
!Hybrids Saves the Planet!
Formulated by ~Abrielle Givens

What are Hybrid Cars?

Hybrid cars are vehicles that pair an electric motor and a battery with an internal combustion engine. A combustion engine is a engine that burns gasoline. These cars are hardwired for better fuel economy and lower emissions. Hybrid cars can capture kinetic energy typically released as heat during braking and convert it back into electricity. Which will boost the engine’s performance allowing it to be more efficient.

GOAL

My goal is to show how implementing hybrid cars into our community reduces CO_2 emissions by 100,000 lbs in 10 weeks while saving money and encouraging people to switch to hybrid vehicles.

Key Variables

Variable Name	Unit of measure
Number of hybrids sold per week	**Cars/week**
Number of hybrid cars	**Cars**
Number of gasoline cars.	**Cars**

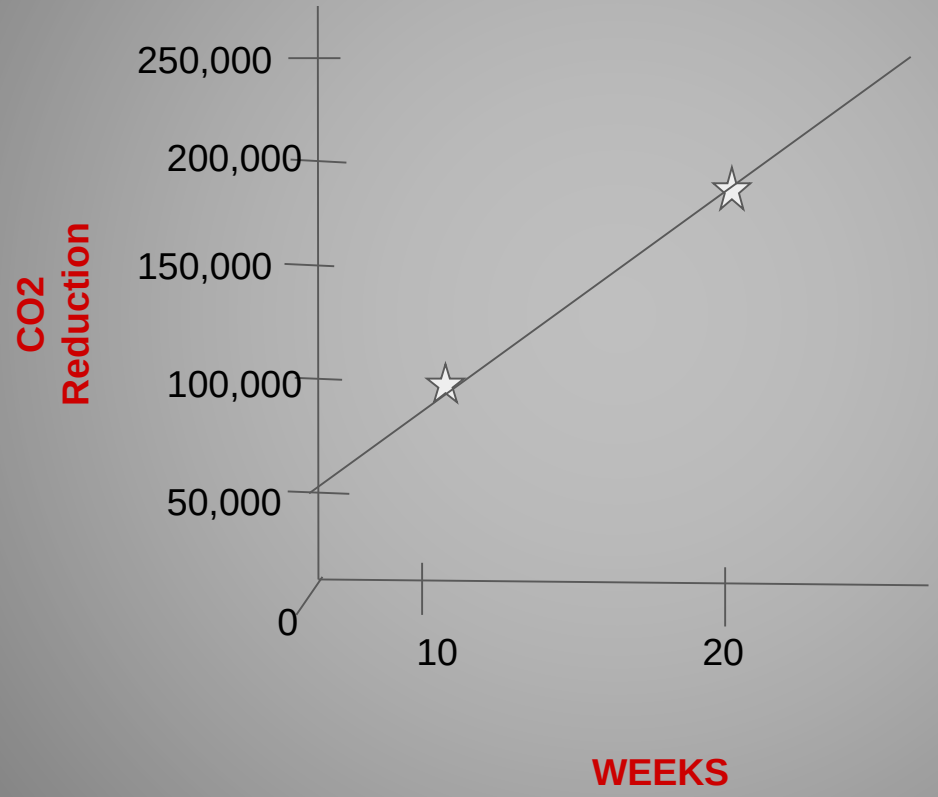
Key Stocks

Number of hybrid cars is the key stock in my system because as the number of hybrid cars grow, so does the amount of CO2 emissions that are reduced. If I am successful in growing the number of hybrid cars rapidly, they may become more popular over time and lead to even more emissions reductions.

Graph

About 5.4 million hybrid cars have been sold in the us. In July of 2021 about 31,912 hybrid cars were sold to people in Illinois. Since my goal is to reduce CO2 emissions by 100,000lbs in 10 weeks, I will expand my graph to 20 weeks so I can see the impact of my project over a longer time period. There are 12.7 million people in illinois, and about 31,912 hybrid cars sold in one month. I would need to sell 989 cars in 10 weeks to reduce CO2 emissions by 100,000 lbs.

