

Table 5: Definition of emission standards

Standard	NO <sub>x</sub> limits (g/kWh)	Comments
I ECE R.49	18	13 mode test
II US-1990	8.0	Transient test
III US-1991	6.7	Transient test

Table 6: Heavy-duty diesel engine technologies, emission performance, a/ and costs for emission standard levels

Standard	Technology	NO <sub>x</sub> reduction estimate (%)	Additional production cost (1984 US\$)
I	Current conventional direct injection diesel engine	-	-
II b/	Turbo-charging + after-cooling + injection timing retard (Combustion chamber and port modification) (Naturally-aspirated engines are unlikely to meet this standard)	40	\$115 (\$69 attributable to NO <sub>x</sub> standard) c/
III b/	Further refinements of technologies listed under II together with variable injection timing and use of electronics	50	\$404 (\$68 attributable to NO <sub>x</sub> standard) c/

a/ Deterioration in diesel fuel quality would adversely affect emission and may affect fuel consumption for both heavy and light duty vehicles.

b/ It is still necessary to verify on a large scale the availability of new components.

c/ Particulate control and other considerations account for the balance.