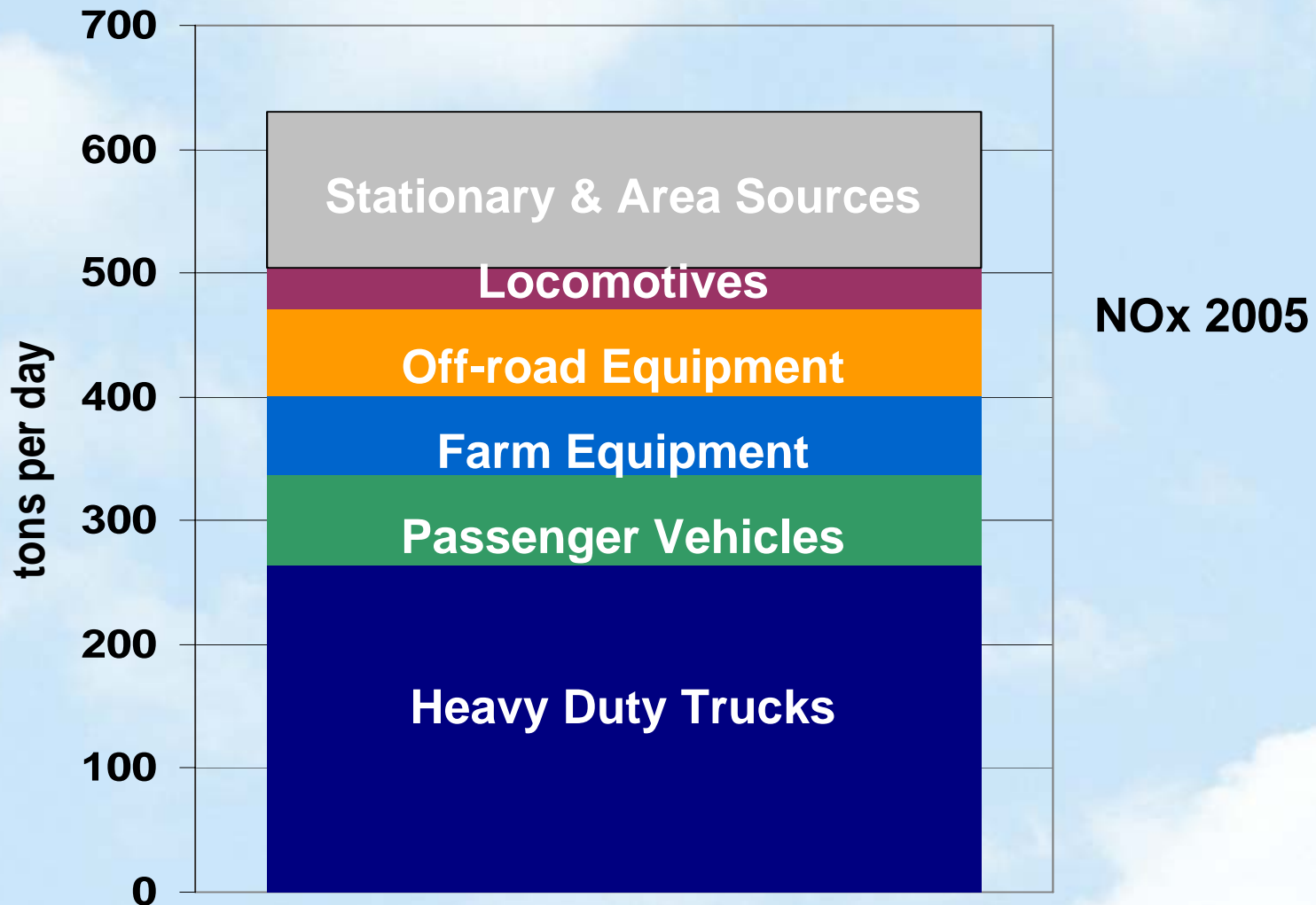


# Valley Smog Formation

- Smog Formation
  - Oxides of Nitrogen (NO<sub>x</sub>) +
  - Volatile Organic Compounds (VOC) +
  - Sunlight and Heat
- Central California Air Quality Studies – \$68M
  - Reduce VOC – some benefit
  - **To meet health std. – Reduce the NO<sub>x</sub>**
  - Goal is 160 tons/day NO<sub>x</sub>

