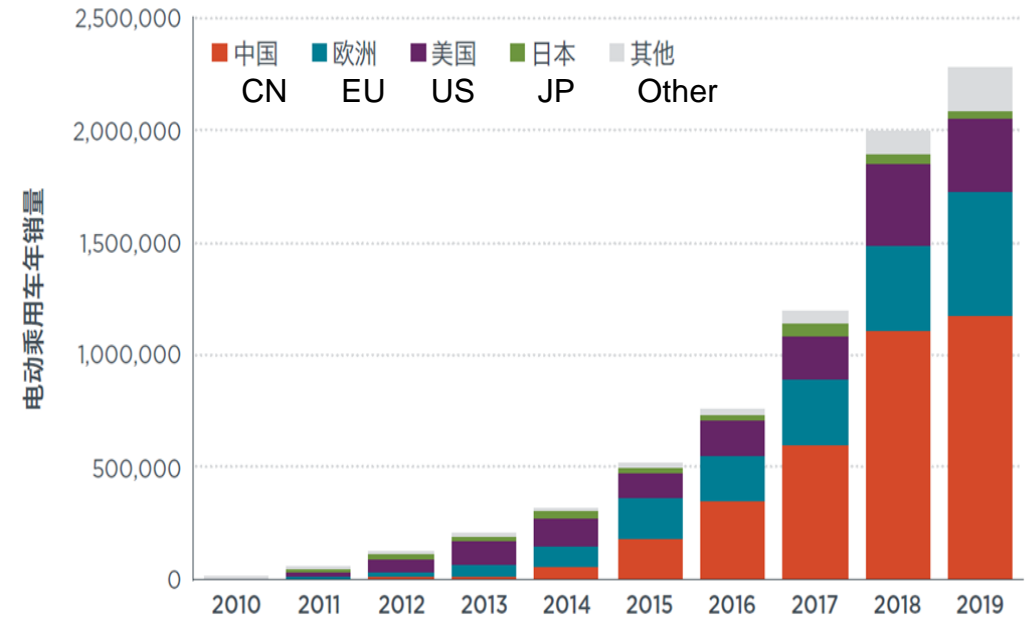


- Since China implemented fuel consumption standards in 2005, fuel consumption levels has declined gradually. The CAFC of PV decreased from 7.3 L/100km in 2013 to 5.6 L/100km in 2020. From 1999 to 2019, the car population increased by 16.4 times, but the CO<sub>2</sub> increased by 4 times.





### Credit management of CAFC and NEV



### Annual Sales of NEV by market, 2010-2019

- In order to reduce the fuel consumption and promote NEV, China has implemented the credit management of CAFC and NEV. In 2019, China sold 1.2 million NEV, ranking first in the world for five years, and holding 3.8 million vehicles, accounting for more than half of the world.

**/02**

## **Challenges**

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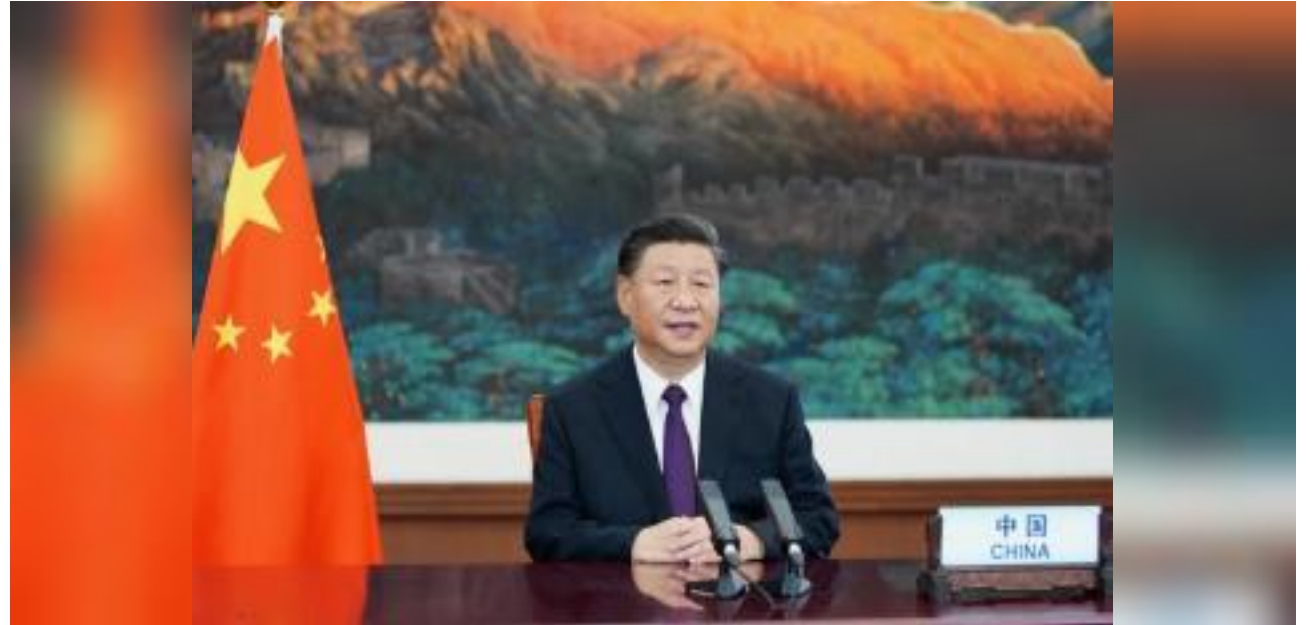
## 2035 Target

