



Minnesota State Light Vehicle Fleet Sustainability Benchmarks FY 2018

Minnesota Statutes 16C.137, Subdivision 2 Report
2/12/2019

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Purpose

This report on the sustainability benchmarks for state fleet vehicles is required by M.S. 16C.137 Subd. 2. To promote energy conservation, State agencies are to examine their vehicle fleets, fuel needs and best practices for using Information Technology (M.S. 16C.137 Subd. 1). Specifically, when considering the transportation needs of personnel carrying out professional duties, State agencies are to:

- when feasible, ensure that state fleet vehicles:
 - use cleaner fuels
 - have fuel efficiency ratings that exceed 30 miles per gallon (MPG) for city usage or 35 miles per gallon for highway usage
 - are powered solely by electricity;
- increase use of renewable transportation fuels, including ethanol, biodiesel, and hydrogen from agricultural products; and
- increase use of Web-based Internet applications and other electronic information technologies to enhance the access to and delivery of government information and services to the public, and reduce the reliance on the department's fleet for the delivery of such information and services.

An enterprise Fleet Mission Statement was developed by the Fleet Council and Fleet Sustainability Workgroup (FSWG) and approved by the Sustainability Steering Team in February of 2018. *The State of Minnesota as an enterprise, will lead by example by achieving a reduction in fossil fuels through implementation of fleet technologies and safe, reliable, and renewable energy vehicles to include plug-in hybrid, all-electric and hydrogen powered vehicles to reduce its impact on the environment and society.*

Fleet Size

The State of Minnesota light vehicle fleet¹ is divided into four managed fleets². In addition, there are agency owned/managed vehicles. This report is based on the light vehicle count as of the end of FY 2018. A vehicle replacement plan is in place to convert agency owned/managed vehicles to Admin leased vehicles over the next five years.

Department	Light Vehicle Fleet Count
Administration Leased	1,605
Natural Resources (DNR)	1,290
Public Safety (DPS)	1,333
Transportation (MnDOT)	1,788
Agency owned/managed	620
Total Vehicle Count	6,636

¹ Light vehicle fleet equals all on-road licensed motor vehicles with a Gross Vehicle Weight Rating (GVWR) \leq 10,000 lbs.

² Agency owned/managed vehicles - state-owned fleet vehicles purchased and managed by individual agencies. Fuel and usage information on these vehicles is limited; therefore they are not included in the fuel usage benchmarks.

