

Appendix B – Potential Effects of Increasing Fuel Economy on Fuel Tax Revenue

The following charts show the potential effects of various fuel economy assumptions on Minnesota state fuel excise tax revenue. Six scenarios were chosen for analysis to show a range of possible future passenger vehicle fleets. Each scenario was then considered under both growing and decreasing travel assumptions.

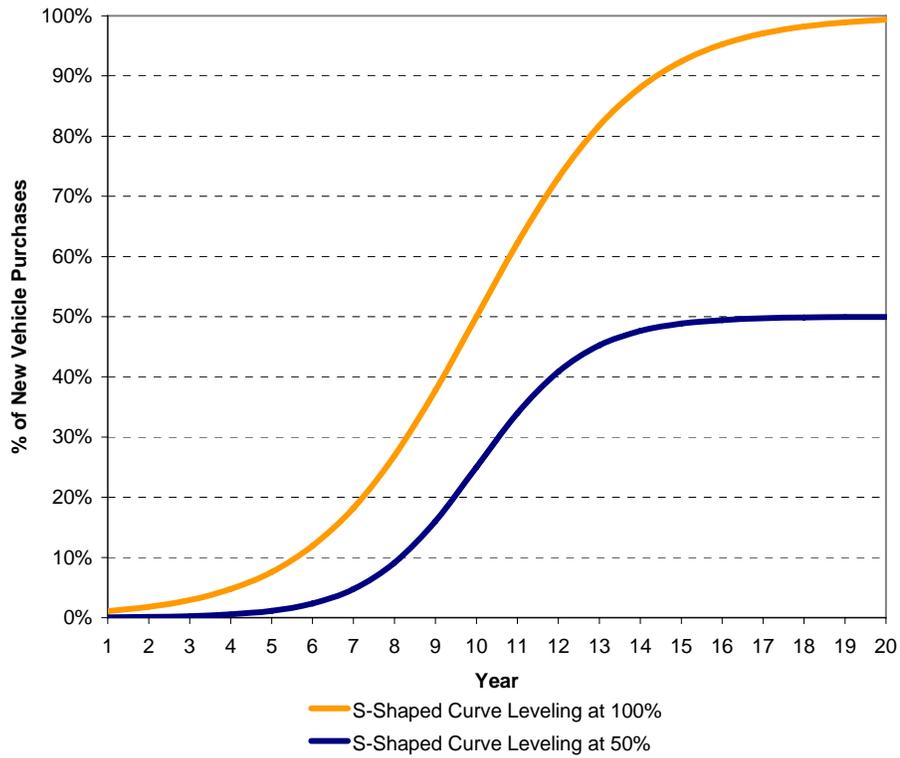
Scenarios:

1. Fuel economy follows current CAFE standards set in 2007, which call for a corporate average fuel economy of 35 miles per gallon by 2020.
2. Fuel economy increases at the rate implied by the new proposed CAFE standards of 35.5 miles per gallon by 2016.
3. Plug-in hybrid vehicle (PHEV) adoption rate increases annually before leveling at 50%. The adoption pattern is assumed to follow an S-shaped curve, in which the percentage of new vehicles that are PHEV increases slowly at first, gradually becoming more steep before leveling off.
4. Electric vehicle adoption rate increases annually before leveling at 50%. The adoption pattern is assumed to follow an S-shaped curve, in which the percentage of new vehicles that are electric increases slowly at first, gradually becoming more steep before leveling off.
5. Plug-in hybrid vehicle (PHEV) adoption rate increases annually before leveling at 100%. The adoption pattern is assumed to follow an S-shaped curve, in which the percentage of new vehicles that are PHEV increases slowly at first, gradually becoming more steep before leveling off.
6. Electric vehicle adoption rate increases annually before leveling at 100%. The adoption pattern is assumed to follow an S-shaped curve, in which the percentage of new vehicles that are electric increases slowly at first, gradually becoming more steep before leveling off.

