GHG Emissions Projection

The GHG emissions associated with long-haul trucking were projected for two scenarios: one considering fuel efficiency improvement projections made by the International Council on Clean Transportation (ICCT) for Class 8 trucks, and the other incorporating the additional fuel efficiency that Class 8 trucks can achieve with Locomation's Autonomous Relay Convoy (ARC) technology in conjunction with the efficiency measures that the ICCT anticipates being adopted across the fleet. The projections cover the years 2022 to 2030.

▶Baseline Scenario: This scenario considers improvements in the fuel consumption of Class 8 trucks made by the ICCT. Under this projection, the fuel consumption by 2030 will be approximately 10.2 miles per gallon (mpg)[1]. This is slightly below the 10.9 mpg projected for 2030 by the U.S. Department of Energy (DOE)[2].

▶ Locomation Scenario: This scenario considers that Locomation's ARC will gradually be adopted in 10% of Class 8 trucks by 2030 in 68 routes across the United States (as projected by Locomation).

Assumptions

The projection considers the following assumptions:

- Locomation's ARC will be deployed in 68 highway segments across the United States, totaling 53,100 highway kilometers.
- Class 8 trucks represent approximately 67% of all U.S. trucking (metric) ton-kilometers.
- Class 8 trucks transport between 1.4 and 1.6 trillion ton-kilometers each year between 2022 and 2030.
- The average fuel economy of Locomation-enabled trucks is projected to reach 11.02 mpg by 2030.

---
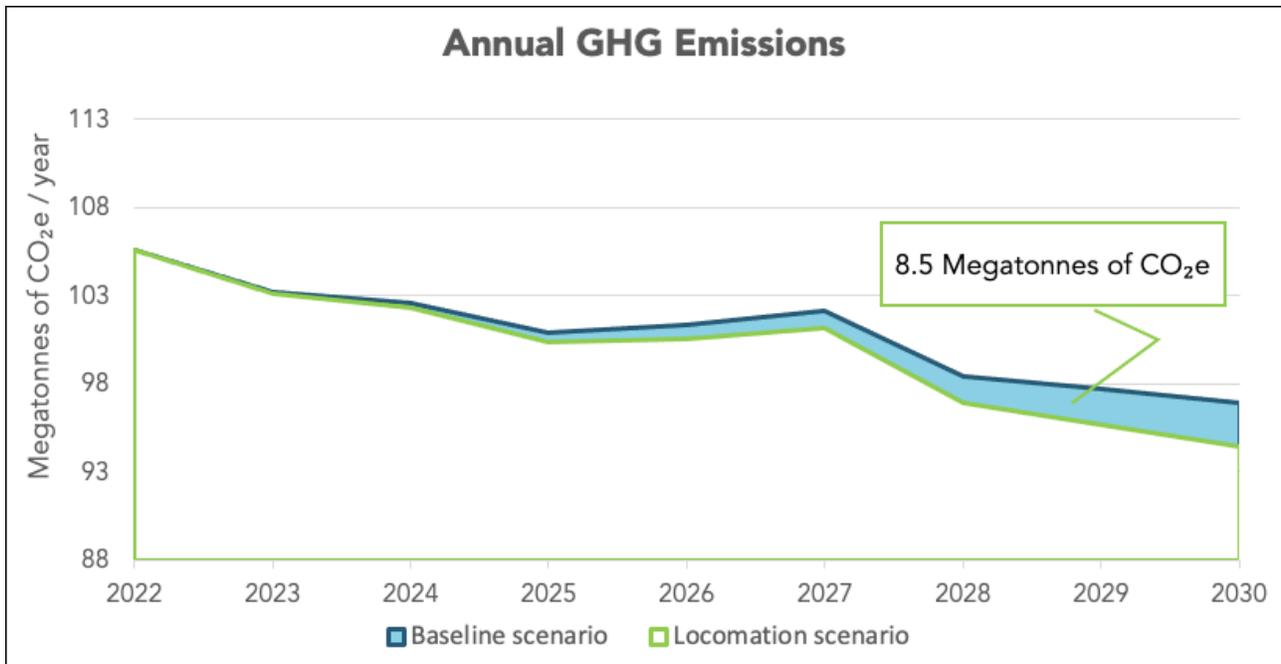
[1] Fuel Efficiency Technology in European Heavy-Duty Vehicles: Baseline and Potential for the 2020–2030 Time Frame, The International Council on Clean Transportation, 2017 (link)
[2] DOE Advanced Truck Technologies, U.S. Department of Energy, 2019 (link)

Estimated GHG Savings

Locomation projects that each ARC-enabled truck will deliver as many ton-kilometers as 2 to 3 conventional Class 8 trucks; under this assumption, each ARC-enabled truck entering service in 2022 could save 138 metric tons of CO_2e annually. The cumulative GHG emissions avoided due to the projected deployment of Locomation's ARC technology is estimated to exceed 8.5 million tons of CO_2e over the 9 years estimated, which is equivalent to the carbon sequestered by 10.5 million acres of U.S. forest during a year (approximately 3 times the size of the state of Connecticut), or removing 2 million passenger vehicles from the road during 1 year. Considering business as usual (BAU) conditions, where no improvements were made to Class 8 trucks in the next 9 years, the GHG emission reduction resulting from the adoption of Locomation's ARC system is estimated to be 9.9 million tons of CO_2e.

Baseline Scenario*

Baseline Scenario* &
LOCOMATION

10.5 million
acres of U.S. forest during a year**

Roughly the size of 3 Connecticuts

*Considering technology improvement projections made by the International Council on Clean Transportation

**GHG savings due to the projected deployment of Locomation's ARC technology are equivalent to the carbon sequestered by 10.5 million acres of U.S. Forest during a year