All the cities are up to air quality standard by 2035

Annual average concentration of PM<sub>2.5</sub> down to 25μg/m<sup>3</sup>

SO<sub>2</sub>、PM has been solved

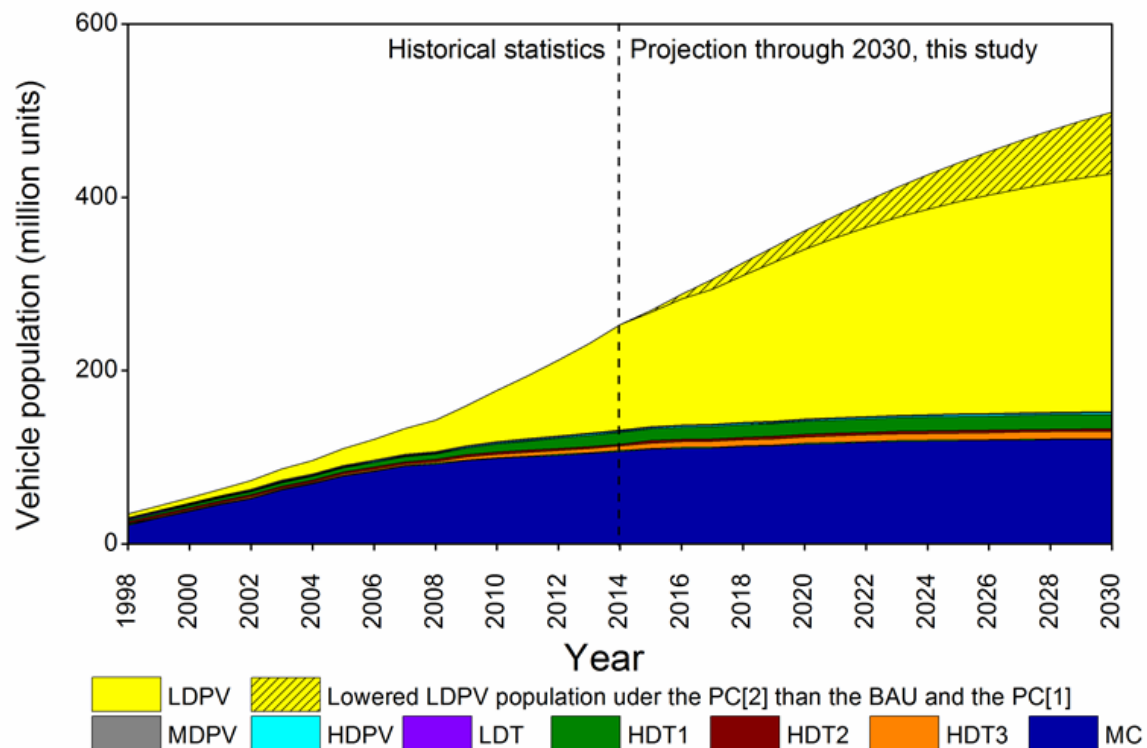
**“By 2035, the ecological environment will be fundamentally improved”**



- ❑ Peak the CO<sub>2</sub> emissions by 2030
- ❑ Carbon neutrality by 2060

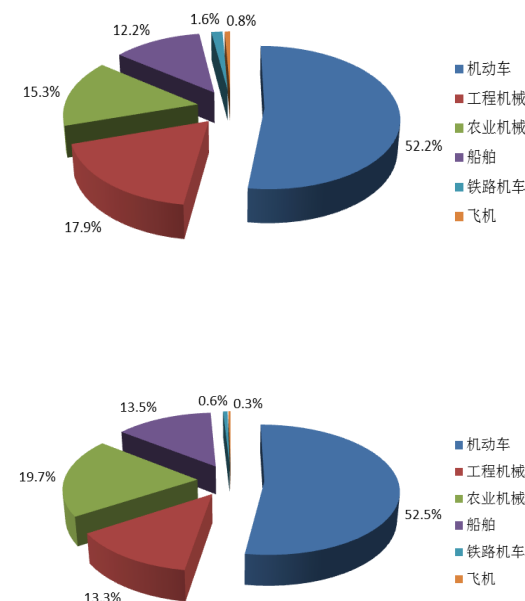
- President Xi Jinping has set a goal of peaking carbon emissions by 2030 and becoming carbon neutral by 2060. China has also set the goal of improving air quality by 2035. But 40.1 % of cities don't meet air quality standard, and vehicles are an important source of urban pollution.

