

# Design Project II – GE Locomotive

This project was similar to design project I in the way that we went through the design process. In this project we had to solve a problem where GE's current locomotives produce enough smog to create a large public outcry of complaints. GE asked us to find the best alternative to their problem. GE still had to transport so much cargo from point A to point B, but we had to find the most cost effective, smog efficient method. Those were only two of the criteria we weighed using the rating method. We considered buying newer and nicer locomotives, we considered transporting bur air, truck and sea. We used the step in the design process to find our best alternative, however we didn't have the resources to move past the prototype step. Instead we learned how to create and effective poster and presentation and we presented our ideas in front of our peers.



Suggestions have been made to address locomotive emissions (i.e. smog)

1) Upgrade the locomotive fleet to meet more recent emissions guidelines set by the EPA. A few options may exist to meet the new guidelines

- Sell existing fleet and purchase new locomotives
- Upgrade fleet with exhaust after-treatment hardware
- Utilize alternate fuels (Biodiesel, CNG, LNG, etc) which may produce less Nox

2) Alternate freight shipping

- By sea
- By air
- By ground- trucking

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Research: 5 Teaching: 3 Service: 2 (Determined by DMs)

$$\text{Candidate 1: } \frac{5}{5+3+2} \times 8 + \frac{3}{5+3+2} \times 4 + \frac{2}{5+3+2} \times 3 = 5.8$$

$$\text{Candidate 2: } \frac{5}{5+3+2} \times 4 + \frac{3}{5+3+2} \times 5 + \frac{2}{5+3+2} \times 3 = 4.1$$

$$\text{Candidate 3: } \frac{5}{5+3+2} \times 6 + \frac{3}{5+3+2} \times 6 + \frac{2}{5+3+2} \times 5 = 5.8$$

$$\text{Candidate 4: } \frac{5}{5+3+2} \times 2 + \frac{3}{5+3+2} \times 8 + \frac{2}{5+3+2} \times 4 = 4.2$$

$$\text{Candidate 5: } \frac{5}{5+3+2} \times 7 + \frac{3}{5+3+2} \times 3 + \frac{2}{5+3+2} \times 2 = 4.8$$

Candidates 1& 3 are best, and go to next round