Graph Continued



Key

This graph assumes that 989 hybrid cars will be sold at each 10 week increment.

Equations

Equation 1~ 11,435 co2/year (regular car) divided by 52 weeks/year= 219.90 co2/ week for a gas car.

Hybrid cars emit 46% less co2 than regular cars

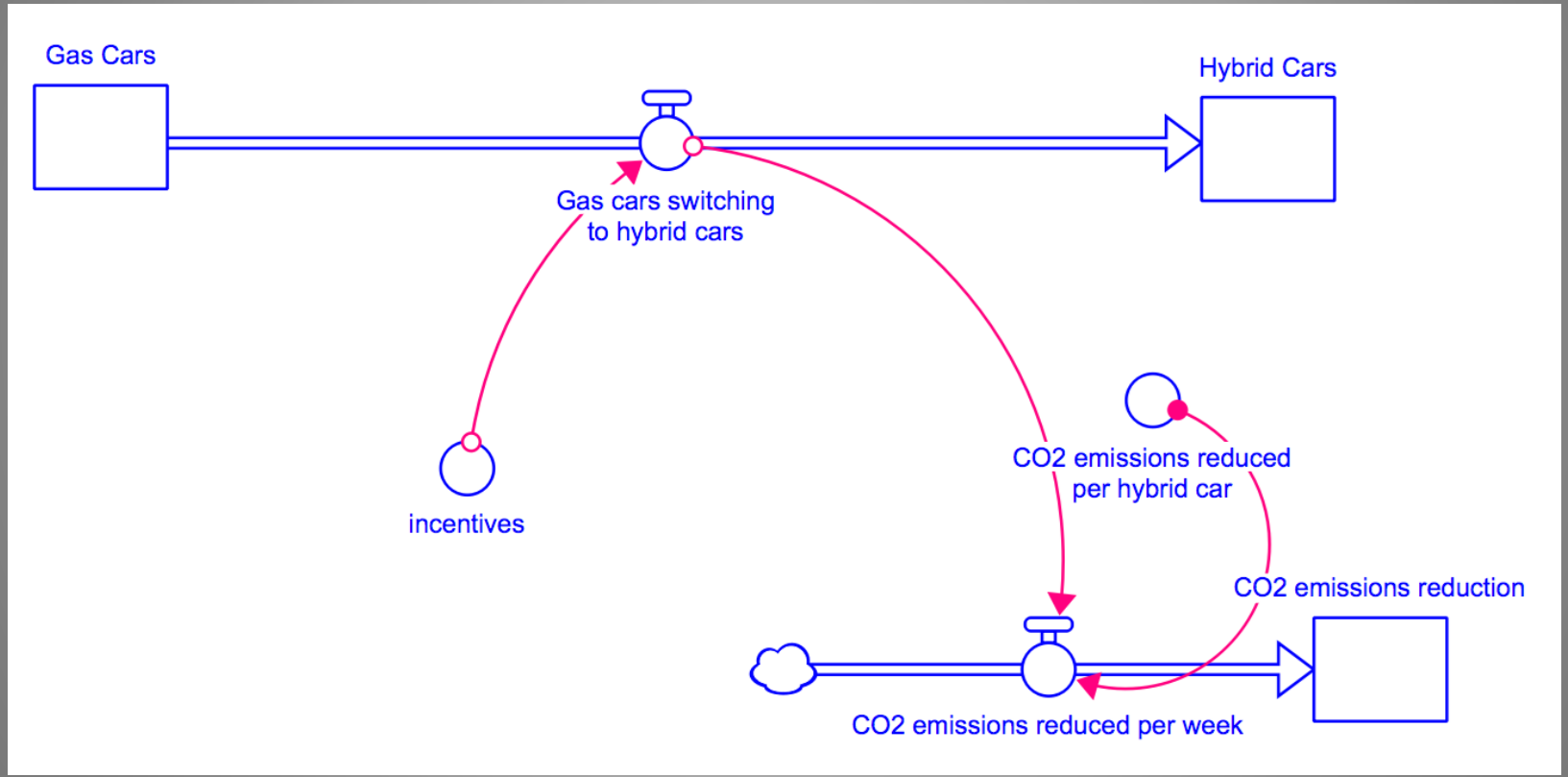
Equation 2~ 219.90 (regular car co2/week) x .46(percent co2 is decreased by hybrid) =101.15 which is the amount of co2 lbs less for a hybrid car.