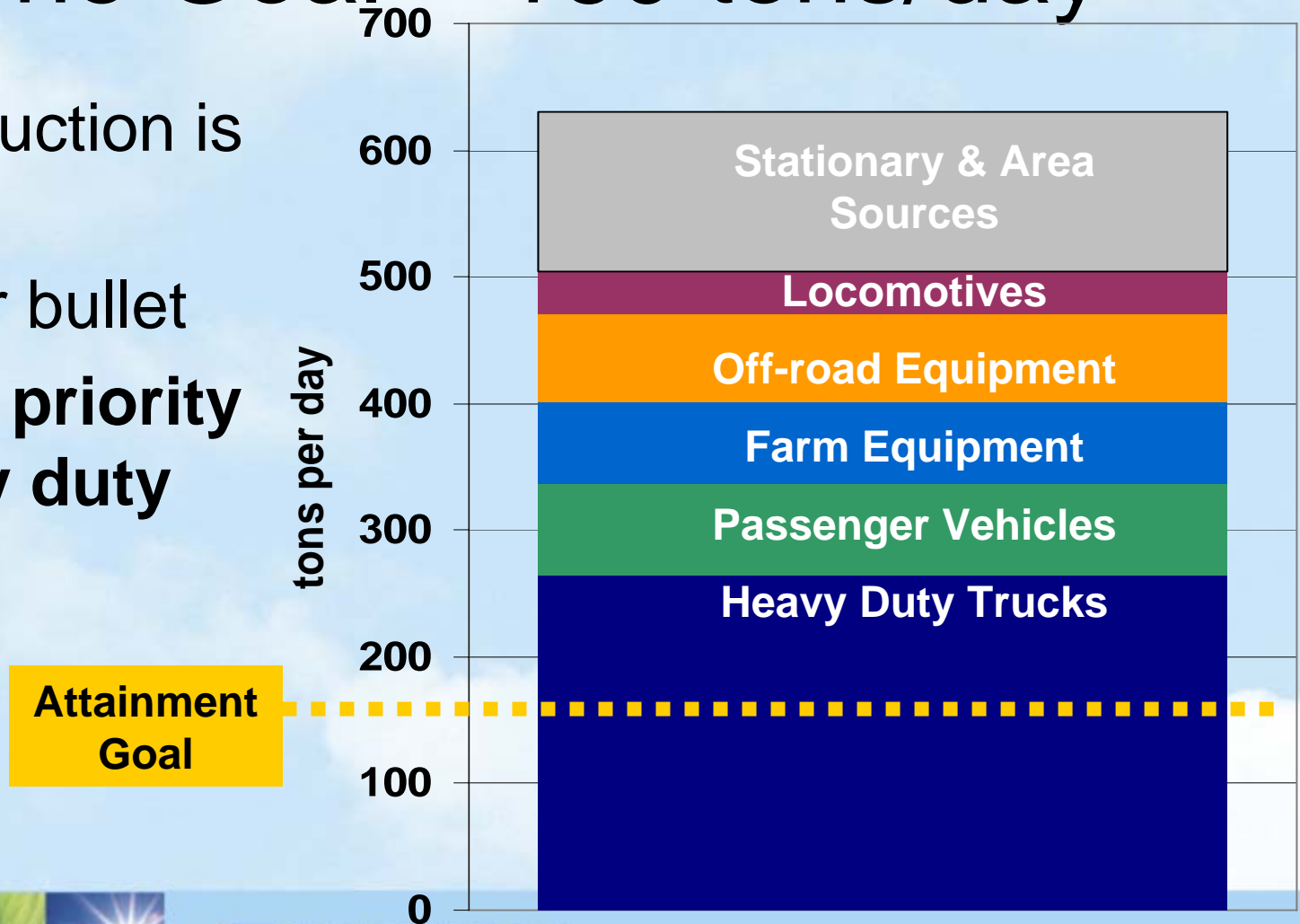


# Where does NOx come from?



# The Goal – 160 tons/day

- 80% reduction is required
- No silver bullet
- **Highest priority is heavy duty trucks**



*The white line is the life line  
to a nation...*

*- Merle Haggard, 1978*



# What can be done to reduce heavy-duty truck emissions?

- Fortunately there are things that can be done
  - Replace trucks – New trucks have lower emissions
  - Repower trucks – New engines have lower emissions
  - Retrofit trucks with new technology
  - Change the way goods are moved

