

# Idle Reduction for Fleet Sustainability

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# Idling Terminology

- **Idling:** Time when vehicle is stopped but the engine is on and fuel is consumed.
- **Intermittent idling:** Idling throughout a trip, the amount of time the vehicle is stopped is less than 60 seconds (due to traffic, stop signs)
- **Idling event:** The vehicle is stopped with the engine running for longer than 60 seconds at a time.



<https://www.fleetcarma.com/fleet-idle-fuel-monitoring/>

<https://usa.streetsblog.org/2016/02/17/4-things-schools-can-do-to-reduce-the-asthma-threat-from-idling-cars/comment-page-1/>

# Idling is Low Hanging Fruit

- Fleets spend 25%-35% of operation time idling
- Some vocations as high as 70%
- 37% of Idling events occur in the first 3 minutes
- Across vocations 50% occurs during idling events
- Unnecessary idling wastes approximately six billion gallons of fuel annually



<https://www.smartrak.com/news-events/The-Costs-of-Fleet-idle-Time>

<https://www.fleetcarma.com/fleet-idle-fuel-monitoring/>

# Idling = 0 MPG!

- Under most conditions vehicles do not need to idle for warm up
- Idling more than 30 seconds? It's better to turn off your car!
- Idling for longer than this uses more gas than re-starting the car
- 2 minutes of idling uses as much gas as driving about 1 mile
- Idling increased wear (2x) & emissions

[www.carsdirect.com/car-maintenance/benefits-of-idling-reduction](http://www.carsdirect.com/car-maintenance/benefits-of-idling-reduction)

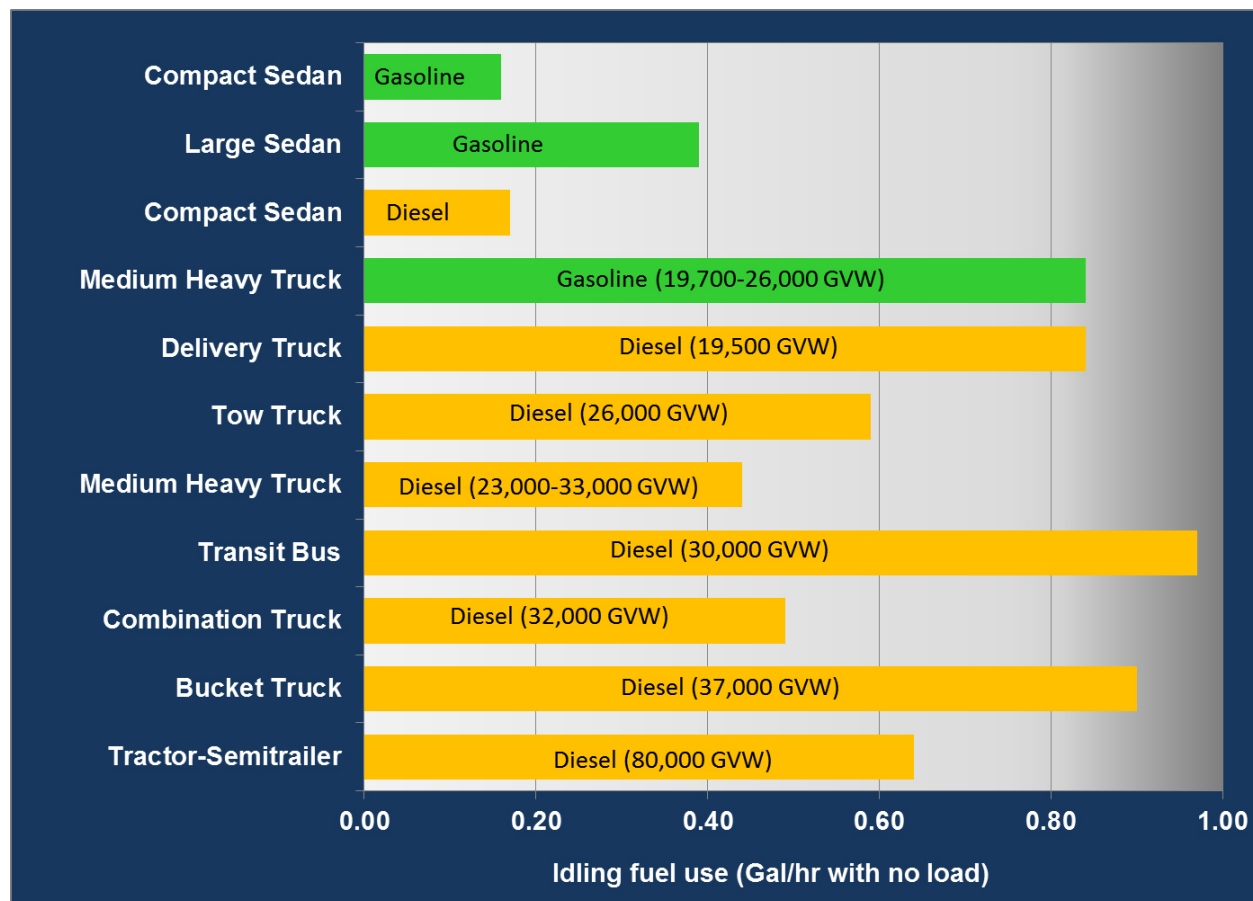
[www.consumerenergycenter.org/myths/idling.html](http://www.consumerenergycenter.org/myths/idling.html)