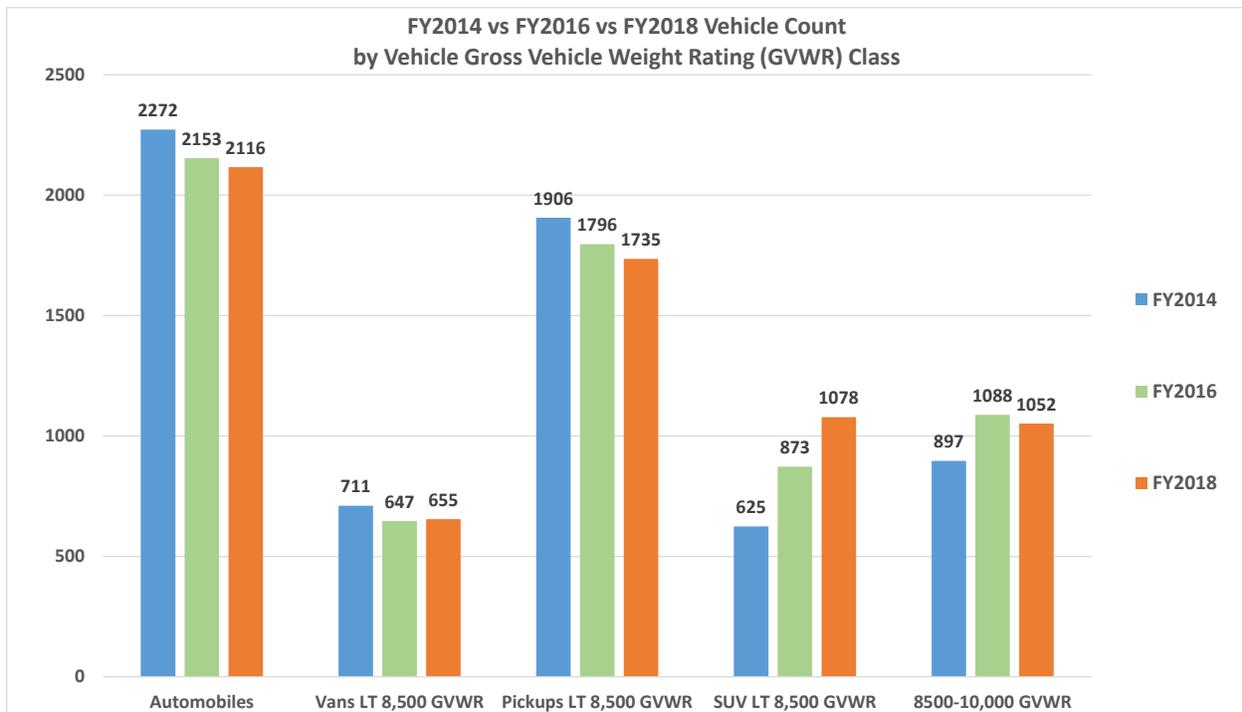
Fleet Inventory Composition

More efficient internal combustion vehicles, hybrids, the use of biofuels, electric (EV), and plug in hybrid electric vehicles (PHEV) will reduce fossil fuel gallons used and, subsequently, greenhouse gas (GHG) emissions. The Enterprise Fleet includes several vehicle types that are chosen to best meet core agency business operations. Bringing more fuel-efficient vehicles, including electric and plug-in hybrids, to Minnesota continues to be a challenge as there are greater incentives for manufacturers to supply the Zero Emissions Vehicle States with the electric vehicles as they come to market. We continue to work with the Office of State Procurement and manufacturers to increase the number of available green vehicles in Minnesota.

The following “Green Choice” vehicles were added to the State Contract:

- Fully Electric Sedan – Nissan Leaf, Chevrolet Bolt and Bolt Cargo (fully electric vehicle with a longer battery range than the Leaf)
- Plug-in Hybrid Electric Sedans – Chevrolet Volt (no longer available), Ford Fusion Energi SE
- Plug-in Hybrid SUVs – Mitsubishi Outlander PHEV

The National Association of Fleet Administrators (NAFA) Fleet Accreditation Program provides a level playing field by setting standards for all fleets, regardless of their industry, size, location or composition. NAFA defines a sustainable fleet as one that manages and reduces net environmental impacts from fleet operations at or ahead of pace required for environmental need by demonstrating that the fleet is making concrete improvements in air quality by reducing emissions, increasing fuel efficiency, and reducing fuel use. Every enrolled fleet is assessed on its own unique progress and real actions. Admin, DNR, and MnDOT were re-certified in FY 2018 and attained tier 3 rating status. Currently the state fleet includes 21 Fully Electric, 20 Plug-In Hybrid, and 576 Hybrid vehicles; a 175% increase in sustainable vehicles from 2016.



