

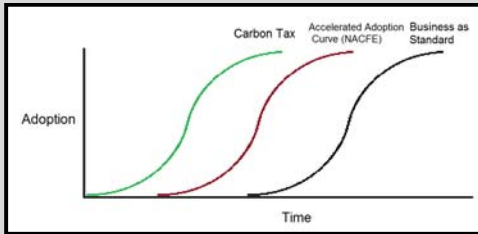
# Carbon Tax and Trucking Efficiency Tech.

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## The Problem

With an increasing number of countries taking action against climate change and the growing attention among consumers and industry leaders, carbon regulations and taxation are critical debates for government officials.

Per the EPA, 27% of the 2015 total U.S. greenhouse gas emissions was caused by transportation and over 90% of the fuel used in transportation is petroleum based. There is a need for transportation firms to consider reducing these emissions and increasing efficiencies.



## The Project

The purpose of this project is to project the influence of a carbon tax on the adoption curve of fuel saving technologies for motor carriers through a cost/benefit analysis. This project brings in carbon taxation levels and estimates from Ireland, Chile, and Sweden and applies them to diesel fuel prices in the United States. The project also uses data on these technologies from TruckingEfficiency.org and the NACFE fuel study. With new tax influences on diesel, we can estimate the benefit of each of these technologies with new industry costs.

## Estimated Fuel Cost

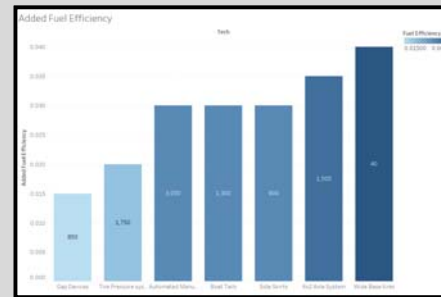
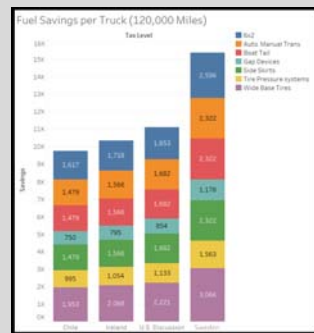
	Chile	Ireland	U.S. Discussion	Sweden
Carbon Tax (Dollar/Metric Ton)	\$ 5.00	\$ 20.00	\$ 40.00	\$ 150.00
Estimated Increase to Diesel	\$ 0.05	\$ 0.20	\$ 0.41	\$ 1.52
Estimated New Price	\$ 2.58	\$ 2.73	\$ 2.94	\$ 4.05

## Benefit / Added Cost

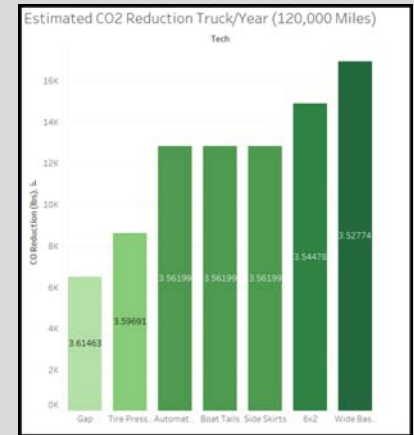
Tech	Fuel Efficiency	Cost
6x2 Axle System	3.50%	1500
Wide Base tires	4%	40
Tire Pressure systems	2%	1750
Automated Manual Trans	3%	3000
Side Skirts	3%	900
Boat Tails	3%	1300
Gap Devices	1.50%	850

## Number of Years for Payback

	Chile	Ireland	U.S. Discussion	Sweden
6x2	0.93	0.87	0.81	0.58
Wide Base Tires	0.02	0.02	0.02	0.01
Tire Pressure systems	1.76	1.66	1.55	1.12
Auto Manual Trans	2.03	1.92	1.78	1.29
Side Skirts	0.61	0.57	0.53	0.39
Boat Tail	0.88	0.83	0.77	0.56
Gap Devices	1.13	1.07	1.00	0.72
ALL	1.05	0.99	0.92	0.67



## Sustainability

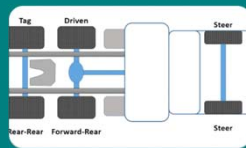


## Outcome

The higher the carbon tax rate, the shorter the payback periods are for these technologies. Though these technologies will increase fuel economy today and should be adopted into fleets, a carbon tax would increase the monetary advantage of using these devices and an increase in adoption would be expected. Early adopters will have an advantage if these regulations come into effect.



Wide Base Tires



6X2 Axle Systems



Trailer Side Skirt



Tire Pressure Monitoring



Boat Tail



Automated Manual Trans