<https://www.smartrak.com/news-events/The-Costs-of-Fleet-idle-Time>

[www.ipd.anl.gov/anlpubs/2015/05/115925.pdf](http://www.ipd.anl.gov/anlpubs/2015/05/115925.pdf)



# Fuel Consumption at Idle (0.16-0.90 gal.)



<https://www.energy.gov/eere/vehicles/fact-861-february-23-2015-idle-fuel-consumption-selected-gasoline-and-diesel-vehicles>

# Idling Cost Example: 50 Truck Fleet Idling 1 Hour/Day @ \$3.10/gal



[www.teletrac.com/teletrac.com/a-assets/the-real-effects-of-engine-idle-time-time03.pdf](http://www.teletrac.com/teletrac.com/a-assets/the-real-effects-of-engine-idle-time-time03.pdf)

# Summary of Reasons Not to Idle

- Wastes fuel
- Increased emissions
- Increased wear and tear





# How to Reduce Idling

- Idle and vehicle use policies
- Driver education and incentives
- Idle reduction technologies



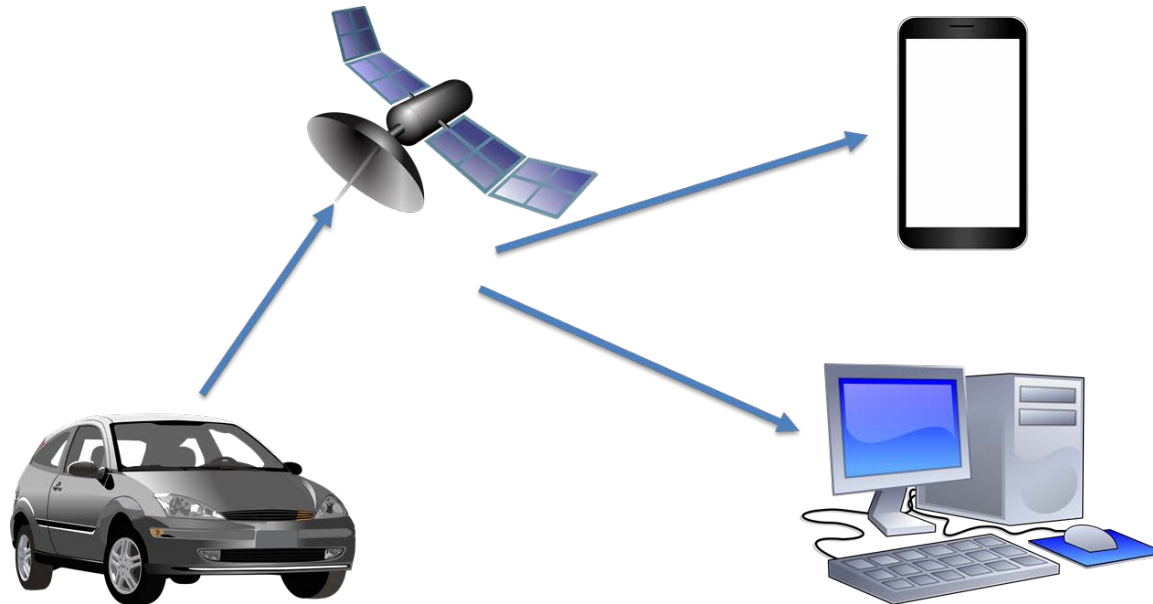


# Idle Reduction Technologies

- Onboard/mobile solutions
  - Idle management systems—idle timer, start-stop
  - Battery/auxiliary power systems
  - Air heaters
  - Waste heat recovery systems
  - Recalibration—RPM reduction
  - ePTO
- Stationary solutions—electrified parking/TSE
  - Single system
  - Dual system/shore power

# Telematics Systems

- Very effective tool to monitor idling and influence drive behavior
- Driver score cards/metrics



## The City of Columbus Police Department's journey to a sustainable fleet operation

- 4 Years of commitment from all level of the agency
- CPD Currently deploys over 250 Police Interceptors Idle

Reduction

- Over 330 by Dec 2017

**Real Life  
Results**



**NC CLEAN ENERGY**  
TECHNOLOGY CENTER



## CPD Data January 2017

- **30%** decrease in vehicle overall idle time (P/N)
- Fuel reduction of **over 56,000 gallons** equal to **133,608.93 savings** in fuel costs
- **4,264,114 miles** avoidance of **engine wear and tear** due to idling



Real Life  
Results



# Charlotte Fire Department

## APU Technology





# APU Operation

- 2 minute timer starts after the parking brake is set and neither the fire pump or aerial is engaged.
- After 2 minutes the APU starts automatically.
- Big Truck Motor shuts down after receiving a signal from the APU that it is running.
- When leaving the scene, the driver restarts the Big Truck Motor and the APU automatically shuts itself down.
- Trucks have ran for over 8 hours on the APU at multi alarm fires with no identified issues.





# Benefits Identified

- Fuel usage reduction from 3.5 gph to  $> .5$ gph
- Averaged out, we estimate approximately \$4000.00 fuel savings per truck per year.
- One less Preventative Maintenance per year as they are based off of engine hours. This adds another \$1500.00 savings per year (40 qts of oil).
- Exhaust system regeneration went from once every 20 hours to once every 65 hours.