Idling Reduction Toolkit

A Resource for Vermont Municipalities

Image Credit: Utah Clean Cities

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https://dec.vermont.gov/air-quality/mobile-sources/be-idle-free

VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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Idling Reduction Toolkit – A Resource for Vermont Municipalities

In Vermont, motor vehicles are the largest source of greenhouse gases and other air pollutants that threaten human health and the environment. Unnecessary idling harms human health, pollutes the air, wastes fuel and money, and causes excess engine wear.

The Vermont Department of Environmental Conservation (VT DEC) estimates that if every gasoline- and diesel-powered car and truck in Vermont reduced unnecessary idling by just one minute per day, over the course of a year Vermonters would save over 1 million gallons of fuel and over $3.8 million in fuel costs, and we would reduce CO_2 emissions by more than 10,000 metric tons.

While individual actions may be small, together we can make a difference!

VT DEC is pleased to offer this "Idling Reduction Toolkit" as a resource for municipalities interested in reducing vehicle emissions from unnecessary idling.

Below is a list of items included in this toolkit for your reference and use. Please feel free to customize or adapt any of these materials to best suit your community's needs.

Toolkit Contents

Five Common Vehicle Idling Myths and Misconceptions

Myth #1: Engines need to be warmed up before driving, especially in the winter.

Fact: Most vehicles today don't need to warm up for very long before being driven, even when outside temperatures begin to drop. Back when vehicles were equipped with carburetors, idling the engine for a few minutes at startup was necessary for the engine to function properly and to prevent stalling. However, carburetors in cars and trucks have largely been replaced by fuel injection systems, which do not require an extensive warmup. For most light-duty passenger vehicles and light-duty trucks, idling for 30 seconds before driving is plenty of time. Even manufacturers of heavy-duty engines and trucks, including Kenworth Truck Company, Caterpillar, IC Corporation, and Cummins Inc. advise operators to limit idling to a maximum of 3-5 minutes. When in doubt, check your vehicle owner's manual!

Myth #2: Remote engine starters are great for warming your engine, especially in colder weather.

Fact: Remote starters waste fuel by encouraging drivers to idle their car for longer than necessary before driving. As explained above, most vehicles don't need to be warmed up for more than 30 seconds, at which point the most efficient way to warm up an engine is by driving gently.

Myth #3: Restarting your vehicle frequently will wear out your engine.

Fact: Frequent restarting has very little impact on engine components. Letting an engine idle can actually cause more damage to the engine than frequent starting and stopping. Running an engine at low speed (i.e., idling) causes more wear on internal parts compared to driving at regular speeds, which can increase maintenance costs and shorten the life of the engine.

Myth #4: Restarting your vehicle wastes more gas than idling.

Fact: Idling is the equivalent of 0 miles per gallon! For cars equipped with fuel injection systems (which includes almost all vehicles built since the late 1980s), idling for even 10 seconds uses more fuel than restarting the engine. Fuel is only partially combusted when idling because an engine isn't operating at its peak temperature. This leads to the buildup of fuel residues on cylinder walls that can damage engine components and increase fuel consumption.

Myth #5: Stopping and restarting your vehicle produces more emissions than idling for a few minutes.

Fact: It depends! A 2012 Argonne National Laboratory study[1] found that idling for more than 10 seconds used more fuel and emitted more carbon dioxide (CO_2) than stopping and restarting an engine. The study found that nitrogen oxides (NOx) and total hydrocarbons (THC) emissions were greater when restarting versus idling, but also that they were an order of magnitude lower than those emitted when starting a cold engine. The study concluded that for short stops, like going to the bank or picking up food at a restaurant, it makes more sense to turn the vehicle off to minimize fuel use and CO_2 emissions.

[1] Gaines, L., Rask, E., & Keller, G. 2012. Which is Greener: Idle or Stop and Restart? Comparing Fuel Use and Emissions for Short Passenger-Car Stops. Argonne National Laboratory. https://anl.app.box.com/s/q13vvdjic1jbz6lqa7m9u1nthfq5u0n9

Best Management Practices for Reducing Idling in Municipal Fleets

The following best management practices may be used by municipalities to monitor their fleets, reduce idling, and modify driving behaviors to reduce fuel consumption and harmful air emissions. Please note that these are recommendations only and are not prescriptive for all circumstances.

