10. 本文所有建议汇总

以下是ICCT为环保部提供的建议汇总，意在改善当前的车辆排放控制方案。这些建议在相关章节的结尾都有更加具体的论述。

关于新车标准（第3章）：

- 近期内，结合低硫燃料（50ppm即可使用，但推荐10ppm）供应的规定，考虑实施国VI的路径。从国IV直接跳跃实施国VI可能会有优势，主要有以下几点原因：
  - o 为工业企业提供充分的准备时间，同时进一步拉近与欧洲之间的标准实施差距；
  - o 直接过渡到国V/VI燃料可能比实现国IV（50ppm）之后再实现国V/VI(10ppm)更具成本效益；
  - o 目前欧洲城区发现欧V重型车在实际路况行驶时氮氧化物排放较高的问题（详见3.2节），可能会削弱这些车辆在空气污染严重区域使用的空气质量改善效益。
  - o 国VI（及国V轻型柴油车）要求装备柴油车颗粒物捕集器，该装置是控制对健康危害最大的柴油车颗粒物的最佳应用控制技术。
- 在过渡期间，避免空气质量进一步恶化是很重要的，要继续依照实施时间表实施标准。若迫不得已，也可以在使用符合国III燃料标准的燃油的情况下实施国IV排放标准，但只有使用国IV燃料(50-ppm)或更佳的燃料，才能全面体现实施国IV标准的效果。
- 在《大气污染防治法》中纳入规定，允许各地区提前实施比全国标准更加严格的标准。只要各城市能够证明其实施的标准至少与全国标准一样严格，就可以提前实施。这一过程对于尽快在有低硫燃料的城市地区引入国VI车辆而言十分关键。
- 利用部分地区拥有低硫燃料的优势，要求实施更加严格的颗粒物标准，迫使新车装备柴油车颗粒物捕集器，实现最大的健康收益。

关于油品标准 (第4章)：

- 环保部应在近期内寻求通过《大气污染防治法》增大权力，制订和管理控制车辆排放的必要油品参数（包括燃料硫含量标准）。
- 力争在今后《大气污染防治法》的修订中，将油品和车辆标准作为一个体系管理。
- 加大环保部在制订与排放相关的燃料质量标准过程中的影响力，包括增加环保部和汽车工业代表在制订油品标准的技术委员会中的席位数，确保制订油品标准时能充分考虑空气质量和排放控制技术提升。
- 通过与美国EPA或其它国家的管理机构合作开展培训合作，逐步建设自身制订油品标准的能力。
- 在争取获得制订与排放相关的油品参数的权力的同时，环保部应考虑支持直接跳跃实施国V油品标准，因为这是清洁燃料发展道路上最具成本效益的途径，并且应力争统一道路和非道路柴油硫含量限值。
- 由于成本是阻碍清洁燃料发展的一个非常重要的因素，环保部应和相关部委联合，寻求方法为石化工业筹措资金来进行低硫化设备或其它燃料品质改善方面的投资，并且应设计过渡计划关闭那些或因技术落后不具备生产低硫燃料的改造价值，或其产品无法在短期内转用于非移动源的小型炼油厂。
- 从长期来说，应与各部委开展讨论改革油价控制政策。

10. Summary of recommendations

The following is a summary of the ICCT's recommendations to the Ministry of Environmental Protection to improve the current vehicle emission control program. These recommendations are discussed in more detail at the end of each relevant chapter.

For new vehicle standards (Chapter 3):

• Consider pathways for the introduction of a future China VI in the near term in conjunction with the provision of lower sulfur fuels (50-ppm is adequate, however 10-ppm is preferable). There are several reasons why leapfrogging directly from China IV to China VI may be advantageous:

o Provides adequate lead time for industry while further closing the gap with the adoption of standards in Europe

o Transitioning directly to China V/VI fuels may be more cost effective than meeting China IV (50-ppm) then China V/VI(10 ppm);

o Current issues with high in-use NOx emissions from Euro V heavy-duty vehicles in urban application in Europe (see Section 3.2) may limit the air quality benefits of these vehicles in the areas most affected by air pollution

o China VI (and China V for light-duty diesel vehicles) will require diesel particle filters, the best available control technology for the control of dangerous diesel particulate matter.

