GHG Benefits of the Consumer and Fuel Retailer Choice Act

- **Over the next 10 years, summer use of E15 can save between 7 million and 10.4 million metric tons of CO2 equivalent GHG emissions.**
- **The savings are equal to taking 1.4 million to 2.2 million cars off the road over the 10-year period.**
- **If this legislation encourages more U.S. fuel retailers to offer consumers higher ethanol blends, the greenhouse gas emission savings will increase.**

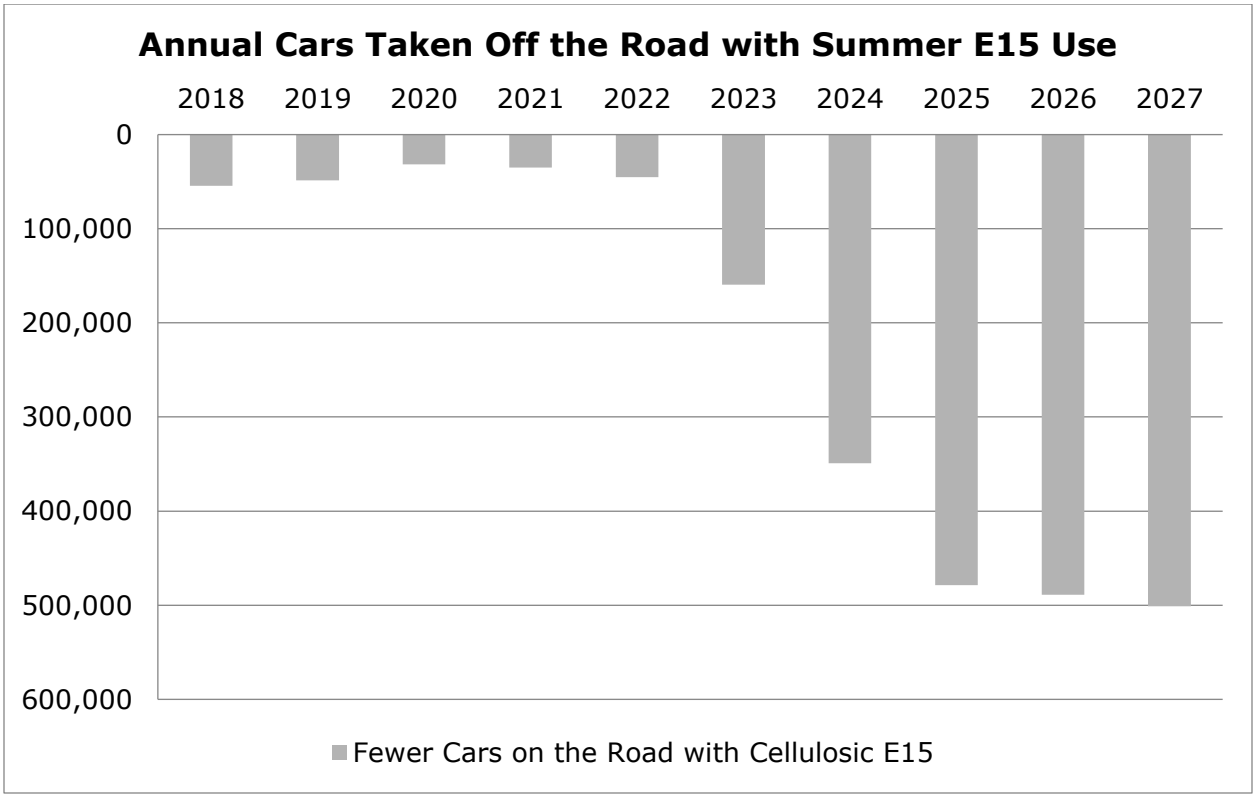
Gasoline evaporation contributes to ozone formation. Under current law, evaporative emissions from gasoline are limited during summer months, from June 1 through mid-September to prevent ozone formation. In primarily large, urban areas that are not in attainment of National Ambient Air Quality Standards (NAAQS) evaporative emissions and gasoline are even more strictly regulated.

Ethanol burns cleanly, decreasing engine tailpipe emissions. The standard gasoline blend containing 10 percent ethanol (E10) therefore earns a small waiver of the measure of gasoline volatility (Reid vapor pressure, or RVP) that relates to evaporative emissions limits. Fifteen percent ethanol (E15) blends reduce both evaporative and tailpipe emissions compared to E10 but don't qualify for the waiver because Congress's 1990 amendments to the federal Clean Air Act specify E10.

The Consumer and Fuel Retailer Choice Act of 2017 will extend E10's RVP waiver to mid-range ethanol blends, enabling gas stations to sell E15 during summer months. In addition to reducing tailpipe emissions, E15 use will reduce greenhouse gas emissions (GHG) by displacing additional fossil fuel use.

Over the next 10 years (2018-2027), summertime use of E15 can save a minimum of 7 million to 10.4 million metric tons of CO2 equivalent GHG emissions.

The savings are equal to taking 1.4 million to 2.2 million cars off the road over the 10-year period.



In calculating this estimate, BIO developed a baseline scenario of transportation fuel use from the U.S. Energy Information Administration's (EIA) 2017 Annual Energy Outlook. EIA projects transportation fuel use to fall steadily between 2018 and 2027. EIA also projects ethanol use in transportation to decline, but at a slower rate than gasoline use. In EIA's annual projections, reported gasoline use represents E10, the average fuel blend sold in the United States. The agency also expects use of E85 blends (51 to 83 percent ethanol) in flex fuel vehicles to increase, particularly after 2020.

EIA does not publish estimates of E15 use. Nevertheless, the agency estimates increased use of ethanol in transportation fuel between 2018 and 2027 that is not accounted for in its projections of gasoline (E10) and E85 use. This additional ethanol use is assumed to represent mid-range blends such as E15 within overall gasoline use.

To model the impacts of allowing summertime use of E15 and other mid-range blends, BIO calculates EIA's projection of additional ethanol use to increase slightly and to displace gasoline blendstock. EIA's projection of ethanol use not accounted for as E10 or E85 is increased by a factor of 1.4 to represent the additional 3.5 months (June-mid-September) during which mid-range ethanol blends currently are not sold. Gasoline blendstock use is decreased by an equivalent amount.

Greenhouse gas emissions for each fuel type are calculated using well-to-wheels estimates (WTW) from Argonne National Labs' Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model (GREET1.2016). Ethanol from corn stover, switchgrass and miscanthus have lower WTW scores than corn ethanol. The low end of the range of greenhouse gas savings presented in this study is calculated by estimating all additional ethanol use to come from corn; the high end of the range represents use of corn stover ethanol.

If this legislation encourages more U.S. fuel retailers to offer consumers mid-range ethanol blends, the greenhouse gas emission savings will increase. The legislation could encourage fuel retailers to install blending equipment and more aggressively market mid-range ethanol and E85 blends, resulting in additional ethanol use year round.