

Idling Reduction Savings Calculator

For an interactive Excel version of this calculator, please go to http://www.transportation.anl.gov/downloads/idling_worksheet.xls.

Calculate Costs for Avoidable Idling

1	How much fuel is used for idling? (If you don't know, see reference table on reverse.)	Realistically, how many hours each year might you use idling reduction (IR) devices instead of idling?	What is the price of fuel?	Avoidable Idling Fuel Costs
	<input type="text"/> gallons/hour	<input type="text"/> hours/year	<input type="text"/> /gallon	\$ <input type="text"/> /year +
	\times	\times	$=$	
	<input type="text"/> gallons/hour	<input type="text"/> hours/year	<input type="text"/> miles/gallon	<input type="text"/> miles/year
	\times	\times	$=$	
2				
	<input type="text"/> gallons/hour	<input type="text"/> hours/year	<input type="text"/> /mile	<input type="text"/> miles/year
	\div	\div	\times	$=$
3	How much does an oil change cost?	How many miles between oil changes?		Preventive Maintenance Cost¹
	\$ <input type="text"/> /oil change	<input type="text"/> miles/oil change	<input type="text"/> /mile	\$ <input type="text"/> /year +
	\div	\div	\times	$=$
4	How much does an engine overhaul or new vehicle cost?	How many miles between overhauls or vehicle replacement?		Overhaul or Replacement Cost¹
	\$ <input type="text"/> /overhaul or replacement	<input type="text"/> miles/overhaul or replacement	<input type="text"/> /mile	\$ <input type="text"/> /year
	\div	\div	\times	$=$
5	Add values in right-hand column			Total Avoidable Idling Costs
	$=$			\$ <input type="text"/> /year

Calculate Costs for Idling Reduction (IR) – Device and/or Electrified Parking Space (EPS)

6	How much fuel is used by the IR device?	How many hours each year could you use IR devices instead of idling?*	Price of fuel (same as price listed in line 1)	Fuel cost for IR device	
	<input type="text"/> gallons/hour	<input type="text"/> hours/year	<input type="text"/> /gallon	<input type="text"/> /year	
	\times	\times	$=$	$=$	
7			Maintenance cost for IR device		Operating Cost for On-board IR Device
			\$ <input type="text"/> /year	<input type="text"/> /year	\$ <input type="text"/> /year
			$+$	$+$	$=$
8	Cost per hour to plug into EPS	How many hours each year could you use EPSs instead of idling?*	Cost to plug in		Total Operating Costs for IR
	\$ <input type="text"/> /hour	<input type="text"/> hours/year	<input type="text"/> /year	<input type="text"/> /year	\$ <input type="text"/> /year
	\times	\times	$=$	$+$	$=$

Calculate Savings from IR

9	Capital cost of on-board IR device	SAVINGS Line 5 – Line 8	Payback Time
	\$ <input type="text"/>	\div \$ <input type="text"/> /year saved	<input type="text"/> years
	\div	$=$	

10	<input type="text"/>	$-$	<input type="text"/>	$=$	<input type="text"/> gallons saved/year
	A		B		

* Total number of hours from lines 6 and 8 should equal the number of hours in line 1.

¹ 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)		Source
			Engine Size (l)	GVWR (lb)	No load	With load	
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 ¹	NREL
Tow Truck	6	D	–	26,000	0.59	1.14 ²	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 ²	ORNL
Tractor-Semitrailer	8	D	–	80,000	0.64	1.15 ^{3,1}	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.

¹ High idle.

² PTO on.

³ Air conditioning on.

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: Lascrain, 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 <http://www.transportation.anl.gov/engines/idling.html>
- Alternative Fuels Data Center http://www.afdc.energy.gov/conservation/idling_reduction_basics.html