- **Prioritize Driver Awareness and Training**

Many drivers idle their vehicles out of habit, largely due to the misconception that it's the best way to warm up their engines. Make vehicle operators aware of the drawbacks of unnecessary idling by incorporating it into onboarding training and holding regular refresher training sessions.

- **Optimize Routes**

Consolidating trips and navigating the shortest distance between two points can help fleets save on both time and fuel consumption. Identify fleet vehicles that typically operate on fixed routes (e.g., snow plows and buses) and determine if any routes can be shortened. There are both free and paid applications available for route optimization that can be utilized to make this task easier.

- **Practice Vehicle Rightsizing**

Vehicle rightsizing is using the right tool for the job. When determining which vehicle to assign to a given task, ensure that heavy-duty vehicles are not performing tasks that could reasonably be completed by smaller, more fuel-efficient vehicles. When possible, leave administrative tasks, errands, and other light-duty work to passenger vehicles or small pickup trucks.

- **Encourage Interdepartmental Coordination**

If appropriate, consider coordinating across departments to share fuel-efficient passenger vehicles for light-duty tasks. In addition to fuel savings, car sharing can help individual departments save on maintenance and insurance costs.

- **Identify Areas for Improvement**

Use driver surveys or monitoring software to identify which fleet vehicles are frequently idling, and implement targeted idling management. If extended periods of idling are required for the vehicle to perform its purpose, then idling reduction technologies (e.g., auxiliary power sources, shore power, etc.) may be employed. If excessive idling is not necessary for the vehicle's function, the vehicle operator may benefit from idling reduction training.

- **Promote Other Fuel-Saving Measures**

In addition to reducing the amount of time a vehicle idles, there are other fuel-saving practices that can be implemented:

- Encourage fleet operators to drive at or below the speed limit to increase fuel efficiency. Driving more slowly consumes less fuel since the vehicle does not need to work as hard to overcome air resistance. Consider installing GPS tracking on fleet vehicles to monitor for excess speeds.
- Discourage fleet operators from topping off their tanks. Topping off at the pump can damage vehicles' evaporative emissions systems and negatively impact engine performance.
- Keep up with vehicle maintenance, including regular engine tune-ups and air filter replacements. Check tire pressure and keep tires correctly inflated.

State of Vermont's Idling Legislation

Motor Vehicle Idling Law (V.S.A. Title 23 Chapter 013 Section 01110). *Act 57 was signed into law in May 2013 and includes a provision that, effective May 1, 2014, limits all motor vehicle idling to five minutes in any 60 minute period with some exceptions.*

Title 23 : Motor Vehicles

Chapter 013 : Operation of Vehicles

Subchapter 011 : MISCELLANEOUS RULES

(Cite as: 23 V.S.A. § 1110)

- **§ 1110. Prohibited idling of motor vehicles**

(a)(1) General prohibition. A person shall not cause or permit operation of the primary propulsion engine of a motor vehicle for more than five minutes in any 60-minute period while the vehicle is stationary.

(2) Exceptions. The five-minute limitation of subdivision (1) of this subsection shall not apply when:

(A) a military vehicle; an ambulance; a police, fire, or rescue vehicle; or another vehicle used in a public safety or emergency capacity idles as necessary for the conduct of official operations;

(B) an armored vehicle idles while a person remains inside the vehicle to guard the contents or while the vehicle is being loaded or unloaded;

(C) a motor vehicle idles because of highway traffic conditions, at the direction of an official traffic control device or signal, or at the direction of a law enforcement official;

(D) the health or safety of a vehicle occupant requires idling, or when a passenger bus idles as necessary to maintain passenger comfort while nondriver passengers are on board;

(E) idling is necessary to operate safety equipment such as windshield defrosters, and operation of the equipment is needed to address specific safety concerns;

(F) idling of the primary propulsion engine is needed to power work-related mechanical, hydraulic, or electrical operations other than propulsion, such as mixing or processing cargo or straight truck refrigeration, and the motor vehicle is idled to power such work-related operations;

(G) a motor vehicle of a model year prior to 2018 with an occupied sleeper berth compartment is idled for purposes of air-conditioning or heating during a rest or sleep period;

(H) a motor vehicle idles as necessary for maintenance, service, repair, or diagnostic purposes or as part of a State or federal inspection;

(I) a school bus idles on school grounds in compliance with rules adopted pursuant to the provisions of subsection 1282(f) of this title;

(J) the idling of vehicles at the place of business of a registered motor vehicle dealer is necessary to maintain the premises of the place of business; or

(K) a motor vehicle with a gross vehicle weight rating of 10,000 pounds or less idles on a driveway or parking area on private property.