Equation 3~ 100,000 ÷ 101.15= 988 hybrid cars that needs to be sold in 10 weeks.

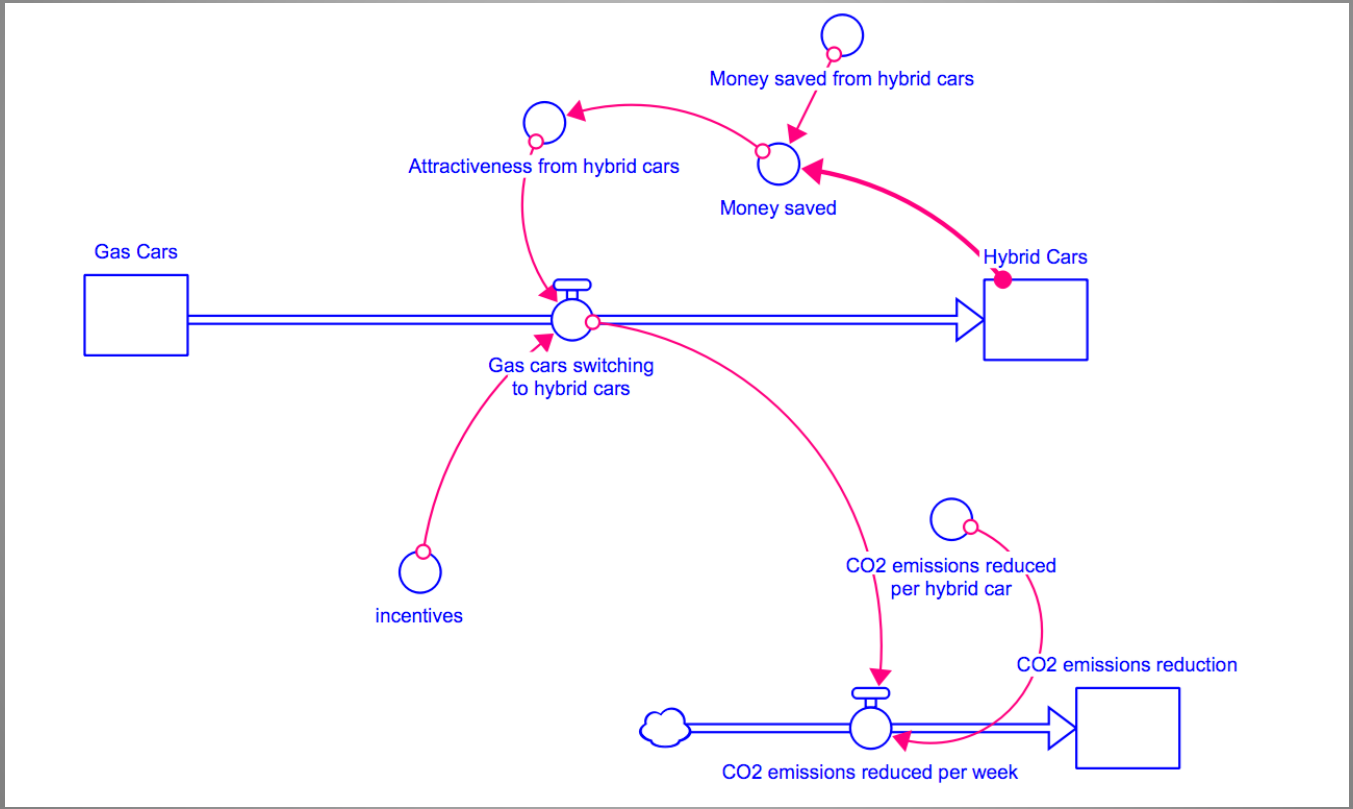
Stock Flow Diagram

Since my key stock is number of hybrid cars (cars) switching cars (cars/week) is the inflow. The unit measure for time is weeks and the start and stop time is 1 and 20 weeks. . To quantify the Cumulative CO2 emissions Reduced, I need to first determine CO2 emissions reduced per hybrid vehicle.