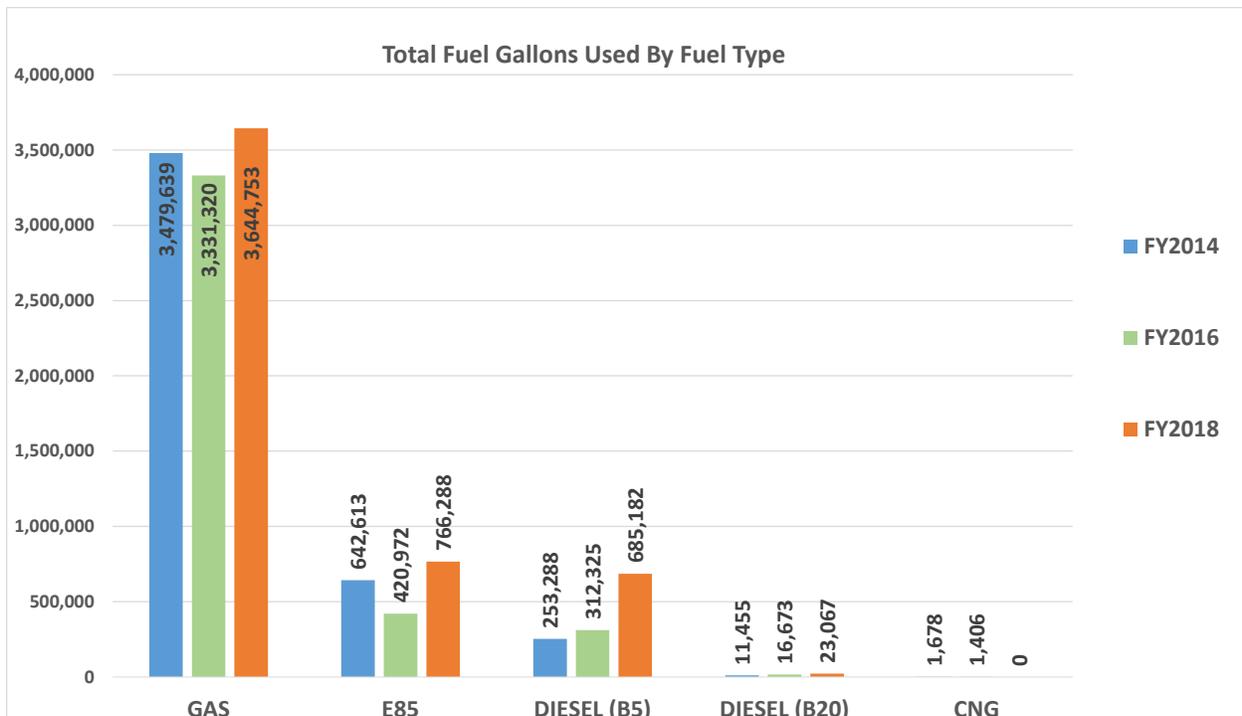
Petroleum and Cleaner Fuel Usage Benchmarks

The State fleet is making progress in its commitment to purchase more efficient internal combustion vehicles, hybrids, electric (EV) and plug-in hybrid electric vehicles (PHEV) to reduce fossil fuel gallons used and, subsequently, GHG emissions.

The Admin combined agency fleet develops an annual Green Choice Vehicle Selector List from vehicles available on State contracts. Agencies are being encouraged to select a vehicle with a GHG Environmental Protection Agency (EPA) emissions score of 7 or better. We anticipate that there will be approximately 10 vehicles available on State Contract in FY 2019 that will meet those requirements. In FY 2018, 68% of state vehicles purchased (excluding MnDOT vehicles) had an emission score rating of 7 or higher. Some required vehicles including passenger ADA/cargo vans and light trucks are not yet available with emission ratings of 7 or higher. The use of E85 fuel in flex fuel vehicles will need to be increased substantially in order to reduce the negative environmental impact by burning cleaner fuel.

Telematics devices are utilized in the Admin combined state fleet vehicles to monitor the vehicles and gather better data to optimize fleet performance and fuel efficiency. This data measures vehicle performance, gas mileage, speed and idling. The data provides agencies with fleet safety, utilization, and fuel efficiency reports to help better manage their fleet size and environmental outcomes, as well as improvements to safety, wear-and-tear on vehicles, etc.

The graph below shows a more accurate picture of fuel use in FY 2018 as more agencies' vehicle inventory and fuel data is now being reported in the enterprise fleet management system M5.