(b) Operation of an auxiliary power unit, generator set, or other mobile idle reduction technology is an alternative to operating the primary propulsion engine of a motor vehicle and is not subject to the prohibition of subdivision (a)(1) of this section.

(c) In addition to the exemptions set forth in subdivision (a)(2) of this section, the Commissioner of Motor Vehicles, in consultation with the Secretary of Natural Resources, may adopt rules governing times or circumstances when operation of the primary propulsion engine of a stationary motor vehicle is reasonably required.

(d) A person adjudicated of violating subdivision (a)(1) of this section shall be:

(1) assessed a penalty of not more than $10.00, which penalty shall be exempt from surcharges under 13 V.S.A. § 7282(a), for a first violation;

(2) assessed a penalty of not more than $50.00 for a second violation; and

(3) assessed a penalty of not more than $100.00 for a third or subsequent violation. (Added 2013, No. 57, § 28, eff. May 1, 2014.)

State of Vermont's Unattended Motor Vehicle Law

Title 23 : Motor Vehicles

Chapter 013 : Operation of Vehicles

Subchapter 011 : MISCELLANEOUS RULES

(Cite as: 23 V.S.A. § 1111)

- **§ 1111. Unattended motor vehicle**

No person shall permit a motor vehicle to stand unattended without first stopping the engine; locking the ignition; removing the key from the ignition and effectively setting the brake, air temperatures permitting; and, when the vehicle is standing upon a grade, turning the front of the front wheels toward the curb or side of the highway. This section does not apply to authorized emergency vehicles. (Added 1971, No. 258 (Adj. Sess.), § 3, eff. March 1, 1973.)

State of Vermont's School Bus Idling Rule

School Bus Idling Rule on School Property (V.S.A. Title 23 Chapter 013 Section 01282.
School buses shall not idle while picking up and dropping off children on school property.

Title 23 : Motor Vehicles

Chapter 013 : Operation of Vehicles

Subchapter 014 : EQUIPMENT

(Cite as: 23 V.S.A. § 1282)

- **§ 1282. Operator, equipment, and inspection**

(f) Subject to State Board of Education rules, which may provide for limited idling, the operator of a school bus shall not idle the engine while waiting for children to board or to exit the vehicle at a school and shall not start the engine until ready to leave the school premises. The Board, in consultation with the Agency of Natural Resources, the Department of Health, and the Department of Motor Vehicles, shall adopt rules to implement this subsection. The rules shall set forth periods or circumstances that reasonably require the idling of the engine, including periods when it is necessary to operate defrosting, heating, or cooling equipment to ensure the health or safety of the driver or passengers or to operate auxiliary equipment; and periods when the engine is undergoing maintenance or inspection.

(Amended 1961, No. 137, § 2; 1971, No. 228 (Adj. Sess.), § 32; 1975, No. 149 (Adj. Sess.), §§ 6, 7; 1985, No. 119 (Adj. Sess.); 1987, No. 209 (Adj. Sess.), §§ 1, 2; 1989, No. 33, § 1; 1989, No. 127 (Adj. Sess.), § 5, eff. March 15, 1990; 1989, No. 239 (Adj. Sess.), §§ 4, 5; 2003, No. 160 (Adj. Sess.), § 39, eff. June 9, 2004; 2007, No. 48, § 1, eff. May 25, 2007; 2015, No. 47, § 29; 2015, No. 158 (Adj. Sess.), § 71; 2019, No. 149 (Adj. Sess.), § 11, eff. Sept. 1, 2020; 2023, No. 85 (Adj. Sess.), § 294, eff. July 1, 2024.)

City of Burlington's Idling Ordinance

City of Burlington Ordinance in Relation to Motor Vehicles and Traffic – General Prohibitions – Idling Clause. *Passed in 1990 and amended in 2009, vehicle idling within the City of Burlington, Vermont is limited to 3 minutes with some exceptions.*

Article III. Parking, Stopping And Standing

Division 1. Generally

20-55 General prohibitions.