Stock diagram



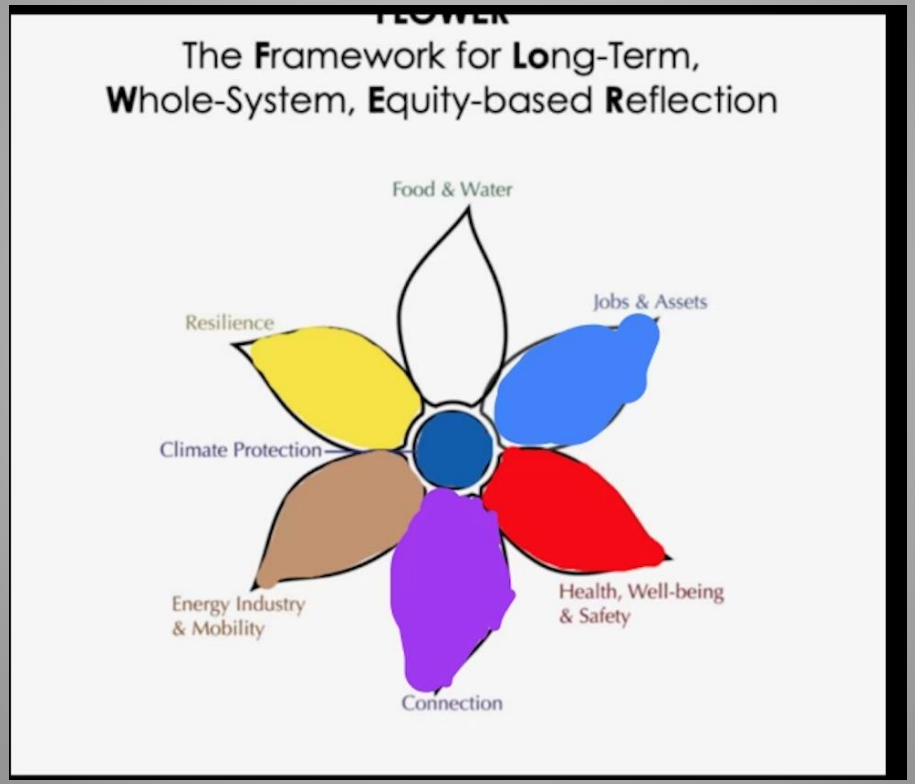
Feedback loops



FLOWER

Resilience
People can survive and thrive

Energy Industry & Mobility
Hybrid cars would benefit us by being able to transport us without polluting an obsessive amount of CO2



Jobs & Assets
Economic benefits ...Hybrids help people save more money

Health well-being & safety
Hybrids help keep people safe by reducing CO2 emissions.

Connection
This connects people with nature and its hybrid related because hybrids are safer for the environment due the lack of fuel use.

Conclusion

In conclusion this is a good solution to reduce CO_2 gas emissions.

About 31,000 hybrid cars were sold last month in Illinois. By increasing that number just 989 more over a 10 week period CO_2 emission would decrease by 100,000 lbs.

People have great incentives to purchase a hybrid due to potential tax breaks, possible lower insurance rates and reduced cost on maintenance and gas. My plan is to better inform the public how much money they could save by driving a hybrid to encourage increased hybrid car sales.

Resources I utilized

https://www.cyberdriveillinois.com/departments/vehicles/statistics/electric/electric071521.pdf

https://www.drawdown.org/solutions/hybrid-cars

http://www.usapopulation.org/illinois-population/

https://afdc.energy.gov/vehicles/electric_emissions.html

https://www.climateinteractive.org/ci-topics/multisolving/flower/