• In the interim, it is important to avoid further air quality deterioration to continue implementing standards according to the adopted schedule. If necessary, China IV can be implemented with current China III fuels but will only deliver its full benefits with China IV fuels (50-ppm) or better.

• Streamline the process for regions to adopt more stringent emission standards ahead of national standards by including provisions in the Air Pollution Prevention and Control Law. Establish the ability for early adoption if cities can prove that the standards are at least as stringent as those in vigor nationally. This process is critical to introduce China VI vehicles as soon as possible in urban areas that have lower sulfur fuel.

• Take advantage of the availability of lower sulfur fuels in some regions to require tighter PM standards that would force diesel particle filters on new vehicles to maximize health benefits.

On fuel standards (Chapter 4):

• In the near term, seek enhanced authority through the "Air Pollution Prevention and Control Law" for MEP to set and regulate fuel parameters necessary to control vehicle emissions (including fuel sulfur levels).

• Seek amendments of the "Air Pollution Prevention and Control Law" to treat fuel and vehicle standards as one system in future revisions.

• Expand MEP’ s role in setting emission-related fuel quality standards, including expanding MEP and auto industry's representation in the technical committee for setting fuel standards to make sure that air quality and advancements in emission control technologies are fully accounted for in setting of fuel standards.

• Gradually build up in-house capacity for setting fuel standards through MEP training collaborations with the US EPA or regulatory agencies in other countries.• While seeking the authority to set and enforce emission-related fuel parameters, MEP should consider supporting a leapfrog to China V fuel standards as the most cost-effective pathway to clean fuels and strive to align onroad and non-road diesel sulfur limits.

• Because cost is one of more important factors hindering progress to cleaner fuels MEP should indentify with partner ministries ways to finance industry's capacity investment on desulfurization units or other costs for fuel quality improvements and a transition plan for closing down small refineries with outdated technology that cannot be cost effectively upgraded to produce lower sulfur fuels or whose products cannot be temporarily diverted to non-mobile source applications.

• In the longer term, initiate discussion among partner ministries on the reform of the fuel price control policy.

关于车辆达标和实施管理方案（第5章）：

- 在用车检测是实施成熟的车辆管理方案的基础，也应当是环保部的终极目标。环保部要想制订这样的长远方案，在短期内应当：

  o 寻求获得明确的授权以执行在用车检测并对不达标车辆予以处罚（包括召回车辆的权力），并制订在用车检测和召回方案；

  o 筹措资金，资金来源包括对车主征收排放费/税或向车辆生产企业征收认证费用，来填补实施管理所需的支出；

  o 寻求获得授权，要求车辆和发动机生产企业根据环保部制订的方法进行在用车和在用发动机测试并将原始数据上报环保部，这些数据可能被用于达标管理方案当中。

- 在争取额外的资源增加自身专业能力的同时，环保部应准备好人力资源用于发展在用车测试项目。

  o 环保部通过与美国EPA和其它管理机构合作开展培训，增强自身在不达标车辆召回方面的管理能力。

- 在提高环保部权威性和筹措资源执行在用车测试的工作逐步开展的同时，现有的管理方案尚存在很多不足之处，环保部可以在近期内通过以下这些成本效益较高的方案进行改善：

  o 提高环保部的技术人员的能力和测试能力，确保认证测试和企业出资进行的COP测试执行良好；建设环保部的测试能力对于发展召回管理方案也很重要，环保部的测试质量决定了生产企业是接受环保部提出召回的要求还是向环保部提出质疑。

  o 在主要城市建立良好的I/M制度，从而找出并维修或淘汰“高排放车辆”并提供宏观数据，帮助环保部更好的确定高排放目标车型来进行在用符合性检测的。应考虑创建基金，保证高排放车辆接受维修或报废；

  o 利用研究机构的技术专长和他们的在用车排放研究数据；

  o 推行其它手段，迫使生产企业遵守排放标准（例如向公众曝光不达标车型/生产企业名单）.