(e) No person shall leave idling for more than three (3) minutes any motor vehicle in any area of the city, except in the following instances:

(1) Motors used to run refrigeration units may be left idling to permit uninterrupted refrigeration;

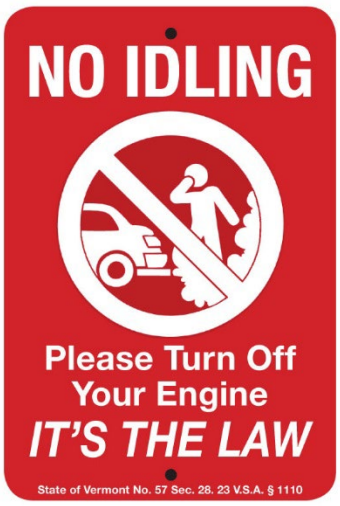
(2) A motor vehicle may be left idling if necessary for the repair of that vehicle;

(3) This provision shall not apply to motor vehicles which must be kept idling in order to install, maintain or repair equipment or infrastructure.

(4) This provision shall not apply in any situation in which the health or safety of a driver or passenger requires the idling of the vehicle, including, but not limited to, when idling is necessary to operate safety equipment such as windshield defrosters, and operation of the equipment is needed to address specific safety concerns.

How to Reduce Air Pollution

ANTI-IDLING POLICY FOR COMPANY PROPERTY



Statement of Purpose
This policy seeks to reduce air pollution and employees, visitors and others exposure to vehicle exhaust by discouraging unnecessary idling of vehicles on property owned, operated or managed by (name of company, municipality or organization).

Definition
For the purpose of this policy a "fleet" is defined as all vehicles owned, rented, or leased by (name of company or organization) or operated for the purpose of conducting business on behalf of (name of company or organization).

Background
Motor vehicles are the largest source of a number of air pollutants in Vermont, including air toxics, the ozone precursors (volatile organic compounds and nitrogen oxides), carbon monoxide, and greenhouse gases. Air pollution impacts our health, economic growth and quality of life. Vehicle exhaust, including exhaust from idling vehicles, contributes significantly to air pollution.

Statement of Policy
Drivers are advised to turn off vehicles when parked on property owned, operated or managed by (name of company, municipality or organization) and not re-start vehicles until necessary to depart. This policy applies to all vehicles, including vehicles owned and operated by (name of company, municipality or organization), vehicles operated by employees of (name of company, municipality or organization), vehicles delivering goods and services to (name of company, municipality or organization) and vehicles operated by visitors of (name of company, municipality or organization). (Name of company, municipality or organization) shall notify its customers and visitors of this policy by:

Posting "Idling of Vehicles is Prohibited" street signs where they can be easily seen by vehicles parked at (name of company, municipality or organization)

- Posting "Idling Reduction Pledge", as appropriate, on the premises
- Including this message in mailings, newsletters, bill inserts and other customary means of communicating with customers and visitors

Exemptions
The request that a driver turn off a vehicle and refrain from idling does not apply for the period or periods during which idling is necessary under the following circumstances:

1. To provide for the safety of vehicle occupants, such as in cases of extreme hot or cold conditions (e.g. to run the air conditioner or heater under extreme heat or cold)
2. To operate safety equipment such as windshield defrosters
3. To use lift equipment or other equipment necessary to accommodate individuals with one or more disabilities
4. To power work-related mechanical, hydraulic, or electrical equipment
5. When specific traffic, safety, or emergency situations arise

In any of the above exemption cases, if equipment can be run from the battery, drivers should refrain from idling unless there is a significant concern of draining the battery.

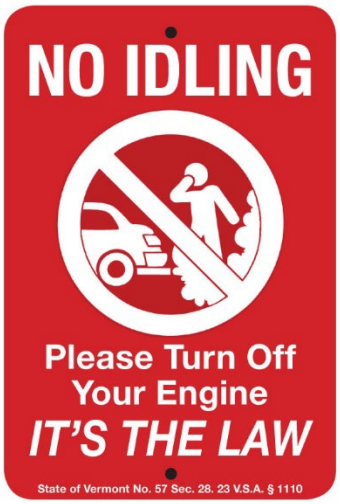
Implementation
This policy shall be effective immediately from the date of signature.