# The vehicle population will grow rapidly in the future



## Growth trend of vehicle population in China

- The vehicle population will continue to grow in the future, and is expected to reach 400 to 500 million by 2030. With the in-depth control of vehicle emissions, the machinery, railway, ship, aircraft and other off-road emissions are increasingly prominent.



## Emission share of off-road

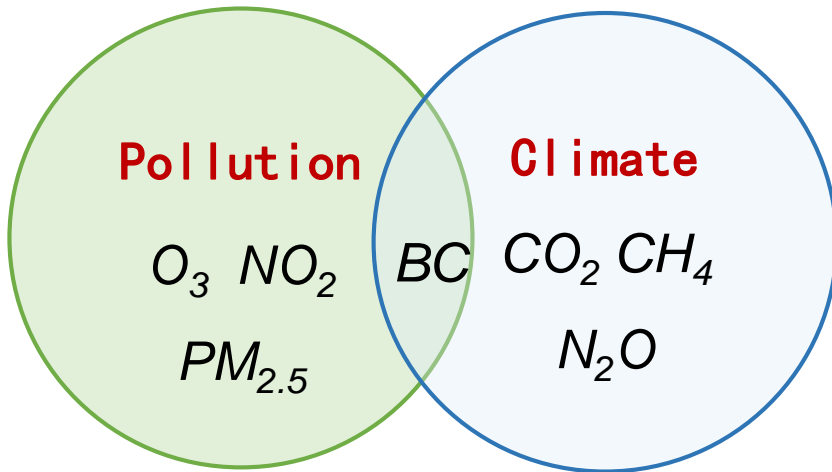


**/03**

## **Outlook**

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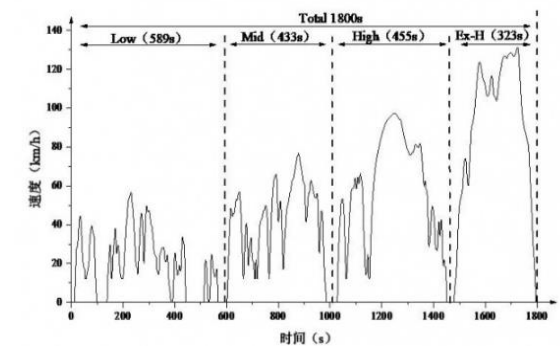




Unified testing methods and processes

Unified information disclosure

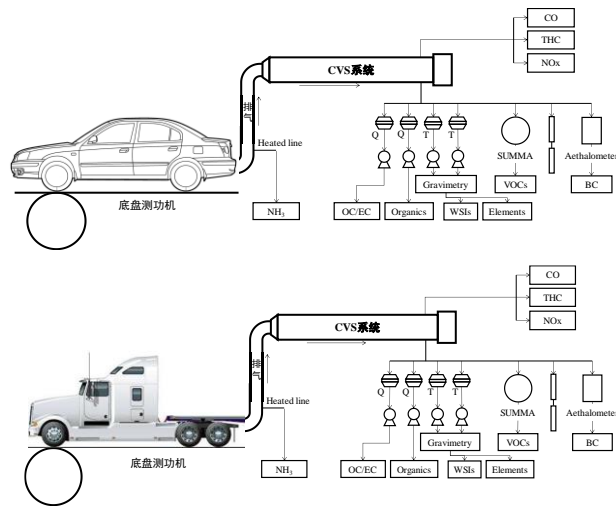
Unified environmental regulation



## Air pollutions and GHGs

## Coordinated control system for pollutants and GHGs

- GHGs will be included in the existing vehicle emission standards system, and a coordinated control system for air pollutants and GHGs will be established. Unified testing and compliance supervision, so as to achieve pollution and carbon reduction at the same time.



Laboratory Emission Testing



Real Drive Emission testing

- ❑ Air conditioning testing
- ❑ Low temperature testing
- ❑ High altitude testing
- ❑ .....

- A comprehensive evaluation system for air pollutant and greenhouse gas emissions will be established, mainly based on laboratory tests and real drive emission (RDE) tests, supplemented by special tests such as low temperature, high altitude and air conditioning.

# Establishing a life cycle emission compliance supervision system



- Through the vehicle environmental protection information disclosure, production compliance inspection, and environmental protection recall, establish and improve the life cycle emission compliance supervision system, ensure the vehicles to meet standards in life cycle.



**Thank you!**