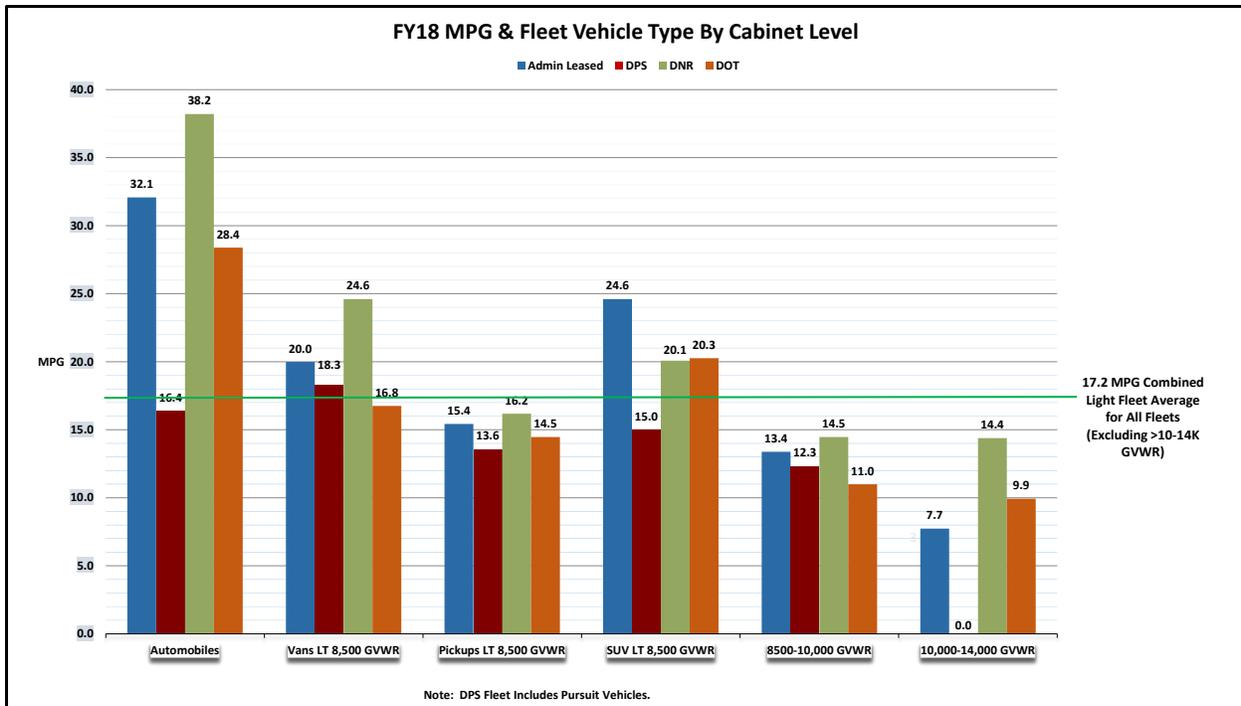
Fleet Fuel Efficiency Benchmark

A benchmark for fleet fuel efficiency was implemented to measure and report a vehicle's miles per gallon (MPG). This is the baseline by which we monitor future results with the intention of an annual improvement in fuel efficiencies by increasing a vehicle's MPG. Tracking MPG can be more insightful than gross fuel use at times because agency business needs vary from year to year, sometimes necessitating increased travel.

