The environmental Protection agency (EPA) set progressive emission standards for all types of trains, with 4 tiers of increasing standards.

**Why TIER IV?**

- Less emission of NOx, CO, and Other Pollutant (fulfills EPA regulations)
- More cost efficient than the other options (assuming that maintenance cost is the same for all option)
- Increased carrying capacity

**Possible Solutions:**

- After treatment on Tier II
- Buy Tier III
- Buy Tier IV (after selling Tier II)
- LNG as alternative fuel

**LIST OF FACTS**

- Less emission of NOx, CO, and Other Pollutant (fulfills EPA regulations)
- More cost efficient than the other options (assuming that maintenance cost is the same for all option)
- Increased carrying capacity

**Cost Breakdown**

**TIER IV vs After-treatment system**

**SELL ALL TIER II and BUY TIER IVs**

Cost = + USD 75,000,000.00 (selling the whole fleet) – USD 200,000,000.00 (buying the exact same number of locomotives) = USD 125,000,000.00

**INSTALL AFTER-TREATMENT SYSTEM ON EXISTING TIER IIs**

Cost = 50 x USD 750,000.00 (UPGRADING TIER II → III, WHOLE FLEET) + 50 x USD 100,000.00 (INSTALLING AFTER TREATMENT, WHOLE FLEET) = USD 42,500,000.00