Supplementary Information

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Summary of Supplementary information:

[1 Figure and 1 Table]
[4 Pages including the cover sheet]

Table S1. Supplementary information of tested diesel trucks and diesel quality.

Vehicle No.	Tested place	Model year	Tested year	Emission standard	Diesel quality [a]	
					Fuel standard	Sulfur contents
II-1	Beijing	2006	2013	Euro II	China IV	<50 ppm
II-2	Beijing	2007	2013	Euro II	China IV	<50 ppm
II-3	Beijing	2007	2013	Euro II	China IV	<50 ppm
II-4	Beijing	2008	2013	Euro II	China IV	<50 ppm
II-5	Beijing	2007	2013	Euro II	China IV	<50 ppm
III-1	Beijing	2010	2013	Euro III	China IV	<50 ppm
III-2	Beijing	2008	2013	Euro III	China IV	<50 ppm
III-3	Beijing	2010	2013	Euro III	China IV	<50 ppm
III-4	Beijing	2010	2013	Euro III	China IV	<50 ppm
III-5	Beijing	2012	2013	Euro III	China IV	<50 ppm
IV-1	Guangdong	2009	2010	Euro IV	China III	<350 ppm
IV-2	Guangdong	2009	2010	Euro IV	China III	<350 ppm
IV-3	Guangdong	2009	2010	Euro IV	China III	<350 ppm
IV-4	Beijing	2013	2014	Euro IV	China IV	<50 ppm
IV-5	Beijing	2014	2014	Euro IV	China IV	<50 ppm
IV-6	Beijing	2014	2014	Euro IV	China IV	<50 ppm

Note: [a] In accordance with the requirement of the regulations regarding real-world emissions measurement, market fuel from the certified refueling stations was used and the fuel quality complied with China III or China IV standard. The difference is mostly sulfur content (<350 ppm for China III and <50 ppm for China IV) (AQSIQ and SAC, 2009 and 2013), but the vanadium-based SCR systems have a relatively high tolerance to sulfur content (e.g., up to 350 ppm) (Walker et al., 2004; Jiang et al, 2010).

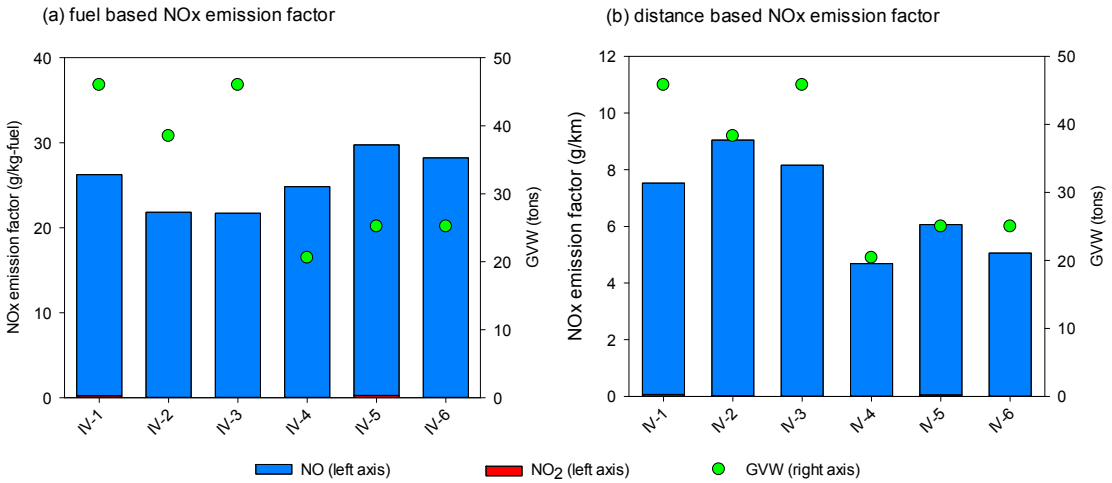

Fig. S1 Weighted fuel-based (a) and distance-based (b) NO_X emission factors for each tested Euro IV HDDT. NO_X is presented as the sum of NO and NO_2, which are also shown separately.

Note: In recent years, individual truck weights in China's truck fleet have significantly increased. Wu et al., (2016) reported that heavier HDDT samples would result in relatively high fuel consumption and distance-based NO_X emission (e.g., Fig. S1 (b)). However, the fuel-based emission factor might eliminate effects of vehicle size (e.g., engine power rating and/or GVW) between each of the tested trucks, as shown as Fig. S1 (a).

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