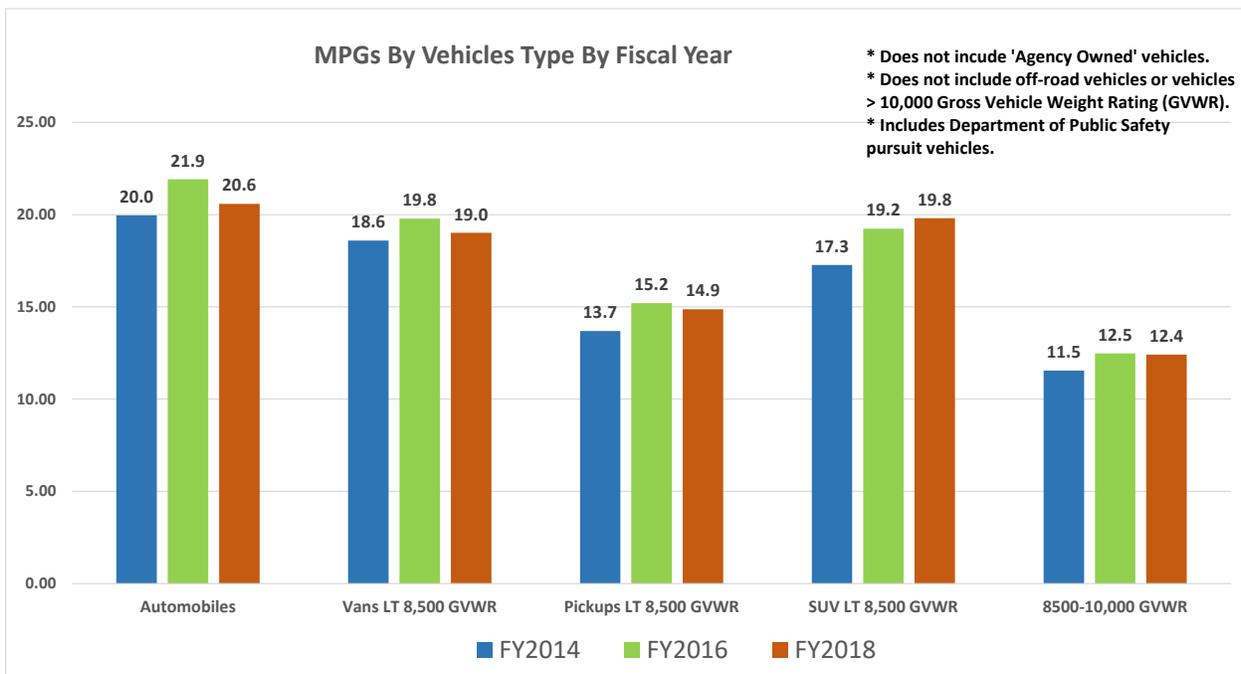
The MPG measurement is calculated by taking the total annual miles driven for a vehicle (reported through the M5 database) divided by the annual gallons of fuel used for the same vehicle (reported through Fleet Services Voyageur fuel program) to determine the average MPG.

In FY 2018, the MPG for the state light vehicles is 17.2. All state vehicles and fuel is now being reported in M5. It is difficult to show the improvements made when compared to previous year data as all cabinet level agency fuel data was not previously tracked in M5 and is now included in the FY 2018 metrics. One of the factors for this improvement is education provided by Fleet Services to agencies about more fuel efficient choices available and subsequently, agencies moving towards utilizing "Green Choices" vehicles. These improvements will show when compared with FY 2019 metrics.

One opportunity to improve the fuel efficiency benchmark is to schedule the replacements of agency vehicles with newer, more fuel-efficient vehicles. Additional opportunities exist in ensuring the most fuel efficiency vehicle capable of the mission is used. One concerning trend has been the increased number of SUVs in the fleet, from 625 in 2014 to 1078 in 2018.



- Although the number of SUV's in the fleet has increased, the MPG is tracking closely to automobile MPG due to the availability of the SUV hybrid.
- Overall miles in vans and pickups is down. Meaning that we're doing the same work with either smaller vehicles or doing it with fewer miles. Or we've cut out unnecessary vans and pickups.



Current Methods used to Reduce Travel

In addition to moving to more fuel efficient vehicles, State fleets also advocate for ways to reduce the need to travel in vehicles at all by utilizing existing technologies to meet electronically or by expanding Ride Sharing options where appropriate.

- Examples of increasing use of interactive video, Skype, Lync, etc. for:
 - Mental health court hearings
 - Special review board hearings
 - Educational seminars
 - Job interviews; consultants
 - Administrative meetings
- Examples of Ride Sharing and reduction strategies include:
 - Organized meeting/travel days for vehicle ride sharing
 - Calendar applications to schedule use of vehicles and identify carpooling opportunities
 - Use of Enterprise vehicle rental contract for short or infrequent trips

Recommended Next Steps and Goals

On July 20, 2018 the Sustainability Steering Committee approved the Fleet Action Plan developed by the Fleet Enterprise Sustainability Workgroup, sub-teams and Fleet Council over the course of meetings in 2017. The plan identifies 10 levers agencies may choose from to reach their own goals to reduce fossil fuel use.

