

# *Glacial Lakes Energy E30 Challenge*

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## **What is the E30 Challenge?**

For years Watertown, SD has had multiple blender pumps at retail locations, which offer the consumer the choice of gasoline blended with 10% (87 octane), 20%, 30% and 85% ethanol. Thousands of consumers have taken control of their fueling decisions, using blends that are appropriate for their vehicles. The [E30 Challenge](#) was a community effort educating, promoting, and motivating consumers to consider use of higher blends of ethanol with the focus on 30% blends in their existing vehicles. Our team then took the next step proving the positive results we've seen for years in the real world. Through this effort we educated the community on the benefits of a Premium blend of 94 octane fuel that is lower cost per gallon than regular fuel, runs great in your car, creates local jobs, strengthens energy independence, and cleans our air.

In Watertown, SD, both Flex Fueled Vehicles (FFV's) and non-flex vehicles have benefited from this Premium fuel option. Local dealerships and independent auto repair shops have no reported issues associated with higher blends. This paper discusses the evaluation of consumers fueling non-flex fuel vehicles with three consecutive tanks of E30 compared to three consecutive tanks of E10. We tracked a number of factors using the same data loggers that the EPA uses. These efforts resulted in a compelling increased awareness and ongoing discussions by the local community regarding how fueling their *non*-FFVs would impact drivability and fuel efficiency with mid-level ethanol blends as an option to provide a high octane source of fuel while reducing toxic emissions.

We reviewed vehicle performance and data logger results on 40 random vehicles and observed:

1. Modern vehicles that filled with E30 could adapt to higher octane to improve performance and increase available power.
2. All vehicles tested adapted to E30 staying within the OEM computer calibration range.
3. No difference in average MPG with smaller engines showing the best response.
4. Savings of \$.0137 per mile with a projected annual savings of over \$200 per vehicle.
5. No check engine lights as a result of using E30.

## **Future Automotive Industry Demand**

Octane is a key element in further advancement of fuel efficiency. It is best described as resistance to premature combustion under high temperature and pressure in the engine combustion chamber. Most fuel today is E10 and only 87 octane. E30 removes those limitations by providing 94 octane fuel at a lower cost. Further gains in fuel efficiency will require higher octane in our fuel supply. E30 is 94 octane and will enable current and future developments such as increased compression ratios and turbo charging like that of Ford's EcoBoost technology to increase fuel efficiency. When denatured ethanol is splash blended (simply added) with commercially available E0 or E10 to make E30, it is found to burn cleaner, reducing toxic tailpipe emissions.

Watertown lays claim to the blender pump capital of the US with 40 blender pumps in eight locations across a population of 22,000. This infrastructure allows for a greater consumer experience leading to increased trial and acceptance of mid-level blends. E30 is increasing in popularity and availability in small towns and community fueling stations across eastern SD and MN. The State of SD and the South Dakota Farmers Union