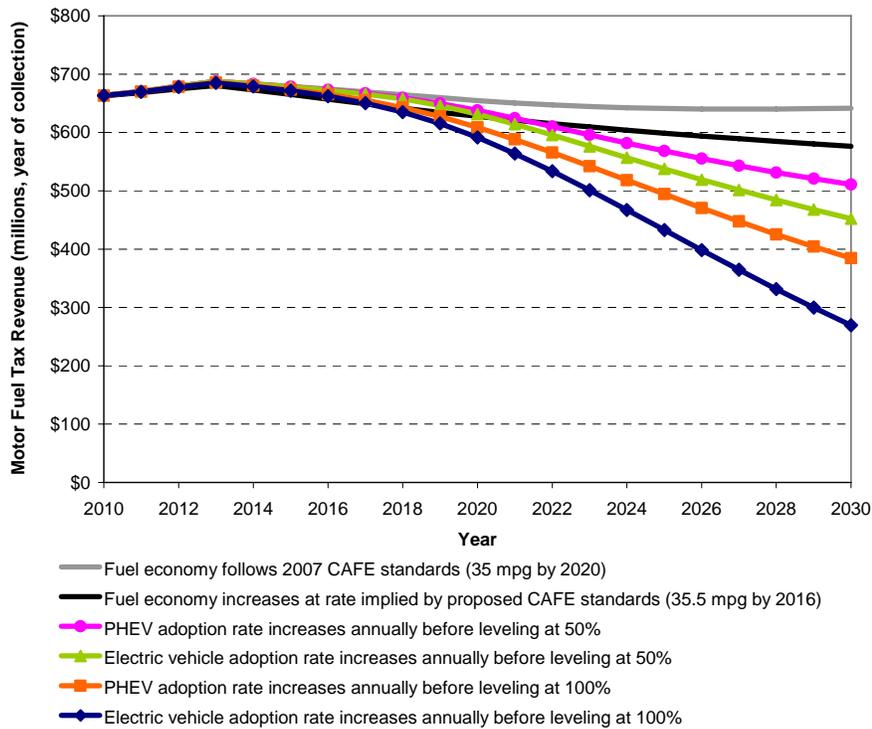
Key assumptions used in the analysis include:

- Gas tax remains at \$0.285 per gallon starting in 2013
- Revenues exclude taxes on diesel and other fuels
- Rate of new vehicle purchases is 5%
- Fleet grows at a rate of 0.8% annually due to population growth
- PHEVs are assumed to have an average fuel economy of 100 miles per gallon

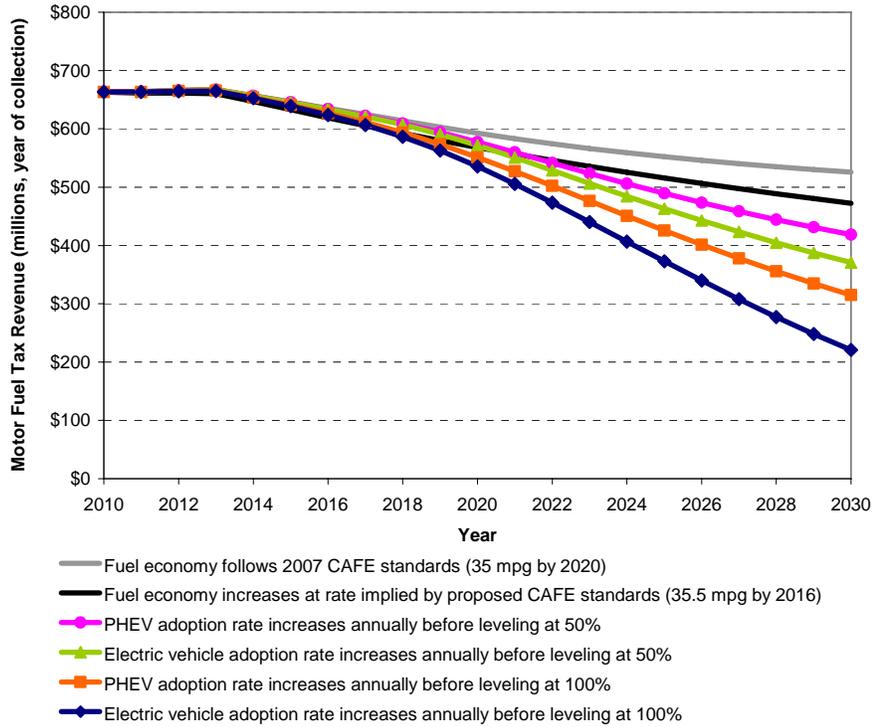
Adoption Curves



Total Vehicle Miles Traveled Increases Annually at a Rate of 1%



Total Vehicle Miles Traveled Remains Constant



Total Vehicle Miles Traveled Decreases Annually at a Rate of 1%