Levers represent strategies agencies may pursue, along with others they identify, to meet fossil fuel reduction targets at their agency. Agencies will identify the levers they are pursuing, either those listed in this plan, or those they self-identify in their agency sustainability plan. In agency sustainability plans, lever selection is annually validated by the Office of Enterprise Sustainability as a viable collection of strategies to achieve a 30% reduction in fossil fuel use by 2027.

In the fall of 2017, in conjunction with the Fleet Action Plan, agencies completed a 10-year fleet replacement planning exercise. The purpose was to demonstrate necessary changes in light vehicle buying habits to meet the fossil fuel reduction goal. The planning exercise uses 2016 vehicle inventory, miles, and fuel as the baseline and assumes miles driven and quantity of vehicles in 2027 will be similar.

The replacement planning tool demonstrated that most agencies will be able to achieve much greater than 30 percent reduction of fossil fuel use in their light fleet by 2027 with simple changes like purchasing sedans rather than SUVs for passenger vehicle uses, and purchasing hybrid sedans and SUVs rather than traditional internal combustion only vehicles. The results of the replacement planning exercise show an overall reduction of fossil fuel gallons used in the 2027 light vehicle fleet of 35%. A greater than 30% reduction of fossil fuel use in the light vehicle fleet is important because there are less technological options to reduce fuel use in medium-duty, heavy-duty, and off-road equipment.

The Fleet Action Plan includes a fleet reduction pathway that demonstrates several levers that collectively have the ability to help the State reduce its fossil fuel use by 30% by 2027 and by 80% by 2050. For this pathway to hold true, agencies will need to immediately and aggressively pursue these strategies. This pathway was constructed assuming a scenario of the future where electric vehicle

technology and markets have advanced, renewable diesel or other sustainable diesel option is available in Minnesota and/or hydrogen fuel cells have advanced, and other societal gains from things like fuel efficiency standards progress as usual.

Several of the levers have already been completed including tracking all cabinet level vehicles and fuel use in the enterprise fleet management system M5. The pathway demonstrates reductions from the use of the following remaining levers and may include additional levers identified at a later time:

Business as Usual Reductions – Societal reductions from things like improved fuel efficiency standards. Reduces fossil fuel use by 4% by 2027.

2% Reduction in Medium & Heavy (Lever 4) – Reduce fossil fuel consumption in the medium and heavy fleet by 2% annually. Reduces fossil fuel use by 12% by 2027.

Adopt EVs (Lever 5) – Electrify 20% of the light vehicle fleet by 2027 and 90% by 2050. Reduces fossil fuel use by 3% by 2027.

Increase E85 (Lever 6) – Use 75% E85 fuel in Flex Fuel vehicles by 2022. Reduces fossil fuel use by 2% by 2027.

Use RD100 (Lever 9) – Replace 80% of diesel consumption with biodiesel, renewable diesel, a blend, and/or replace diesel vehicles with electric or hydrogen fuel cell. Reduces fossil fuel use by 11% by 2027.

A sustainability reporting tool is currently in development to collect and dashboard data. This tool will use the M5 enterprise fleet data and compute GHG emissions from fleet activities, display key performance indicators, and will have a function to assist in fleet planning and producing agency sustainability reports. We anticipate rolling out this new tool in 2rd quarter of FY 2019.

Looking further into the future there are fuel cell vehicles, autonomous vehicles, ride-share technologies, and Shared Electric Autonomous Vehicles (SEAV). Companies like Uber, Tesla, Google, and others are dedicating resources and actively testing autonomous vehicles.

While policy and markets are inexplicably connected, market forces are moving transportation to a less fossil fuel intensive future. Auto manufactures, largely in 2017, have announced major changes in their plans for production over the next 10 years. Auto manufacturers are shifting production to include greater number of models available as fully Electric Vehicles (EV), plug-in electric hybrid vehicles (PHEV), hybrids, and fuel cells. It is anticipated much of the State Fleet will transition to electric vehicles; however, the availability of these vehicles in Minnesota is slow to come.