关于油品监督和管理方案（第6章）：

- 环保部应寻求授权，管理与排放相关的油品规格并实施油品标准。

- 筹措资金雇佣合约机构实施全面的油品采样和测试，建设和提高环保部内部的业务能力和技术水平，以便开展和监督管理方案；在近期应开展具体分析，探究可用作支持这些工作潜在的财政资源，包括燃料税、车辆税、车辆登记注册收费和I/M收费。

- 同时，环保部应通过与美国EPA或其它国家的管理机构合作开展培训，逐步构建自身的技术专业能力和管理能力，以便监督油品管理方案的实施。

排放标志和相关管理方案（第7章）：

- 为避免标志被窃或滥用，考虑在在用车标志的显著位置设置车辆特定信息（如车牌号码）。

- 近期（未来5年），环保部可以考虑改革现有的标志系统，以便顺利过渡到加严后的交通限制措施。环保部还应考虑支持消费者宣传教育方案，增强消费者对标志的了解。

- 环保部可以考虑扩展现有的在用车标志的功能，引入售前消费者信息标志，并结合标志实施财税（例如，税收鼓励）或非财税（例如，给低排放车设定指定停车位）鼓励手段。如果环保部考虑采用消费者信息标志来影响消费者的购买决定，实施机构应确保这些标志在车辆销售时让消费者看得到。

On vehicle compliance and enforcement programs (Chapter 5):

• In-use testing is currently the cornerstone of mature vehicle enforcement programs and should be MEP's ultimate goal. To develop such programs MEP should in the near term:

o Seek clear authority to conduct in-use testing and impose penalties for non-compliance (including the ability to recall vehicles) and establish an in-use testing and recall program;

o Raise funds from emissions fee/vehicle taxes on vehicle owners or increased certification application fees on vehicle manufacturers to cover higher enforcement expenses ;

o Seek authority to require vehicle and engine manufacturers to carry out in-use vehicles and engines testing using protocols established by MEP and to provide the raw data results to MEP for possible use in its compliance program.

• MEP should prepare its staff for the development of in-use testing program while MEP seeks additional resources to enhance its in-house expertise:

o Increase in-house proficiency in recall program administration through MEP training collaborations with the US EPA and regulatory agencies in other jurisdictions.

• As progress is made to increase MEP's authority and resources to conduct in-use testing, there are significant gaps in the current program that can be remedied in the near term and cost effectively by:

o Increasing technical capacity and testing capability at MEP to ensure certification tests and industry-funded COP testing are being done properly; establishing MEP's testing capacity and capability is also essential for developing a recall program as manufacturers' acceptance of vehicle recalls – or likelihood to challenge–depends on the quality of MEP's testing;

o Establishing good I/M programs in major cities to identify and eliminate "gross emitters" and provide macro level data to help MEP better target high-emission models for in-use compliance testing. Consider creating a fund to ensure all gross emitters are repaired or scrapped.

o Leveraging the technical expertise in existing research institutes and utilizing data collected from their research on in-use vehicle emissions

o Pursuing other measures to coerce manufacturers to comply with emissions standards (e.g., a "name and shame" campaign to publicize non-compliant models and/or manufacturers).

On fuel inspection and enforcement programs (Chapter 6):

• MEP should seek authority to regulate emission-related fuel specifications and enforce fuel standards.

• Funding should be raised to hire contractors to conduct extensive fuel sampling and testing, and to establish the capacity and technical capability within MEP to develop and oversee the program; detailed analysis should be conducted in the near term to explore potential financial sources include fuel taxes, vehicle taxes, vehicle registration fees or I/M fees.

• Meanwhile, MEP should gradually build up in-house technical expertise and management capacity to oversee the fuel enforcement program through training workshops with the US EPA or regulatory agencies in other countries.

On emissions labeling and related programs (Chapter 7):

• To avoid label theft or misuse, consider displaying vehicle-specific information (such as license plate number) prominently on the in-use vehicle label.

• In the near-term (next five years), MEP may consider a reform of the current labeling system to allow an easier transition to a strengthened traffic restriction program. MEP should also consider introducing supporting consumer educational programs to improve consumer understanding of the labels.

• MEP may consider extending the function of the current in-use labels to pre-sale consumer information labels, and introducing fiscal (e.g. tax incentive) or non-fiscal (e.g.,designated parking space) incentives to combine with the labels. If MEP is considering the introduction of consumer information labels that influence consumer purchase decision, the enforcing agencies should make sure that the labels are made available to consumers at the point of sale.