Dated the_____day of_____, 20__.

Signatures _____

How to Reduce Air Pollution

ANTI-IDLING POLICY FOR COMPANY PROPERTY



Statement of Purpose
This policy is designed to assist in protecting air quality through the reduction of engine idling by vehicles operated as part of the vehicle fleet of (name of company or organization).

Definition
For the purpose of this policy a "fleet" is defined as all vehicles owned, rented, or leased by (name of company or organization) or operated for the purpose of conducting business on behalf of (name of company or organization).

Background
Motor vehicles are the largest source of a number of air pollutants in Vermont, including air toxics, the ozone precursors (volatile organic compounds and nitrogen oxides), carbon monoxide, and greenhouse gases. Air pollution impacts our health, economic growth and quality of life. Vehicle exhaust, including exhaust from idling vehicles, contributes significantly to air pollution.

Statement of Policy
It is the policy of (name of company or organization) that drivers of (name of company or organization) fleet vehicles turn off vehicle engines (not idle) when a vehicle will be stopped for more than 30 seconds, except when in traffic. This policy applies, but is not limited, to the following situations:

- when loading or unloading goods or personnel
- when stopped for road construction
- when waiting at a drive-through window
- when stopped and waiting for any reason (except in traffic, such as when stopped at a traffic light)

Exemptions
The policy of turning off vehicles when stopped does not apply for the period or periods during which idling is necessary under the following circumstances:

1. To provide for the safety of vehicle occupants, as in cases of extreme hot or cold conditions (e.g. to run the air conditioner or heater under extreme heat or cold)
2. To operate safety equipment such as windshield defrosters
3. To use lift equipment or other equipment necessary to accommodate individuals with one or more disabilities
4. To power work-related mechanical, hydraulic, or electrical equipment
5. When stopped in traffic, such as when waiting at a traffic light
6. When specific traffic, safety or emergency situations arise

With the exception of the fifth exemption above, if in the above exemption cases equipment can be run from the battery alone, drivers should refrain from idling unless there is a significant concern of draining the battery.

Implementation

This policy shall be effective immediately from the date of signature.

Dated the day of_____, 20__.

Signatures _____

Online Resources

- Be Idle Free – VT DEC's site for information and resources about motor vehicle idling
- Green Driving America – a non-profit organization raising awareness of unnecessary idling.
- Vermont Clean Cities and Communities – a non-profit organization promoting alternative fuels and energy independence and provides an Idlebox Toolkit for idle reduction projects.
- Argonne National Laboratory – a multidisciplinary science and engineering research center providing idle reduction tools, idling publications, and details about idle reduction research.
- EPA's SmartWay Program – resources for measuring, benchmarking, and improving freight transportation efficiency, including idling reduction strategies
- Factsheet – Idle Reduction for Personal Vehicles, a PDF (661 KB)

Limiting vehicle IDLING will:

- SAVE MONEY
- IMPROVE HEALTH
- REDUCE EMISSIONS
- CONSERVE ENERGY

AND IT'S THE LAW!

BeIdleFree.vermont.gov

EVERYONE benefits when you limit idling when parked.

- **SAVE MONEY**
  - -Idling gets zero MPG
  - -Idling causes needless engine wear
- **IMPROVE OUR HEALTH**
  - Idling exhaust emits harmful chemicals into the air we breathe
- **REDUCE EMISSIONS**
  - Carbon dioxide (CO_2) is a leading contributor of climate change
- ***IT'S THE LAW***
  - Vermont law restricts idling of all motor vehicles

FUEL SAVING TIPS:

- In general, limit warm-ups to 30 seconds (3-5 minutes for heavy-duty vehicles), even in cold weather; drive gently to continue warming up. Make sure defrosting is adequate before driving.
- 10 seconds (30 seconds for heavy-duty vehicles) of idling uses more fuel than shutting off and restarting.

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DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DEPARTMENT OF HEALTH
DEPARTMENT OF BUILDINGS AND GENERAL SERVICES
DEPARTMENT OF MOTOR VEHICLES

BeIdleFree.vermont.gov

Image Credit: Utah Clean Cities

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