



# **Idling Reduction Savings Calculator**

For an interactive Excel version of this calculator, please go to <a href="http://www.transportation.anl.gov/downloads/idling">http://www.transportation.anl.gov/downloads/idling</a> worksheet.xls.

#### Calculate Costs for Avoidable Idling Realistically, how many hours each How much fuel is used for idling? year might you use idling reduction (If you don't know, see reference **Avoidable Idling Fuel Costs** (IR) devices instead of idling? table on reverse.) What is the price of fuel? A gallons/hour gallons/year X hours/vear /vear + What is your average fuel "Miles of idling" (idling is like putting miles on your engine) economy? gallons/hour miles/year hours/year miles/gallon How much does an oil How many miles between Preventive Maintenance Cost<sup>1</sup> change cost? oil changes? "Miles of idling" /vear + /oil change miles/oil change /mile miles/year How much does an engine How many miles between Overhaul or Replacement Cost<sup>1</sup> overhaul or new vehicle cost? "Miles of idling" overhauls or vehicle replacement? /vear miles/overhaul /overhaul or miles/year /mile replacement or replacement **Total Avoidable Idling Costs** 5 Add values in right-hand column = /vear Device and/or Electrified Parking Space (EPS) Calculate Costs for Idling Reduction (IR) How much fuel is used by the How many hours each year could Price of fuel (same as price listed you use IR devices instead of idling?\* Fuel cost for IR device IR device? В in line 1) gallons/hour hours/year gallons/year X \$ /gallon Operating Cost for On-board IR Device Maintenance cost for IR device /year /vear /vear How many hours each year could **Total Operating Costs for IR** Cost per hour to plug into EPS Cost to plug in vou use EPSs instead of idling?\* hours/vear /hour /year /year /vear Calculate Savings from IR Payback Time Capital cost of on-board IR device SAVINGS Line 5 - Line 8 9 /year vears saved В A

gallons saved/year

<sup>\*</sup> Total number of hours from lines 6 and 8 should equal the number of hours in line 1.

<sup>&</sup>lt;sup>1</sup> TMC Recommended Practice 1108, "Analysis of Costs from Idling and Parasitic Devices for Heavy Duty Trucks" (2003), Technology & Maintenance Council, American Trucking Associations (TMC/ATA).

## **How Much Fuel Is Used for Idling?**

Vehicle Type	Class	Fuel Type	Size Indicator		Idling Fuel Use (gal/h)		
			Engine Size (I)	GVWR (lb)	No load	With load	Source
Passenger Car (Ford Focus)	1	G	2	_	0.16	0.29	ANL 1
Passenger Car (Volkswagen Jetta)	1	D	2	_	0.17	0.39	ANL 1
Passenger Car (Ford Crown Victoria)	1	G	4.6	_	0.39	0.59	ANL 1 & 2
Medium Heavy Truck	6	G	5-7	19,700-26,000	0.84	_	WVU
Delivery Truck	5	D	_	19,500	0.84	1.1 <sup>1</sup>	NREL
Tow Truck	6	D	-	26,000	0.59	1.14 <sup>2</sup>	ORNL
Medium Heavy Truck	6-7	D	6–10	23,000-33,000	0.44	_	WVU
Transit Bus	7	D	_	30,000	0.97	_	ORNL
Combination Truck	7	D	_	32,000	0.49	_	ORNL
Bucket Truck	8	D	-	37,000	0.90	1.50 <sup>2</sup>	ORNL
Tractor-Semitrailer	8	D	-	80,000	0.64	1.15 <sup>3,1</sup>	TMC

D = diesel. G = gasoline. Gal = gallon(s). GVWR = gross vehicle weight rating. h = hour(s). l = liter(s). lb = pound(s). PTO = power take-off.

#### Sources

ANL 1: Stutenberg, K., and Lohse-Busch, H. "APRF [Advanced Powertrain Research Facility at Argonne National Laboratory] Conventional Vehicles Snapshot Study." Presentation to U.S. DOE, December 2, 2012.

ANL 2: Rask, E.; Keller, G.; Lohse-Busch, H.; et al. (2013). "Final Report: Police Cruiser Fuel Consumption Characterization." Work performed by Argonne National Laboratory for the Illinois Tollway Authority.

NREL: National Renewable Energy Laboratory Project Draft Final Report for the Period August 1, 2012, through March 31, 2014, "Data Collection, Testing and Analysis of Hybrid Electric Trucks and Buses Operating in California Fleets." ARB Agreement Number 11-600, NREL Contract Number FIA-12-1763, April 15, 2014.

ORNL: Lascurain, M.B.; Franzese, O.; Capps, G.; et al. (2012). Medium Truck Duty Cycle Data from Real-World Driving Environments: Project Final Report (ORNL/TM-2012/240). Work performed by Oak Ridge National Laboratory for the U.S. DOE.

TMC: TMC Recommended Practice 1108, "Analysis of Costs from Idling and Parasitic Devices for Heavy Duty Trucks" (2003). Technology & Maintenance Council, American Trucking Associations (TMC/ATA).

WVU: Khan, ABM S.; Clark, N.N.; Gautam, M.; et al. (2009). "Idle Emissions from Medium Heavy Duty Diesel and Gasoline Trucks." Journal of the Air & Waste Management Association (59:3) 354—359.

### **Other Idling Reduction Resources**

- IdleBox www.cleancities.energy.gov/idlebox
- IdleBase http://cleancities.energy.gov/idlebase
- National Idling Reduction Network News energy.gov/eere/vehicles/vehicle-technologies-office-national-idling-reduction-network-news
- Argonne National Laboratory <a href="http://www.transportation.anl.gov/engines/idling.html">http://www.transportation.anl.gov/engines/idling.html</a>
- Alternative Fuels Data Center <a href="http://www.afdc.energy.gov/conserve/idle\_reduction\_basics.html">http://www.afdc.energy.gov/conserve/idle\_reduction\_basics.html</a>

<sup>1.</sup> High idle.

<sup>2.</sup> PTO on.

<sup>3.</sup> Air conditioning on.