- 从中长期角度，城市和地区可以不断加严交通限行区设定的排放标准来强化交通限制措施。

- 环保部应在新车上采用温室气体排放标志对消费者进行宣传教育，或修改现有的车辆燃料消耗量标志来达到这一目的。中国应向温室气体排放低的车辆实施鼓励，可考虑结合标志进行。

关于燃料效率和温室气体管理方案（第8章）：

- 环保部应力争获得授权，管理机动车温室气体排放并负责实施管理，包括对不达标行为实施罚款。

- 中国应加严目前对乘用轿车和摩托车实施的管理方案，并在即将出台的标准中对重型商用车设定严格的标准和管理方案。

- 为了实现整体车队的节油和碳减排，中国应调整目前的标准结构设计。这包括将以重量为基础的标准转换为以尺寸为基础的标准，采纳并确保实施企业平均标准，使用连续线性函数确定标准值并替代目前的阶梯形函数结构。

- 保障强有力的实施与严格的标准限值本身同等重要。

- 中国应当以燃料效率或二氧化碳/温室气体排放取代目前的主要以排量财税政策征收基础，即车辆排量，这样能更好的支持燃料消耗量管理和实现整体的碳减排目标：如果环保部考虑采用财税政策来鼓励购买低（常规污染物）排放车辆，就也应将温室气体纳入政策设计，以便利用财税激励实现同时减少常规污染物和温室气体排放，使政策获得最大程度的收益。

关于替代燃料和新能源汽车（第9章）：

- 环保部应提高自身管理能力和专业水平，开展研究来评估各种替代燃料车的环境影响，包括全生命周期排放，为政策制订提供参考。

- 替代燃料车应纳入普通车辆的常规污染物和温室气体/燃料能效性管理框架和财税政策框架。

- 一旦环保部有更强的能力分析燃料的全生命周期环境影响，环保部应考虑采纳低碳燃料标准（LCFS），对不同的燃料设定碳排放标准，并推广使用低碳车用燃料。

- 大体而言，原装（OEM）替代燃料车的发动机和排放性能更好，其长期性能比改造车更有保障。

- 投资基础设施建设应与推广替代燃料车同步发展。

• In the mid- to long- term, cities and regions may strengthen the traffic restriction programs by gradually tightening the requirements for vehicles allowed in the core city areas.

• MEP should introduce GHG emissions labels for new vehicles for consumer education or revise the existing vehicle fuel consumption labeling to serve the purpose. China should also offer incentives for low-GHG emission vehicles.

On fuel efficiency and GHG programs (Chapter 8):

• MEP should seek the authority to monitor and regulate GHG emissions from motor vehicles and enforce these regulations including imposing fines for non-compliance.

• China should enhance the stringency of its current program for passenger cars, motorcycles and adopt a stringent program for heavy commercial vehicles.

• China should adjust the design structure of its current standards, in order to deliver more certain fuel and carbon reduction fleetwide. This includes shifting from weight-based to footprint-based standards, adopting and ensuring the enforcement of corporate average standards, and developing continuous standard curves to replace the current step function structure.

• Strong enforcement is equally important as a stringent standard limits .

• China should replace the current fiscal policies that primarily based on displacement with a CO_2/GHG-based scheme to better support the fuel consumption regulations and an overall carbon reduction goal; as MEP considers providing fiscal policies to encourage purchase of low emission vehicles, the ministry should take into account GHGs in the policy design so as to maximize the benefits of the incentive program in reducing both conventional pollutants and GHG emissions.

On alternative fuel and new energy vehicles (Chapter 9):

• MEP should develop in-house capacity and expertise in evaluating the environmental impacts of various alternative fuel vehicles including life-cycle emissions to inform policy-making

• Alternatively fueled vehicles should be incorporated into the general vehicle conventional pollutant and GHG/fuel efficiency regulatory framework and fiscal policies.

• As MEP develops more capacity in life cycle environmental impacts of fuels, the ministry should consider adopting a low carbon fuel standard (LCFS) that characterizes the carbon profile of various fuels and promotes the use of low carbon vehicle fuels.

• In general, manufactured (OEM) alternative fuel vehicles have better engine and emissions performance, and their longer term performance is more guaranteed than retrofitted vehicles.

• Infrastructure investment should go hand-in-hand with the development and deployment of alternative fueled vehicles.

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